FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2311-3, XT2311-4, XT2311DL
FCC ID	:	IHDT56AH4
STANDARD	:	47 CFR Part 2, 96
CLASSIFICATION	:	Citizens Band End User Devices (CBE)
EQUIPMENT TYPE	:	End User Equipment
TEST DATE(S)	:	Oct. 06, 2022 ~ Nov. 26, 2022

We, Sporton International Inc. (ShenZhen), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26 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. (ShenZhen), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ilac-MRA

a2la ACCREDITED Cert #5145.01

Sporton International Inc. (ShenZhen)

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China

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History of this test report

Report No.	Version	Description	Issued Date
FG292212O	01	Initial issue of report	Nov. 10, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
3.3	§96.41	Peak-to-Average Ratio	Not Required	Not applicable for End User Devices
3.4	§96.41	Maximum E.I.R.P	Pass	-
		Maximum Power Spectral Density	Not Required	Not applicable for End User Devices
3.5	§2.1049 §96.41	Occupied Bandwidth	Reporting only	-
3.6	§2.1051 §96.41	Conducted Band Edge Measurement Adjacent Channel Leakage Ratio	Pass	-
3.7	§2.1051 §96.41	Conducted Spurious Emission	Pass	
3.8	§2.1055	Frequency Stability for Temperature & Voltage	Pass	-
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	Under limit 10.48 dB at 14305.600 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 Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2311-3, XT2311-4, XT2311DL
FCC ID	IHDT56AH4
Tx Frequency	5G NR n48: 3550 MHz ~ 3700 MHz
Rx Frequency	5G NR n48: 3550 MHz ~ 3700 MHz
SCS	30kHz
Bandwidth	10MHz / 15MHz / 20MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
Antenna Gain	-2.4 dBi
Type of Modulation	DFT-s-OFDM (PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM) CP-OFDM (QPSK / 16QAM / 64QAM / 256QAM)
IMEI Code	Conducted: 358373300032603/358373300032546 Radiation: 358373300025839
HW Version	DVT2
SW Version	TTO33.44
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. 5G NR n48 supports SA mode only.

1.4 Specification of Accessory

Specification of Accessory				
AC Adapter 1	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-101
AC Adapter 2	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-101
AC Adapter 3	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-101
Battery 1	**Brand Name**	Motorola (Sunwoda)	**Model Name**	PD50
Battery 2	**Brand Name**	Motorola (SCUD)	**Model Name**	PD50
USB Cable 1	**Brand Name**	HX	**Model Name**	S928D43190
USB Cable 2	**Brand Name**	NAEE	**Model Name**	S928D43191

1.5 Maximum EIRP Power and Emission Designator

5G NR n48		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	**3555.00 ~ 3694.98**	0.1312	8M60G7D	0.0993	8M59W7D
15	**3557.52 ~3692.49**	0.1297	13M6G7D	0.1002	13M6W7D
20	**3560.01 ~3690.00**	0.1271	18M2G7D	0.0973	18M3W7D
40	**3570.00 ~ 3679.98**	0.1169	37M8G7D	0.0897	37M8W7D
50	**3575.01 ~ 3675.00**	0.1259	47M5G7D	0.0962	47M5W7D
60	**3580.02 ~ 3669.99**	0.1225	57M9G7D	0.0933	57M8W7D
80	**3590.01~ 3660.00**	0.1186	77M3G7D	0.0897	77M5W7D
90	**3595.02 ~ 3654.99**	0.1153	87M4G7D	0.0881	87M5W7D
100	**3600.00 ~ 3649.8**	0.1318	97M3G7D	0.1047	97M5W7D

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

1.6 Testing Site

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

Test Firm	Sporton International (Shenzhen) Inc.		
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 Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-SZ	CN1256	421272

1.7 Test Software

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

1.8 Applied Standards

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

- ANSI C63.26-2015
- 47 CFR Part 2, 96
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 940660 D01 Part 96 CBRS v03
- 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.

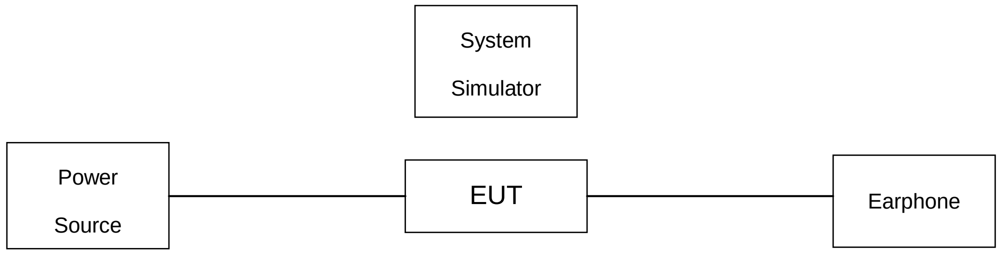
For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

Test Items	Band	Bandwidth (MHz)												Modulation					RB #		Test Channel		
		10	15	20	25	30	40	50	60	70	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M	H
Max. Output Power	n48	v	v	v	-	-	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v
26dB and 99% Bandwidth	n48	v	v	v	-	-	v	v	v	-	v	v	v	v	v	v	v	v		v		v	
Conducted Band Edge	n48	v			-	-		v		-			v	v	v				v	v	v	v	v
Peak-to-Average Ratio	n48	v			-	-		v		-			v	v	v				v	v	v	v	v
Conducted Spurious Emission	n48	v			-	-		v		-			v	v	v				v		v	v	v
E.I.R.P	n48	v	v	v	-	-	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v
Frequency Stability	n48			v	-	-				-					v					v		v	
Radiated Spurious Emission	n48	Worst Case																			v	v	v

Remark

1. The mark "**v** " means that this configuration is chosen for testing
2. The mark "-" means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.
4. All the radiated test cases were performed with Adapter 1 and USB Cable 1.
5. Frequency Stability : Normal Voltage = 3.89V ; Low Voltage =3.60V. ; High Voltage =4.48V

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

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

2.4 Measurement Results Explanation Example

For all conducted test items:

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

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5.88 dB and 10dB attenuator.

Example :

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

= 5.88 + 10 = 15.88 (dB)

2.5 Frequency List of Low/Middle/High Channels

5G NR n48 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	640000	641666	643332
	Frequency	3600	3624.99	3649.98
90	Channel	639668	641666	643666
	Frequency	3595.02	3624.99	3654.99
80	Channel	639334	641666	644000
	Frequency	3590.01	3624.99	3660
60	Channel	638668	641666	644666
	Frequency	3580.02	3624.99	3669.99
50	Channel	638334	641666	645000
	Frequency	3575.01	3624.99	3675
40	Channel	638000	641666	645332
	Frequency	3570	3624.99	3679.98
20	Channel	637334	641666	646000
	Frequency	3560.01	3624.99	3690
15	Channel	637168	641666	646166
	Frequency	3557.52	3624.99	3692.49
10	Channel	637000	641666	646332
	Frequency	3555.0	3624.99	3694.98

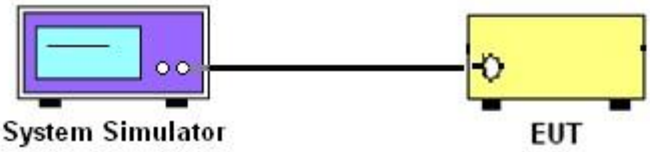
3 Conducted Test Items

3.1 Measuring Instruments

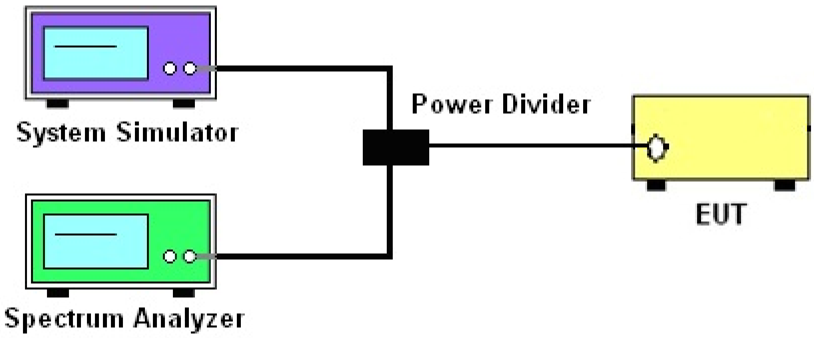
See list of measuring instruments of this test report.

3.1.1 Test Setup

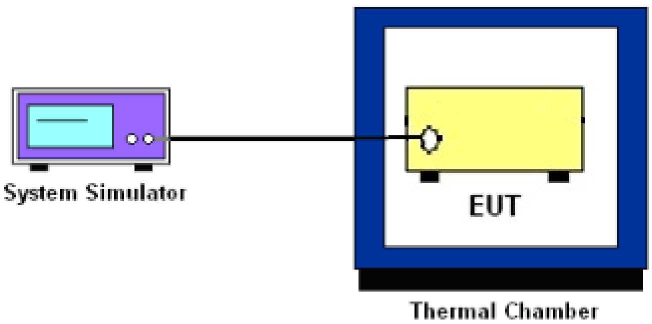
3.1.2 Conducted Output Power



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



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Description of the Conducted Output Power Measurement

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

3.2.2 Test Procedures

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

3.3 Peak-to-Average Ratio

3.3.1 Description of the PAR Measurement

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

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

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

3.4 EIRP and PSD

3.4.1 Description of the EIRP Measurement

EIRP and PSD limits for CBRS equipment as below table:

Device		Maximum EIRP (dBm/10 MHz)	Maximum PSD (dBm/MHz)
Applied	**End User Device**	23	n/a
	Category A CBSD	30	20
	Category B CBSD	47	37

Remark: The worst case EIRP shown in this section is found with LTE operating only using 1RB. As such, the EIRP/10MHz and full channel EIRP values will be identical since 1RB is fully contained within all available channel bandwidths for LTE Band 48 (i.e. 5, 10, 15, 20MHz)

3.4.2 Test Procedures for EIRP

1. Establishing a communications link with the call box (Base station) to measure the Maximum conducted power, the parameters were set to force the EUT transmitting at maximum output power level. Use the average power measurement function to measure total channel power of each channel bandwidth (per ANSI C63.26-2015 Section 5.2.1)

2. Determining ERP and/or EIRP from conducted RF output power measurements (Per ANSI C63.26-2015 Section 5.2.5.5)

   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

3.5 Occupied Bandwidth

3.5.1 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.

3.5.2 Test Procedures

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

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
3. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
4. Set the detection mode to peak, and the trace mode to max hold.
5. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
6. Determine the "-26 dB down amplitude" as equal to (Reference Value – X).
7. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "–X dB down amplitude" determined in step 6. If a marker is below this "-X dB down amplitude" value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.6 Conducted Band Edge

3.6.1 Description of Conducted Band Edge Measurement

Part 96.41 (e) (1) (i)

For CBSD the emission limits outside the fundamental are as follows:

Within 0 MHz to 10 MHz above and below the assigned channel ≤ −13 dBm/MHz

Greater than 10 MHz above and below the assigned channel ≤ −25 dBm/MHz

Part 96.41 (e) (1) (ii)

For End User Devices the emission limits outside the fundamental are as follows:

Within 0 MHz to B MHz above and below the assigned channel ≤ −13 dBm/MHz

Greater than B MHz above and below the assigned channel ≤ −25 dBm/MHz

where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device.

Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

Part 96.41 (e) (2)

For CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used
5. Offset has included the duty factor for LTE Band 48. Duty factor =10 log (1/x), where x is the measured duty cycle.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7 Conducted Spurious Emission

3.7.1 Description of Conducted Spurious Emission Measurement

96.41 (e)(2)

The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

3.7.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
6. Set spectrum analyzer with RMS detector.
7. Taking the record of maximum spurious emission.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. The limit line is −40dBm/MHz.

3.8 Frequency Stability

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency

3.8.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.8.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

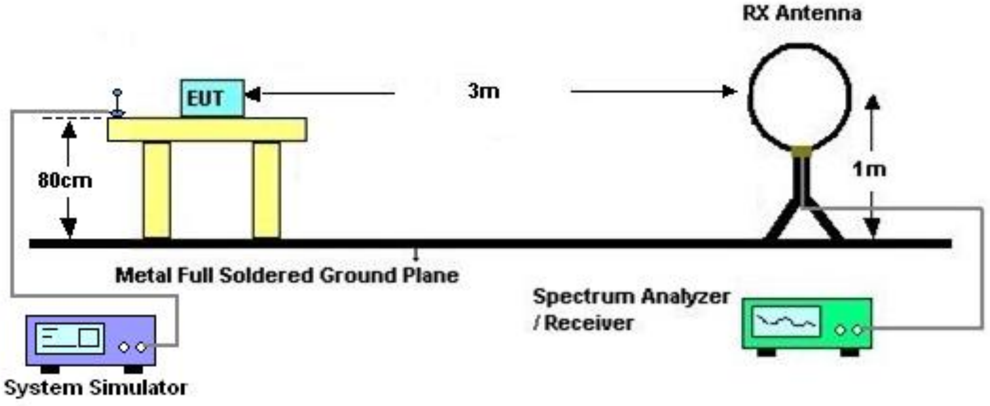
4 Radiated Test Items

4.1 Measuring Instruments

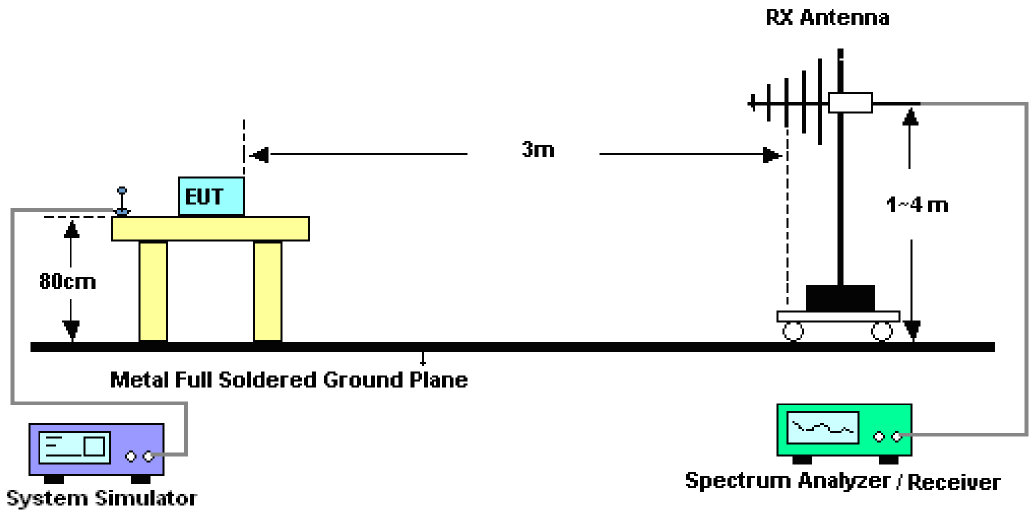
See list of measuring instruments of this test report.

