

FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2201-4
FCC ID : IHDT56AB3
STANDARD : 47 CFR Part 2, 96
CLASSIFICATION : Citizens Band End User Devices (CBE)
EQUIPMENT TYPE : End User Equipment
TEST DATE(S) : Apr. 15, 2022 ~ Apr. 28, 2022

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

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

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

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

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



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History of this test report

Report No.	Version	Description	Issued Date
FG192317-13B	01	Initial issue of report	May 05, 2022
FG192317-13B	02	Updated the conducted power and EIRP.	May 12, 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	Maximum E.I.R.P	Pass	-
3.4	§2.1049 §96.41	Occupied Bandwidth	Reporting only	-
3.5	§2.1051 §96.41	Conducted Band Edge Measurement Adjacent Channel Leakage Ratio	Pass	-
3.6	§2.1051 §96.41	Conducted Spurious Emission	Pass	
3.7	§2.1055	Frequency Stability for Temperature & Voltage	Pass	-
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	Under limit 3.77 dB at 10818.000 MHz

Declaration of Conformity:

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

Comments and Explanations:

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



1 General Description

1.1 Applicant

Motorola Mobility LLC

222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC

222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2201-4
FCC ID	IHDT56AB3
Tx Frequency	5G NR n48: 3550 MHz ~ 3700 MHz
Rx Frequency	5G NR n48: 3550 MHz ~ 3700 MHz
Bandwidth	10MHz / 20MHz / 30MHz / 40MHz
Antenna Gain / Type	Ant. 2: 5G NR n48 : -2.2 dBi / PIFA Antenna Ant. 7: 5G NR n48 : -5.9 dBi / PIFA Antenna
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM
IMEI Code	Conducted: N/A Radiation: 357193870008515/357193870008507
HW Version	DVT2
SW Version	S1SH32.10
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. The device supports UL MIMO mode for 5G NR n48.
3. The device only supports SISO mode for Antenna 2.
4. The device only supports SA mode.
5. $MIMO \text{ Antenna gain} = 10 \log[(10^{\text{Ant.2}/20} + 10^{\text{Ant.7}/20})^2 / 2]$

1.4 Maximum EIRP Power and Emission Designator

5G NR n48		PI/2 BPSK / QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3555.00~3694.98	0.1000	8M60G7D	0.0807	8M58W7D
20	3560.01~3690.00	0.1028	18M2G7D	0.0826	18M2W7D
30	3565.02~3684.99	0.1019	27M8G7D	0.0817	27M9W7D
40	3570.00~3679.98	0.1021	37M8G7D	0.0830	37M8W7D

5G NR n48_UL MIMO		PI/2 BPSK / QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3555.00~3694.98	0.1125	8M59G7D	0.0877	8M60W7D
20	3560.01~3690.00	0.1178	18M2G7D	0.0922	18M2W7D
30	3565.02~3684.99	0.1201	27M8G7D	0.0959	27M9W7D
40	3570.00~3679.98	0.1218	37M8G7D	0.0952	38M0W7D

1.5 Testing Site

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

Test Firm	Sporton International (Kunshan) Inc.		
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

Note: Test data subcontracted: conducted test results in section 3 of this report.

1.6 Test Software

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

1.7 Applied Standards

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

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ 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: All test items were verified and recorded according to the standards and without any deviation during the test.

1.8 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	Brand Name	Motorola(Salom)	Model Name	MC-301
AC Adapter 2(US)	Brand Name	Motorola(Acbel)	Model Name	MC-301
Battery	Brand Name	Motorola(ATL)	Model Name	NA50
Earphone	Brand Name	Motorola (Lyand)	Model Name	MD211(SH38D20195)
USB Cable 1	Brand Name	Motorola(Saibao)	Model Name	SC18D13215
USB Cable 2	Brand Name	Motorola(Cabletech)	Model Name	SC18D13216
USB Cable 3	Brand Name	Motorola(Luxshare)	Model Name	SC18D13217
Type C to HDMI Cable /USBC Cable	Brand Name	Motorola(Linxee)	Model Name	SC18D02146
Stylus	Brand Name	Motorola smart stylus	Model Name	XT2201-S
Smart Folio	Brand Name	Motorola(Techson)	Model Name	SS68D36907,SS68D36906
Wireless Dongle	Brand Name	Motorola	Model Name	MD-02
HDMI Cable	Brand Name	Motorola	Model Name	HC-01
USB Cable(Type A/C)	Brand Name	Motorola	Model Name	SC18C24367

2 Test Configuration of Equipment Under Test

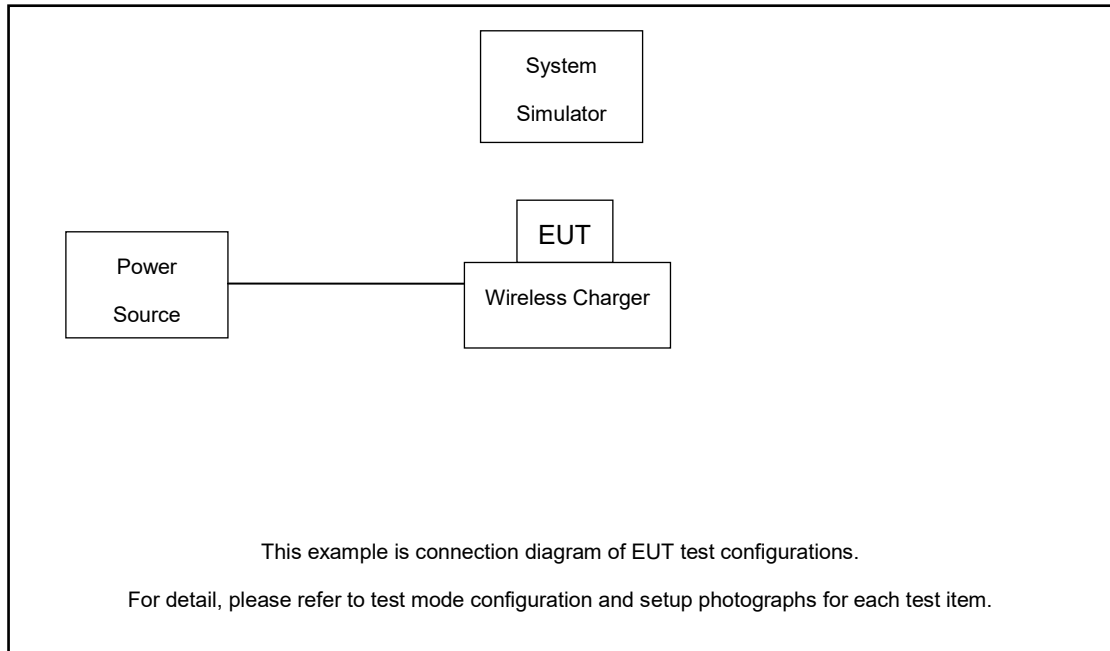
2.1 Test Mode

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 (Y plane) were recorded in this report.

Test Items	Band	Bandwidth (MHz)						Modulation					RB #		Test Channel		
		5	10	15	20	30	40	PI/2 BPSK	QPSK	16QAM	64QAM	256 QAM	1	Full	L	M	H
Max. Output Power	n48	-	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	
Adjacent Channel Leakage Ratio	n48	-	v	-	v		v	v	v				v	v	v	v	v
Conducted Band Edge	n48	-	v	-	v		v	v	v				v	v	v		v
Conducted Spurious Emission	n48	-	v	-	v		v	v	v				v	v	v	v	v
E.R.P / E.I.R.P	n48	-	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	
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 test items are based on engineering evaluation. 5. Frequency Stability: Normal Voltage = 3.87V ; Low Voltage =3.4V.; High Voltage =4.45V																

2.2 Connection Diagram of Test System



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.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
3.	Wireless Charger	N/A	N/A	N/A	N/A	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss 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 8.57 dB and 10dB attenuator.

Example :

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\
 &= 8.57 + 10 = 18.57 \text{ (dB)}
 \end{aligned}$$

2.5 Frequency List of Low/Middle/High Channels

5G NR n48 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	638000	641666	645332
	Frequency	3570	3624.99	3679.98
30	Channel	637668	641666	645666
	Frequency	3565.02	3624.99	3684.99
20	Channel	637334	641666	646000
	Frequency	3560.01	3624.99	3690
10	Channel	637000	641666	646332
	Frequency	3555	3624.99	3694.98

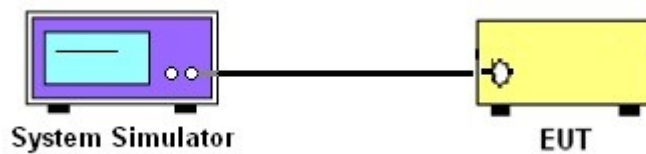
3 Conducted Test Items

3.1 Measuring Instruments

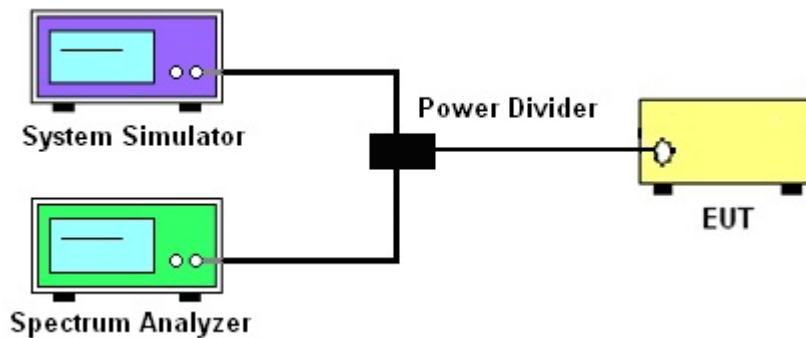
See list of measuring instruments of this test report.

3.1.1 Test Setup

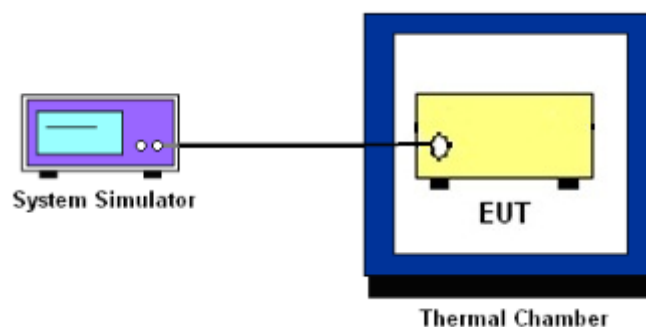
3.1.2 Conducted Output Power



3.1.3 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 EIRP

3.3.1 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.

3.3.2 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)

$$\text{EIRP} = P_T + G_T - L_C, \text{ ERP} = \text{EIRP} - 2.15, \text{ where}$$

$$P_T = \text{transmitter output power in dBm}$$

$$G_T = \text{gain of the transmitting antenna in dBi}$$

$$L_C = \text{signal attenuation in the connecting cable between the transmitter and antenna in dB}$$

3.4 Occupied Bandwidth

3.4.1 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.

3.4.2 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.

3.5 Conducted Band Edge

3.5.1 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 -40 dBm/MHz

3.5.2 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 $\geq 1\%$ 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.
8. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.6 Conducted Spurious Emission

3.6.1 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.

3.6.2 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 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.

3.7 Frequency Stability

3.7.1 Description of Frequency Stability Measurement

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

3.7.2 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.

3.7.3 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 $25\pm 5^{\circ}\text{C}$ 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.

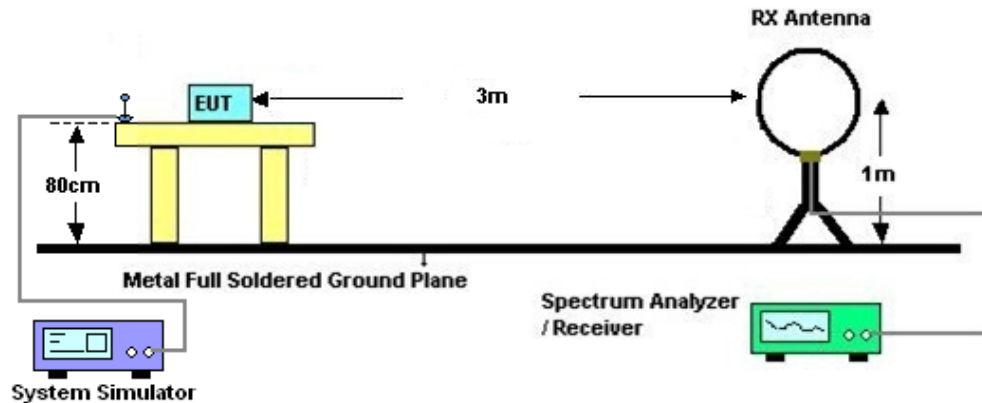
4 Radiated Test Items

4.1 Measuring Instruments

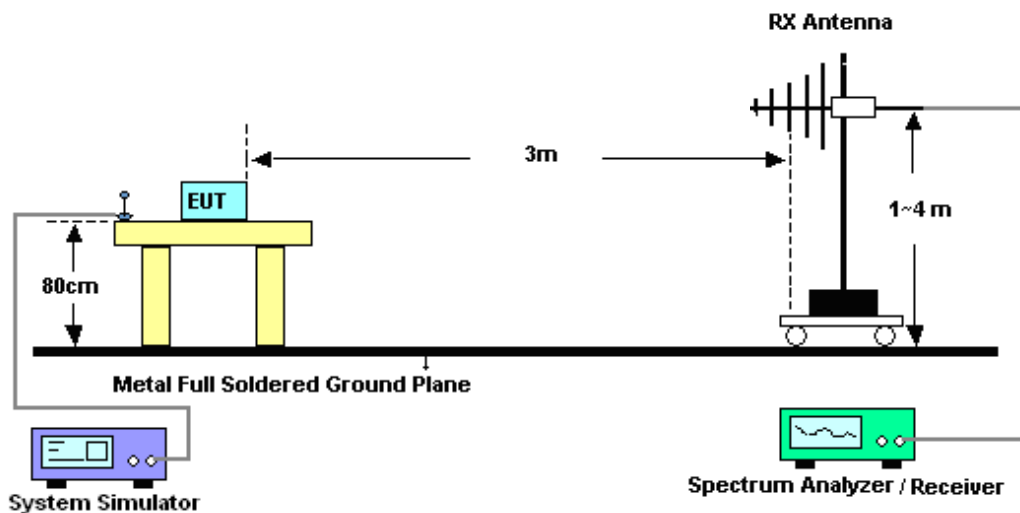
See list of measuring instruments of this test report.

