

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 96
47 CFR FCC Part 2

Report No.: RFBBQZ-WTW-P24030292-7

FCC ID: PY324100618

Product: Nighthawk 5G Mobile Router

Brand: NETGEAR

Model No.: MR7400

Received Date: 2024/3/18

Test Date: 2024/3/27 ~ 2024/6/27

Issued Date: 2024/7/1

Applicant and Manufacturer: NETGEAR, INC.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration /

Designation Number: 788550 / TW0003

Approved by: _____

Jeremy Lin

Date: _____

2024/7/1

Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBBQZ-WTW-P24030292-7	Original release.	2024/7/1

1 Certificate

Product: Nighthawk 5G Mobile Router

Brand: NETGEAR

Test Model: MR7400

Sample Status: Engineering sample

Applicant and Manufacturer: NETGEAR, INC.

Test Date: 2024/3/27 ~ 2024/6/27

Standard: 47 CFR FCC Part 96
47 CFR FCC Part 2

Measurement procedure: ANSI/TIA/EIA-603-E 2016
ANSI C63.26-2015
KDB 971168 D01 Power Meas License Digital Systems v03r01
KDB 940660 D01 Part 96 CBRS Eqpt v03
KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

Standard / Clause	Test Item	Result	Remark
Part 2.1046 Part 96.41(b)	Maximum EIRP	Pass	Meet the requirement of limit.
Part 2.1047	Modulation Characteristics	Pass	Meet the requirement of limit.
Part 2.1046 Part 96.41(b)	Maximum Power Spectral Density	N/A	This device is End User Device.
Part 96.41(g)	Peak to Average Ratio	Pass	Meet the requirement of limit.
Part 2.1049	Bandwidth	Pass	Meet the requirement of limit.
Part 2.1051 Part 96.41(e)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
Part 2.1053 Part 96.41(e)	Radiated Spurious Emissions below 1GHz	Pass	Minimum passing margin is -2.80 dB at 51.22 MHz
Part 2.1053 Part 96.41(e)	Radiated Spurious Emissions above 1GHz	Pass	Minimum passing margin is -1.03 dB at 7249.98 MHz
Part 2.1055	Frequency Stability	Pass	Meet the requirement of limit.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Specification	Uncertainty (±)
Effective Radiated Power and Equivalent Isotropically Radiated Power	18 GHz ~ 40 GHz	2.29 dB
	1 GHz ~ 18 GHz	2.29 dB
Peak to Average Ratio	-	0.920 dB
Bandwidth	-	960 Hz
Conducted Spurious Emissions	-	2.12 dB
Radiated Spurious Emissions below 1GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.64 dB
Radiated Spurious Emissions above 1GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB
Frequency Stability	-	0.176 ppm

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Nighthawk 5G Mobile Router
Brand	NETGEAR
Test Model	MR7400
Status of EUT	Engineering sample
Power Supply Rating	3.85Vdc from battery 5Vdc or 9Vdc or 12Vdc from adapter
EUT Category	End User Device

Note:

1. EUT Overview

SISO Mode

Mode	Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz)	10 MHz	3555 ~ 3694.98	BPSK	0.141	21.5	8M58G7D
			QPSK	0.179	22.52	8M58G7D
			16QAM	0.141	21.49	8M58D7W
			64QAM	0.112	20.48	8M59D7W
			256QAM	0.088	19.46	8M58D7W
	15 MHz	3557.52 ~ 3692.49	BPSK	0.182	22.61	12M9G7D
			QPSK	0.185	22.66	13M6G7D
			16QAM	0.147	21.66	13M6D7W
			64QAM	0.116	20.65	13M6D7W
			256QAM	0.092	19.66	13M6D7W
	20 MHz	3560.01 ~ 3690	BPSK	0.181	22.57	17M9G7D
			QPSK	0.182	22.59	18M2G7D
			16QAM	0.145	21.6	18M2D7W
			64QAM	0.132	21.19	18M2D7W
			256QAM	0.091	19.61	18M2D7W
	30 MHz	3565.02 ~ 3684.99	BPSK	0.185	22.66	26M8G7D
			QPSK	0.186	22.69	27M8G7D
			16QAM	0.152	21.82	27M8D7W
			64QAM	0.119	20.77	27M8D7W
			256QAM	0.093	19.69	27M8D7W
	40 MHz	3570 ~ 3679.98	BPSK	0.187	22.73	35M7G7D
			QPSK	0.189	22.77	37M8G7D
			16QAM	0.15	21.76	37M8D7W
			64QAM	0.132	21.22	37M8D7W
			256QAM	0.094	19.74	37M8D7W

MIMO Mode

Mode	Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz)	10 MHz	3555 ~ 3694.98	QPSK	0.131	21.17	8M61G7D
			16QAM	0.104	20.19	8M63D7W
			64QAM	0.084	19.24	8M57D7W
			256QAM	0.067	18.23	8M62D7W
	15 MHz	3557.52 ~ 3692.49	QPSK	0.140	21.47	13M6G7D
			16QAM	0.111	20.47	13M6D7W
			64QAM	0.088	19.46	13M6D7W
			256QAM	0.071	18.49	13M6D7W
	20 MHz	3560.01 ~ 3690	QPSK	0.133	21.24	18M2G7D
			16QAM	0.105	20.22	18M2D7W
			64QAM	0.083	19.21	18M2D7W
			256QAM	0.067	18.23	18M2D7W
	30 MHz	3565.02 ~ 3684.99	QPSK	0.132	21.19	27M8G7D
			16QAM	0.104	20.19	27M8D7W
			64QAM	0.083	19.18	27M8D7W
			256QAM	0.066	18.17	27M8D7W
	40 MHz	3570 ~ 3679.98	QPSK	0.141	21.49	37M8G7D
			16QAM	0.112	20.49	37M7D7W
			64QAM	0.090	19.52	37M8D7W
			256QAM	0.072	18.55	37M7D7W

2. The EUT uses following accessories.

AC Adapter 1			
Brand	Model	Part Number	Specification
NETGEAR	2AFH0183AA	332-11642-01	AC Input : 100-240Vac, 50/60Hz, 0.5A DC Output : 5.0V, 3.0A, 15.0W 9.0V, 2.0A, 18.0W 12.0V, 1.5A, 18.0W DC Output Cable : N/A Plug : US Manufacturer : CWT
AC Adapter 2			
Brand	Model	Part Number	Specification
NETGEAR	AD2122F20	332-11106-03	AC Input : 100-240V, 50/60Hz, 0.5A DC Output : 5V, 2.0A 9V, 1.8A DC Output Cable : N/A Plug : US Manufacturer : PIE
Battery			
Brand	Model	Part Number	Specification
NETGEAR	W-20b	308-10100-01	Power Rating : 3.85Vdc, 19.96Wh
USB Cable 1			
Brand		Model	Specification
HORTON		D0017100R37HR	Signal Line : 1m
USB Cable 2			
Brand		Model	Specification
LUXSHARE PRECISION INDUSTRY		LZZUC052-CS-H	Signal Line : 1m

3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Type		Monopole	
5GNR Band			
Band	Freq. Range (MHz)	Gain (dBi)	
		Ant. 1	Ant. 2
5GNR B48	3550 ~ 3700	2.31	1.91

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

Antenna Type		External	
External Connector		TS9	
LTE Band			
Band	Freq. Range (MHz)	Gain (dBi)	
		Ant. 1	Ant. 2
5GNR B48	3550 ~ 3700	0.17	1.66

Note:

1. TS9 connector is for the external antennas, while the external antennas are connected, RF outputs are switch from internal 1/2 to the external one.
2. The maximum antenna gain allowed for the external antenna is limited by the internal antenna gain, also illustrated in the user manual.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. For Unwanted Emission (below 1GHz) items: Battery/AC Adapter/USB Cable. Pre-scan these modes and find the worst case as a representative test condition. 2. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 3. The EUT supports SISO and MIMO modes, and all test items are pre-tested to evaluate worst-case modes. Except for the maximum EIRP power and peak average ratio test items, the worst case is SISO mode, and the worst case of other test items is MIMO mode. Therefore, the test is performed in worst case mode and recorded in the report.
Worst Case:	1. AC Adapter 1 + USB Cable 1 2. Z-Axis
Operation Mode:	SA

Following channel(s) was (were) selected for the final test as listed below:

3.3.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – SISO

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Maximum EIRP	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637168(3557.52 MHz) 641666(3624.99 MHz) 646166(3692.49 MHz)	15 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637668 (3565.02 MHz) 641666 (3624.99 MHz) 645666 (3684.99 MHz)	30 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
Modulation Characteristics	641666 (3624.99 MHz)	40 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full RB
Peak to Average Ratio	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637168 (3557.52 MHz) 641666 (3624.99 MHz) 646166 (3692.49 MHz)	15 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637668 (3565.02 MHz) 641666 (3624.99 MHz) 645666 (3684.99 MHz)	30 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Bandwidth	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full RB
	637168 (3557.52 MHz) 641666 (3624.99 MHz) 646166 (3692.49 MHz)	15 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full RB
	637668 (3565.02 MHz) 641666 (3624.99 MHz) 645666 (3684.99 MHz)	30 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full RB

3.3.2 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – MIMO

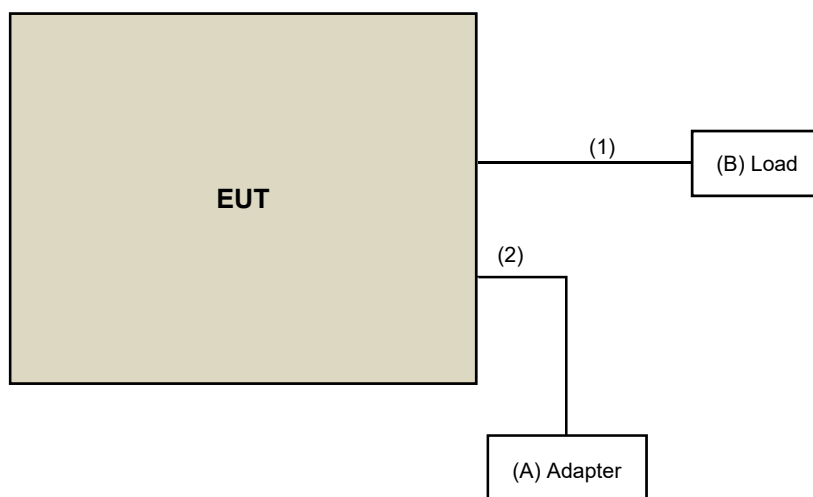
Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Maximum EIRP	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	QPSK / 64QAM / 256QAM	1 RB
	637168 (3557.52 MHz) 641666 (3624.99 MHz) 646166 (3692.49 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	QPSK / 64QAM / 256QAM	1 RB
	637668 (3565.02 MHz) 641666 (3624.99 MHz) 645666 (3684.99 MHz)	30 MHz	QPSK / 64QAM / 256QAM	1 RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	QPSK / 64QAM / 256QAM	1 RB
Modulation Characteristics	641666 (3624.99 MHz)	40 MHz	QPSK / 64QAM / 256QAM	Full RB
Peak to Average Ratio	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	QPSK / 64QAM / 256QAM	1 RB
	637168 (3557.52 MHz) 641666 (3624.99 MHz) 646166 (3692.49 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	QPSK / 64QAM / 256QAM	1 RB
	637668 (3565.02 MHz) 641666 (3624.99 MHz) 645666 (3684.99 MHz)	30 MHz	QPSK / 64QAM / 256QAM	1 RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	QPSK / 64QAM / 256QAM	1 RB
Bandwidth	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	QPSK / 64QAM / 256QAM	Full RB
	637168 (3557.52 MHz) 641666 (3624.99 MHz) 646166 (3692.49 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	QPSK / 64QAM / 256QAM	Full RB
	637668 (3565.02 MHz) 641666 (3624.99 MHz) 645666 (3684.99 MHz)	30 MHz	QPSK / 64QAM / 256QAM	Full RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	QPSK / 64QAM / 256QAM	Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Spurious Emissions	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	QPSK	1 RB Full RB
	637168 (3557.52 MHz) 641666 (3624.99 MHz) 646166 (3692.49 MHz)	15 MHz	QPSK	1 RB Full RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	QPSK	1 RB Full RB
	637668 (3565.02 MHz) 641666 (3624.99 MHz) 645666 (3684.99 MHz)	30 MHz	QPSK	1 RB Full RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	641666 (3624.99 MHz)	40 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	637000 (3555.00 MHz) 641666 (3624.99 MHz) 646332 (3694.98 MHz)	10 MHz	QPSK	1 RB
	637334 (3560.01 MHz) 641666 (3624.99 MHz) 646000 (3690.00 MHz)	20 MHz	QPSK	1 RB
	638000 (3570.00 MHz) 641666 (3624.99 MHz) 645332 (3679.98 MHz)	40 MHz	QPSK	1 RB
Frequency Stability	637000 (3555.00 MHz) 646332 (3694.98 MHz)	10 MHz	QPSK	Full RB
	637168 (3557.52 MHz) 646166 (3692.49 MHz)	15 MHz	QPSK	Full RB
	637334 (3560.01 MHz) 646000 (3690.00 MHz)	20 MHz	QPSK	Full RB
	637668 (3565.02 MHz) 645666 (3684.99 MHz)	30 MHz	QPSK	Full RB
	638000 (3570.00 MHz) 645332 (3679.98 MHz)	40 MHz	QPSK	Full RB

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

3.5 Connection Diagram of EUT and Peripheral Devices



Remote Site



WWAN

(C) 5G Wireless Test
Platforms

3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	NETGEAR	2AFH0183AA	NA	NA	Accessory of EUT
B.	Load	NA	NA	NA	NA	Provided by Lab
C.	5G Wireless Test Platforms	Keysight	E7515B	MY60102114	N/A	Provided by Lab

No.	Cable Descriptions	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Qty.)	Remark
1.	RJ45 Cable	1	1.5	No	0	Provided by Lab
2.	USB Cable	1	1	Yes	0	Accessory of EUT

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Maximum EIRP

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2023/11/12	2024/11/11
	BBHA 9170	9170-480	2023/11/12	2024/11/11
		BBHA9170243	2023/11/12	2024/11/11
MXE EMI Receiver Keysight	N9038B	MY60180018	2024/3/13	2025/3/12
Preamplifier Agilent	8449B	3008A02367	2024/1/6	2025/1/5
Preamplifier EMCI	EMC 184045	980116	2023/9/27	2024/9/26
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2023/7/8	2024/7/7
	EMC102-KM-KM-3000	150929	2023/7/8	2024/7/7
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2024/1/6	2025/1/5
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2024/1/6	2025/1/5
Signal & Spectrum Analyzer R&S	FSW43	101867	2023/12/29	2024/12/28
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2024/6/5

4.2 Modulation Characteristics

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer Keysight	N9030B	MY57140938	2024/3/20	2025/3/19
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
UXM 5G Wireless Test Platform Keysight	E7515B	MY59321376	2024/3/18	2025/3/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/4/9 ~ 2024/6/27

4.3 Peak to Average Ratio

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer Keysight	N9030B	MY57140938	2024/3/20	2025/3/19
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
UXM 5G Wireless Test Platform Keysight	E7515B	MY59321376	2024/3/18	2025/3/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/4/26 ~ 2024/6/27

4.4 Bandwidth

Refer to section 4.3 to get information of the instruments.