4.2 Test Setup

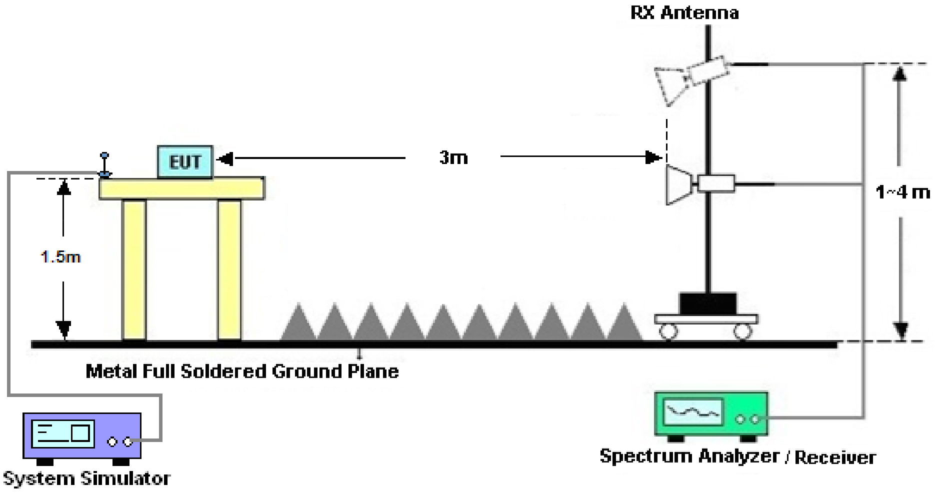
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

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

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least -40dBm / MHz.

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

4.4.2 Test Procedures

1. 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.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
5. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
   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
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
   The limit line is −40dBm/MHz

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	Oct. 06, 2022~ Oct. 26, 2022	Apr. 08, 2023	Conducted (TH01-SZ)
DC Power Supply	TTI	PL330P	290070	Max 32V，3A	Oct. 25, 2021	Oct. 06, 2022~ Oct. 26, 2022	Oct. 24, 2022	Conducted (TH01-SZ)
DC Power Supply	TTI	PL330P	290070	Max 32V，3A	Oct. 24, 2022		Oct. 23, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04265	60.06.020.0077	0.4GHz~26.5GHz	Dec. 25, 2021	Oct. 06, 2022~ Oct. 26, 2022	Dec. 24, 2022	Conducted (TH01-SZ)
EMI Test Receiver	R&S	ESR7	101404	9kHz~7GHz	Oct. 22, 2021	Oct. 18, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 07, 2022	Oct. 18, 2022	Jul. 06, 2023	Radiation (03CH04-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 28, 2022	Oct. 18, 2022	Jun. 27, 2024	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	Oct. 22, 2021	Oct. 18, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1474	1GHz~18GHz	Jul. 07, 2022	Oct. 18, 2022	Jul. 06, 2023	Radiation (03CH04-SZ)
Horn Antenna	SCHWARZBECK	BBHA9170	9170#679	15GHz~40GHz	Jul. 07, 2022	Oct. 18, 2022	Jul. 06, 2023	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 22, 2021	Oct. 18, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 22, 2021	Oct. 18, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Oct. 22, 2021	Oct. 18, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
Amplifier	Agilent Technologies	83017A	MY53270156	500MHz~26.5GHz	Oct. 22, 2021	Oct. 18, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
AC Power Source	Chroma	61601	N/A	N/A	NCR	Oct. 18, 2022	NCR	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Oct. 18, 2022	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Oct. 18, 2022	NCR	Radiation (03CH04-SZ)

NCR: No Calibration Required

6 Uncertainty of Evaluation

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	±0.46 dB
Conducted Emissions	±0.48 dB
Occupied Channel Bandwidth	±0.001 %

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.1 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.9 dB

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

Appendix A. Test Results of Conducted Test

Test Engineer :	Jung Kuo	**Temperature :**	22~23℃
		Relative Humidity :	40~42%

Software Version: 22.09.0601

FR1 N48

Transmitter Conducted Output Power and EIRP, $(G_T - L_C)$=-2.4dB

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@1	23.43	21.03	0.1268
48	30	10	637000	3555.0	DFT-s-OFDM 16 QAM	1@1	22.28	19.88	0.0973
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@1	23.35	20.95	0.1245
48	30	10	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	22.19	19.79	0.0953
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@1	23.58	21.18	0.1312
48	30	10	646332	3694.98	DFT-s-OFDM 16 QAM	1@1	22.37	19.97	0.0993
48	30	15	637168	3557.52	DFT-s-OFDM QPSK	1@1	23.39	20.99	0.1256
48	30	15	637168	3557.52	DFT-s-OFDM 16 QAM	1@1	22.23	19.83	0.0962
48	30	15	641666	3624.99	DFT-s-OFDM QPSK	1@1	23.3	20.9	0.1230
48	30	15	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	22.11	19.71	0.0935
48	30	15	646166	3692.49	DFT-s-OFDM QPSK	1@1	23.53	21.13	0.1297
48	30	15	646166	3692.49	DFT-s-OFDM 16 QAM	1@1	22.41	20.01	0.1002
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@1	23.33	20.93	0.1239
48	30	20	637334	3560.01	DFT-s-OFDM 16 QAM	1@1	22.18	19.78	0.0951
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@1	23.23	20.83	0.1211
48	30	20	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	22.07	19.67	0.0927
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@1	23.44	21.04	0.1271
48	30	20	646000	3690.0	DFT-s-OFDM 16 QAM	1@1	22.28	19.88	0.0973
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@1	23.06	20.66	0.1164
48	30	40	638000	3570.0	DFT-s-OFDM 16 QAM	1@1	21.87	19.47	0.0885
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@1	22.96	20.56	0.1138
48	30	40	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	21.78	19.38	0.0867

48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@1	23.08	20.68	0.1169
48	30	40	645332	3679.98	DFT-s-OFDM 16 QAM	1@1	21.93	19.53	0.0897
48	30	50	638334	3575.01	DFT-s-OFDM QPSK	1@1	23.38	20.98	0.1253
48	30	50	638334	3575.01	DFT-s-OFDM 16 QAM	1@1	22.21	19.81	0.0957
48	30	50	641666	3624.99	DFT-s-OFDM QPSK	1@1	23.24	20.84	0.1213
48	30	50	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	22.06	19.66	0.0925
48	30	50	645000	3675.0	DFT-s-OFDM QPSK	1@1	23.4	21	0.1259
48	30	50	645000	3675.0	DFT-s-OFDM 16 QAM	1@1	22.23	19.83	0.0962
48	30	60	638668	3580.02	DFT-s-OFDM QPSK	1@1	23.28	20.88	0.1225
48	30	60	638668	3580.02	DFT-s-OFDM 16 QAM	1@1	22.1	19.7	0.0933
48	30	60	641666	3624.99	DFT-s-OFDM QPSK	1@1	23.23	20.83	0.1211
48	30	60	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	22.01	19.61	0.0914
48	30	60	644666	3669.99	DFT-s-OFDM QPSK	1@1	23.12	20.72	0.1180
48	30	60	644666	3669.99	DFT-s-OFDM 16 QAM	1@1	21.99	19.59	0.0910
48	30	80	639334	3590.01	DFT-s-OFDM QPSK	1@1	23.14	20.74	0.1186
48	30	80	639334	3590.01	DFT-s-OFDM 16 QAM	1@1	21.93	19.53	0.0897
48	30	80	641666	3624.99	DFT-s-OFDM QPSK	1@1	23.09	20.69	0.1172
48	30	80	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	21.88	19.48	0.0887
48	30	80	644000	3660.0	DFT-s-OFDM QPSK	1@1	23.08	20.68	0.1169
48	30	80	644000	3660.0	DFT-s-OFDM 16 QAM	1@1	21.9	19.5	0.0891
48	30	90	639668	3595.02	DFT-s-OFDM QPSK	1@1	23.02	20.62	0.1153
48	30	90	639668	3595.02	DFT-s-OFDM 16 QAM	1@1	21.85	19.45	0.0881
48	30	90	641666	3624.99	DFT-s-OFDM QPSK	1@1	22.93	20.53	0.1130
48	30	90	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	21.74	19.34	0.0859
48	30	90	643666	3654.99	DFT-s-OFDM QPSK	1@1	22.88	20.48	0.1117
48	30	90	643666	3654.99	DFT-s-OFDM 16 QAM	1@1	21.75	19.35	0.0861
48	30	100	640000	3600.0	DFT-s-OFDM PI/2 BPSK	135@67	23.41	21.01	0.1262

48	30	100	640000	3600.0	DFT-s-OFDM PI/2 BPSK	1@1	23.01	20.61	0.1151
48	30	100	640000	3600.0	DFT-s-OFDM PI/2 BPSK	1@271	22.61	20.21	0.1050
48	30	100	640000	3600.0	DFT-s-OFDM QPSK	135@67	23.42	21.02	0.1265
48	30	100	640000	3600.0	DFT-s-OFDM QPSK	1@1	22.94	20.54	0.1132
48	30	100	640000	3600.0	DFT-s-OFDM QPSK	1@271	22.63	20.23	0.1054
48	30	100	640000	3600.0	DFT-s-OFDM 16 QAM	135@67	22.44	20.04	0.1009
48	30	100	640000	3600.0	DFT-s-OFDM 16 QAM	1@1	21.79	19.39	0.0869
48	30	100	640000	3600.0	DFT-s-OFDM 16 QAM	1@271	21.42	19.02	0.0798
48	30	100	640000	3600.0	DFT-s-OFDM 64 QAM	135@67	20.92	18.52	0.0711
48	30	100	640000	3600.0	DFT-s-OFDM 64 QAM	1@1	20.5	18.1	0.0646
48	30	100	640000	3600.0	DFT-s-OFDM 64 QAM	1@271	20.08	17.68	0.0586
48	30	100	640000	3600.0	DFT-s-OFDM 256 QAM	135@67	18.99	16.59	0.0456
48	30	100	640000	3600.0	DFT-s-OFDM 256 QAM	1@1	18.59	16.19	0.0416
48	30	100	640000	3600.0	DFT-s-OFDM 256 QAM	1@271	18.21	15.81	0.0381
48	30	100	640000	3600.0	CP-OFDM QPSK	137@68	21.91	19.51	0.0893
48	30	100	640000	3600.0	CP-OFDM QPSK	1@1	21.42	19.02	0.0798
48	30	100	640000	3600.0	CP-OFDM QPSK	1@271	21.12	18.72	0.0745
48	30	100	641666	3624.99	DFT-s-OFDM PI/2 BPSK	135@67	23.44	21.04	0.1271
48	30	100	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@1	22.83	20.43	0.1104
48	30	100	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@271	22.61	20.21	0.1050
48	30	100	641666	3624.99	DFT-s-OFDM QPSK	135@67	23.48	21.08	0.1282
48	30	100	641666	3624.99	DFT-s-OFDM QPSK	1@1	22.81	20.41	0.1099
48	30	100	641666	3624.99	DFT-s-OFDM QPSK	1@271	22.68	20.28	0.1067
48	30	100	641666	3624.99	DFT-s-OFDM 16 QAM	135@67	22.47	20.07	0.1016
48	30	100	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	21.65	19.25	0.0841
48	30	100	641666	3624.99	DFT-s-OFDM 16 QAM	1@271	21.48	19.08	0.0809
48	30	100	641666	3624.99	DFT-s-OFDM 64 QAM	135@67	20.94	18.54	0.0714