4.2 Test Setup

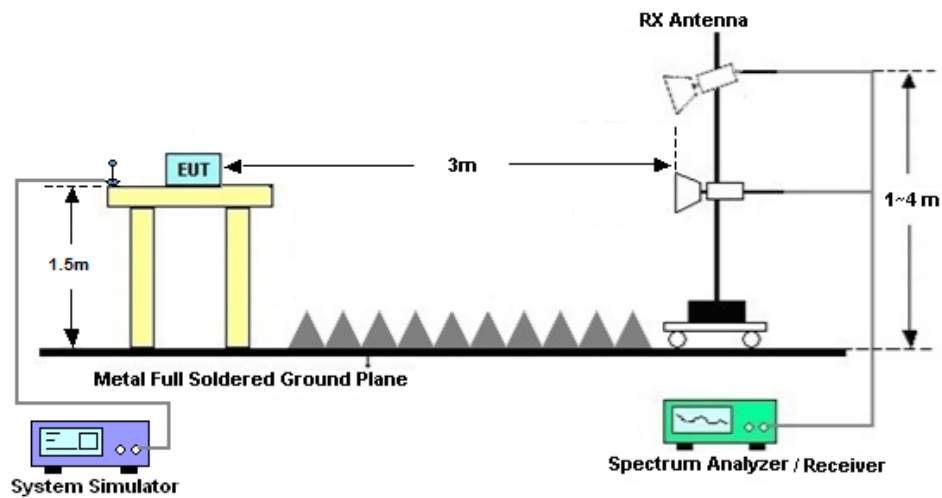
4.2.1 For radiated test below 30MHz



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 / TIA-603-E.

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.
$$\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$$
$$\text{ERP (dBm)} = \text{EIRP} - 2.15$$
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	Apr. 15, 2022~ Apr. 28, 2022	Apr. 06, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04265	60.06.020.0077	0.4GHz~26.5GHz	Dec. 25, 2021	Apr. 15, 2022~ Apr. 28, 2022	Dec. 24, 2022	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 14, 2021	Apr. 15, 2022~ Apr. 28, 2022	Jul. 13, 2022	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44G,MAX 30dB	Apr. 12, 2022	Apr. 19, 2022	Apr. 11, 2023	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	May 30, 2021	Apr. 19, 2022	May 29, 2022	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 17, 2022	Apr. 19, 2022	Apr. 16, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Apr. 19, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz~1GHz	Jan. 05, 2022	Apr. 19, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	Apr. 19, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz~18Ghz	Jul. 30, 2021	Apr. 19, 2022	Jul. 29, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 13, 2021	Apr. 19, 2022	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Apr. 19, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Apr. 19, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Apr. 19, 2022	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.3dB
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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 Guo	Temperature :	22~23°C
		Relative Humidity :	40~42%

FR1 N48(ANT2)

Conducted Output Power and EIRP(Antenna gain=-2.2dBi)

NR	SCS	Bandwidth	Arfcn	Freq	Modulation	RB	Conducted Power (dBm)	EIRP	EIRP
Band	(kHz)	(MHz)		(MHz)				(dBm)	(W)
48	30	10	637000	3555	DFT-s-OFDM PI/2 BPSK	12@6	22.03	19.83	0.0962
48	30	10	637000	3555	DFT-s-OFDM PI/2 BPSK	1@1	21.99	19.79	0.0953
48	30	10	637000	3555	DFT-s-OFDM PI/2 BPSK	1@22	22.06	19.86	0.0968
48	30	10	637000	3555	DFT-s-OFDM QPSK	12@6	21.98	19.78	0.0951
48	30	10	637000	3555	DFT-s-OFDM QPSK	1@1	22.02	19.82	0.0959
48	30	10	637000	3555	DFT-s-OFDM QPSK	1@22	21.95	19.75	0.0944
48	30	10	637000	3555	DFT-s-OFDM 16 QAM	12@6	21.07	18.87	0.0771
48	30	10	637000	3555	DFT-s-OFDM 16 QAM	1@1	21.14	18.94	0.0783
48	30	10	637000	3555	DFT-s-OFDM 16 QAM	1@22	21.13	18.93	0.0782
48	30	10	637000	3555	DFT-s-OFDM 64 QAM	12@6	19.66	17.46	0.0557
48	30	10	637000	3555	DFT-s-OFDM 64 QAM	1@1	19.6	17.4	0.0550
48	30	10	637000	3555	DFT-s-OFDM 64 QAM	1@22	19.54	17.34	0.0542
48	30	10	637000	3555	DFT-s-OFDM 256 QAM	12@6	17.5	15.3	0.0339
48	30	10	637000	3555	DFT-s-OFDM 256 QAM	1@1	17.24	15.04	0.0319
48	30	10	637000	3555	DFT-s-OFDM 256 QAM	1@22	17.22	15.02	0.0318
48	30	10	637000	3555	CP-OFDM QPSK	12@6	20.58	18.38	0.0689
48	30	10	637000	3555	CP-OFDM QPSK	1@1	20.55	18.35	0.0684
48	30	10	637000	3555	CP-OFDM QPSK	1@22	20.49	18.29	0.0675
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	12@6	22.06	19.86	0.0968
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@1	21.97	19.77	0.0948
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@22	22.08	19.88	0.0973
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	12@6	22.08	19.88	0.0973
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@1	21.98	19.78	0.0951
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@22	22	19.8	0.0955
48	30	10	641666	3624.99	DFT-s-OFDM 16 QAM	12@6	21.07	18.87	0.0771
48	30	10	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	20.99	18.79	0.0757
48	30	10	641666	3624.99	DFT-s-OFDM 16 QAM	1@22	21.05	18.85	0.0767
48	30	10	641666	3624.99	DFT-s-OFDM	12@6	19.67	17.47	0.0558

					64 QAM				
48	30	10	641666	3624.99	DFT-s-OFDM 64 QAM	1@1	19.5	17.3	0.0537
48	30	10	641666	3624.99	DFT-s-OFDM 64 QAM	1@22	19.59	17.39	0.0548
48	30	10	641666	3624.99	DFT-s-OFDM 256 QAM	12@6	17.49	15.29	0.0338
48	30	10	641666	3624.99	DFT-s-OFDM 256 QAM	1@1	17.13	14.93	0.0311
48	30	10	641666	3624.99	DFT-s-OFDM 256 QAM	1@22	17.2	15	0.0316
48	30	10	641666	3624.99	CP-OFDM QPSK	12@6	20.55	18.35	0.0684
48	30	10	641666	3624.99	CP-OFDM QPSK	1@1	20.53	18.33	0.0681
48	30	10	641666	3624.99	CP-OFDM QPSK	1@22	20.55	18.35	0.0684
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	12@6	22.17	19.97	0.0993
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	1@1	22.11	19.91	0.0979
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	1@22	22.14	19.94	0.0986
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	12@6	22.2	20	0.1000
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@1	22.06	19.86	0.0968
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@22	22.02	19.82	0.0959
48	30	10	646332	3694.98	DFT-s-OFDM 16 QAM	12@6	21.27	19.07	0.0807
48	30	10	646332	3694.98	DFT-s-OFDM 16 QAM	1@1	21.14	18.94	0.0783
48	30	10	646332	3694.98	DFT-s-OFDM 16 QAM	1@22	21.08	18.88	0.0773
48	30	10	646332	3694.98	DFT-s-OFDM 64 QAM	12@6	19.79	17.59	0.0574
48	30	10	646332	3694.98	DFT-s-OFDM 64 QAM	1@1	19.65	17.45	0.0556
48	30	10	646332	3694.98	DFT-s-OFDM 64 QAM	1@22	19.61	17.41	0.0551
48	30	10	646332	3694.98	DFT-s-OFDM 256 QAM	12@6	17.62	15.42	0.0348
48	30	10	646332	3694.98	DFT-s-OFDM 256 QAM	1@1	17.25	15.05	0.0320
48	30	10	646332	3694.98	DFT-s-OFDM 256 QAM	1@22	17.28	15.08	0.0322
48	30	10	646332	3694.98	CP-OFDM QPSK	12@6	20.73	18.53	0.0713
48	30	10	646332	3694.98	CP-OFDM QPSK	1@1	20.73	18.53	0.0713
48	30	10	646332	3694.98	CP-OFDM QPSK	1@22	20.71	18.51	0.0710
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	25@12	22.19	19.99	0.0998
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	1@1	22.09	19.89	0.0975
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	1@49	22.16	19.96	0.0991
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	25@12	22.2	20	0.1000
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@1	22.15	19.95	0.0989
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@49	22.09	19.89	0.0975
48	30	20	637334	3560.01	DFT-s-OFDM 16 QAM	25@12	21.24	19.04	0.0802

48	30	20	637334	3560.01	DFT-s-OFDM 16 QAM	1@1	21.17	18.97	0.0789
48	30	20	637334	3560.01	DFT-s-OFDM 16 QAM	1@49	21.1	18.9	0.0776
48	30	20	637334	3560.01	DFT-s-OFDM 64 QAM	25@12	19.68	17.48	0.0560
48	30	20	637334	3560.01	DFT-s-OFDM 64 QAM	1@1	19.74	17.54	0.0568
48	30	20	637334	3560.01	DFT-s-OFDM 64 QAM	1@49	19.59	17.39	0.0548
48	30	20	637334	3560.01	DFT-s-OFDM 256 QAM	25@12	17.62	15.42	0.0348
48	30	20	637334	3560.01	DFT-s-OFDM 256 QAM	1@1	17.29	15.09	0.0323
48	30	20	637334	3560.01	DFT-s-OFDM 256 QAM	1@49	17.25	15.05	0.0320
48	30	20	637334	3560.01	CP-OFDM QPSK	25@12	20.72	18.52	0.0711
48	30	20	637334	3560.01	CP-OFDM QPSK	1@1	20.75	18.55	0.0716
48	30	20	637334	3560.01	CP-OFDM QPSK	1@49	20.68	18.48	0.0705
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	25@12	22.32	20.12	0.1028
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@1	22.24	20.04	0.1009
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@49	22.21	20.01	0.1002
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	25@12	22.26	20.06	0.1014
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@1	22.15	19.95	0.0989
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@49	22.15	19.95	0.0989
48	30	20	641666	3624.99	DFT-s-OFDM 16 QAM	25@12	21.35	19.15	0.0822
48	30	20	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	21.31	19.11	0.0815
48	30	20	641666	3624.99	DFT-s-OFDM 16 QAM	1@49	21.29	19.09	0.0811
48	30	20	641666	3624.99	DFT-s-OFDM 64 QAM	25@12	19.85	17.65	0.0582
48	30	20	641666	3624.99	DFT-s-OFDM 64 QAM	1@1	20.1	17.9	0.0617
48	30	20	641666	3624.99	DFT-s-OFDM 64 QAM	1@49	20.07	17.87	0.0612
48	30	20	641666	3624.99	DFT-s-OFDM 256 QAM	25@12	17.74	15.54	0.0358
48	30	20	641666	3624.99	DFT-s-OFDM 256 QAM	1@1	17.4	15.2	0.0331
48	30	20	641666	3624.99	DFT-s-OFDM 256 QAM	1@49	17.41	15.21	0.0332
48	30	20	641666	3624.99	CP-OFDM QPSK	25@12	20.73	18.53	0.0713
48	30	20	641666	3624.99	CP-OFDM QPSK	1@1	20.8	18.6	0.0724
48	30	20	641666	3624.99	CP-OFDM QPSK	1@49	20.82	18.62	0.0728
48	30	20	646000	3690	DFT-s-OFDM PI/2 BPSK	25@12	22.26	20.06	0.1014
48	30	20	646000	3690	DFT-s-OFDM PI/2 BPSK	1@1	22.26	20.06	0.1014
48	30	20	646000	3690	DFT-s-OFDM PI/2 BPSK	1@49	22.22	20.02	0.1005
48	30	20	646000	3690	DFT-s-OFDM QPSK	25@12	22.26	20.06	0.1014
48	30	20	646000	3690	DFT-s-OFDM QPSK	1@1	22.2	20	0.1000