4.5 Conducted Spurious Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer Keysight	N9030B	MY57140938	2024/3/20	2025/3/19
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
UXM 5G Wireless Test Platform Keysight	E7515B	MY59321376	2024/3/18	2025/3/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/4/15 ~ 2024/4/29

4.6 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower inn-co GmbH	MA 4000	010303	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-155	2023/10/13	2024/10/12
EMI Test Receiver R&S	ESR3	102782	2023/12/7	2024/12/6
Loop Antenna Electro-Metrics	EM-6879	269	2023/9/23	2024/9/22
Loop Antenna TESEQ	HLA 6121	45745	2023/8/8	2024/8/7
Preamplifier Agilent	8447D	2944A10631	2023/5/7 2024/5/1	2024/5/6 2025/4/30
Preamplifier EMCI	EMC001340	980201	2023/9/27	2024/9/26
RF Coaxial Cable Woken	8D-FB	Cable-CH4-01	2023/7/8	2024/7/7
Signal & Spectrum Analyzer R&S	FSW43	101582	2023/4/13 2024/4/12	2024/4/12 2025/4/11
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 3.
2. Tested Date: 2024/3/27 ~ 2024/5/8

4.7 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower inn-co GmbH	MA 4000	010303	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
EMI Test Receiver R&S	ESR3	102782	2023/12/7	2024/12/6
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-408	2023/11/12	2024/11/11
	BBHA 9170	9170-480	2023/11/12	2024/11/11
		BBHA9170241	2023/10/16	2024/10/15
		BBHA9170243	2023/11/12	2024/11/11
Preamplifier EMCI	EMC 184045	980116	2023/9/27	2024/9/26
Preamplifier Keysight	83017A	MY53270295	2023/5/7 2024/5/1	2024/5/6 2025/4/30
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2023/7/8	2024/7/7
	EMC102-KM-KM-3000	150929	2023/7/8	2024/7/7
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	2023/5/7 2024/5/1	2024/5/6 2025/4/30
	Sucoflex 104	MY 13380+295012/04	2023/5/7 2024/5/1	2024/5/6 2025/4/30
Signal & Spectrum Analyzer R&S	FSW43	101582	2023/4/13 2024/4/12	2024/4/12 2025/4/11
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 3.
2. Tested Date: 2024/3/28 ~ 2024/5/3

4.8 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	87III	70360742	2023/7/6	2024/7/5
PXA Signal Analyzer Keysight	N9030B	MY57140938	2024/3/20	2025/3/19
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber Terchy	HRM-120RF	931022	2023/12/19	2024/12/18
UXM 5G Wireless Test Platform Keysight	E7515B	MY59321376	2024/3/18	2025/3/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/6/14

5 Limits of Test Items

5.1 Maximum EIRP

Device		Maximum EIRP (dBm/10 MHz)
☒	End User Device	23
☐	Category A CBSD	30
☐	Category B CBSD	47

5.2 Modulation Characteristic

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

5.3 Peak to Average Ratio

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.

5.4 Bandwidth

According to FCC 47 CFR part 2.1049, the occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission.

5.5 Conducted Spurious Emissions

The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B MHz (where B is the bandwidth in MHz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B MHz below the lower CBSD-assigned channel edge. At all frequencies greater than B MHz above the upper CBSD assigned channel edge and less than B MHz below the lower CBSD-assigned channel edge, the conducted power of any end user device emission shall not exceed -25 dBm/MHz.

Additional protection levels: 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.

Note: The device has MIMO function, so the limit of conducted spurious emissions need to be reduced by $10\log(\text{Numbers}_{\text{ANT}})$ according to FCC KDB 662911 D01 guidance.

5.6 Radiated Spurious Emissions below 1GHz

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

5.7 Radiated Spurious Emissions above 1GHz

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

5.8 Frequency Stability

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation (authorized frequency block).

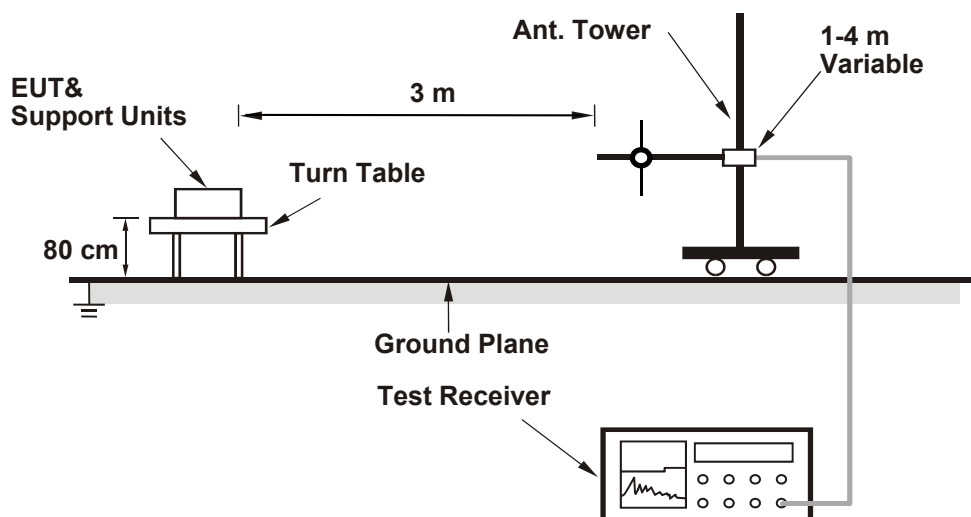
6 Test Arrangements

6.1 Maximum EIRP

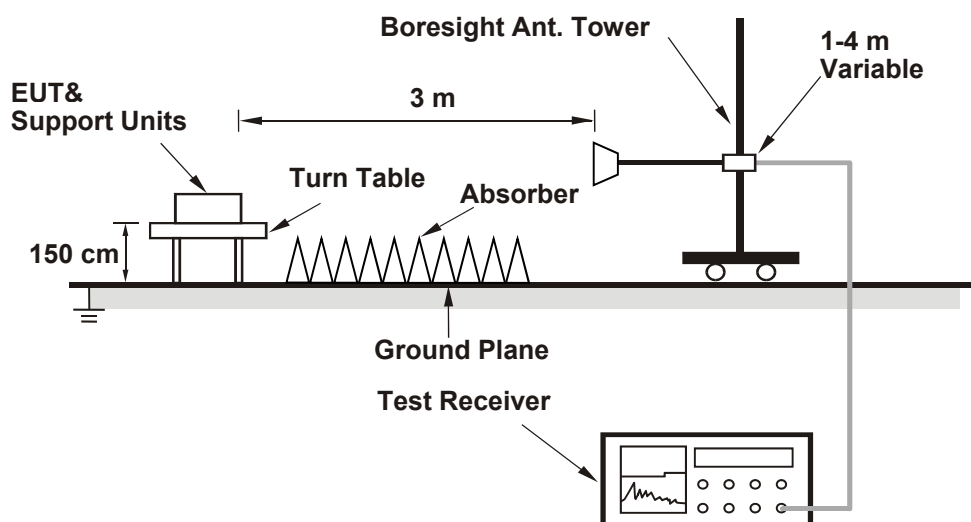
6.1.1 Test Setup

Radiated Power EIRP / ERP Measurement:

For Radiated Emission below or equal 1 GHz



For Radiated Emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.1.2 Test Procedure

Radiated Power EIRP / ERP Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

Set the EUT to transmit under low, middle and high channel and record the power level shown on spectrum analyzer.