48	30	100	641666	3624.99	DFT-s-OFDM 64 QAM	1@1	20.34	17.94	0.0622
48	30	100	641666	3624.99	DFT-s-OFDM 64 QAM	1@271	20.22	17.82	0.0605
48	30	100	641666	3624.99	DFT-s-OFDM 256 QAM	135@67	19.04	16.64	0.0461
48	30	100	641666	3624.99	DFT-s-OFDM 256 QAM	1@1	18.45	16.05	0.0403
48	30	100	641666	3624.99	DFT-s-OFDM 256 QAM	1@271	18.28	15.88	0.0387
48	30	100	641666	3624.99	CP-OFDM QPSK	137@68	21.91	19.51	0.0893
48	30	100	641666	3624.99	CP-OFDM QPSK	1@1	21.29	18.89	0.0774
48	30	100	641666	3624.99	CP-OFDM QPSK	1@271	21.13	18.73	0.0746
48	30	100	643332	3649.98	DFT-s-OFDM PI/2 BPSK	135@67	23.59	21.19	0.1315
48	30	100	643332	3649.98	DFT-s-OFDM PI/2 BPSK	1@1	22.88	20.48	0.1117
48	30	100	643332	3649.98	DFT-s-OFDM PI/2 BPSK	1@271	22.74	20.34	0.1081
48	30	100	643332	3649.98	DFT-s-OFDM QPSK	135@67	23.6	21.2	0.1318
48	30	100	643332	3649.98	DFT-s-OFDM QPSK	1@1	22.86	20.46	0.1112
48	30	100	643332	3649.98	DFT-s-OFDM QPSK	1@271	22.82	20.42	0.1102
48	30	100	643332	3649.98	DFT-s-OFDM 16 QAM	135@67	22.6	20.2	0.1047
48	30	100	643332	3649.98	DFT-s-OFDM 16 QAM	1@1	21.73	19.33	0.0857
48	30	100	643332	3649.98	DFT-s-OFDM 16 QAM	1@271	21.64	19.24	0.0839
48	30	100	643332	3649.98	DFT-s-OFDM 64 QAM	135@67	21.06	18.66	0.0735
48	30	100	643332	3649.98	DFT-s-OFDM 64 QAM	1@1	20.14	17.74	0.0594
48	30	100	643332	3649.98	DFT-s-OFDM 64 QAM	1@271	20.12	17.72	0.0592
48	30	100	643332	3649.98	DFT-s-OFDM 256 QAM	135@67	19.18	16.78	0.0476
48	30	100	643332	3649.98	DFT-s-OFDM 256 QAM	1@1	18.45	16.05	0.0403
48	30	100	643332	3649.98	DFT-s-OFDM 256 QAM	1@271	18.33	15.93	0.0392
48	30	100	643332	3649.98	CP-OFDM QPSK	137@68	22.09	19.69	0.0931
48	30	100	643332	3649.98	CP-OFDM QPSK	1@1	21.38	18.98	0.0791
48	30	100	643332	3649.98	CP-OFDM QPSK	1@271	21.41	19.01	0.0796

Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0068	**PASS**	NV
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0045	**PASS**	LV
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0028	**PASS**	HV
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0066	**PASS**	-30℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0021	**PASS**	-20℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0039	**PASS**	-10℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0025	**PASS**	0℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0037	**PASS**	10℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0068	**PASS**	20℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0043	**PASS**	30℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0048	**PASS**	40℃
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.0036	**PASS**	50℃

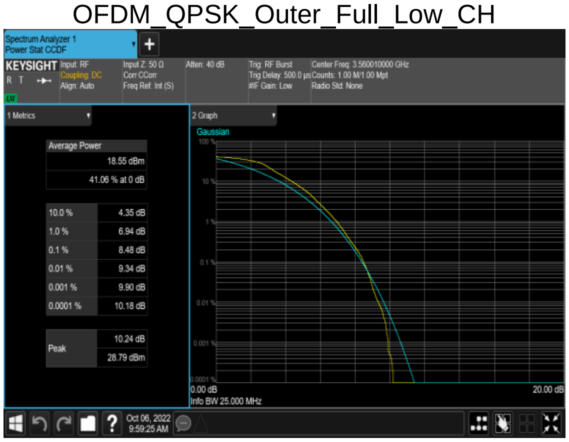
Peak to Average Radio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	50@0	7.2	13	**PASS**
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	1@0	7.16	13	**PASS**
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	50@0	8.48	13	**PASS**
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@0	10.29	13	**PASS**
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	50@0	7.24	13	**PASS**
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@0	7.83	13	**PASS**
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	8.43	13	**PASS**
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@0	9.11	13	**PASS**
48	30	20	646000	3690.0	DFT-s-OFDM PI/2 BPSK	50@0	7.18	13	**PASS**
48	30	20	646000	3690.0	DFT-s-OFDM PI/2 BPSK	1@0	8.12	13	**PASS**
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	50@0	8.51	13	**PASS**
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@0	8.43	13	**PASS**

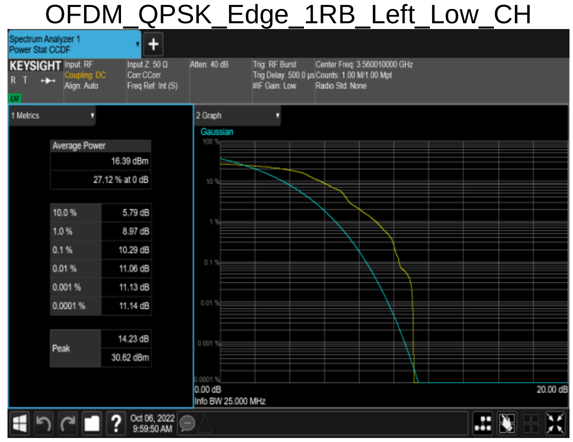
N48(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Low_CH

N48(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Low_CH

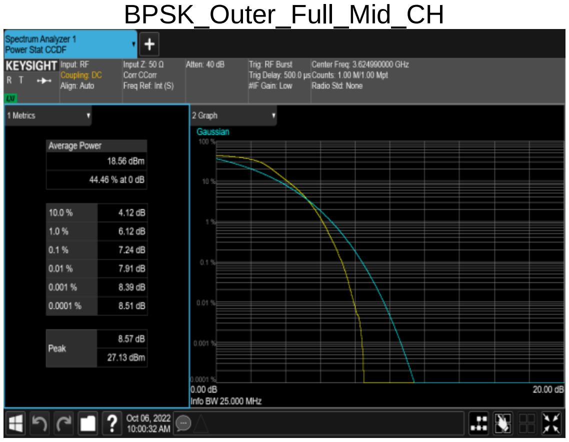
N48(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



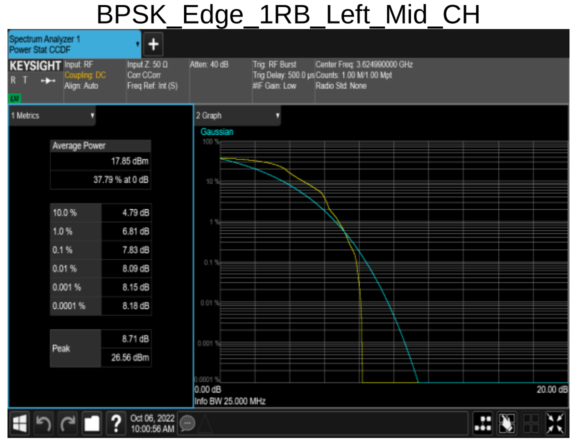
N48(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N48(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



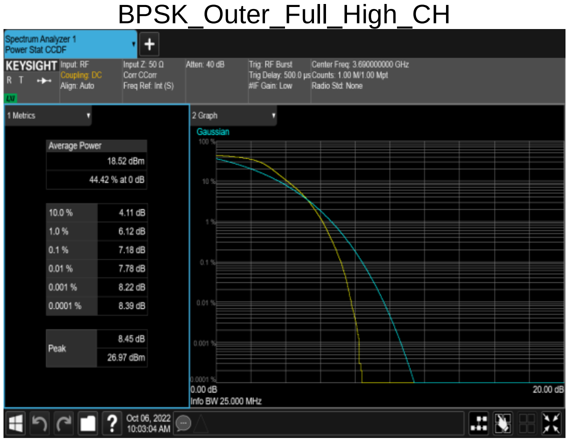
N48(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



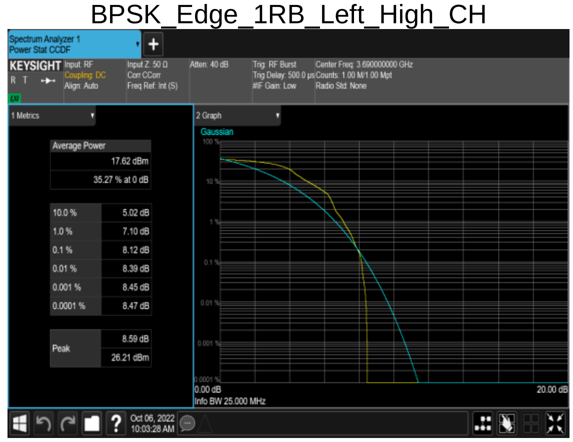
N48(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

N48(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

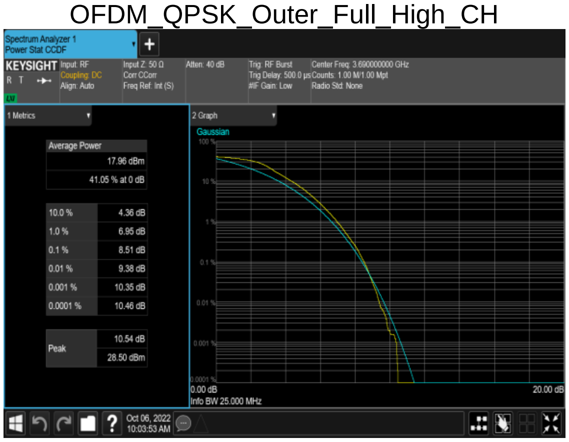
N48(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_High_CH



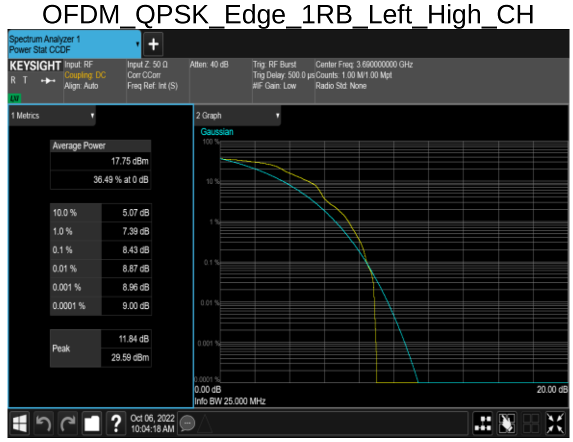
N48(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_High_CH



N48(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



N48(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



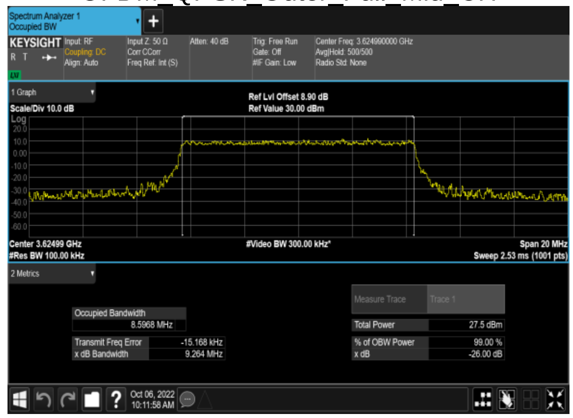
Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB OBW (MHz)
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	24@0	8.6004	9.167
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	24@0	8.5968	9.264
48	30	10	641666	3624.99	CP-OFDM QPSK	24@0	8.57	9.343
48	30	10	641666	3624.99	CP-OFDM 16 QAM	24@0	8.5914	9.343
48	30	10	641666	3624.99	CP-OFDM 64 QAM	24@0	8.5697	11.18
48	30	10	641666	3624.99	CP-OFDM 256 QAM	24@0	8.5733	9.272
48	30	15	641666	3624.99	DFT-s-OFDM PI/2 BPSK	36@0	12.849	13.86
48	30	15	641666	3624.99	DFT-s-OFDM QPSK	36@0	12.853	13.88
48	30	15	641666	3624.99	CP-OFDM QPSK	38@0	13.554	14.47
48	30	15	641666	3624.99	CP-OFDM 16 QAM	38@0	13.574	14.53
48	30	15	641666	3624.99	CP-OFDM 64 QAM	38@0	13.567	14.41
48	30	15	641666	3624.99	CP-OFDM 256 QAM	38@0	13.592	14.68
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	50@0	17.82	18.93
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	17.813	18.91
48	30	20	641666	3624.99	CP-OFDM QPSK	51@0	18.19	19.38
48	30	20	641666	3624.99	CP-OFDM 16 QAM	51@0	18.187	19.22
48	30	20	641666	3624.99	CP-OFDM 64 QAM	51@0	18.254	21.25
48	30	20	641666	3624.99	CP-OFDM 256 QAM	51@0	18.181	19.28
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	100@0	35.797	37.2
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	100@0	35.758	37.45
48	30	40	641666	3624.99	CP-OFDM QPSK	106@0	37.833	39.42
48	30	40	641666	3624.99	CP-OFDM 16 QAM	106@0	37.788	39.44
48	30	40	641666	3624.99	CP-OFDM 64 QAM	106@0	37.834	40.66
48	30	40	641666	3624.99	CP-OFDM 256 QAM	106@0	37.832	39.62
48	30	50	641666	3624.99	DFT-s-OFDM PI/2 BPSK	128@0	45.7	47.96
48	30	50	641666	3624.99	DFT-s-OFDM QPSK	128@0	45.746	48.04
48	30	50	641666	3624.99	CP-OFDM QPSK	133@0	47.49	49.52