48	30	20	646000	3690	DFT-s-OFDM QPSK	1@49	22.2	20	0.1000
48	30	20	646000	3690	DFT-s-OFDM 16 QAM	25@12	21.37	19.17	0.0826
48	30	20	646000	3690	DFT-s-OFDM 16 QAM	1@1	21.2	19	0.0794
48	30	20	646000	3690	DFT-s-OFDM 16 QAM	1@49	21.21	19.01	0.0796
48	30	20	646000	3690	DFT-s-OFDM 64 QAM	25@12	19.82	17.62	0.0578
48	30	20	646000	3690	DFT-s-OFDM 64 QAM	1@1	19.7	17.5	0.0562
48	30	20	646000	3690	DFT-s-OFDM 64 QAM	1@49	19.67	17.47	0.0558
48	30	20	646000	3690	DFT-s-OFDM 256 QAM	25@12	17.81	15.61	0.0364
48	30	20	646000	3690	DFT-s-OFDM 256 QAM	1@1	17.37	15.17	0.0329
48	30	20	646000	3690	DFT-s-OFDM 256 QAM	1@49	17.28	15.08	0.0322
48	30	20	646000	3690	CP-OFDM QPSK	25@12	20.78	18.58	0.0721
48	30	20	646000	3690	CP-OFDM QPSK	1@1	20.7	18.5	0.0708
48	30	20	646000	3690	CP-OFDM QPSK	1@49	20.74	18.54	0.0714
48	30	30	637668	3565.02	DFT-s-OFDM PI/2 BPSK	36@18	22.23	20.03	0.1007
48	30	30	637668	3565.02	DFT-s-OFDM PI/2 BPSK	1@1	22.2	20	0.1000
48	30	30	637668	3565.02	DFT-s-OFDM PI/2 BPSK	1@76	22.07	19.87	0.0971
48	30	30	637668	3565.02	DFT-s-OFDM QPSK	36@18	22.25	20.05	0.1012
48	30	30	637668	3565.02	DFT-s-OFDM QPSK	1@1	22.12	19.92	0.0982
48	30	30	637668	3565.02	DFT-s-OFDM QPSK	1@76	21.99	19.79	0.0953
48	30	30	637668	3565.02	DFT-s-OFDM 16 QAM	36@18	21.26	19.06	0.0805
48	30	30	637668	3565.02	DFT-s-OFDM 16 QAM	1@1	21.2	19	0.0794
48	30	30	637668	3565.02	DFT-s-OFDM 16 QAM	1@76	21.09	18.89	0.0774
48	30	30	637668	3565.02	DFT-s-OFDM 64 QAM	36@18	19.72	17.52	0.0565
48	30	30	637668	3565.02	DFT-s-OFDM 64 QAM	1@1	19.68	17.48	0.0560
48	30	30	637668	3565.02	DFT-s-OFDM 64 QAM	1@76	19.51	17.31	0.0538
48	30	30	637668	3565.02	DFT-s-OFDM 256 QAM	36@18	17.7	15.5	0.0355
48	30	30	637668	3565.02	DFT-s-OFDM 256 QAM	1@1	17.28	15.08	0.0322
48	30	30	637668	3565.02	DFT-s-OFDM 256 QAM	1@76	17.17	14.97	0.0314
48	30	30	637668	3565.02	CP-OFDM QPSK	39@19	20.65	18.45	0.0700
48	30	30	637668	3565.02	CP-OFDM QPSK	1@1	20.74	18.54	0.0714
48	30	30	637668	3565.02	CP-OFDM QPSK	1@76	20.47	18.27	0.0671
48	30	30	641666	3624.99	DFT-s-OFDM PI/2 BPSK	36@18	22.21	20.01	0.1002
48	30	30	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@1	22.27	20.07	0.1016
48	30	30	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@76	22.14	19.94	0.0986

48	30	30	641666	3624.99	DFT-s-OFDM QPSK	36@18	22.1	19.9	0.0977
48	30	30	641666	3624.99	DFT-s-OFDM QPSK	1@1	22.16	19.96	0.0991
48	30	30	641666	3624.99	DFT-s-OFDM QPSK	1@76	22.08	19.88	0.0973
48	30	30	641666	3624.99	DFT-s-OFDM 16 QAM	36@18	21.22	19.02	0.0798
48	30	30	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	21.32	19.12	0.0817
48	30	30	641666	3624.99	DFT-s-OFDM 16 QAM	1@76	21.24	19.04	0.0802
48	30	30	641666	3624.99	DFT-s-OFDM 64 QAM	36@18	19.77	17.57	0.0571
48	30	30	641666	3624.99	DFT-s-OFDM 64 QAM	1@1	19.86	17.66	0.0583
48	30	30	641666	3624.99	DFT-s-OFDM 64 QAM	1@76	19.63	17.43	0.0553
48	30	30	641666	3624.99	DFT-s-OFDM 256 QAM	36@18	17.74	15.54	0.0358
48	30	30	641666	3624.99	DFT-s-OFDM 256 QAM	1@1	17.3	15.1	0.0324
48	30	30	641666	3624.99	DFT-s-OFDM 256 QAM	1@76	17.25	15.05	0.0320
48	30	30	641666	3624.99	CP-OFDM QPSK	39@19	20.75	18.55	0.0716
48	30	30	641666	3624.99	CP-OFDM QPSK	1@1	20.74	18.54	0.0714
48	30	30	641666	3624.99	CP-OFDM QPSK	1@76	20.56	18.36	0.0685
48	30	30	645666	3684.99	DFT-s-OFDM PI/2 BPSK	36@18	22.23	20.03	0.1007
48	30	30	645666	3684.99	DFT-s-OFDM PI/2 BPSK	1@1	22.28	20.08	0.1019
48	30	30	645666	3684.99	DFT-s-OFDM PI/2 BPSK	1@76	22.09	19.89	0.0975
48	30	30	645666	3684.99	DFT-s-OFDM QPSK	36@18	22.16	19.96	0.0991
48	30	30	645666	3684.99	DFT-s-OFDM QPSK	1@1	22.18	19.98	0.0995
48	30	30	645666	3684.99	DFT-s-OFDM QPSK	1@76	22.06	19.86	0.0968
48	30	30	645666	3684.99	DFT-s-OFDM 16 QAM	36@18	21.18	18.98	0.0791
48	30	30	645666	3684.99	DFT-s-OFDM 16 QAM	1@1	21.31	19.11	0.0815
48	30	30	645666	3684.99	DFT-s-OFDM 16 QAM	1@76	21.11	18.91	0.0778
48	30	30	645666	3684.99	DFT-s-OFDM 64 QAM	36@18	19.74	17.54	0.0568
48	30	30	645666	3684.99	DFT-s-OFDM 64 QAM	1@1	19.78	17.58	0.0573
48	30	30	645666	3684.99	DFT-s-OFDM 64 QAM	1@76	19.67	17.47	0.0558
48	30	30	645666	3684.99	DFT-s-OFDM 256 QAM	36@18	17.63	15.43	0.0349
48	30	30	645666	3684.99	DFT-s-OFDM 256 QAM	1@1	17.42	15.22	0.0333
48	30	30	645666	3684.99	DFT-s-OFDM 256 QAM	1@76	17.21	15.01	0.0317
48	30	30	645666	3684.99	CP-OFDM QPSK	39@19	20.68	18.48	0.0705
48	30	30	645666	3684.99	CP-OFDM QPSK	1@1	20.74	18.54	0.0714
48	30	30	645666	3684.99	CP-OFDM QPSK	1@76	20.57	18.37	0.0687
48	30	40	638000	3570	DFT-s-OFDM PI/2 BPSK	50@25	22.18	19.98	0.0995

48	30	40	638000	3570	DFT-s-OFDM PI/2 BPSK	1@1	22.16	19.96	0.0991
48	30	40	638000	3570	DFT-s-OFDM PI/2 BPSK	1@104	22.13	19.93	0.0984
48	30	40	638000	3570	DFT-s-OFDM QPSK	50@25	22.19	19.99	0.0998
48	30	40	638000	3570	DFT-s-OFDM QPSK	1@1	22.13	19.93	0.0984
48	30	40	638000	3570	DFT-s-OFDM QPSK	1@104	22.1	19.9	0.0977
48	30	40	638000	3570	DFT-s-OFDM 16 QAM	50@25	21.23	19.03	0.0800
48	30	40	638000	3570	DFT-s-OFDM 16 QAM	1@1	21.16	18.96	0.0787
48	30	40	638000	3570	DFT-s-OFDM 16 QAM	1@104	21.17	18.97	0.0789
48	30	40	638000	3570	DFT-s-OFDM 64 QAM	50@25	19.75	17.55	0.0569
48	30	40	638000	3570	DFT-s-OFDM 64 QAM	1@1	19.73	17.53	0.0566
48	30	40	638000	3570	DFT-s-OFDM 64 QAM	1@104	19.62	17.42	0.0552
48	30	40	638000	3570	DFT-s-OFDM 256 QAM	50@25	17.7	15.5	0.0355
48	30	40	638000	3570	DFT-s-OFDM 256 QAM	1@1	17.26	15.06	0.0321
48	30	40	638000	3570	DFT-s-OFDM 256 QAM	1@104	17.24	15.04	0.0319
48	30	40	638000	3570	CP-OFDM QPSK	53@26	20.69	18.49	0.0706
48	30	40	638000	3570	CP-OFDM QPSK	1@1	20.71	18.51	0.0710
48	30	40	638000	3570	CP-OFDM QPSK	1@104	20.74	18.54	0.0714
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	50@25	22.23	20.03	0.1007
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@1	22.23	20.03	0.1007
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@104	22.29	20.09	0.1021
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	50@25	22.21	20.01	0.1002
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@1	22.16	19.96	0.0991
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@104	22.25	20.05	0.1012
48	30	40	641666	3624.99	DFT-s-OFDM 16 QAM	50@25	21.25	19.05	0.0804
48	30	40	641666	3624.99	DFT-s-OFDM 16 QAM	1@1	21.23	19.03	0.0800
48	30	40	641666	3624.99	DFT-s-OFDM 16 QAM	1@104	21.27	19.07	0.0807
48	30	40	641666	3624.99	DFT-s-OFDM 64 QAM	50@25	19.79	17.59	0.0574
48	30	40	641666	3624.99	DFT-s-OFDM 64 QAM	1@1	19.75	17.55	0.0569
48	30	40	641666	3624.99	DFT-s-OFDM 64 QAM	1@104	19.82	17.62	0.0578
48	30	40	641666	3624.99	DFT-s-OFDM 256 QAM	50@25	17.69	15.49	0.0354
48	30	40	641666	3624.99	DFT-s-OFDM 256 QAM	1@1	17.4	15.2	0.0331
48	30	40	641666	3624.99	DFT-s-OFDM 256 QAM	1@104	17.43	15.23	0.0333
48	30	40	641666	3624.99	CP-OFDM QPSK	53@26	20.71	18.51	0.0710
48	30	40	641666	3624.99	CP-OFDM QPSK	1@1	20.82	18.62	0.0728

48	30	40	641666	3624.99	CP-OFDM QPSK	1@104	20.72	18.52	0.0711
48	30	40	645332	3679.98	DFT-s-OFDM PI/2 BPSK	50@25	22.22	20.02	0.1005
48	30	40	645332	3679.98	DFT-s-OFDM PI/2 BPSK	1@1	22.29	20.09	0.1021
48	30	40	645332	3679.98	DFT-s-OFDM PI/2 BPSK	1@104	22.18	19.98	0.0995
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	50@25	22.2	20	0.1000
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@1	22.25	20.05	0.1012
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@104	22.11	19.91	0.0979
48	30	40	645332	3679.98	DFT-s-OFDM 16 QAM	50@25	21.1	18.9	0.0776
48	30	40	645332	3679.98	DFT-s-OFDM 16 QAM	1@1	21.39	19.19	0.0830
48	30	40	645332	3679.98	DFT-s-OFDM 16 QAM	1@104	21.33	19.13	0.0818
48	30	40	645332	3679.98	DFT-s-OFDM 64 QAM	50@25	19.76	17.56	0.0570
48	30	40	645332	3679.98	DFT-s-OFDM 64 QAM	1@1	19.7	17.5	0.0562
48	30	40	645332	3679.98	DFT-s-OFDM 64 QAM	1@104	19.67	17.47	0.0558
48	30	40	645332	3679.98	DFT-s-OFDM 256 QAM	50@25	17.69	15.49	0.0354
48	30	40	645332	3679.98	DFT-s-OFDM 256 QAM	1@1	17.47	15.27	0.0337
48	30	40	645332	3679.98	DFT-s-OFDM 256 QAM	1@104	17.37	15.17	0.0329
48	30	40	645332	3679.98	CP-OFDM QPSK	53@26	20.69	18.49	0.0706
48	30	40	645332	3679.98	CP-OFDM QPSK	1@1	20.77	18.57	0.0719
48	30	40	645332	3679.98	CP-OFDM QPSK	1@104	20.7	18.5	0.0708

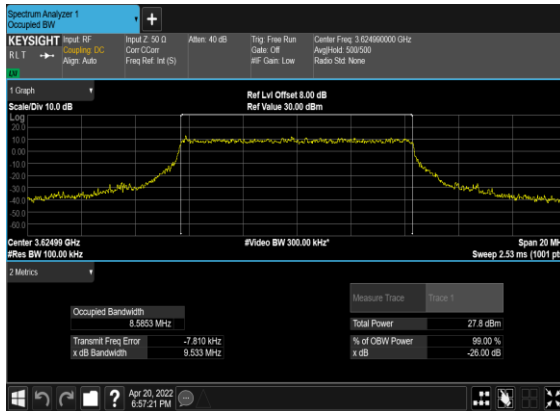
Frequency Stability

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	0.00652	PASS	NV
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00423	PASS	LV
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00501	PASS	HV
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00633	PASS	-30°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00699	PASS	-20°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00481	PASS	-10°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00321	PASS	0°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00671	PASS	10°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00511	PASS	20°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00276	PASS	30°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00316	PASS	40°C
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	0.00315	PASS	50°C