- In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
 - The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
 - Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
 - Following C63.26 section 5.5 and 5.2.7. Set the detector to power averaging (rms) detector.
- EIRP (dBm) = $E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
 - ERP (dBm) = $E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

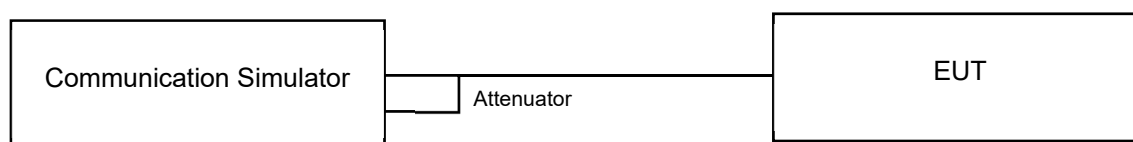
Spectrum analyzer setting as below:

Measurement method refers to ANSI C63.26 section 5.2.4.4.

- Set span to $2 \times$ to $3 \times$ the OBW.
- Set RBW = 1% to 5% of the OBW.
- Set VBW $\geq 3 \times$ RBW.
- Set number of measurement points in sweep $\geq 2 \times$ span / RBW.
- Set Sweep time = auto-couple.
- Detector = power averaging (rms).
- Set sweep trigger to "free run."
- Trace average at least 100 traces in power averaging (rms) mode.
- Compute power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function with band/channel limits set equal to the OBW band edges.
- If Duty cycle < 98%, Add $10 \log (1/\text{duty cycle})$ to the measured power level to compute the average power during continuous transmission.

6.2 Modulation Characteristics

6.2.1 Test Setup

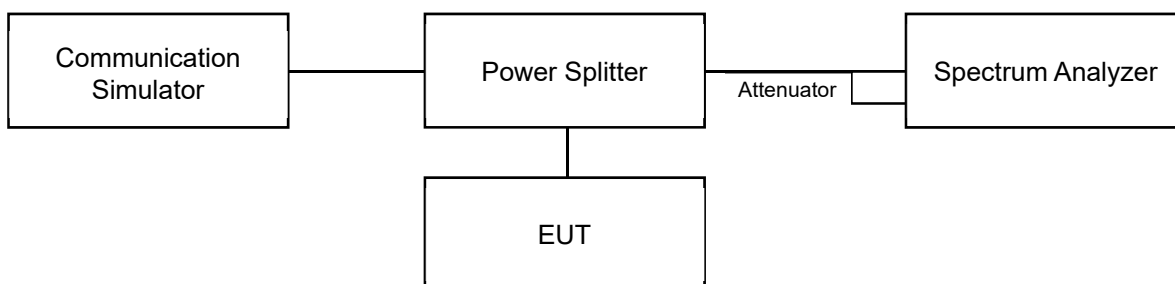


6.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, the frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

6.3 Peak to Average Ratio

6.3.1 Test Setup

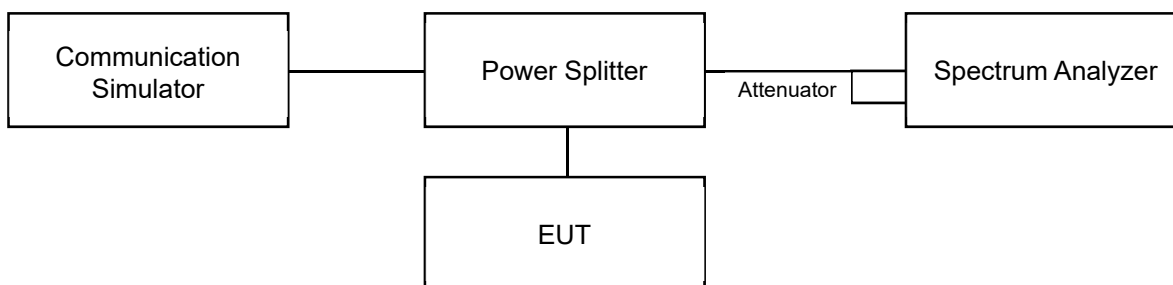


6.3.2 Test Procedure

- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

6.4 Bandwidth

6.4.1 Test Setup



6.4.2 Test Procedure

For the 26 dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

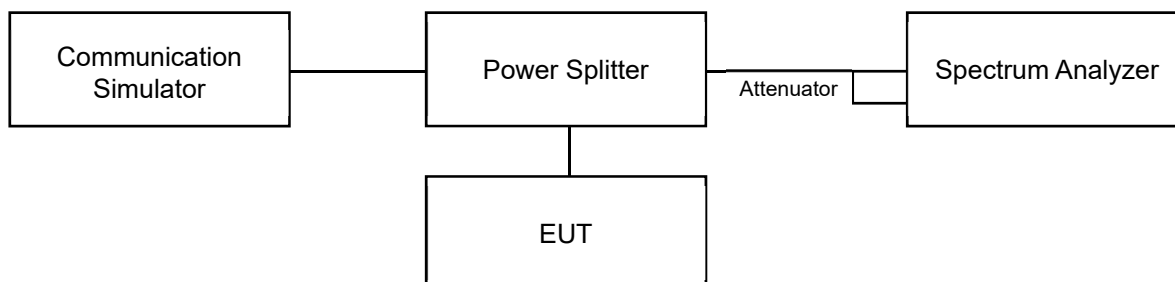
- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- Determine the following reference values: 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).
- Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- 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 amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.
- The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

For the occupied bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

- a. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- b. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- c. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- d. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- e. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- f. Determine the reference value by either of the following:
 - g. 1) 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).
 - h. 2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.
- i. Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- j. If the reference value was determined using an unmodulated carrier, turn the EUT modulation on, then either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise the trace from step f) shall be used for step i).
- k. 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 amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers. The spectral envelope can cross the “-X dB amplitude” at multiple points. The lowest or highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the “-X dB amplitude.”
- l. The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