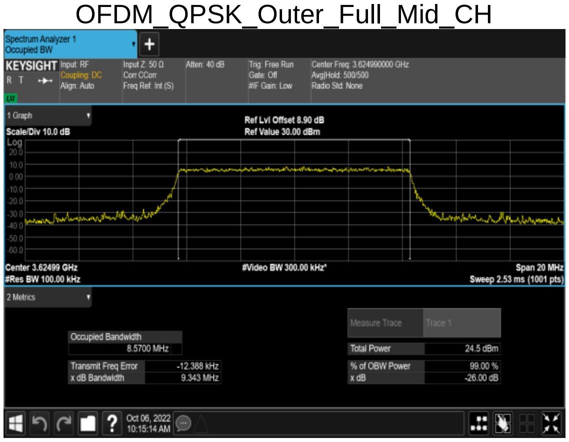
48	30	50	641666	3624.99	CP-OFDM 16 QAM	133@0	47.483	49.47
48	30	50	641666	3624.99	CP-OFDM 64 QAM	133@0	47.5	50.93
48	30	50	641666	3624.99	CP-OFDM 256 QAM	133@0	47.436	49.38
48	30	60	641666	3624.99	DFT-s-OFDM PI/2 BPSK	162@0	57.891	59.76
48	30	60	641666	3624.99	DFT-s-OFDM QPSK	162@0	57.874	59.94
48	30	60	641666	3624.99	CP-OFDM QPSK	162@0	57.77	59.84
48	30	60	641666	3624.99	CP-OFDM 16 QAM	162@0	57.804	59.98
48	30	60	641666	3624.99	CP-OFDM 64 QAM	162@0	57.801	59.85
48	30	60	641666	3624.99	CP-OFDM 256 QAM	162@0	57.75	59.97
48	30	80	641666	3624.99	DFT-s-OFDM PI/2 BPSK	216@0	77.218	79.65
48	30	80	641666	3624.99	DFT-s-OFDM QPSK	216@0	77.151	79.59
48	30	80	641666	3624.99	CP-OFDM QPSK	217@0	77.349	80.89
48	30	80	641666	3624.99	CP-OFDM 16 QAM	217@0	77.35	83.64
48	30	80	641666	3624.99	CP-OFDM 64 QAM	217@0	77.441	80.0
48	30	80	641666	3624.99	CP-OFDM 256 QAM	217@0	77.524	80.4
48	30	90	641666	3624.99	DFT-s-OFDM PI/2 BPSK	240@0	85.595	88.73
48	30	90	641666	3624.99	DFT-s-OFDM QPSK	240@0	85.677	88.63
48	30	90	641666	3624.99	CP-OFDM QPSK	245@0	87.409	90.26
48	30	90	641666	3624.99	CP-OFDM 16 QAM	245@0	87.479	90.3
48	30	90	641666	3624.99	CP-OFDM 64 QAM	245@0	87.38	90.29
48	30	90	641666	3624.99	CP-OFDM 256 QAM	245@0	87.479	90.36
48	30	100	641666	3624.99	DFT-s-OFDM PI/2 BPSK	270@0	96.266	99.45
48	30	100	641666	3624.99	DFT-s-OFDM QPSK	270@0	96.289	99.55
48	30	100	641666	3624.99	CP-OFDM QPSK	273@0	97.305	100.5
48	30	100	641666	3624.99	CP-OFDM 16 QAM	273@0	97.23	100.5
48	30	100	641666	3624.99	CP-OFDM 64 QAM	273@0	97.319	100.4
48	30	100	641666	3624.99	CP-OFDM 256 QAM	273@0	97.529	100.7

N48(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

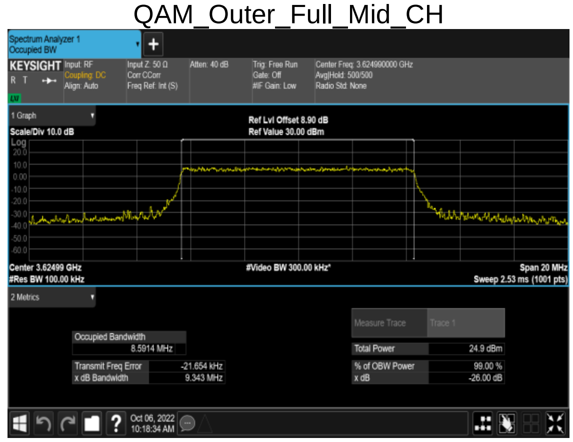
N48(10M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



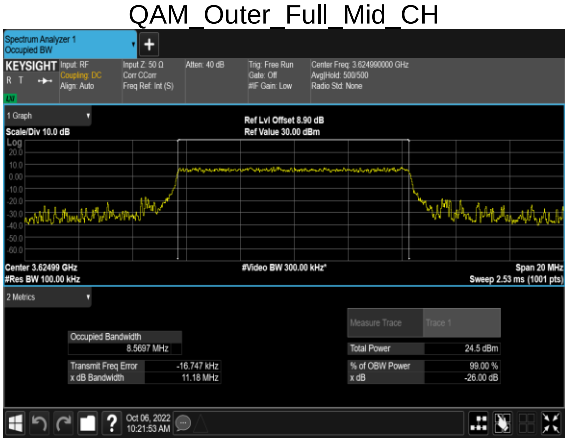
N48(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



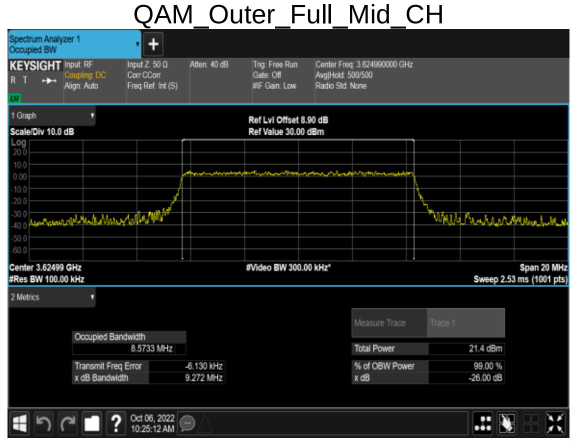
N48(10M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N48(10M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



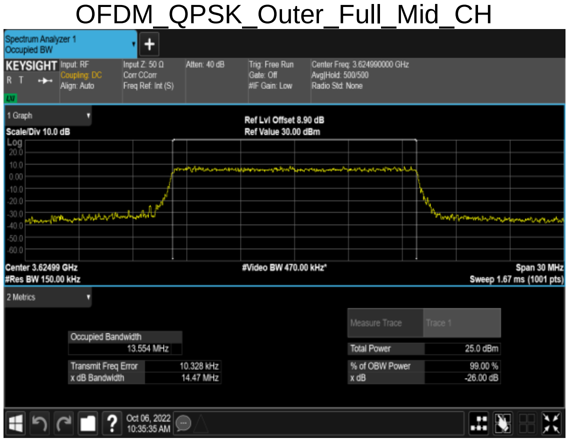
N48(10M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



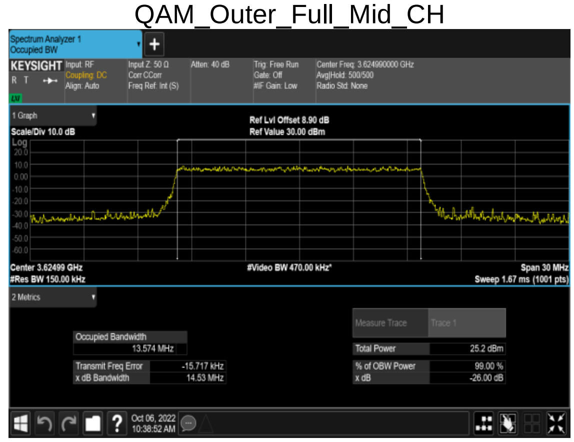
N48(15M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

N48(15M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

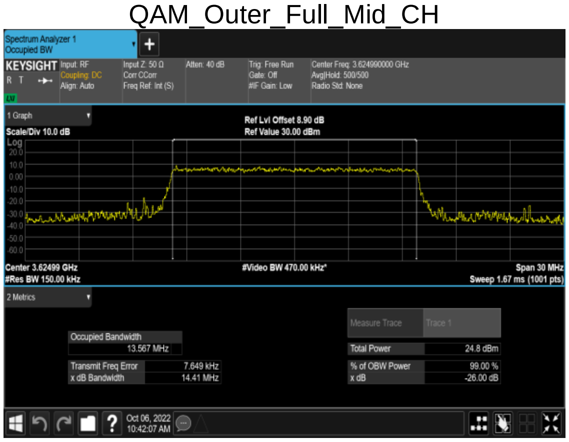
N48(15M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



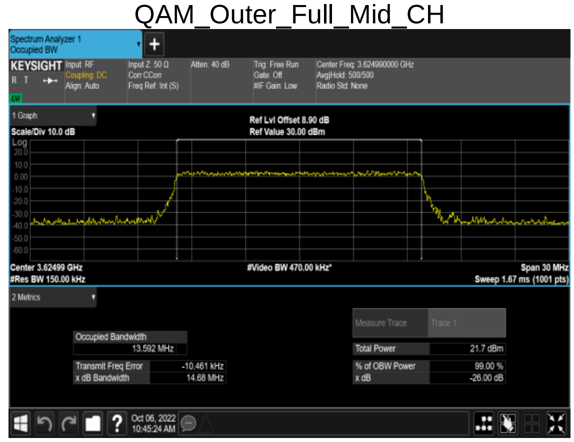
N48(15M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



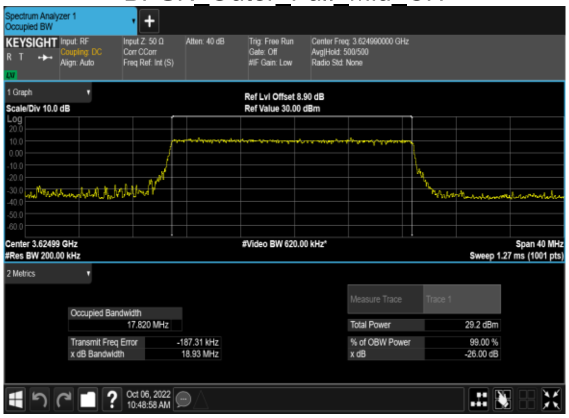
N48(15M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N48(15M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

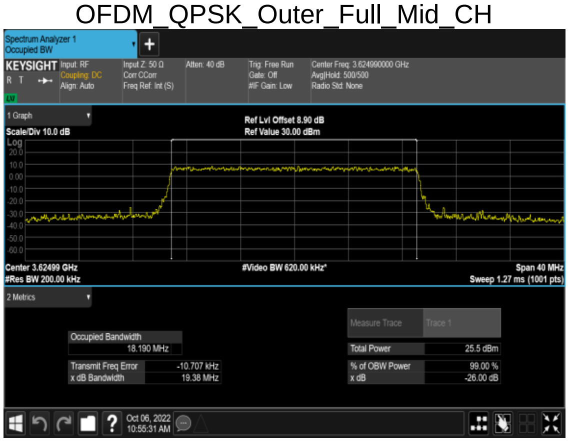


N48(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

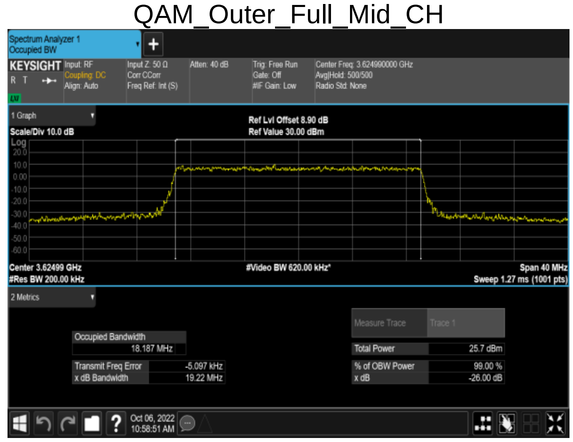


N48(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

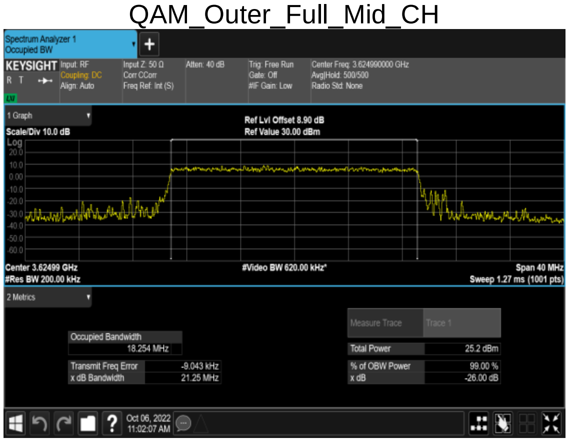
N48(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



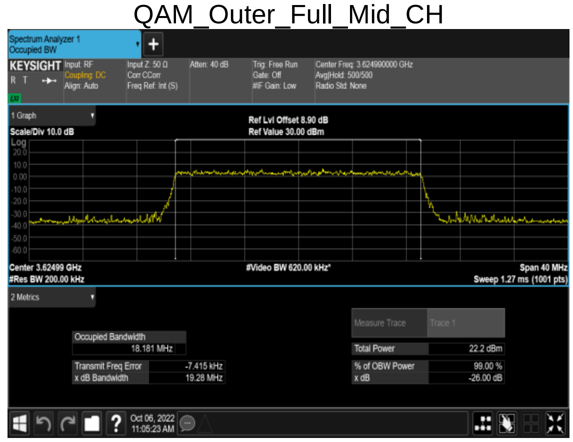
N48(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