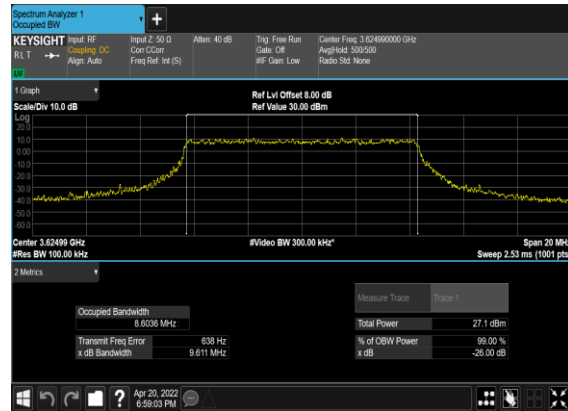
Occupied Bandwidth

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	8.5853	9.533
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	24@0	8.6036	9.611
48	30	10	641666	3624.99	CP-OFDM QPSK	24@0	8.5821	9.911
48	30	10	641666	3624.99	CP-OFDM 16 QAM	24@0	8.5786	9.58
48	30	10	641666	3624.99	CP-OFDM 64 QAM	24@0	8.5705	9.543
48	30	10	641666	3624.99	CP-OFDM 256 QAM	24@0	8.5499	9.512
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	50@0	17.846	19.03
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	17.843	18.94
48	30	20	641666	3624.99	CP-OFDM QPSK	51@0	18.176	19.73
48	30	20	641666	3624.99	CP-OFDM 16 QAM	51@0	18.221	19.55
48	30	20	641666	3624.99	CP-OFDM 64 QAM	51@0	18.193	19.44
48	30	20	641666	3624.99	CP-OFDM 256 QAM	51@0	18.182	19.4
48	30	30	641666	3624.99	DFT-s-OFDM PI/2 BPSK	75@0	26.76	28.56
48	30	30	641666	3624.99	DFT-s-OFDM QPSK	75@0	26.763	28.36
48	30	30	641666	3624.99	CP-OFDM QPSK	78@0	27.807	29.37
48	30	30	641666	3624.99	CP-OFDM 16 QAM	78@0	27.839	29.58
48	30	30	641666	3624.99	CP-OFDM 64 QAM	78@0	27.862	29.29
48	30	30	641666	3624.99	CP-OFDM 256 QAM	78@0	27.795	29.2
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	100@0	35.729	37.49
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	100@0	35.755	37.65
48	30	40	641666	3624.99	CP-OFDM QPSK	106@0	37.795	39.56
48	30	40	641666	3624.99	CP-OFDM 16 QAM	106@0	37.767	39.75
48	30	40	641666	3624.99	CP-OFDM 64 QAM	106@0	37.709	39.88
48	30	40	641666	3624.99	CP-OFDM 256 QAM	106@0	37.815	39.84

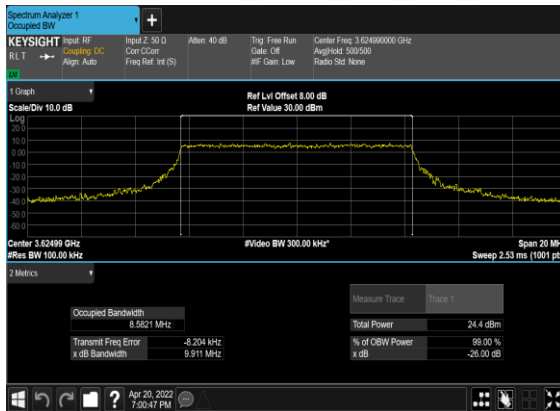
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BPSK_Outer_Full_Mid_CH



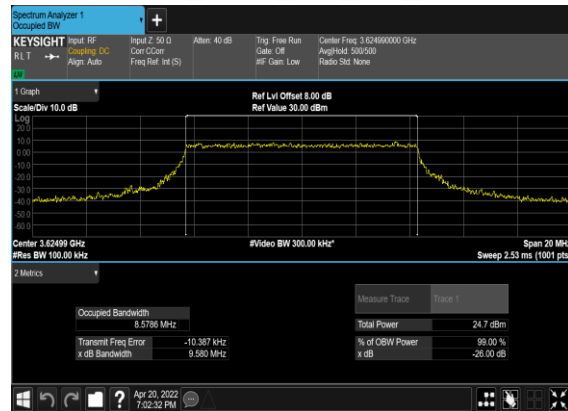
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OFDM_QPSK_Outer_Full_Mid_CH



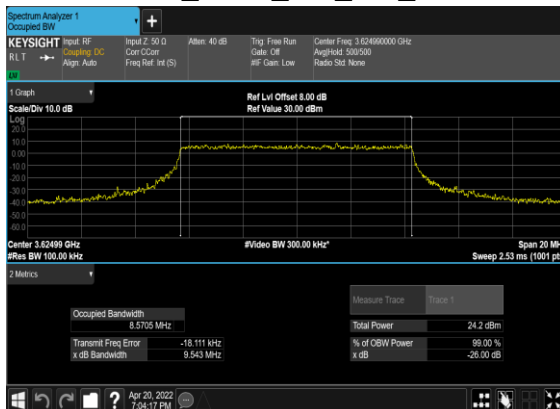
N48(10M)_CP-
OFDM_QPSK_Outer_Full_Mid_CH



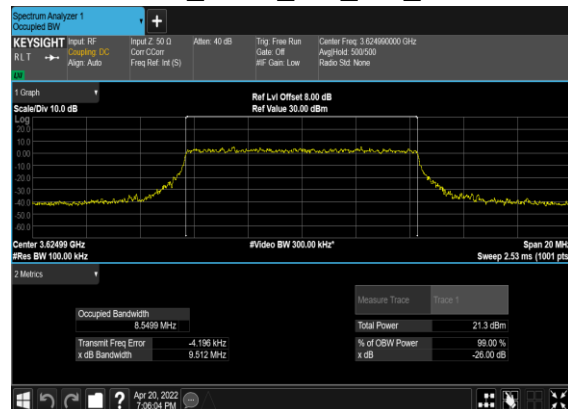
N48(10M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH



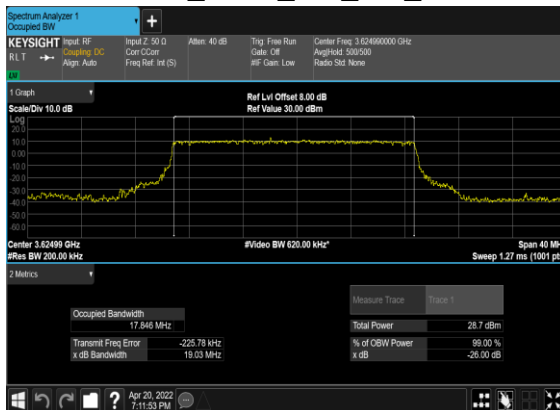
N48(10M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH



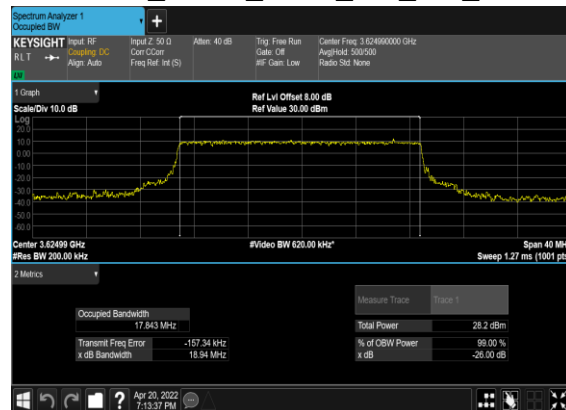
N48(10M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH



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



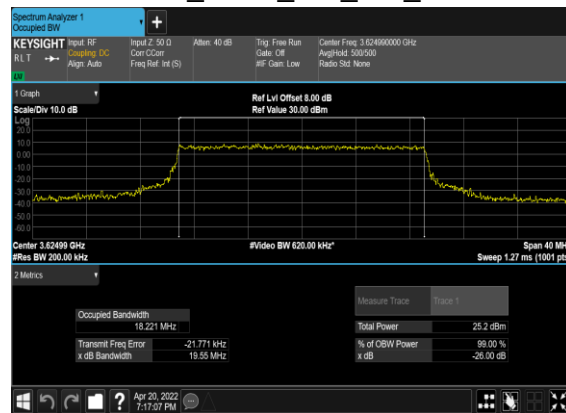
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OFDM_QPSK_Outer_Full_Mid_CH



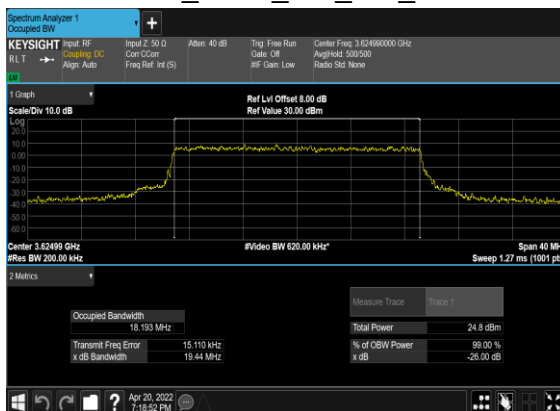
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OFDM_QPSK_Outer_Full_Mid_CH



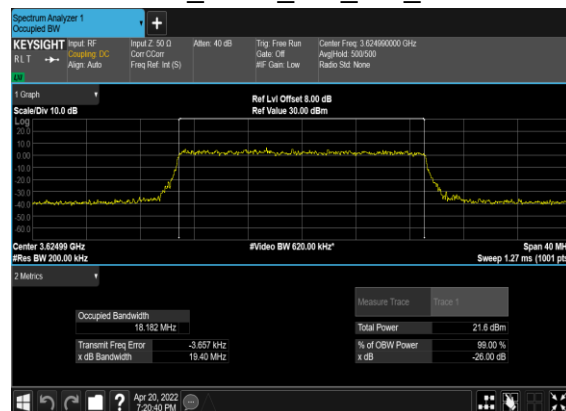
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QAM_Outer_Full_Mid_CH



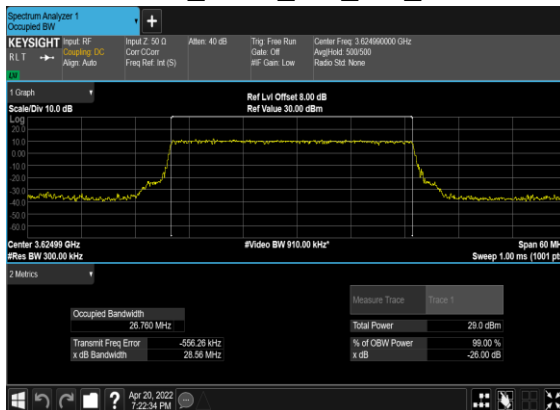
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QAM_Outer_Full_Mid_CH



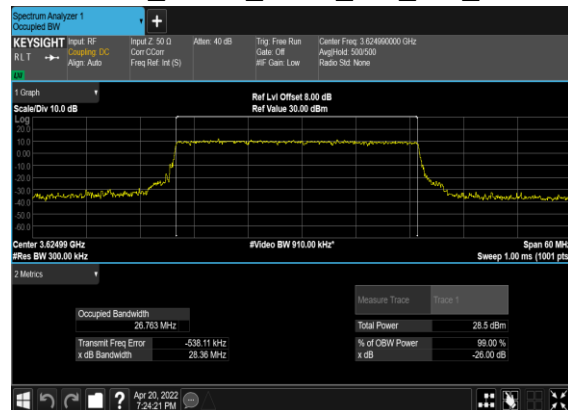
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QAM_Outer_Full_Mid_CH



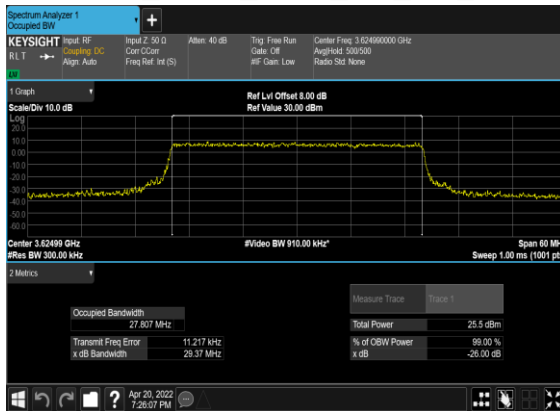
N48(30M)_DFT-s-OFDM_PI_2-
BPSK_Outer_Full_Mid_CH



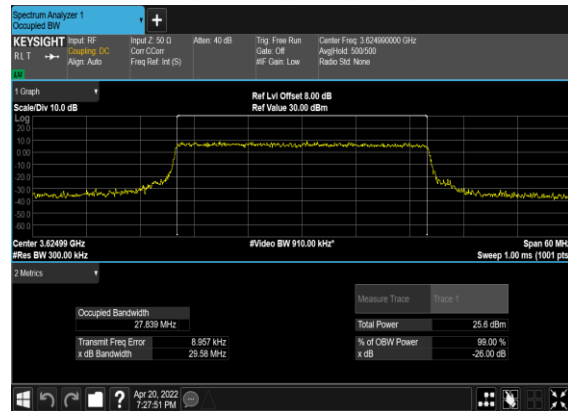
N48(30M)_DFT-s-
OFDM_QPSK_Outer_Full_Mid_CH



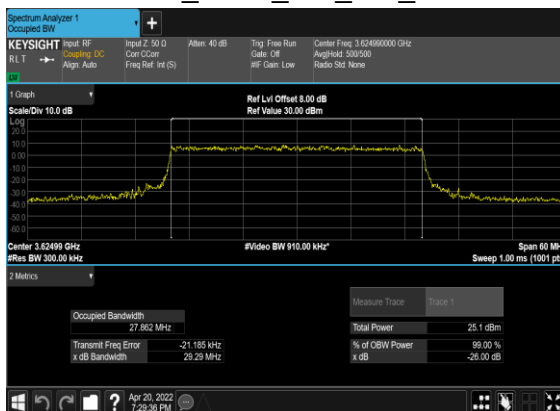
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OFDM_QPSK_Outer_Full_Mid_CH



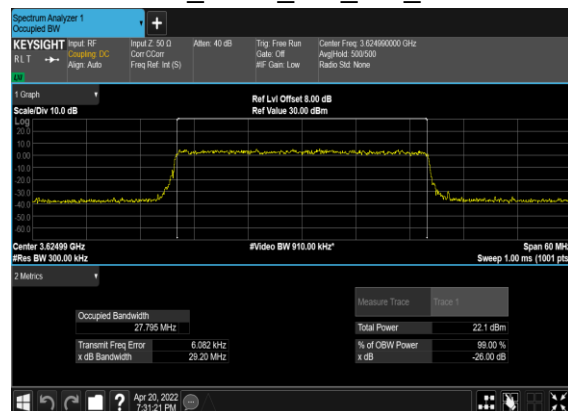
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QAM_Outer_Full_Mid_CH