6.5 Conducted Spurious Emissions

6.5.1 Test Setup



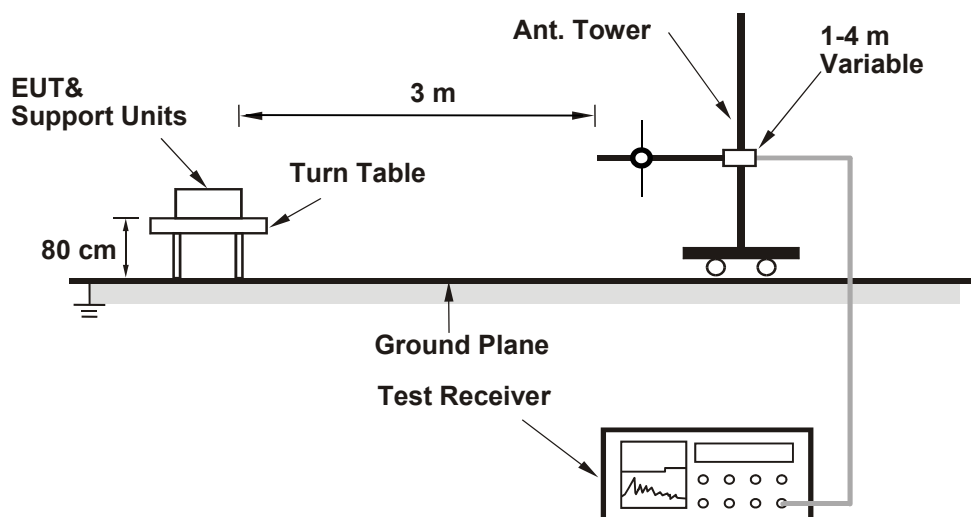
6.5.2 Test Procedure

- a. Measurement refer to ANSI C63.26 section 5.7.
- b. All measurements were done at 3 channels: low, middle and high operational frequency range.
- c. Measuring frequency range is from 9 kHz up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. 20 dB attenuation pad is connected with spectrum.
- d. The fundamental frequency above 1 GHz, the spectrum set RBW = 1 MHz, VBW = 3 MHz, Detector = Average.
- e. The fundamental frequency below 1 GHz, the spectrum set RBW $\geq$ 100 kHz, VBW $\geq$ 3 x RBW, Detector = Average.
- f. Measuring frequency band edge, narrow RBW (no less than 1% of the OBW) is used for conducted emission measurement.
- g. For the emissions measurement method, certain channel BW modes demonstrate compliance by integrating with the smaller RBW allowed by the rule.
- h. e.g. Where Reference RBW = 1 MHz and a smaller RBW = 100 kHz is used, worst-case integrated BW power = [Max Measured Value (dBm) with RBW = 100 kHz] + $10 \cdot \log(1000/100)$. To compensate for this integration before comparison to the limit, the limit line was reduced by 10 dB accordingly.
- i. The device has MIMO function, so the limit of conducted spurious emissions need to be measurement add $10\log(\text{Numbers}_{\text{ANT}})$ according to FCC KDB 662911 D01 guidance. Therefore, the $10\log(\text{Numbers}_{\text{ANT}})$ value is added to the spectrum Ref level offset during testing.
- j. Record the maximum power value test plot.

6.6 Radiated Spurious Emissions below 1GHz

6.6.1 Test Setup

For radiated emission 30 MHz to 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

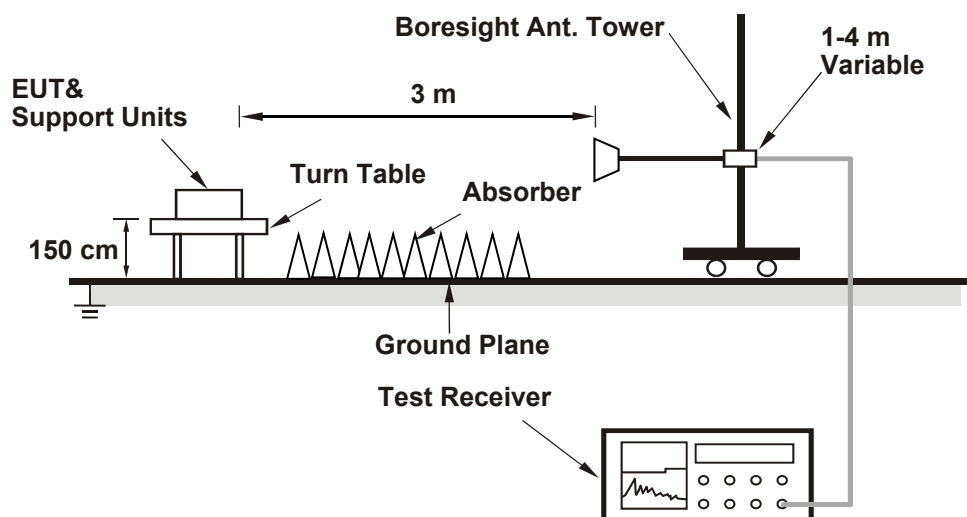
Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.
- The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

6.7 Radiated Spurious Emissions above 1GHz

6.7.1 Test Setup

For radiated emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

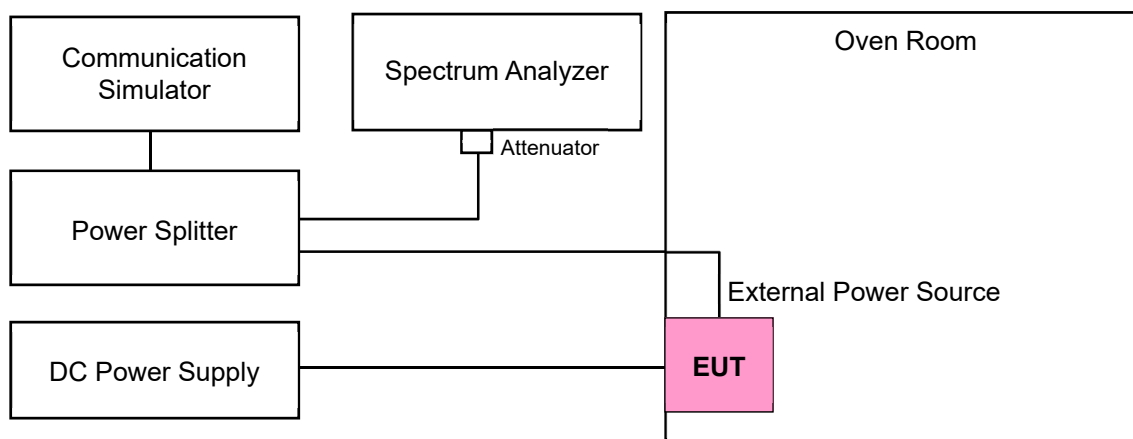
- In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

6.8 Frequency Stability

6.8.1 Test Setup



6.8.2 Test Procedure

The EUT is configured by test software or key-in commands to set data modulation and maximum power using WWAN technology.

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

7 Test Results of Test Item

7.1 Maximum EIRP

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Adair Peng
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7.1.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – SISO

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dBμV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
π/2 BPSK	637000	3555	116.42	-95.26	130.617	21.16	23
	641666	3624.99	116.47	-95.26	132.13	21.21	23
	646333	3694.98	116.76	-95.26	141.254	21.5	23
QPSK	637000	3555	117.43	-95.26	164.816	22.17	23
	641666	3624.99	117.48	-95.26	166.725	22.22	23
	646333	3694.98	117.78	-95.26	178.649	22.52	23
16QAM	637000	3555	116.41	-95.26	130.317	21.15	23
	641666	3624.99	116.46	-95.26	131.826	21.2	23
	646333	3694.98	116.75	-95.26	140.929	21.49	23
64QAM	637000	3555	115.4	-95.26	103.276	20.14	23
	641666	3624.99	115.57	-95.26	107.399	20.31	23
	646333	3694.98	115.74	-95.26	111.686	20.48	23
256QAM	637000	3555	114.44	-95.26	82.794	19.18	23
	641666	3624.99	114.55	-95.26	84.918	19.29	23
	646333	3694.98	114.72	-95.26	88.308	19.46	23