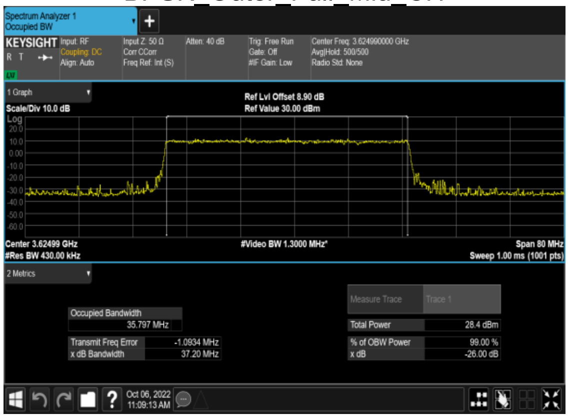
N48(20M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



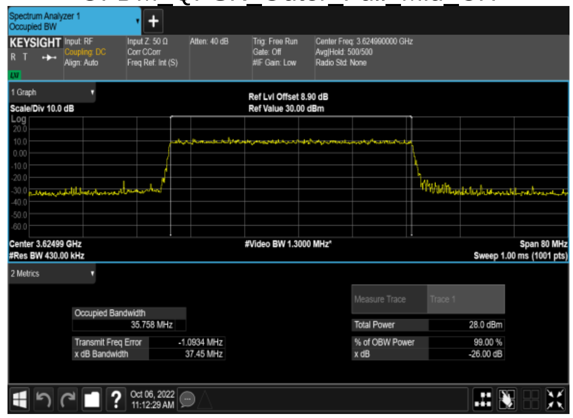
N48(20M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



N48(40M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



N48(40M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



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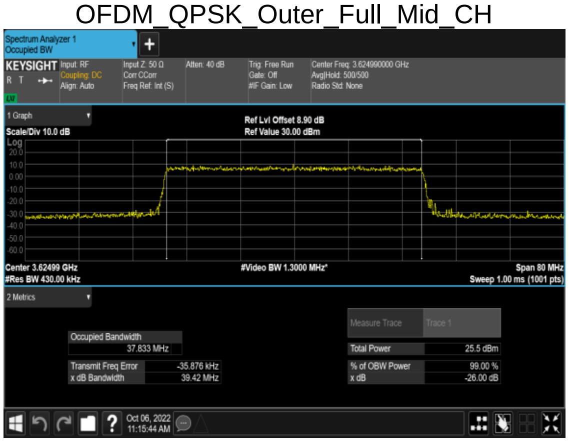
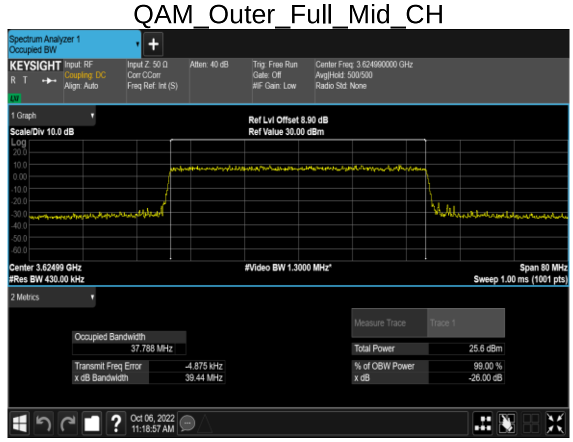
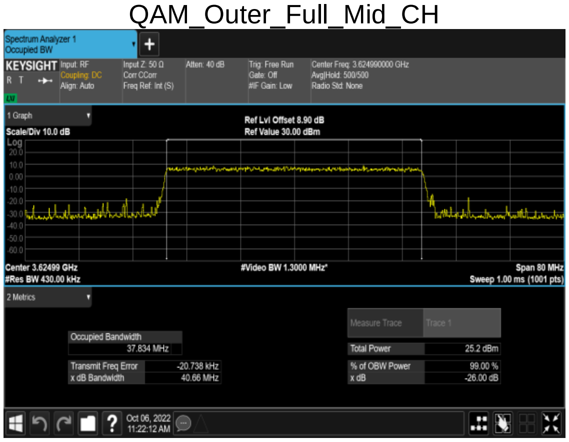


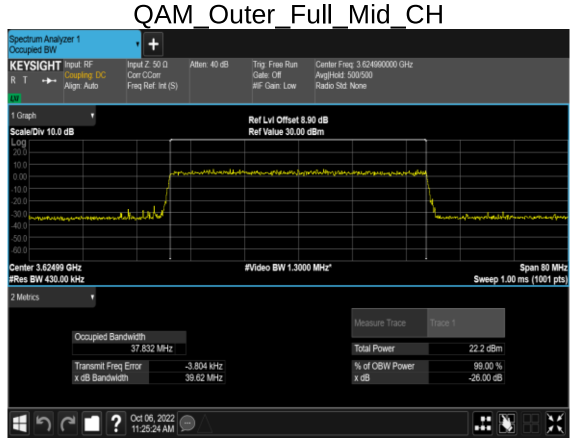
N48(40M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



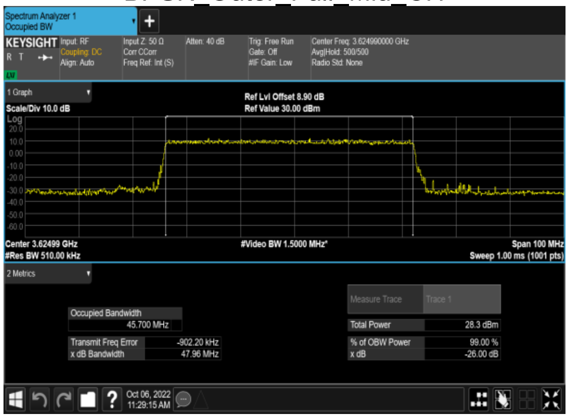
N48(40M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N48(40M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



N48(50M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



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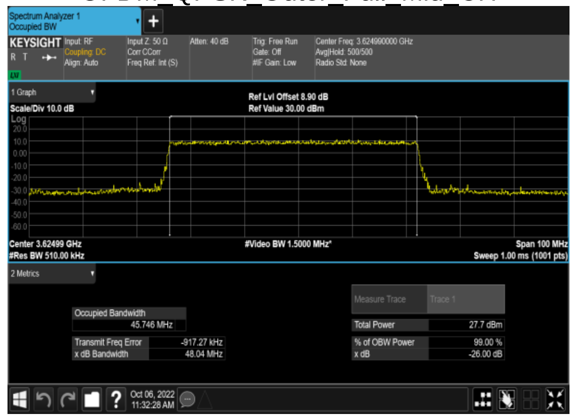
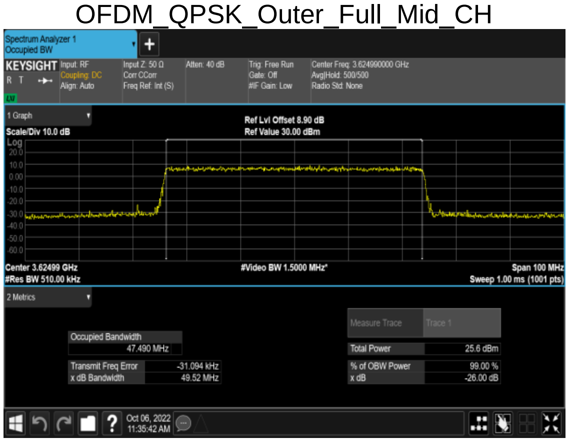
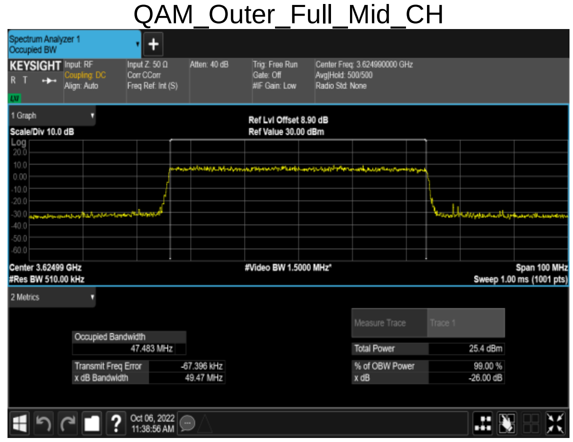


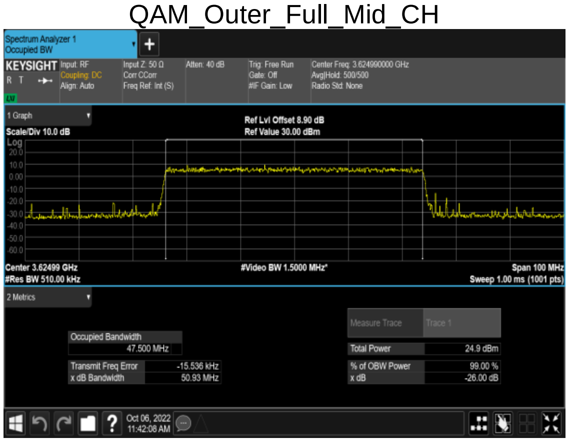
N48(50M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



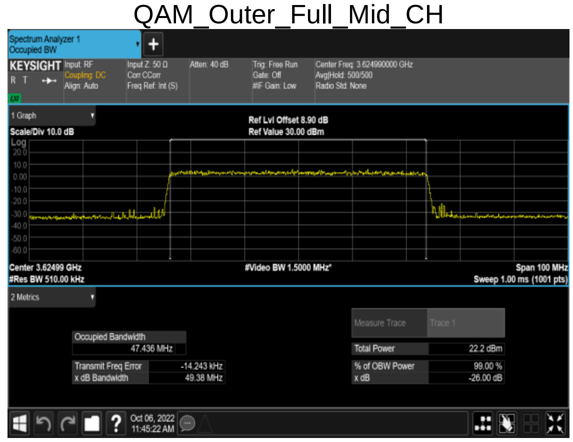
N48(50M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



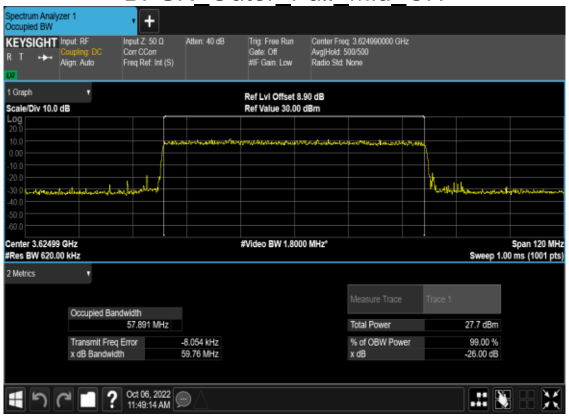
N48(50M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



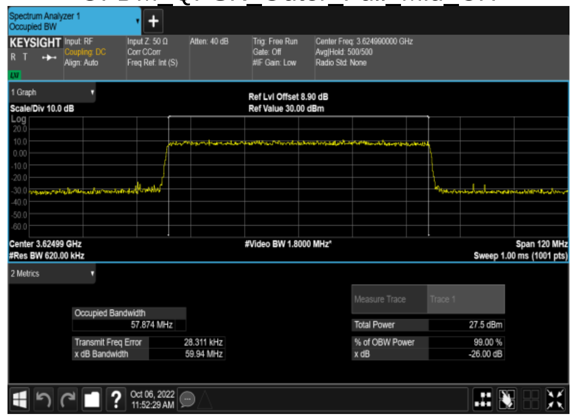
N48(50M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



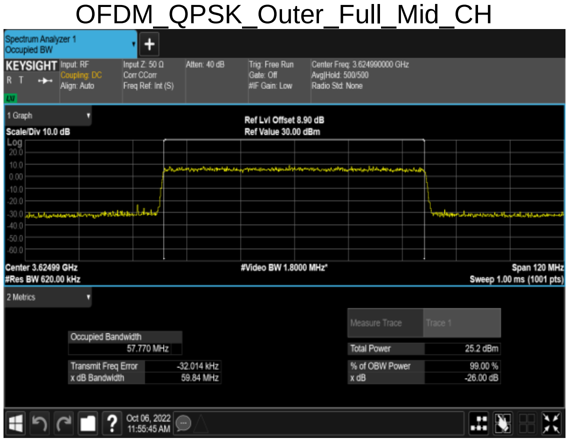
N48(60M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



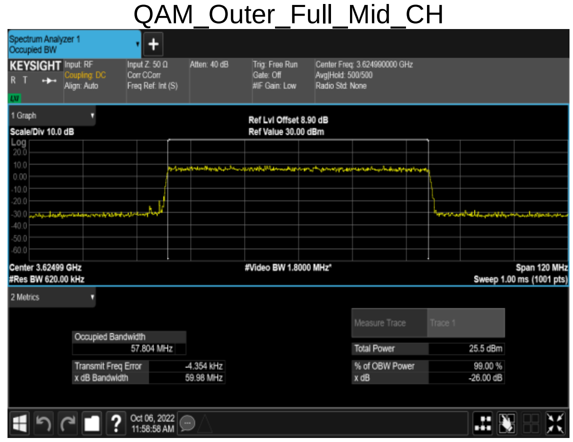
N48(60M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