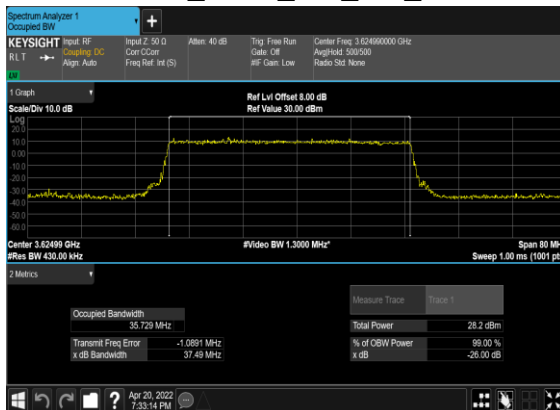
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QAM_Outer_Full_Mid_CH



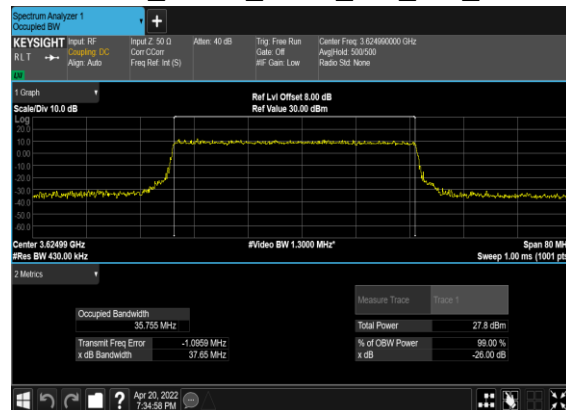
N48(30M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH



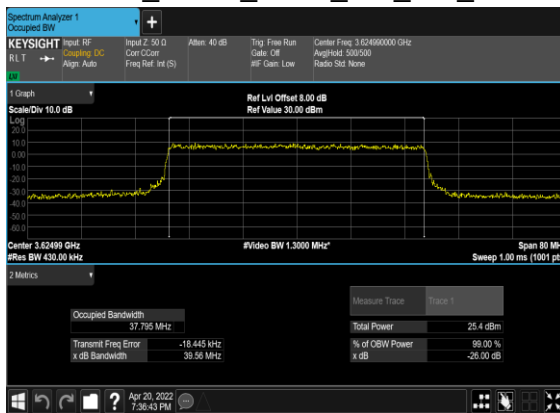
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BPSK_Outer_Full_Mid_CH



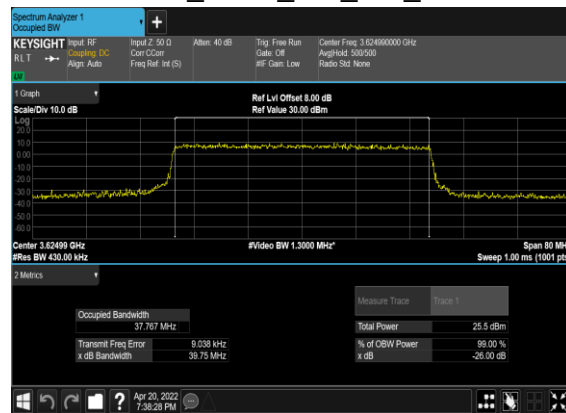
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OFDM_QPSK_Outer_Full_Mid_CH



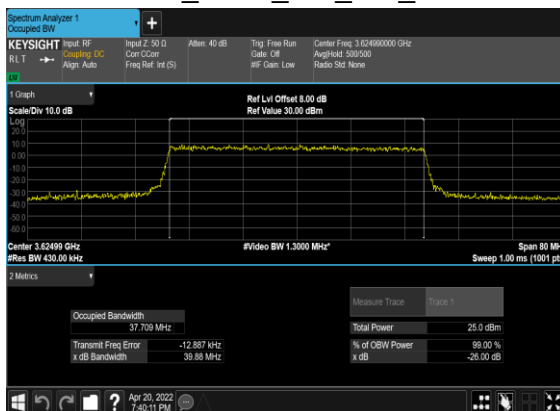
N48(40M)_CP-
OFDM_QPSK_Outer_Full_Mid_CH



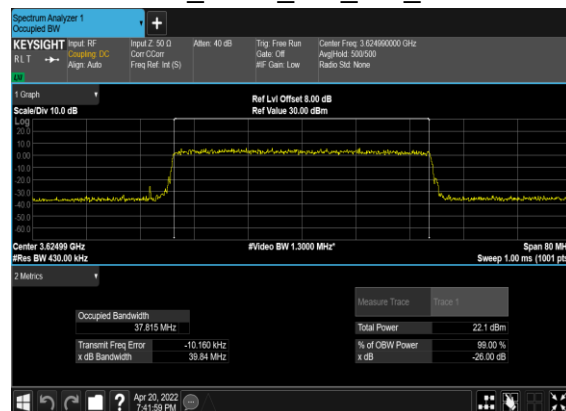
N48(40M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH



N48(40M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH



N48(40M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH



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	-14.9	-14.23	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM PI/2 BPSK	1@0	-8.52	-25.99	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM PI/2 BPSK	1@23	-26.01	-9.68	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	24@0	-13.87	-14.6	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@0	-8.11	-25.41	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@23	-25.34	-8.59	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	24@0	-13.32	-12.46	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@0	-1.65	-19.71	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@23	-24.46	-9.35	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	24@0	-12.53	-11.84	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@0	-8.85	-25.0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@23	-23.07	-6.06	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	24@0	-12.27	-11.31	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	1@0	-5.72	-23.05	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM PI/2 BPSK	1@23	-22.23	-5.07	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	24@0	-11.64	-11.53	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@0	-5.27	-22.28	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@23	-22.84	-6.89	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	50@0	-16.68	-17.26	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	1@0	-7.67	-22.6	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM PI/2 BPSK	1@50	-25.04	-9.82	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	50@0	-14.66	-15.56	see graph	PASS

48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@0	-10.14	-23.02	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@50	-22.23	-8.35	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	50@0	-14.92	-15.46	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@0	-6.22	-20.51	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@50	-21.59	-6.93	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	-13.6	-14.35	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@0	-7.63	-20.42	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@50	-20.67	-6.52	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM PI/2 BPSK	50@0	-14.12	-15.18	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM PI/2 BPSK	1@0	-5.89	-20.02	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM PI/2 BPSK	1@50	-20.61	-6.84	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	50@0	-12.86	-13.92	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@0	-6.91	-20.62	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@50	-19.77	-6.59	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM PI/2 BPSK	100@0	-15.24	-16.88	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM PI/2 BPSK	1@0	-8.98	-19.01	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM PI/2 BPSK	1@105	-18.13	-8.35	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	100@0	-14.32	-15.77	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@0	-8.95	-18.08	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@105	-18.61	-8.59	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	100@0	-14.46	-15.09	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@0	-4.76	-15.97	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM PI/2 BPSK	1@105	-18.9	-5.89	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	100@0	-13.67	-13.55	see graph	PASS

48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@0	-6.56	-17.54	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@105	-18.3	-6.12	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM PI/2 BPSK	100@0	-13.75	-14.84	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM PI/2 BPSK	1@0	-6.34	-17.42	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM PI/2 BPSK	1@105	-18.66	-7.14	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	100@0	-12.74	-13.5	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@0	-6.05	-16.86	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@105	-18.02	-7.69	see graph	PASS

Keysight Spectrum Analyzer 1
ACCP

KEYSIGHT Input: RF Input Z: 50 Ω Input Att: 30 dB
 R.L. →→→ Coupling: DC Corr: CCW PNO: Best Wide
 Align: Auto Freq Ref: Int (s) Trig: Free Run Gate: Off
 Span: Low Center Freq: 3.555000000 GHz
 Res: Std Noise Noise Correction: Off

1 Graph
 Scale/Div: 10.0 dB
 Ref Level Offset: 15.51 dBm
 Ref Value: 36.91 dBm

Center: 3.555000 GHz
 #Res BW 100 kHz
 Span: 30 MHz
 Sweep: 20.0 ms (1001 pts)

2 Metrics

Total Car Power	Measure Trace	Trace Type	Trace Average (Active)
21.964 dBm/10.00 MHz			

		ACP		Lower		Reference		ACP		Upper		Reference			
Offs Freq	Integ BW	dBc	dBm	dBm	Car #	dBc	dBm	dBm	Car #	dBc	dBm	dBm	Car #	Filter	
A	10.00 MHz	10.00 MHz	-44.90	-22.94	21.96	1	-44.23	-22.27	21.96	1	-3	dB			

Apr 15, 2022
8:16:53 AM

Spectrum Analyzer 1
ACP

KEYSIGHT Input RF
RL → Coating DC
Appl: Auto

Input 2: 50.0
Cen C: 3.555000 MHz
Freq Ref: 1st (S)

Att: 30.0 dB
PNO: Best Wide

Trig: Free Run
Gate: Off
IF Gain: Low

Center Freq: 3.555000000 MHz
Assigned: 151150
Ratio Set: None
Noise Correction: Off

1 Graph
Scale Div: 10.0 dB

Ref Level: 15.57 dBm
Ref Value: 36.97 dBm

38.52 dBc
22.09 dBm
55.1 dBc

Center: 3.555000 MHz
#Res: BW 100 kHz
#Video BW: 300.00 MHz

Span: 30 MHz
Sweep: 20.0 ms (1001 pts)

2 Metrics

Total CW Pair: 22.091 dBm/10.00 MHz
Total PSD: —

Measure Trace: Trace Type: Trace Average (Active)
Trace Type: Trace Average (Active)

Offs Freq	Integ BW	dBc	dBm	Reference	Car #	ACF	dBm	Reference	Car #	Filter
A: 10.00 MHz	10.00 MHz	-38.52	-16.43	22.09	1	-55.99	-33.90	22.09	1	-3 dB

Apr 15, 2022
8:17:15 AM

Keysight Spectrum Analyzer 1 ACP

KEYSIGHT Input RF: **Channeling DC** **Auto** **PASS**

R.L. **→** Input Z: 50 Ω **Core CC Core** **Align Auto**

Alt: 30 dB **PNO Best Wide** **Trig Free Run** **Gate: Off** **Center Freq: 3.55500000 GHz**

IF Gain: Low **IF Scan: Low** **Ratio Set: None** **Noise Correction: Off**

Ref Lvl Offset: 15.57 dB **Ref Value: 36.97 dBm**

Scale/Div 10.0 dB

Span 30 MHz

Center: 3.55500 GHz **#Video BW 300.00 kHz*** **Sweep 20.0 ms (1001 pts)**

2 Metrics

Total Car Power		Measure Trace		Trace Type		Trace Average (AC)	
Total PSD							
22.013 dBm/10.0 MHz							

		Lower		Reference		Upper			
Offs Freq	Integ BW	dBc	dBm	dBm	Car #	dBc	dBm	Car #	Filter
A	10.00 MHz	10.00 MHz	-56.01	-33.99	22.01	1	-39.68	-17.67	22.01 1 -3 dB

Apr 15, 2022 8:17:37 AM

The screenshot shows a Keysight Spectrum Analyzer interface. At the top, the 'KEYSIGHT' logo is visible. The main display area shows a spectrum plot with a video BW of 300.00 MHz. The trace is labeled 'PASS'. The plot shows a signal with a video BW of 300.00 MHz and a sweep rate of 20.0 ms. The trace is labeled 'PASS'. The plot shows a signal with a video BW of 300.00 MHz and a sweep rate of 20.0 ms. The trace is labeled 'PASS'.

Spectrum Analyzer 1 ACP

KEYSIGHT Input RF: RF
 Creating DC: Off
 Align: Auto

Input Z: 50 Ω
 Corr: Corr
 Ref: Ref Int (S)

Att: 30 dB
 PNO: Best Wide

Trig: Free Run
 Gate: Off
 IF Gain: Low

Center Freq: 3.555000000 GHz
 Arg1/Ref: 150/150
 States: Std None
 Noise Correction: Off

1 Graph
 Scale/Div: 10.0 dB

Ref Lvl Offset: 15.56 dB
 Ref Value: 36.95 dBm

Span: 30 MHz
 Sweep: 20.0 ms (1001 pts)

Center: 3.55500 GHz
 Span: 30 MHz
 Res BW: 100 kHz

#Video BW: 300.0 kHz

2 Metrics

Total Car Power	21.388 dBm/10.00 MHz	Measure Trace	Trace Type	Trace Average (Active)
Total PSD	---			

Lower					Upper					
Offs Freq	Integ BW	dBc	ACP dBm	Reference dBm	Car #	ACP dBm	Reference dBm	Car #	Filter	
A	10.00 MHz	10.00 MHz	-38.11	-16.73	21.39	1	-55.41	-34.02	21.39	1 -3 dB

Apr 15, 2020 8:18:22 AM

Spectrum Analyzer 1
ACP

KEYSIGHT Input RF: 3.555000 GHz
 RL: 15.56 dBm
 Appl: Auto
 Freq Ref: 1st (S)

Att: 30 dB
 P1dB: 36.96 dBm
 Freq: 3.555000000 GHz
 Span: 10 MHz
 Res: 30 kHz
 Noise Corr: Off

1 Graph
 Scale/Div: 10.0 dB

Center 3.555000 GHz
 Span 10 MHz
 Res BW 100 kHz
 Sweep 20.0 ms (1001 pts)

2 Metrics

Total Car Pwr	21.244 dBm/10.00 MHz	Measure Trace	Trace 1
Total PSD	---	Trace Type	Trace Average (Active)
Offs Freq	10.00 MHz	ACP	Reference
Integ BW	10.00 MHz	dBc	dBm
		dBm	Car #
A	10.00 MHz	-55.34	21.24
		-38.59	-17.35
		21.24	1 -3 dB

Apr 15, 2022 8:18:44 AM

Spectrum Analyzer 1
ACP

KEYSIGHT Input: RF
R.L. → → →
Align: Auto

Input Z: 50 Ω
Corr: CCW
Freq Ref: Int (s)