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 15 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	637168	3557.52	117.19	-95.26	155.955	21.93	23
	641666	3624.99	117.7	-95.26	175.388	22.44	23
	646166	3692.49	117.87	-95.26	182.39	22.61	23
QPSK	637168	3557.52	117.25	-95.26	158.125	21.99	23
	641666	3624.99	117.75	-95.26	177.419	22.49	23
	646166	3692.49	117.92	-95.26	184.502	22.66	23
16QAM	637168	3557.52	116.24	-95.26	125.314	20.98	23
	641666	3624.99	116.75	-95.26	140.929	21.49	23
	646166	3692.49	116.92	-95.26	146.555	21.66	23
64QAM	637168	3557.52	115.3	-95.26	100.925	20.04	23
	641666	3624.99	115.77	-95.26	112.46	20.51	23
	646166	3692.49	115.91	-95.26	116.145	20.65	23
256QAM	637168	3557.52	114.25	-95.26	79.25	18.99	23
	641666	3624.99	114.77	-95.26	89.331	19.51	23
	646166	3692.49	114.92	-95.26	92.47	19.66	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	637334	3560.01	117.37	-95.26	162.555	22.11	23
	641666	3624.99	117.76	-95.26	177.828	22.5	23
	646000	3690	117.83	-95.26	180.717	22.57	23
QPSK	637334	3560.01	117.4	-95.26	163.682	22.14	23
	641666	3624.99	117.79	-95.26	179.061	22.53	23
	646000	3690	117.85	-95.26	181.552	22.59	23
16QAM	637334	3560.01	116.41	-95.26	130.317	21.15	23
	641666	3624.99	116.78	-95.26	141.906	21.52	23
	646000	3690	116.86	-95.26	144.544	21.6	23
64QAM	637334	3560.01	115.4	-95.26	103.276	20.14	23
	641666	3624.99	115.79	-95.26	112.98	20.53	23
	646000	3690	116.45	-95.26	131.522	21.19	23
256QAM	637334	3560.01	114.4	-95.26	82.035	19.14	23
	641666	3624.99	114.77	-95.26	89.331	19.51	23
	646000	3690	114.87	-95.26	91.411	19.61	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	637668	3565.02	117.14	-95.26	154.17	21.88	23
	641666	3624.99	117.55	-95.26	169.434	22.29	23
	645666	3684.99	117.99	-95.26	187.499	22.66	23
QPSK	637668	3565.02	117.17	-95.26	155.239	21.91	23
	641666	3624.99	117.59	-95.26	171.002	22.33	23
	645666	3684.99	117.95	-95.26	185.78	22.69	23
16QAM	637668	3565.02	116.09	-95.26	121.06	20.83	23
	641666	3624.99	116.64	-95.26	137.404	21.38	23
	645666	3684.99	117.08	-95.26	152.055	21.82	23
64QAM	637668	3565.02	115.13	-95.26	97.051	19.87	23
	641666	3624.99	115.59	-95.26	107.895	20.33	23
	645666	3684.99	116.03	-95.26	119.399	20.77	23
256QAM	637668	3565.02	114.25	-95.26	79.25	18.99	23
	641666	3624.99	114.67	-95.26	87.297	19.41	23
	645666	3684.99	114.95	-95.26	93.111	19.69	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	638000	3570	117.06	-95.26	151.356	21.8	23
	641666	3624.99	117.57	-95.26	170.216	22.31	23
	645332	3679.98	117.99	-95.26	187.499	22.73	23
QPSK	638000	3570	117.09	-95.26	152.405	21.83	23
	641666	3624.99	117.61	-95.26	171.791	22.35	23
	645332	3679.98	118.03	-95.26	189.234	22.77	23
16QAM	638000	3570	116.07	-95.26	120.504	20.81	23
	641666	3624.99	116.62	-95.26	136.773	21.36	23
	645332	3679.98	117.02	-95.26	149.968	21.76	23
64QAM	638000	3570	115.1	-95.26	96.383	19.84	23
	641666	3624.99	115.62	-95.26	108.643	20.36	23
	645332	3679.98	116.48	-95.26	132.434	21.22	23
256QAM	638000	3570	114.23	-95.26	78.886	18.97	23
	641666	3624.99	114.63	-95.26	86.497	19.37	23
	645332	3679.98	115	-95.26	94.189	19.74	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 15 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	637168	3557.52	117.11	-95.26	153.109	21.85	23
	641666	3624.99	117.64	-95.26	172.982	22.38	23
	646166	3692.49	117.83	-95.26	180.717	22.57	23
QPSK	637168	3557.52	117.16	-95.26	154.882	21.9	23
	641666	3624.99	117.69	-95.26	174.985	22.43	23
	646166	3692.49	117.87	-95.26	182.39	22.61	23
16QAM	637168	3557.52	116.15	-95.26	122.744	20.89	23
	641666	3624.99	116.67	-95.26	138.357	21.41	23
	646166	3692.49	116.84	-95.26	143.88	21.58	23
64QAM	637168	3557.52	115.23	-95.26	99.312	19.97	23
	641666	3624.99	115.71	-95.26	110.917	20.45	23
	646166	3692.49	115.83	-95.26	114.025	20.57	23
256QAM	637168	3557.52	114.2	-95.26	78.343	18.94	23
	641666	3624.99	114.6	-95.26	85.901	19.34	23
	646166	3692.49	114.82	-95.26	90.365	19.56	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	637334	3560.01	117.27	-95.26	158.855	22.01	23
	641666	3624.99	116.63	-95.26	137.088	21.37	23
	646000	3690	117.68	-95.26	174.582	22.42	23
QPSK	637334	3560.01	117.31	-95.26	160.325	22.05	23
	641666	3624.99	116.67	-95.26	138.357	21.41	23
	646000	3690	117.73	-95.26	176.604	22.47	23
16QAM	637334	3560.01	116.29	-95.26	126.765	21.03	23
	641666	3624.99	116.6	-95.26	136.144	21.34	23
	646000	3690	116.75	-95.26	140.929	21.49	23
64QAM	637334	3560.01	115.29	-95.26	100.693	20.03	23
	641666	3624.99	115.61	-95.26	108.393	20.35	23
	646000	3690	116.37	-95.26	129.122	21.11	23
256QAM	637334	3560.01	114.3	-95.26	80.168	19.04	23
	641666	3624.99	114.6	-95.26	85.901	19.34	23
	646000	3690	114.77	-95.26	89.331	19.51	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	637668	3565.02	117.01	-95.26	149.624	21.75	23
	641666	3624.99	117.42	-95.26	164.437	22.16	23
	645666	3684.99	117.8	-95.26	179.473	22.54	23
QPSK	637668	3565.02	117.05	-95.26	151.008	21.79	23
	641666	3624.99	117.48	-95.26	166.725	22.22	23
	645666	3684.99	117.84	-95.26	181.134	22.58	23
16QAM	637668	3565.02	115.97	-95.26	117.761	20.71	23
	641666	3624.99	116.52	-95.26	133.66	21.26	23
	645666	3684.99	117.1	-95.26	152.757	21.84	23
64QAM	637668	3565.02	115.03	-95.26	94.842	19.77	23
	641666	3624.99	115.44	-95.26	104.232	20.18	23
	645666	3684.99	116.08	-95.26	120.781	20.82	23
256QAM	637668	3565.02	114.11	-95.26	76.736	18.85	23
	641666	3624.99	114.54	-95.26	84.723	19.28	23
	645666	3684.99	114.97	-95.26	93.541	19.71	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
$\pi/2$ BPSK	638000	3570	116.97	-95.26	148.252	21.71	23
	641666	3624.99	117.46	-95.26	165.959	22.2	23
	645332	3679.98	117.86	-95.26	181.97	22.6	23
QPSK	638000	3570	117	-95.26	149.279	21.74	23
	641666	3624.99	117.5	-95.26	167.494	22.24	23
	645332	3679.98	117.92	-95.26	184.502	22.66	23
16QAM	638000	3570	115.96	-95.26	117.49	20.7	23
	641666	3624.99	116.51	-95.26	133.352	21.25	23
	645332	3679.98	116.9	-95.26	145.881	21.64	23
64QAM	638000	3570	114.99	-95.26	93.972	19.73	23
	641666	3624.99	115.53	-95.26	106.414	20.27	23
	645332	3679.98	116.39	-95.26	129.718	21.13	23
256QAM	638000	3570	114.13	-95.26	77.09	18.87	23
	641666	3624.99	114.52	-95.26	84.333	19.26	23
	645332	3679.98	114.88	-95.26	91.622	19.62	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