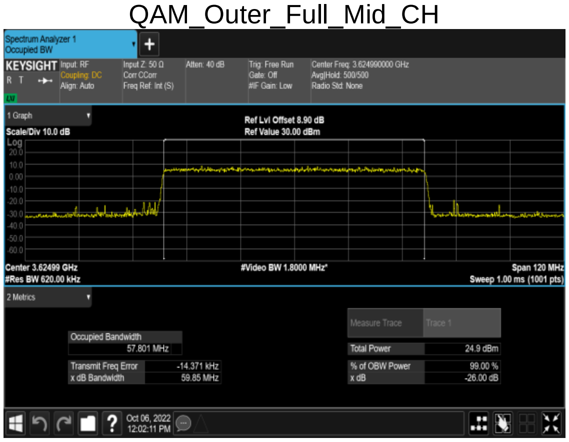
N48(60M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



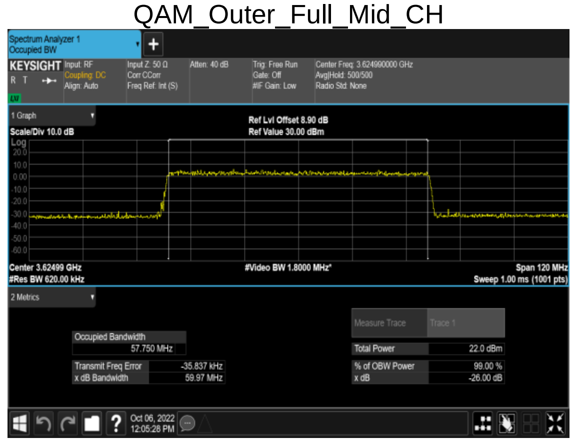
N48(60M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



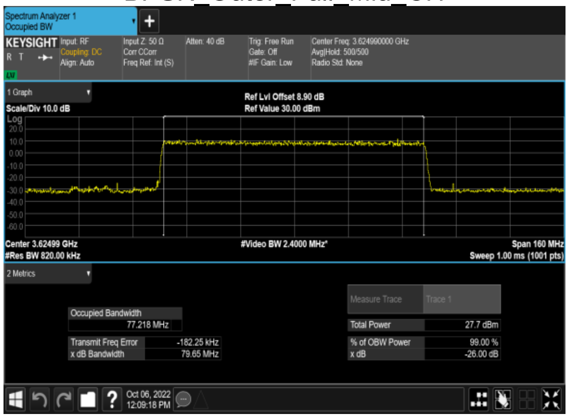
N48(60M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



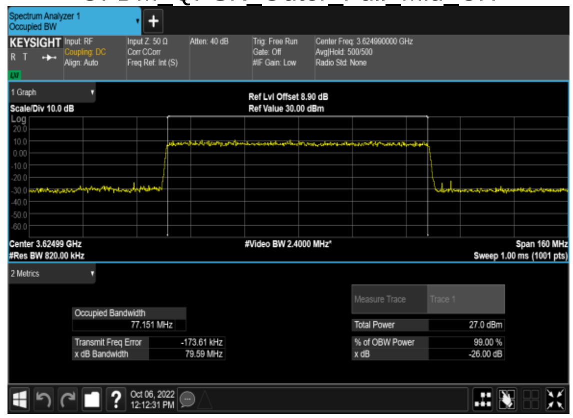
N48(60M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



N48(80M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



N48(80M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



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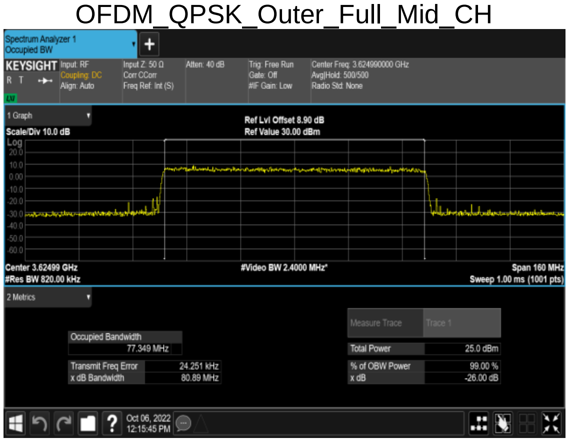
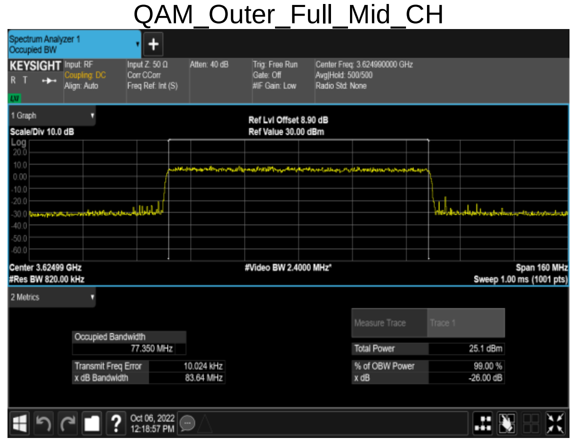
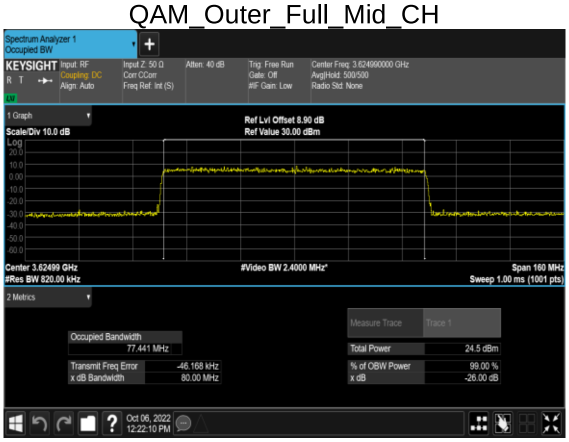


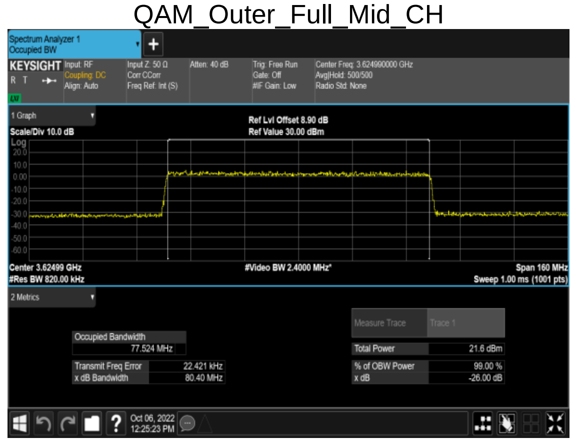
N48(80M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N48(80M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N48(80M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



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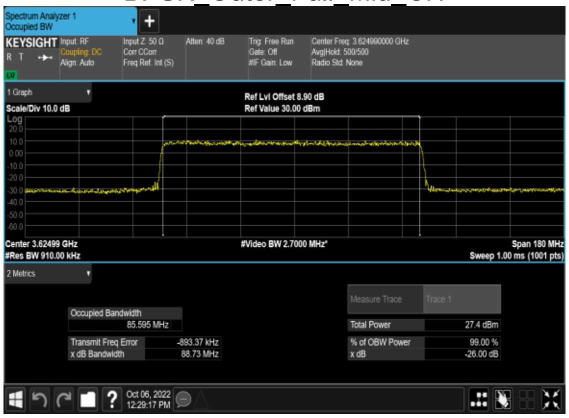
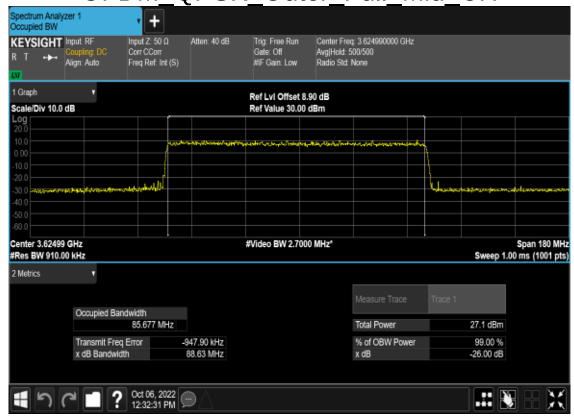


N48(90M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



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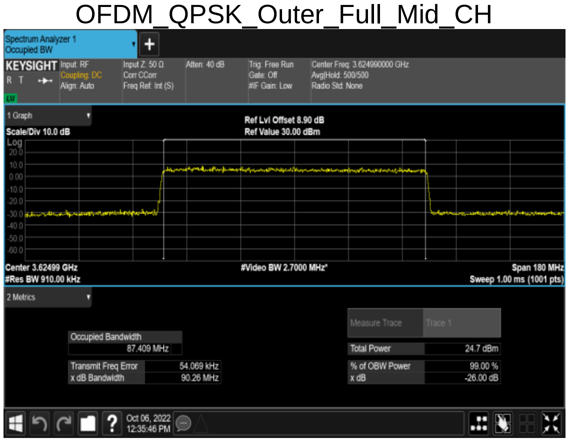
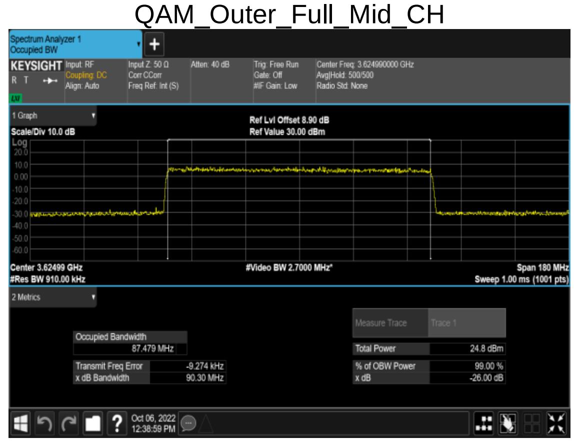
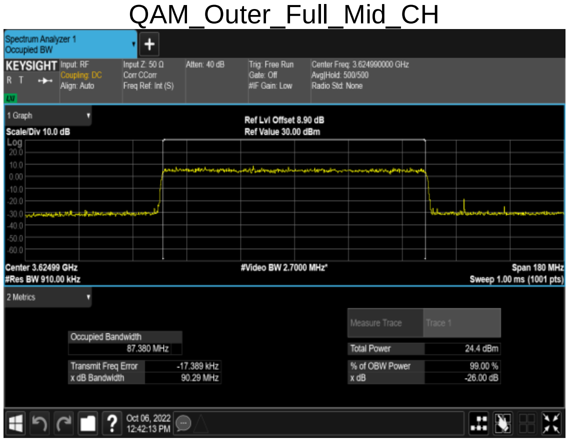


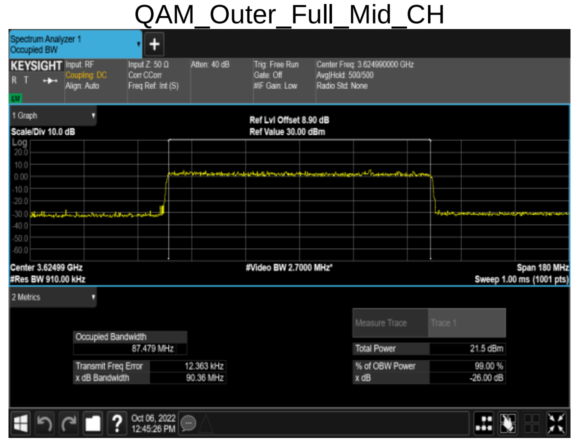
N48(90M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



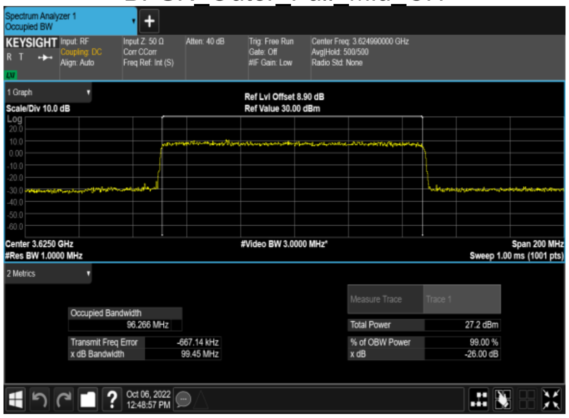
N48(90M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



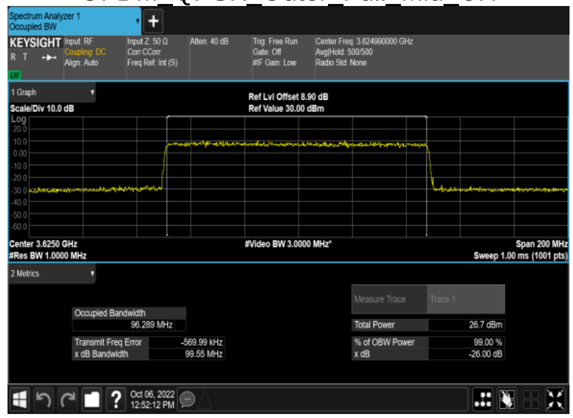
N48(90M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



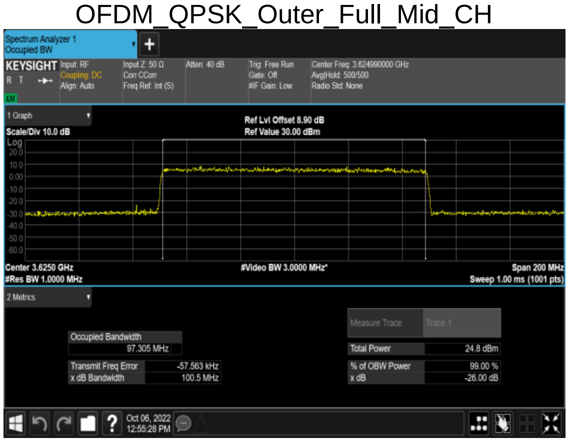
N48(100M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