Att: 30 dB
P/N: Best Wide

Trig: Free Run
Gate: Off
IF Gain: Low

Center Freq: 3.624690000 GHz
Amp: 14.0 dBm
Noise Correction: Off

1 Graph
Scale/Div: 10.0 dB
Ref Lvl Offset: 15.55 dBm
Ref Value: 36.96 dBm

Center: 3.62469 GHz
#Res BW: 100 kHz
Span: 30 MHz
Sweep: 20.0 ms (1001 pts)

2 Metrics

Total Car Power	Measure Trace	Trace Type	Trace Average (Active)
21.709 dBm/10.00 MHz			

Offs Freq	Integ BW	dBc	ACP	Lower	Reference	ACP	Upper	Reference	Filter
			dBm	dBm	Car #	dBm	dBm	Car #	
A	10.00 MHz	10.00 MHz	-43.32	-21.62	21.71	1	-42.46	-20.75	1 -3 dB

Spectrum Analyzer 1
AC/PC

KEYSIGHT Input: RF, Output: DC, Trigger: Auto, Video: Off, Noise: Off, Span: 30 MHz, Center Freq: 3.624599 GHz, Span: 30 MHz, Res: 150 Hz, Video BW: 100 kHz, Sweep: 20.0 ms (1000 pts)

RL: **PASS**

1 Graph
Scale Div: 10.0 dB

Ref Level: 15.57 dBm
Ref Value: 36.87 dBm

31.7 dBc, 17.6 dBm, 49.7 dBc

Center: 3.624599 GHz
Span: 30 MHz
IF Res: BW 100 kHz
Video BW: 300.00 MHz
Sweep: 20.0 ms (1000 pts)

2 Metrics

Total	Carrier Pair	Trace Type	Trace Average (AC)
17.68 dBm/10.00 MHz			

Lower				Upper				
Offs Freq	Integ BW	dBc	dBm	Reference	AC/PC	Reference	Car #	Filter
A 10.00 MHz	10.00 MHz	-31.65	-13.88	17.77	1	-49.71	-31.94	1 -3 dB

Apr 15, 2022 8:20:30 AM

Spectrum Analyzer 1 ACP

KEYSIGHT Input RF: **DC** (passive) Input 2: 50.0 GHz Center Freq: 3.62499000 GHz
 R.L. → Auto Auto Corr CCW PNO Best Wide Trig Freq Run Gate: Off Arg444: 101150
OK PASS Ref Freq: 100 MHz Ratio Set: None Noise Correction: Off

1 Graph
 Scale/Div 10.0 dB
 Ref Lvl Offset: 15.57 dB
 Ref Value 36.97 dBm

Span 30 MHz
 Sweep 20.0 ms (1001 pts)

2 Metrics

Total Car Power	Measure Trace	Trace Type	Trace Average (Ave)
22.276 dBm/10.0 MHz			

Offs Freq	Integ BW	ACP	Lower	Reference	ACP	Upper	Reference	Filter
dBc	dBm	dBm	dBm	Car #	dBm	dBm	Car #	
10.00 MHz	10.00 MHz	-54.46	-32.19	22.28	1	-39.35	-17.08	22.28 1 -3 dB

Spectrum Analyzer 1
ACP

KEYSIGHT Input RF
RL $\rightarrow$ **Config DC**
Align: Auto

Input Z: 50 Ω
Cov Corr: Off
Freq Ref: 1st (S)

Attn: 30 dB
PNO: Best Wide

Trig: Free Run
Gate: Off
F: Gain Low

Center Freq: 3.62490000 GHz
Assigned: 101150
Ratio: Std Noise
Noise Correction: Off

OK PASS

1 Graph
Scale/Div: 10.0 dB

Ref Lvl Offset: 15.58 dBm
Ref Value: 36.98 dBm

27.0
17.0
7.0
-3.0
-13.0
-23.0
-33.0
-43.0
-53.0

-41.5 dBc

-21.7 dBm

-41.1 dBc

Center 3.62499 GHz
#Res BW 100 kHz

#Video BW 300.00 MHz

Span 30 MHz
Sweep 20.0 ms 10001 pts

2 Metrics

Total Cn Pair: 21.173 dBm/10.00 MHz
Total PSD: —

Measure Trace
Trace Type: Trace Average (ACQ)

Trace 1

Lower			Reference			Upper				
Offs Freq	Integ BW	dBc	dBm	dBm	Car #	ACP	dBm	Reference	Car #	Filter
A 10.00 MHz	10.00 MHz	-42.53	-21.35	21.17	1	-41.84	-20.07	21.17	1	-3 dB

Apr 15, 2022
8:22:36 AM

Spectrum Analyzer 1
ACP

KEYSIGHT Input RF
Creating DC
Align Auto

Rt. →
PASS

Input Z: 50 Ω
Corr Coef
Ref Flat Int (S)

Att'n: 30 dB
PNO: Best Wide

Trig Freq Run
Gate: Off
IF Gain: Low

Center Freq: 6.024900000 GHz
Amp'd Hdd: 150150
Stats Std: None
Noise Correction: Off

1 Graph
Scale/Div 10.0 dB

Ref Lvl Offset 15.57 dBm
Ref Value 36.57 dBm

-38.8 dBc
-32.8 dBm
-55.1 dBc

Center F 6.0249 GHz
BW Res 100 kHz
#Video BW 300.0 MHz

Span 30 MHz
Sweep 20.0 ms (1001 pts)

2 Metrics

Total Car Pwr	22.844 dBm/10.00 MHz	Measure Trace	Trace Type	Trace Average (Active)
Total PSD	--			

		Lower				Reference				Upper			
Offs Freq	Integ BW	dBc	dBm	Car #	dBm	dBm	Car #	dBm	dBm	Car #	Filter		
A	10.00 MHz	10.00 MHz	-38.85	-16.00	22.84	1	-55.00	-32.16	22.84	1	-3 dB		

Apr 15, 2020
8:22:35 AM

Spectrum Analyzer 1
ACPr

KEYSIGHT Input RF Input Z 50 Ω Con CCoat Freq Ref Int (S) Align: Auto

Ref Lvl Offset 15.57 dB
Ref Lvl Value 36.97 dBm

Center Freq: 3.62499000 GHz
AvgMode: 153150
Ratio Sds: None
Noise Correction: Off

1 Graph
Scale/Div 10.0 dB

Center 3.62499 GHz
dBres BW 100 kHz
FVideo BW 300.00 MHz
Span 10 MHz
Sweep 20.0 ms (1001 pts)

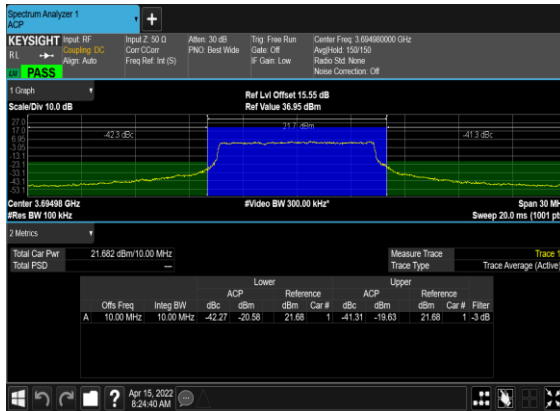
2 Metrics

Total Car Pwr 20.683 dBm/10.00 MHz
Total PSD

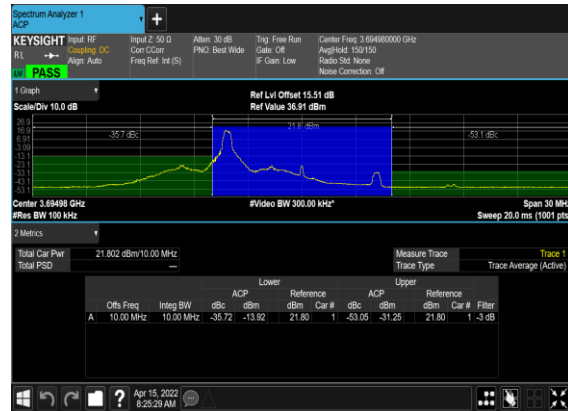
Lower				Upper			
Offs Freq	Integ BW	dBc	dBm	Reference	dBm	Car #	Filter
A 10.00 MHz	10.00 MHz	-53.07	-32.39	20.68	-36.06	-15.38	1 -3 dB

Measure Trace Trace Type Trace Average (Active)