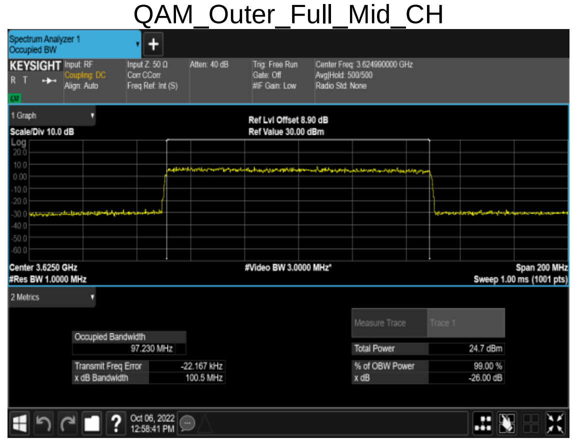
N48(100M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



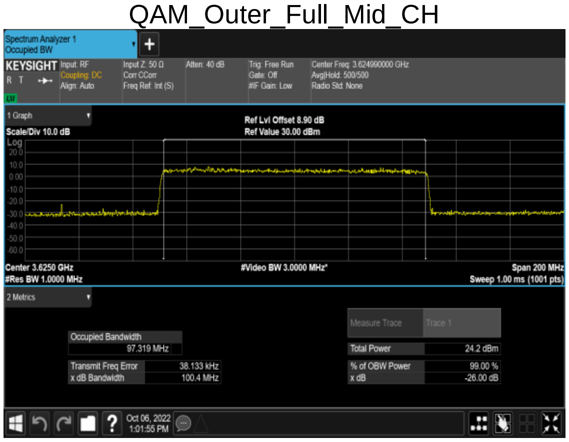
N48(100M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



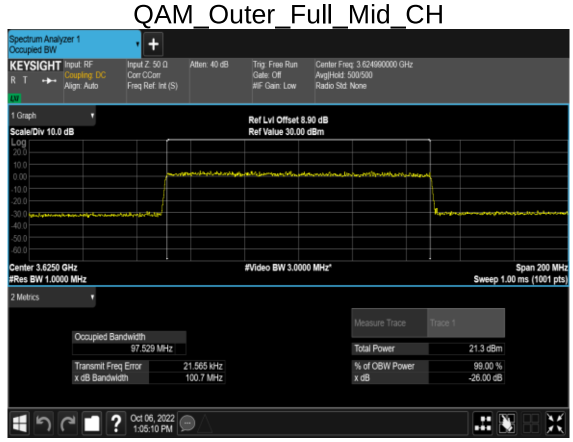
N48(100M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N48(100M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N48(100M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



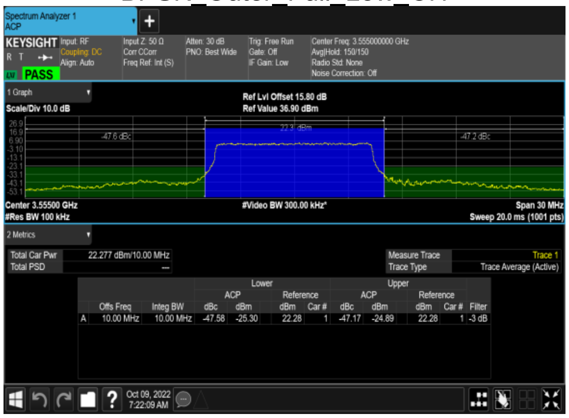
Adjacent Channel Leakage Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Lower Margin	Upper Margin	Result	Verdict
48	30	10	637000	3555.0	DFT-s-OFDM PI/2 BPSK	24@0	-17.58	-17.17	**see graph**	PASS
48	30	10	637000	3555.0	DFT-s-OFDM PI/2 BPSK	1@0	-12.91	-23.62	**see graph**	PASS
48	30	10	637000	3555.0	DFT-s-OFDM PI/2 BPSK	1@23	-23.24	-13.7	**see graph**	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	24@0	-15.33	-15.45	**see graph**	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@0	-12.44	-23.08	**see graph**	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@23	-21.94	-11.88	**see graph**	PASS
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	24@0	-16.75	-16.87	**see graph**	PASS
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@0	-11.31	-19.17	**see graph**	PASS
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@23	-20.69	-12.89	**see graph**	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	24@0	-15.29	-14.55	**see graph**	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@0	-12.22	-21.71	**see graph**	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@23	-20.02	-14.1	**see graph**	PASS
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	24@0	-15.73	-16.09	**see graph**	PASS
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	1@0	-12.32	-20.45	**see graph**	PASS
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	1@23	-21.14	-13.56	**see graph**	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	24@0	-14.25	-15.08	**see graph**	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@0	-11.14	-19.37	**see graph**	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@23	-19.9	-12.73	**see graph**	PASS
48	30	50	638334	3575.01	DFT-s-OFDM PI/2 BPSK	128@0	-13.75	-14.41	**see graph**	PASS
48	30	50	638334	3575.01	DFT-s-OFDM PI/2 BPSK	1@0	-10.35	-15.68	**see graph**	PASS
48	30	50	638334	3575.01	DFT-s-OFDM PI/2 BPSK	1@132	-16.13	-9.94	**see graph**	PASS
48	30	50	638334	3575.01	DFT-s-OFDM QPSK	128@0	-11.93	-13.15	**see graph**	PASS

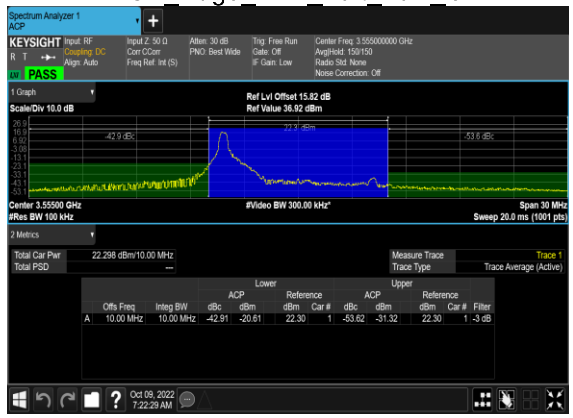
48	30	50	638334	3575.01	DFT-s-OFDM QPSK	1@0	-9.77	-15.77	**see graph**	PASS
48	30	50	638334	3575.01	DFT-s-OFDM QPSK	1@132	-15.21	-9.49	**see graph**	PASS
48	30	50	641666	3624.99	DFT-s-OFDM PI/2 BPSK	128@0	-13.48	-14.1	**see graph**	PASS
48	30	50	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@0	-9.47	-14.65	**see graph**	PASS
48	30	50	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@132	-15.0	-9.02	**see graph**	PASS
48	30	50	641666	3624.99	DFT-s-OFDM QPSK	128@0	-12.36	-13.24	**see graph**	PASS
48	30	50	641666	3624.99	DFT-s-OFDM QPSK	1@0	-8.72	-14.78	**see graph**	PASS
48	30	50	641666	3624.99	DFT-s-OFDM QPSK	1@132	-15.37	-9.5	**see graph**	PASS
48	30	50	645000	3675.0	DFT-s-OFDM PI/2 BPSK	128@0	-13.54	-13.99	**see graph**	PASS
48	30	50	645000	3675.0	DFT-s-OFDM PI/2 BPSK	1@0	-9.01	-14.23	**see graph**	PASS
48	30	50	645000	3675.0	DFT-s-OFDM PI/2 BPSK	1@132	-14.38	-8.78	**see graph**	PASS
48	30	50	645000	3675.0	DFT-s-OFDM QPSK	128@0	-12.41	-13.24	**see graph**	PASS
48	30	50	645000	3675.0	DFT-s-OFDM QPSK	1@0	-9.12	-15.26	**see graph**	PASS
48	30	50	645000	3675.0	DFT-s-OFDM QPSK	1@132	-15.41	-11.05	**see graph**	PASS
48	30	100	640000	3600.0	DFT-s-OFDM PI/2 BPSK	270@0	-11.7	-11.76	**see graph**	PASS
48	30	100	640000	3600.0	DFT-s-OFDM PI/2 BPSK	1@0	-8.49	-12.28	**see graph**	PASS
48	30	100	640000	3600.0	DFT-s-OFDM PI/2 BPSK	1@272	-14.7	-8.01	**see graph**	PASS
48	30	100	640000	3600.0	DFT-s-OFDM QPSK	270@0	-10.31	-11.12	**see graph**	PASS
48	30	100	640000	3600.0	DFT-s-OFDM QPSK	1@0	-9.39	-11.87	**see graph**	PASS
48	30	100	640000	3600.0	DFT-s-OFDM QPSK	1@272	-15.05	-8.91	**see graph**	PASS
48	30	100	641666	3624.99	DFT-s-OFDM PI/2 BPSK	270@0	-11.63	-11.54	**see graph**	PASS
48	30	100	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@0	-9.19	-11.8	**see graph**	PASS
48	30	100	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@272	-14.29	-7.37	**see graph**	PASS
48	30	100	641666	3624.99	DFT-s-OFDM QPSK	270@0	-6.8	-3.84	**see graph**	PASS

48	30	100	641666	3624.99	DFT-s-OFDM QPSK	1@0	-8.96	-10.88	**see graph**	PASS
48	30	100	641666	3624.99	DFT-s-OFDM QPSK	1@272	-13.63	-8.18	**see graph**	PASS
48	30	100	643332	3649.98	DFT-s-OFDM PI/2 BPSK	270@0	-10.88	-10.83	**see graph**	PASS
48	30	100	643332	3649.98	DFT-s-OFDM PI/2 BPSK	1@0	-9.37	-11.15	**see graph**	PASS
48	30	100	643332	3649.98	DFT-s-OFDM PI/2 BPSK	1@272	-13.21	-7.07	**see graph**	PASS
48	30	100	643332	3649.98	DFT-s-OFDM QPSK	270@0	-9.58	-10.25	**see graph**	PASS
48	30	100	643332	3649.98	DFT-s-OFDM QPSK	1@0	-8.56	-9.96	**see graph**	PASS
48	30	100	643332	3649.98	DFT-s-OFDM QPSK	1@272	-14.61	-7.76	**see graph**	PASS

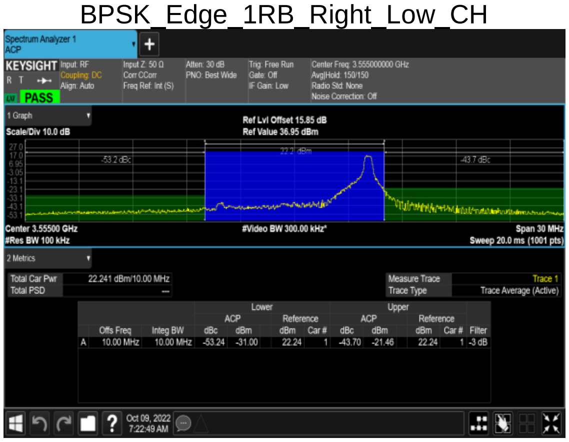
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Low_CH



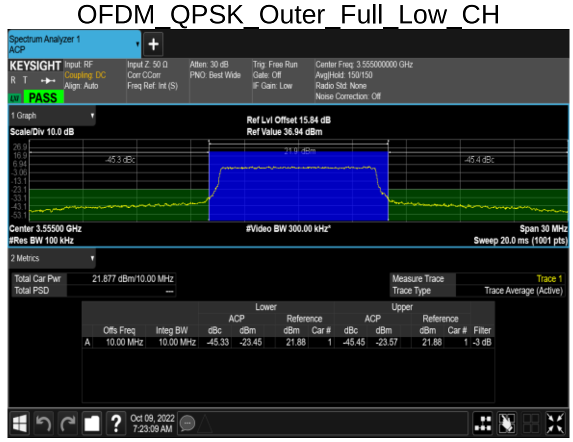
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Low_CH



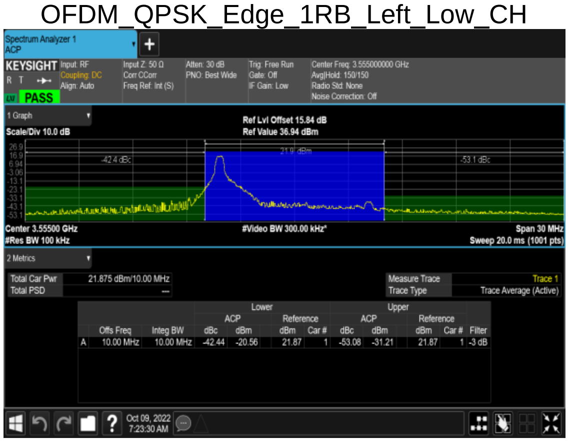
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Right_Low_CH



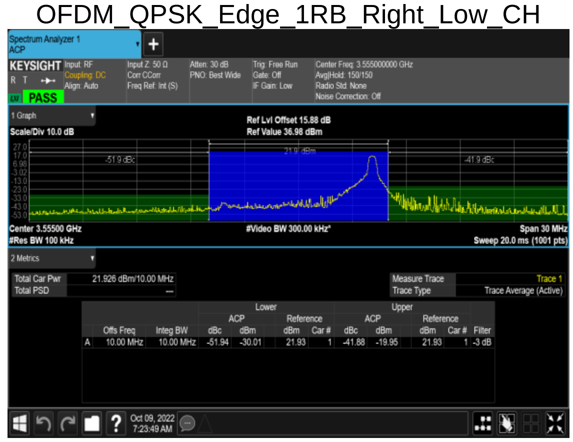
N48(10M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