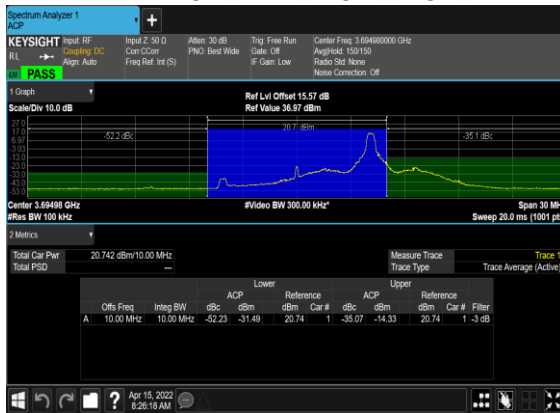
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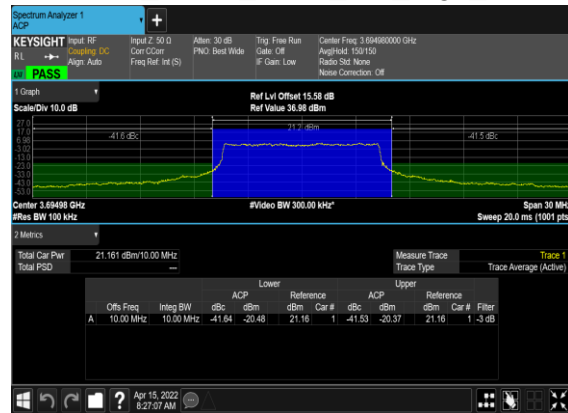
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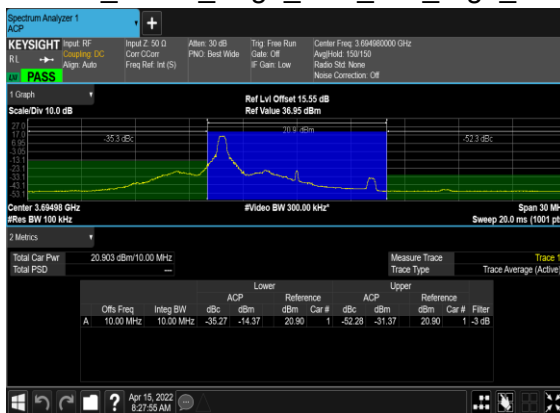
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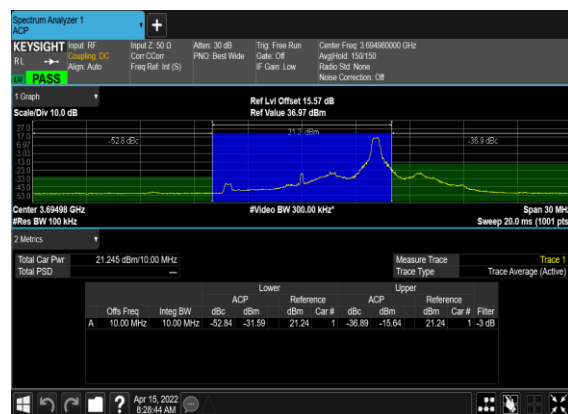
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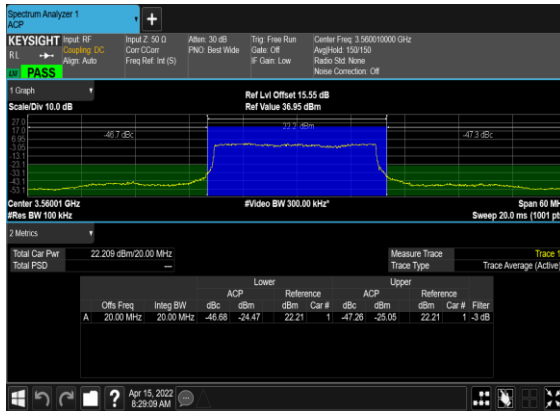
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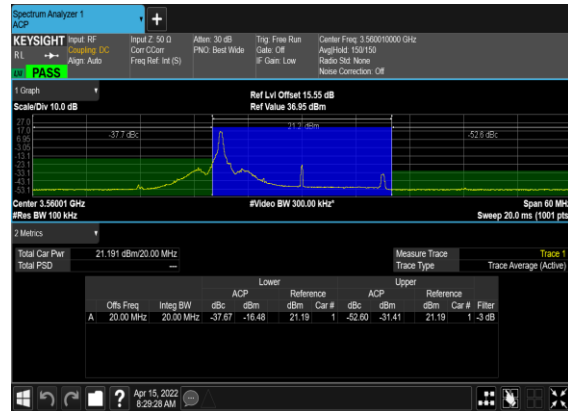
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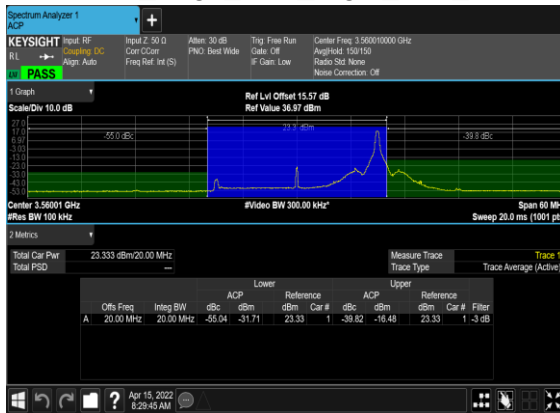
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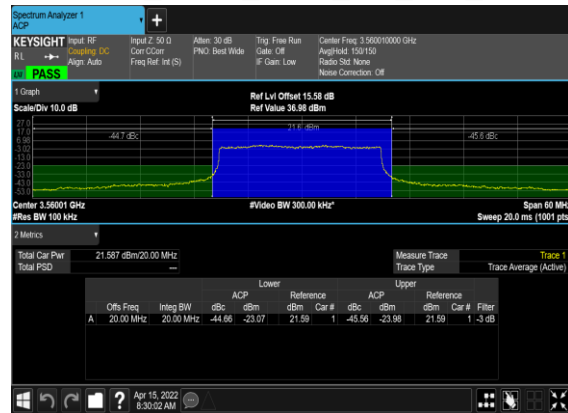
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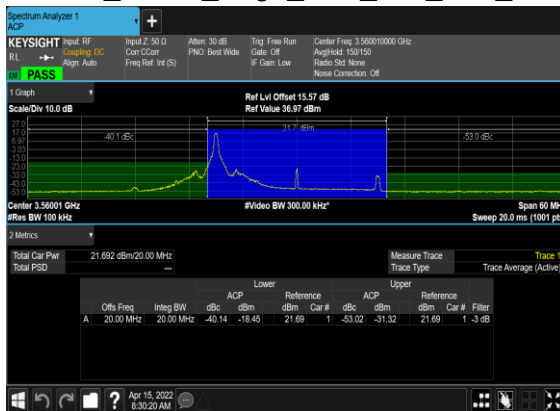
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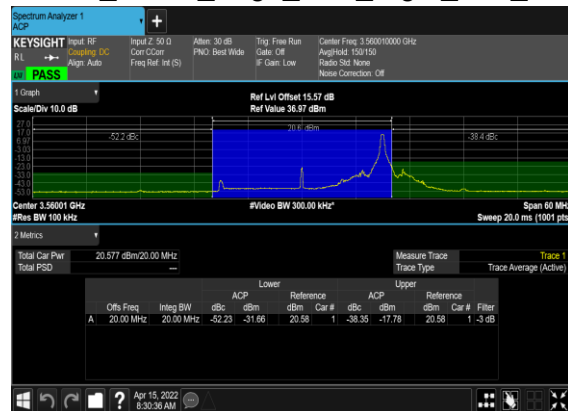
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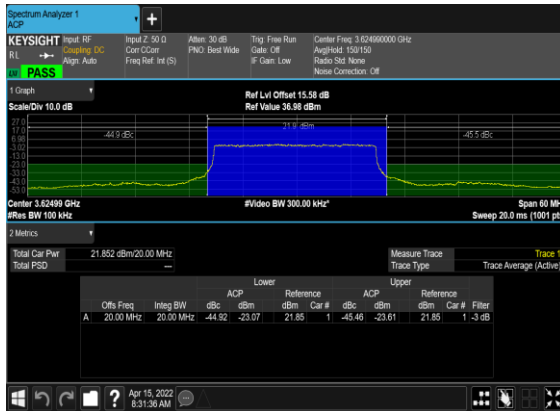
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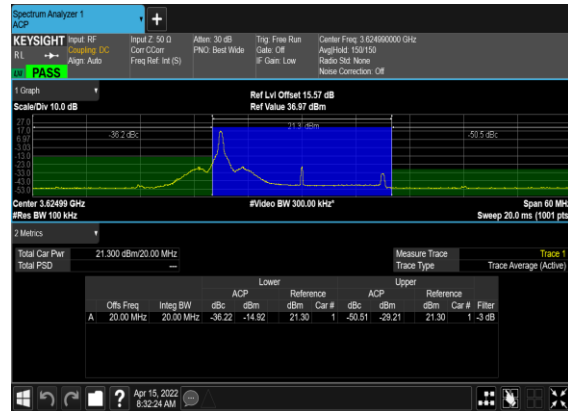
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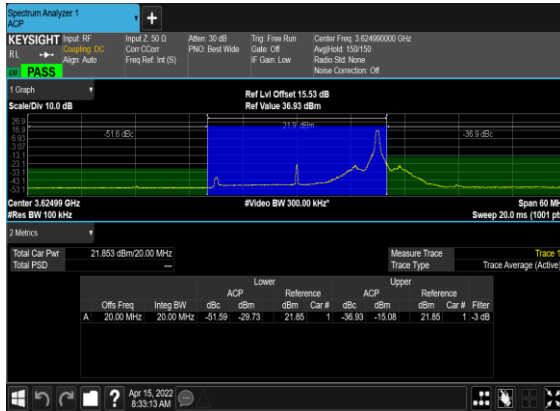
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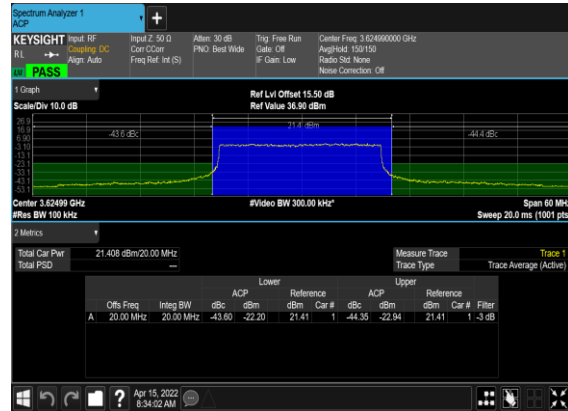
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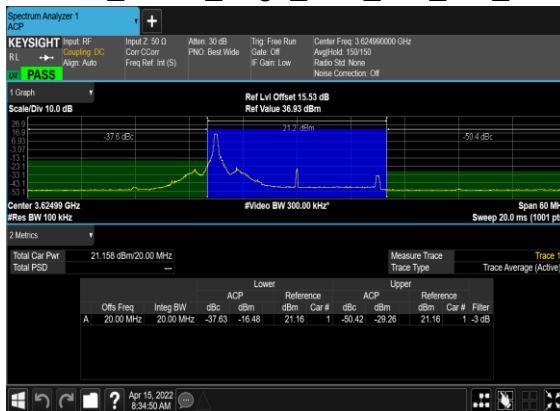
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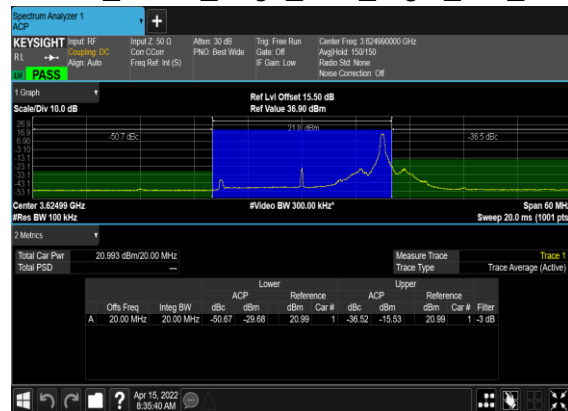
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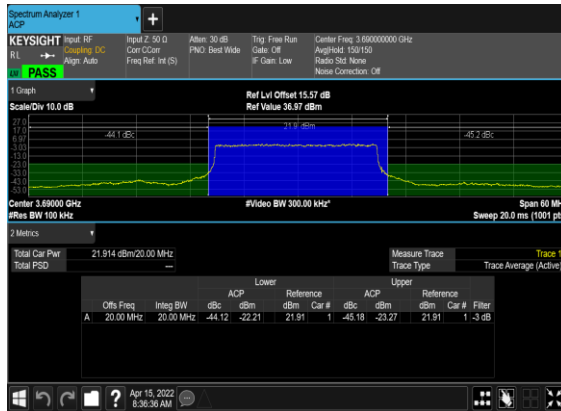
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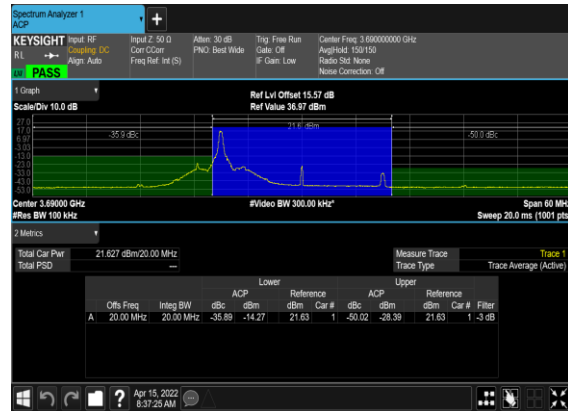
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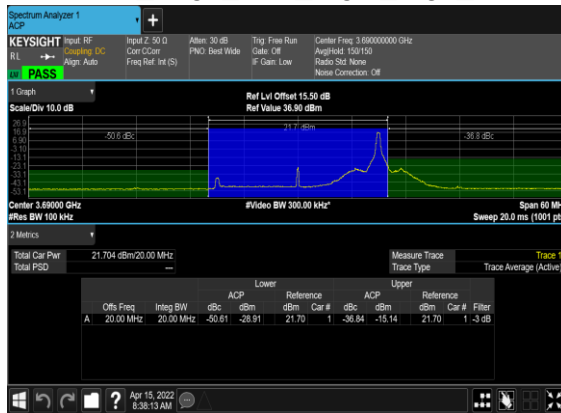
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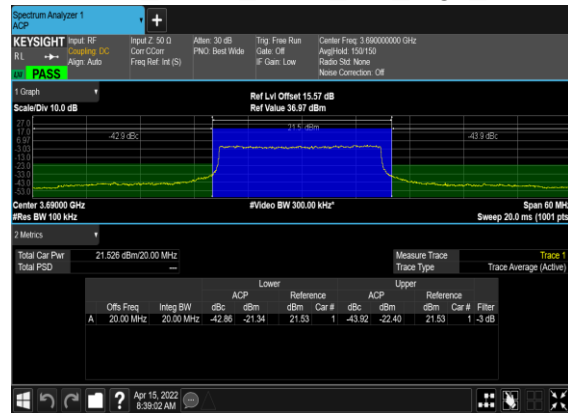
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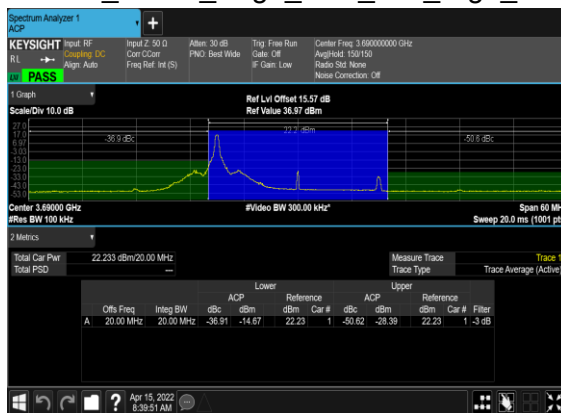
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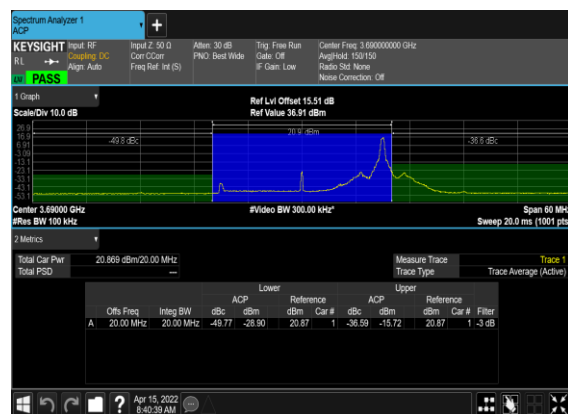
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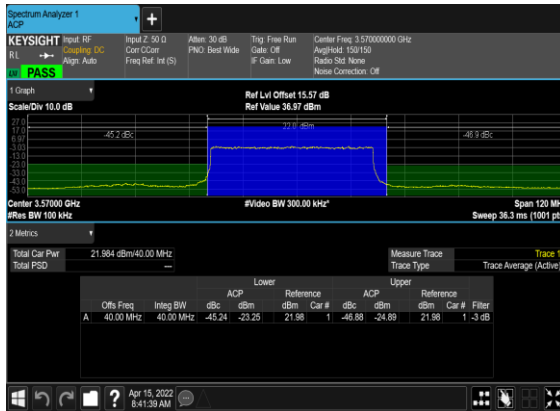
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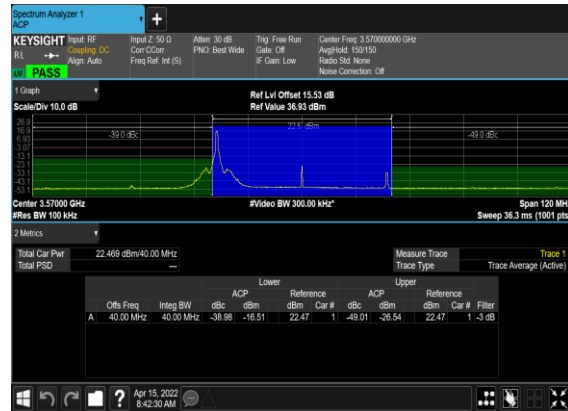
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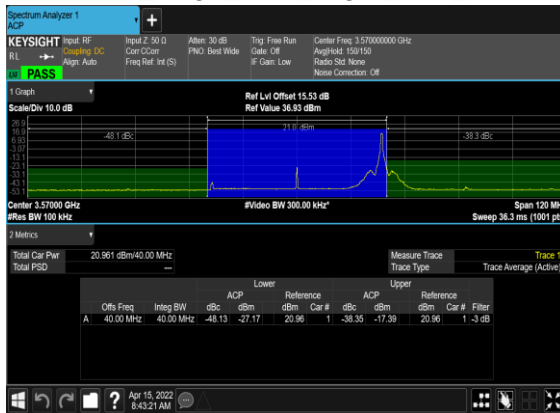
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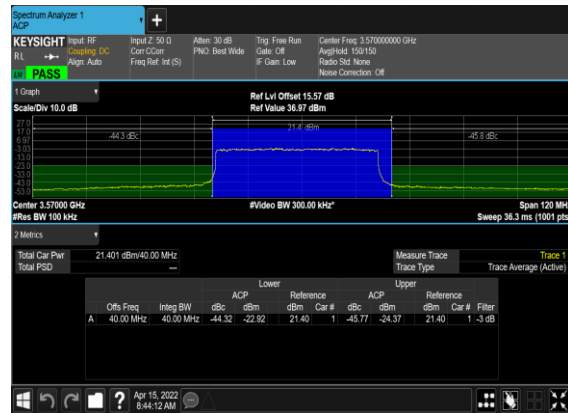
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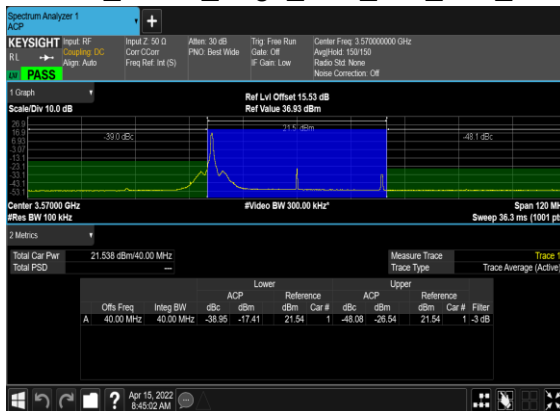
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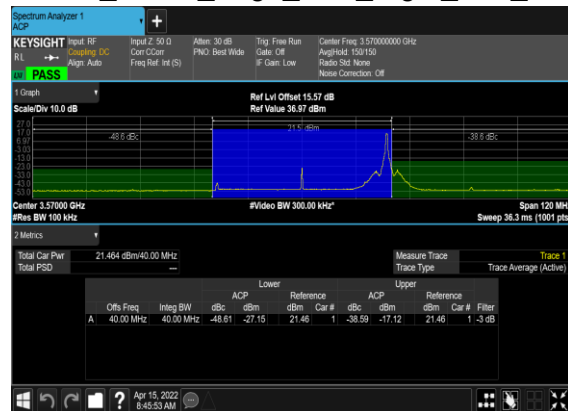
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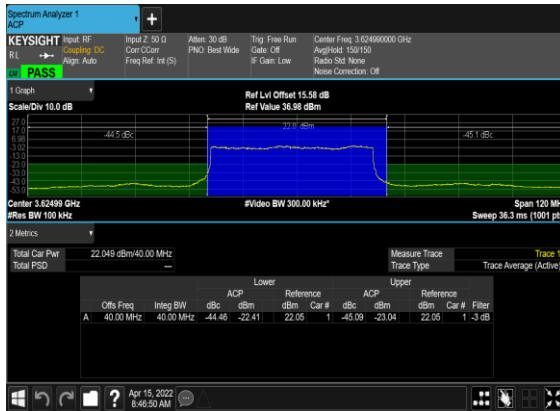
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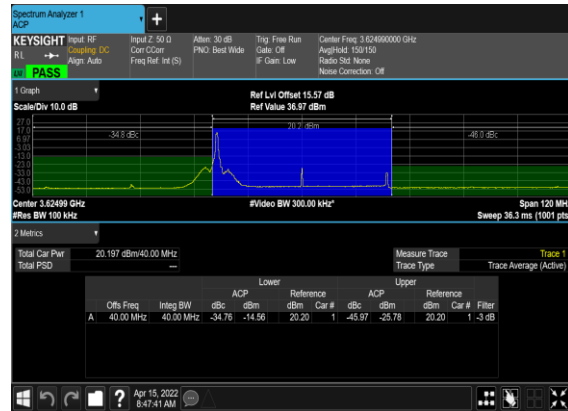
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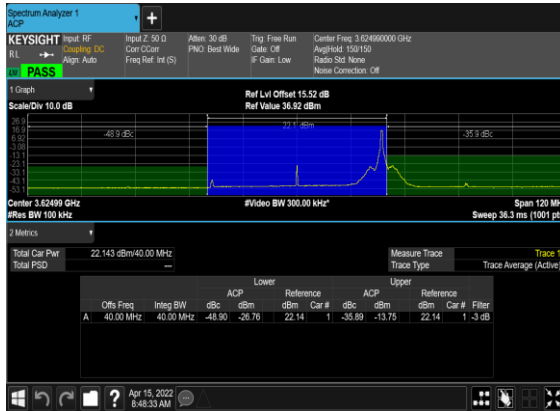
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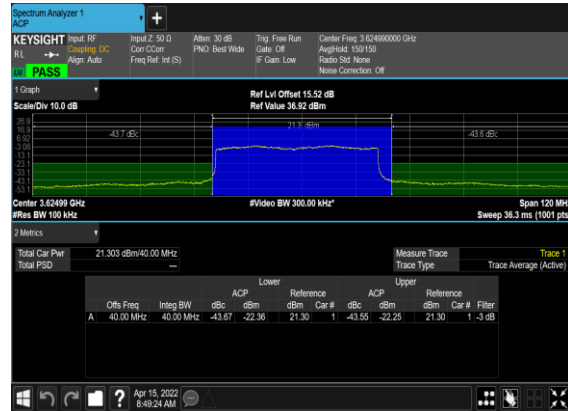
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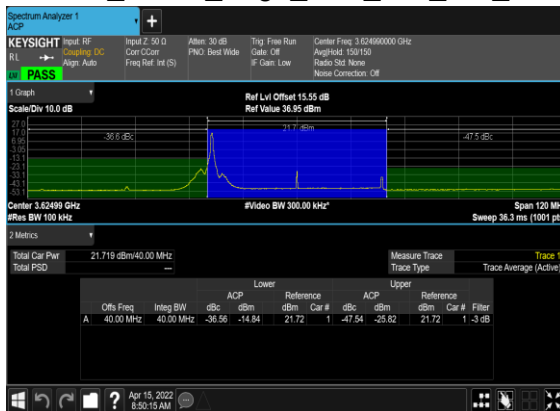
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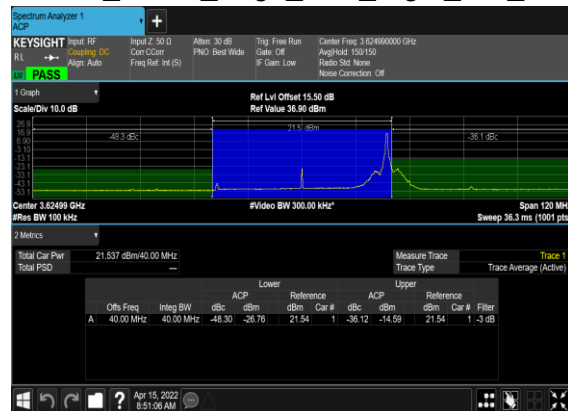
N48(40M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



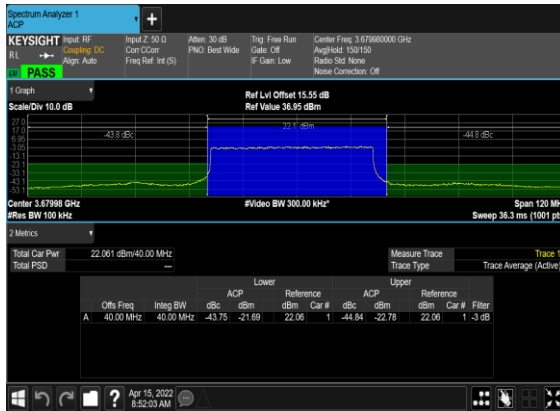
N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



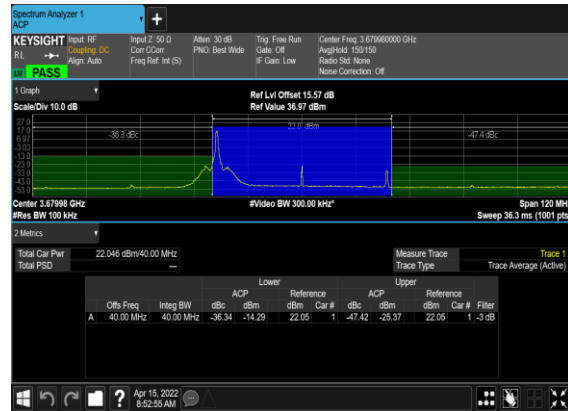
N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_Mid_CH



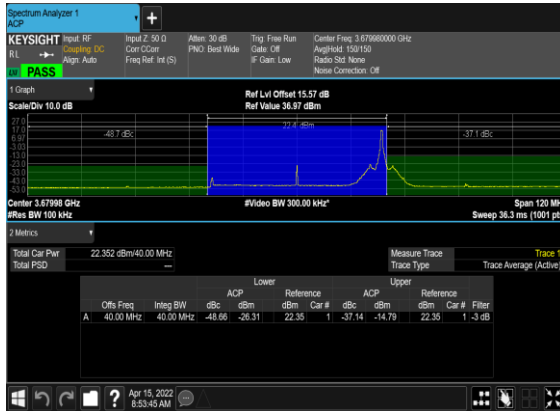
N48(40M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_High_CH



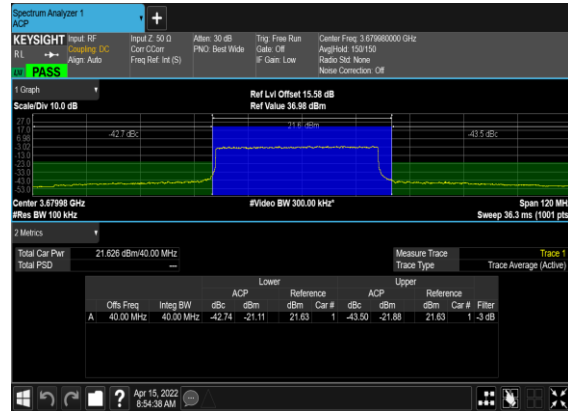
N48(40M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_High_CH



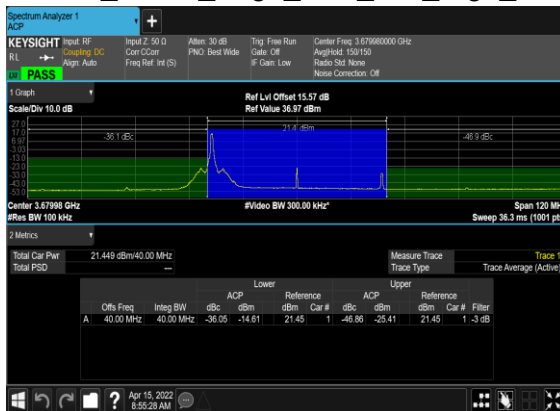
N48(40M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Right_High_CH



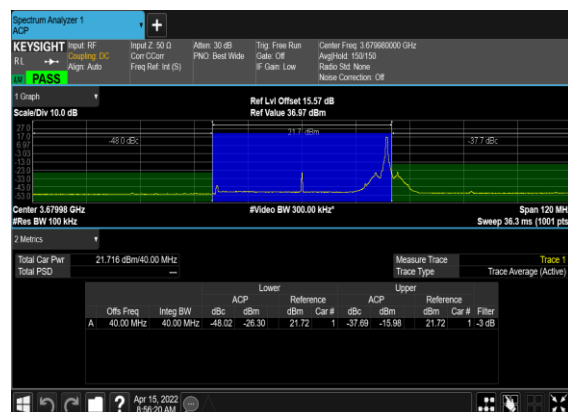
N48(40M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@0	see graph	---
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	1@23	see graph	---
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	1@23	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	1@23	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@23	see graph	---
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@23	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	1@23	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	24@0	see graph	---
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	24@0	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM BPSK	24@0	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	24@0	see graph	---
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	24@0	see graph	PASS
48	30	10	637000	3555.0	DFT-s-OFDM QPSK	24@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	---

48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	1@23	see graph	---
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	1@23	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	1@23	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@23	see graph	---
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@23	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	1@23	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	24@0	see graph	---
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	24@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM BPSK	24@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	24@0	see graph	---
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	24@0	see graph	PASS
48	30	10	641666	3624.99	DFT-s-OFDM QPSK	24@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@0	see graph	---
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	1@23	see graph	---
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	1@23	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	1@23	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@23	see graph	---

48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@23	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	1@23	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	24@0	see graph	---
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	24@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM BPSK	24@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	24@0	see graph	---
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	24@0	see graph	PASS
48	30	10	646332	3694.98	DFT-s-OFDM QPSK	24@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@0	see graph	---
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	1@50	see graph	---
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	1@50	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	1@50	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@50	see graph	---
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@50	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	1@50	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	50@0	see graph	---
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	50@0	see graph	---

48	30	20	637334	3560.01	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	30	20	637334	3560.01	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	---
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	1@50	see graph	---
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	1@50	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	1@50	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@50	see graph	---
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@50	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	1@50	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	50@0	see graph	---
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	see graph	---
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	30	20	641666	3624.99	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@0	see graph	---

48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	1@50	see graph	---
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	1@50	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	1@50	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@50	see graph	---
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@50	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	1@50	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	50@0	see graph	---
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	50@0	see graph	---
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	30	20	646000	3690.0	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@0	see graph	---
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	1@105	see graph	---
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@105	see graph	---

48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	100@0	see graph	---
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	100@0	see graph	---
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	100@0	see graph	PASS
48	30	40	638000	3570.0	DFT-s-OFDM QPSK	100@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	---
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	1@105	see graph	---
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@105	see graph	---
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	100@0	see graph	---
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	100@0	see graph	---

48	30	40	641666	3624.99	DFT-s-OFDM QPSK	100@0	see graph	PASS
48	30	40	641666	3624.99	DFT-s-OFDM QPSK	100@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	1@0	see graph	---
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@0	see graph	---
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	1@105	see graph	---
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@105	see graph	---
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	100@0	see graph	---
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	100@0	see graph	---
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	100@0	see graph	PASS
48	30	40	645332	3679.98	DFT-s-OFDM QPSK	100@0	see graph	PASS