N48(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

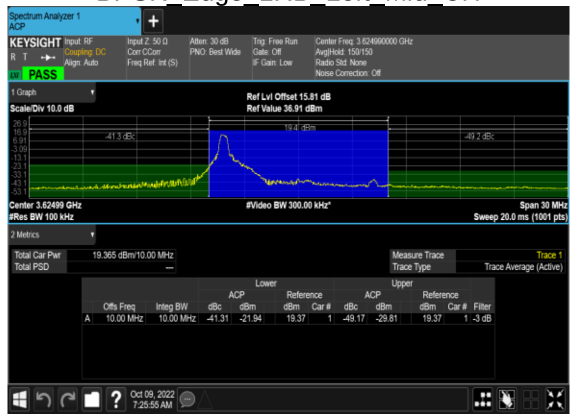


N48(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_Low_CH

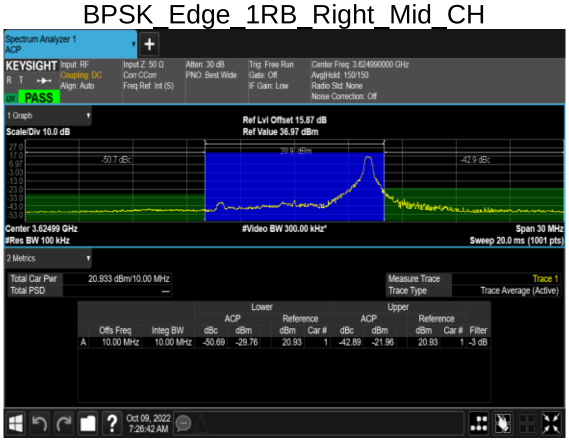


N48(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

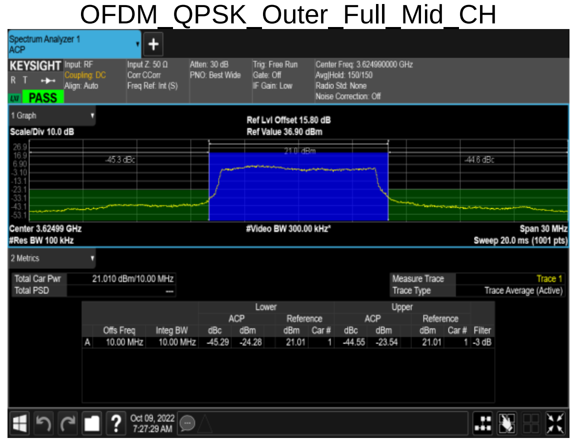
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



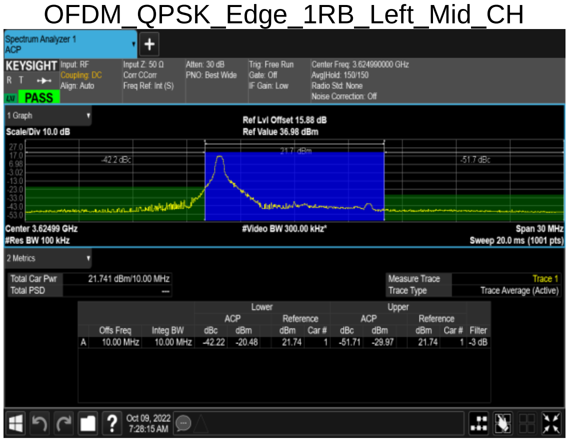
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Right_Mid_CH



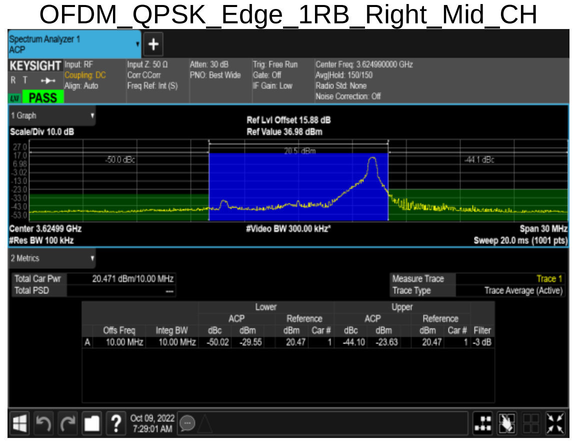
N48(10M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



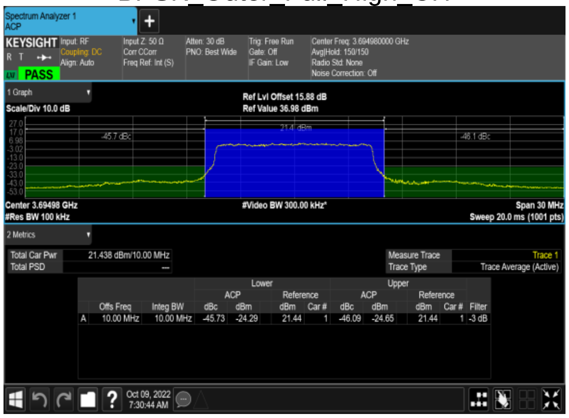
N48(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



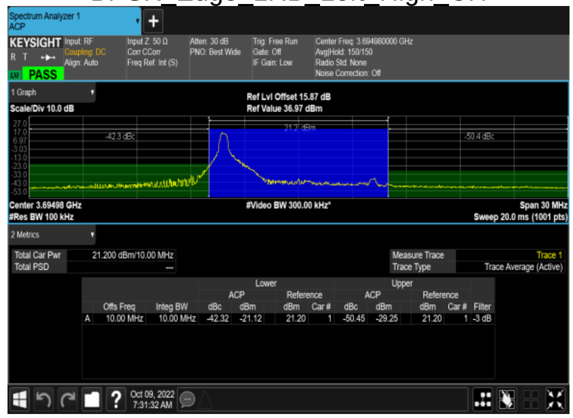
N48(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_Mid_CH



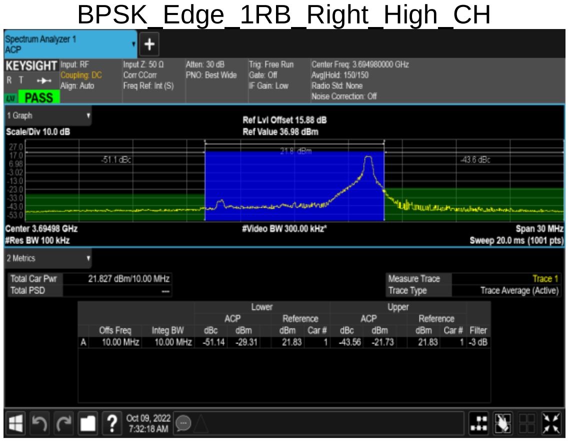
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_High_CH



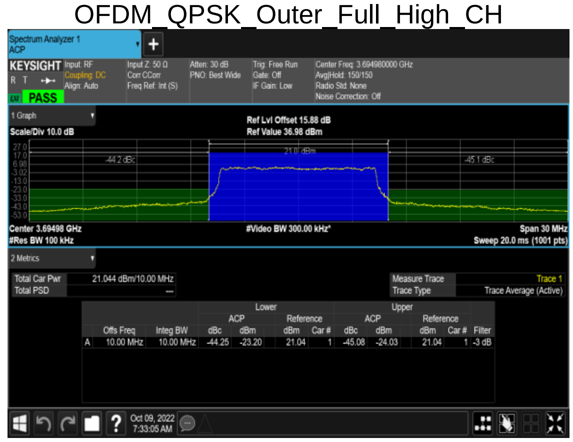
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_High_CH



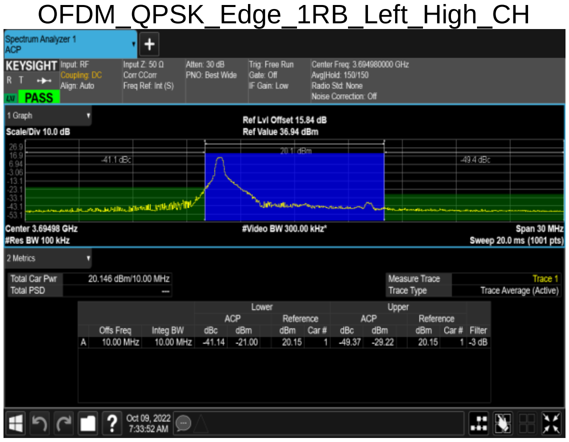
N48(10M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Right_High_CH



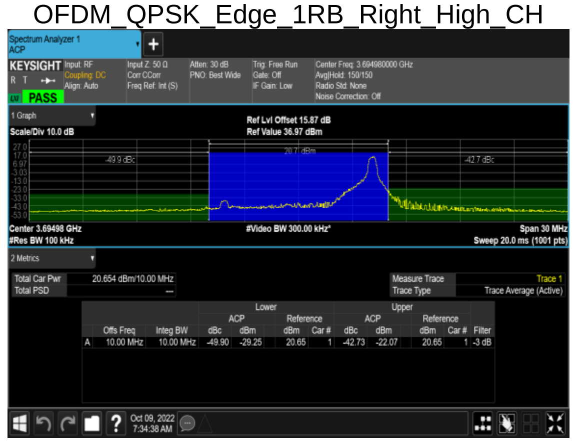
N48(10M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



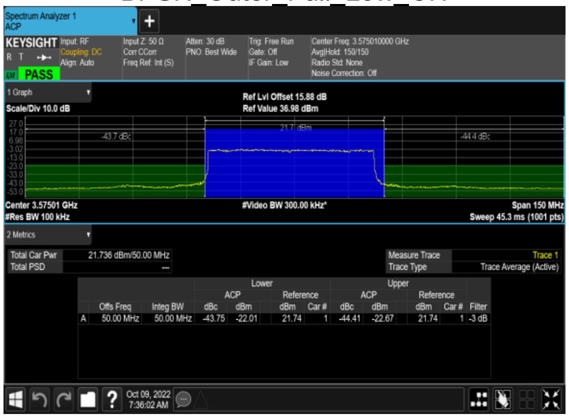
N48(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



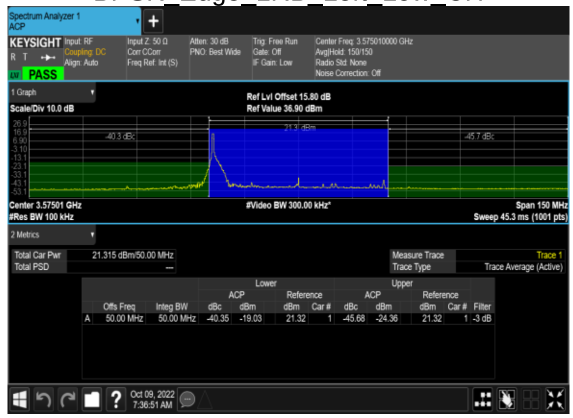
N48(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



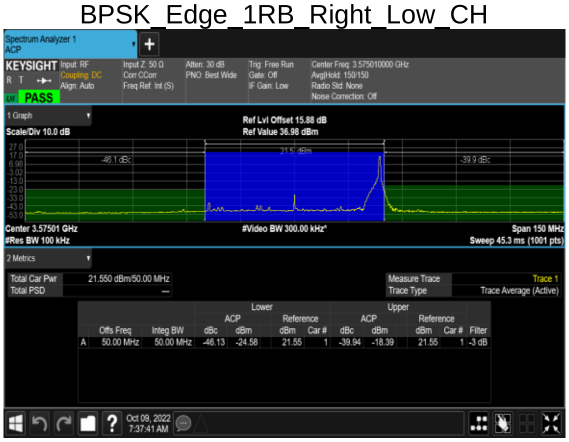
N48(50M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Low_CH



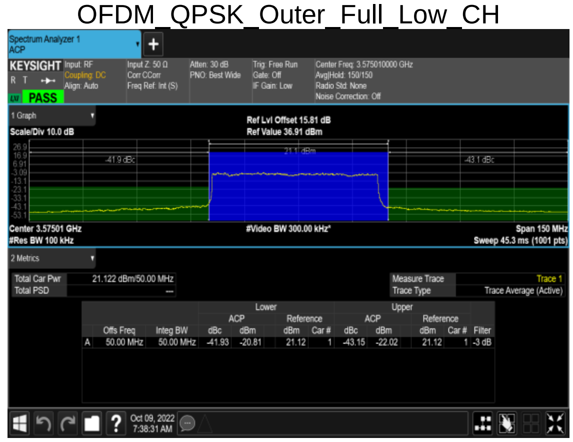
N48(50M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Low_CH



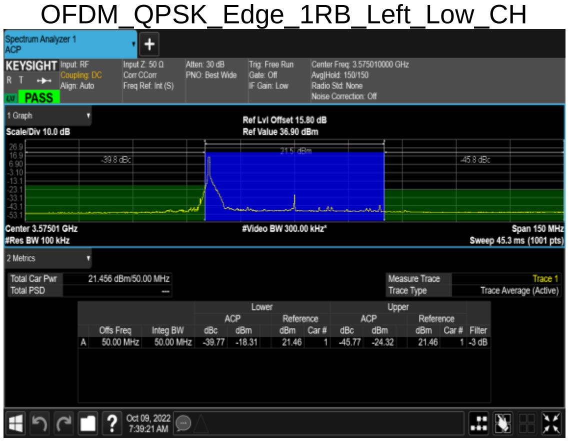
N48(50M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Right_Low_CH



N48(50M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



N48(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N48(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_Low_CH