7.1.2 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – MIMO

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	637000	3555	116.34	-95.26	128.233	21.08	23
	641666	3624.99	116.43	-95.26	130.918	21.17	23
	646333	3694.98	116.36	-95.26	128.825	21.1	23
16QAM	637000	3555	114.98	-95.26	93.756	19.72	23
	641666	3624.99	115.45	-95.26	104.472	20.19	23
	646333	3694.98	114.98	-95.26	93.756	19.72	23
64QAM	637000	3555	114.08	-95.26	76.208	18.82	23
	641666	3624.99	114.45	-95.26	82.985	19.19	23
	646333	3694.98	114.5	-95.26	83.946	19.24	23
256QAM	637000	3555	113.09	-95.26	60.674	17.83	23
	641666	3624.99	113.47	-95.26	66.222	18.21	23
	646333	3694.98	113.49	-95.26	66.527	18.23	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 15 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	637168	3557.52	116.23	-95.26	125.026	20.97	23
	641666	3624.99	116.29	-95.26	126.765	21.03	23
	646166	3692.49	116.73	-95.26	140.281	21.47	23
16QAM	637168	3557.52	115.23	-95.26	99.312	19.97	23
	641666	3624.99	115.25	-95.26	99.77	19.99	23
	646166	3692.49	115.73	-95.26	111.429	20.47	23
64QAM	637168	3557.52	114.24	-95.26	79.068	18.98	23
	641666	3624.99	114.24	-95.26	79.068	18.98	23
	646166	3692.49	114.72	-95.26	88.308	19.46	23
256QAM	637168	3557.52	113.24	-95.26	62.806	17.98	23
	641666	3624.99	113.27	-95.26	63.241	18.01	23
	646166	3692.49	113.75	-95.26	70.632	18.49	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	637334	3560.01	115.96	-95.26	117.49	20.7	23
	641666	3624.99	116.45	-95.26	131.522	21.19	23
	646000	3690	116.5	-95.26	133.045	21.24	23
16QAM	637334	3560.01	114.98	-95.26	93.756	19.72	23
	641666	3624.99	115.43	-95.26	103.992	20.17	23
	646000	3690	115.48	-95.26	105.196	20.22	23
64QAM	637334	3560.01	113.96	-95.26	74.131	18.7	23
	641666	3624.99	114.45	-95.26	82.985	19.19	23
	646000	3690	114.47	-95.26	83.368	19.21	23
256QAM	637334	3560.01	112.95	-95.26	58.749	17.69	23
	641666	3624.99	113.49	-95.26	66.527	18.23	23
	646000	3690	113.46	-95.26	66.069	18.2	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	637668	3565.02	115.97	-95.26	117.761	20.71	23
	641666	3624.99	116.25	-95.26	125.603	20.99	23
	645666	3684.99	116.45	-95.26	131.522	21.19	23
16QAM	637668	3565.02	114.95	-95.26	93.111	19.69	23
	641666	3624.99	115.27	-95.26	100.231	20.01	23
	645666	3684.99	115.45	-95.26	104.472	20.19	23
64QAM	637668	3565.02	113.94	-95.26	73.79	18.68	23
	641666	3624.99	114.29	-95.26	79.983	19.03	23
	645666	3684.99	114.44	-95.26	82.794	19.18	23
256QAM	637668	3565.02	112.94	-95.26	58.614	17.68	23
	641666	3624.99	113.31	-95.26	63.826	18.05	23
	645666	3684.99	113.43	-95.26	65.615	18.17	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: Full Power

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dBμV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	638000	3570	116.45	-95.26	131.522	21.19	23
	641666	3624.99	116.75	-95.26	140.929	21.49	23
	645332	3679.98	116.44	-95.26	131.22	21.18	23
16QAM	638000	3570	115.47	-95.26	104.954	20.21	23
	641666	3624.99	115.75	-95.26	111.944	20.49	23
	645332	3679.98	115.45	-95.26	104.472	20.19	23
64QAM	638000	3570	114.48	-95.26	83.56	19.22	23
	641666	3624.99	114.78	-95.26	89.536	19.52	23
	645332	3679.98	114.46	-95.26	83.176	19.2	23
256QAM	638000	3570	113.5	-95.26	66.681	18.24	23
	641666	3624.99	113.81	-95.26	71.614	18.55	23
	645332	3679.98	113.44	-95.26	65.766	18.18	23

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 15 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dBμV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	637168	3557.52	116.09	-95.26	121.06	20.83	23
	641666	3624.99	116.18	-95.26	123.595	20.92	23
	646166	3692.49	116.55	-95.26	134.586	21.29	23
16QAM	637168	3557.52	115.11	-95.26	96.605	19.85	23
	641666	3624.99	115.14	-95.26	97.275	19.88	23
	646166	3692.49	115.58	-95.26	107.647	20.32	23
64QAM	637168	3557.52	114.09	-95.26	76.384	18.83	23
	641666	3624.99	114.08	-95.26	76.208	18.82	23
	646166	3692.49	114.56	-95.26	85.114	19.3	23
256QAM	637168	3557.52	113.1	-95.26	60.814	17.84	23
	641666	3624.99	113.13	-95.26	61.235	17.87	23
	646166	3692.49	113.61	-95.26	68.391	18.35	23

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	637334	3560.01	115.82	-95.26	113.763	20.56	23
	641666	3624.99	116.33	-95.26	127.938	21.07	23
	646000	3690	116.33	-95.26	127.938	21.07	23
16QAM	637334	3560.01	114.87	-95.26	91.411	19.61	23
	641666	3624.99	115.27	-95.26	100.231	20.01	23
	646000	3690	115.34	-95.26	101.859	20.08	23
64QAM	637334	3560.01	113.84	-95.26	72.111	18.58	23
	641666	3624.99	114.31	-95.26	80.353	19.05	23
	646000	3690	114.34	-95.26	80.91	19.08	23
256QAM	637334	3560.01	112.83	-95.26	57.148	17.57	23
	641666	3624.99	113.35	-95.26	64.417	18.09	23
	646000	3690	113.31	-95.26	63.826	18.05	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dB μ V/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	637668	3565.02	115.83	-95.26	114.025	20.57	23
	641666	3624.99	116.13	-95.26	122.18	20.87	23
	645666	3684.99	116.3	-95.26	127.057	21.04	23
16QAM	637668	3565.02	114.8	-95.26	89.95	19.54	23
	641666	3624.99	115.13	-95.26	97.051	19.87	23
	645666	3684.99	115.3	-95.26	100.925	20.04	23
64QAM	637668	3565.02	113.8	-95.26	71.45	18.54	23
	641666	3624.99	114.17	-95.26	77.804	18.91	23
	645666	3684.99	114.3	-95.26	80.168	19.04	23
256QAM	637668	3565.02	112.82	-95.26	57.016	17.56	23
	641666	3624.99	113.17	-95.26	61.802	17.91	23
	645666	3684.99	113.29	-95.26	63.533	18.03	23

Notes:

1. EIRP (dBm) = Field Strength (dB μ V/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: dBm/10 MHz

Modulation	Channel	Channel Frequency (MHz)	Field Strength (dBμV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)
QPSK	638000	3570	116.29	-95.26	126.765	21.03	23
	641666	3624.99	116.57	-95.26	135.207	21.31	23
	645332	3679.98	116.29	-95.26	126.765	21.03	23
16QAM	638000	3570	115.3	-95.26	100.925	20.04	23
	641666	3624.99	115.61	-95.26	108.393	20.35	23
	645332	3679.98	115.29	-95.26	100.693	20.03	23
64QAM	638000	3570	114.32	-95.26	80.538	19.06	23
	641666	3624.99	114.59	-95.26	85.704	19.33	23
	645332	3679.98	114.32	-95.26	80.538	19.06	23
256QAM	638000	3570	113.37	-95.26	64.714	18.11	23
	641666	3624.99	113.65	-95.26	69.024	18.39	23
	645332	3679.98	113.28	-95.26	63.387	18.02	23

Notes:

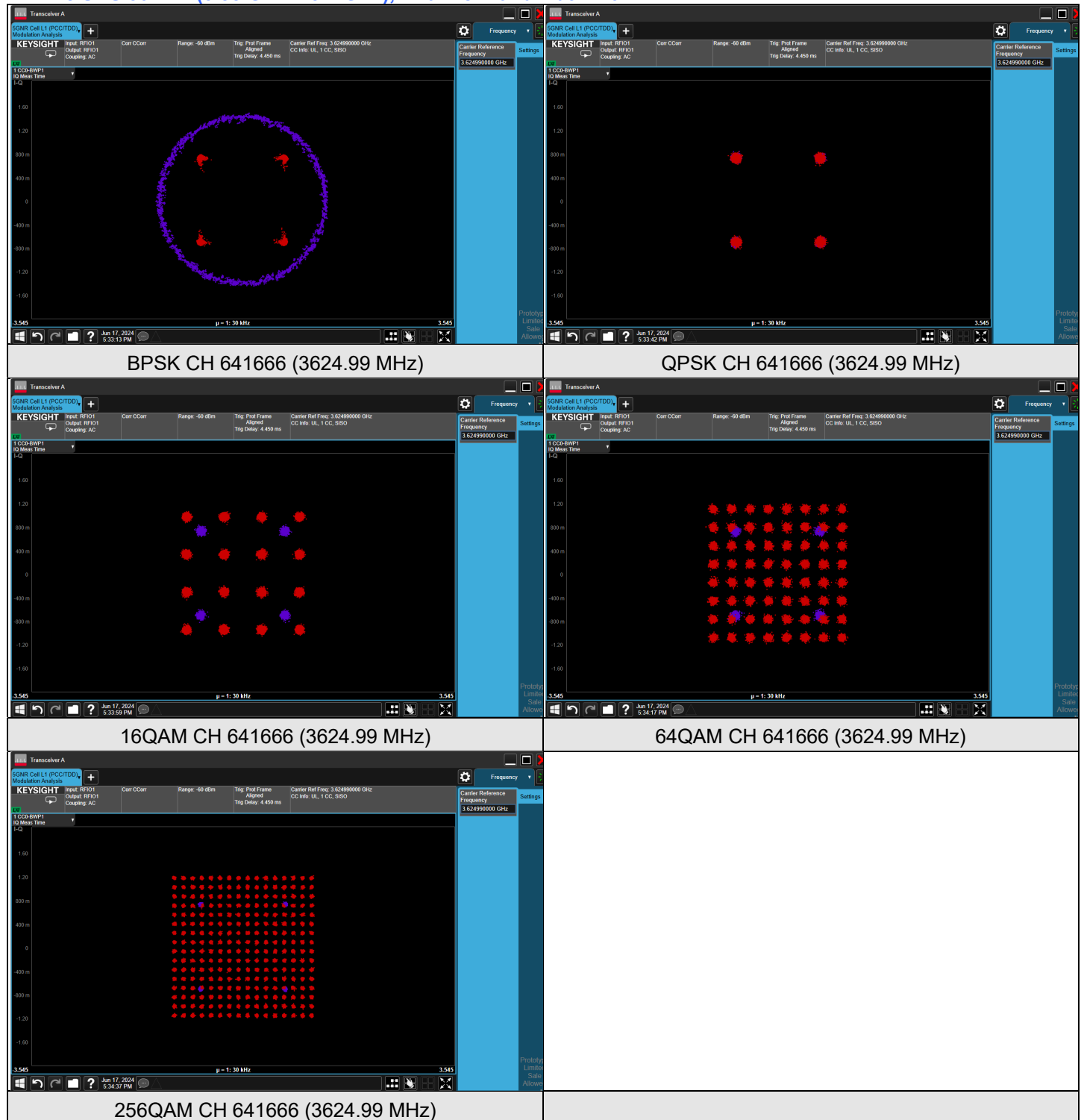
1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance at 3 meters.

7.2 Modulation Characteristics

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	22°C, 73% RH	Tested By:	James Yang
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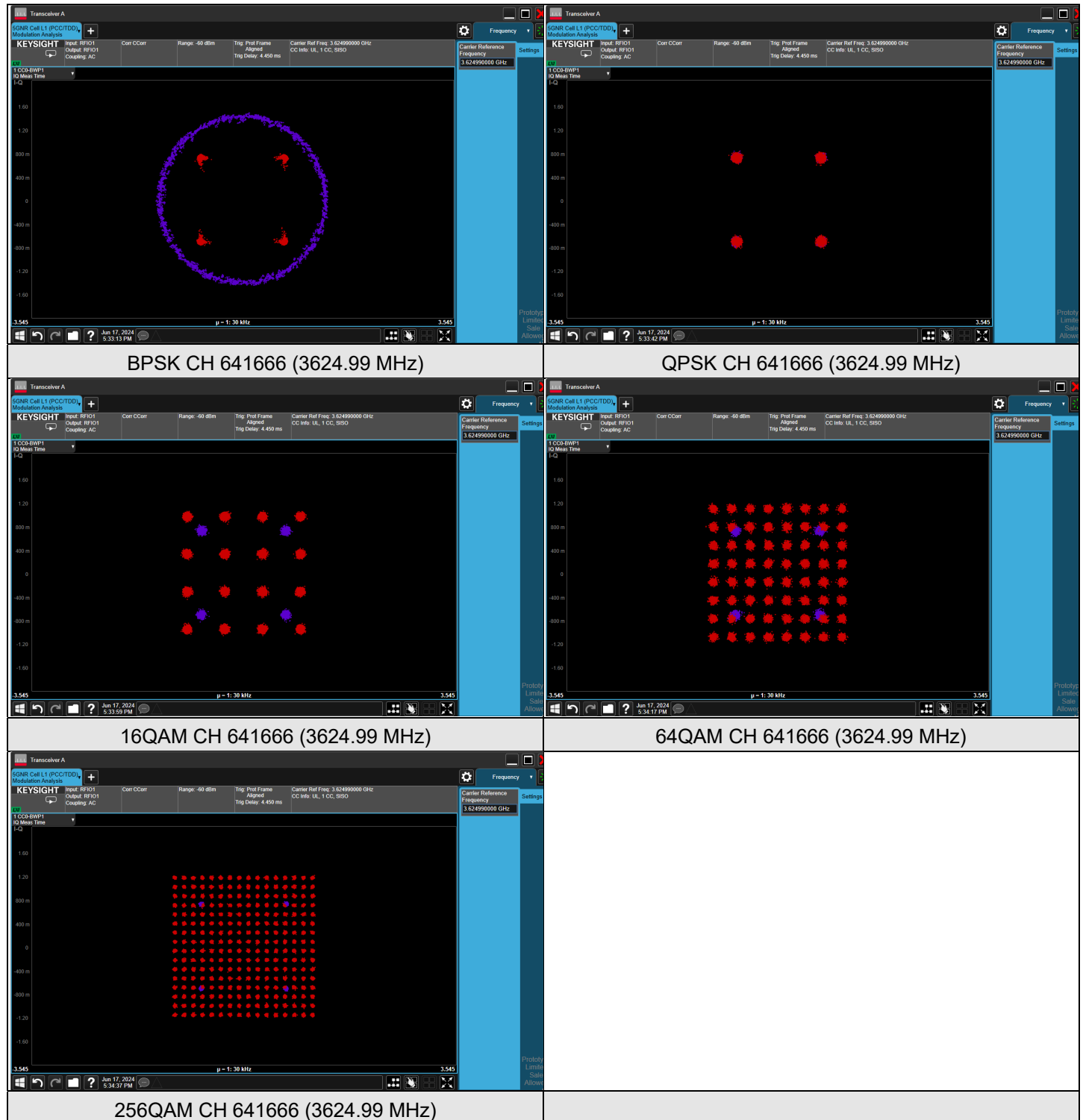
7.2.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – SISO

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz



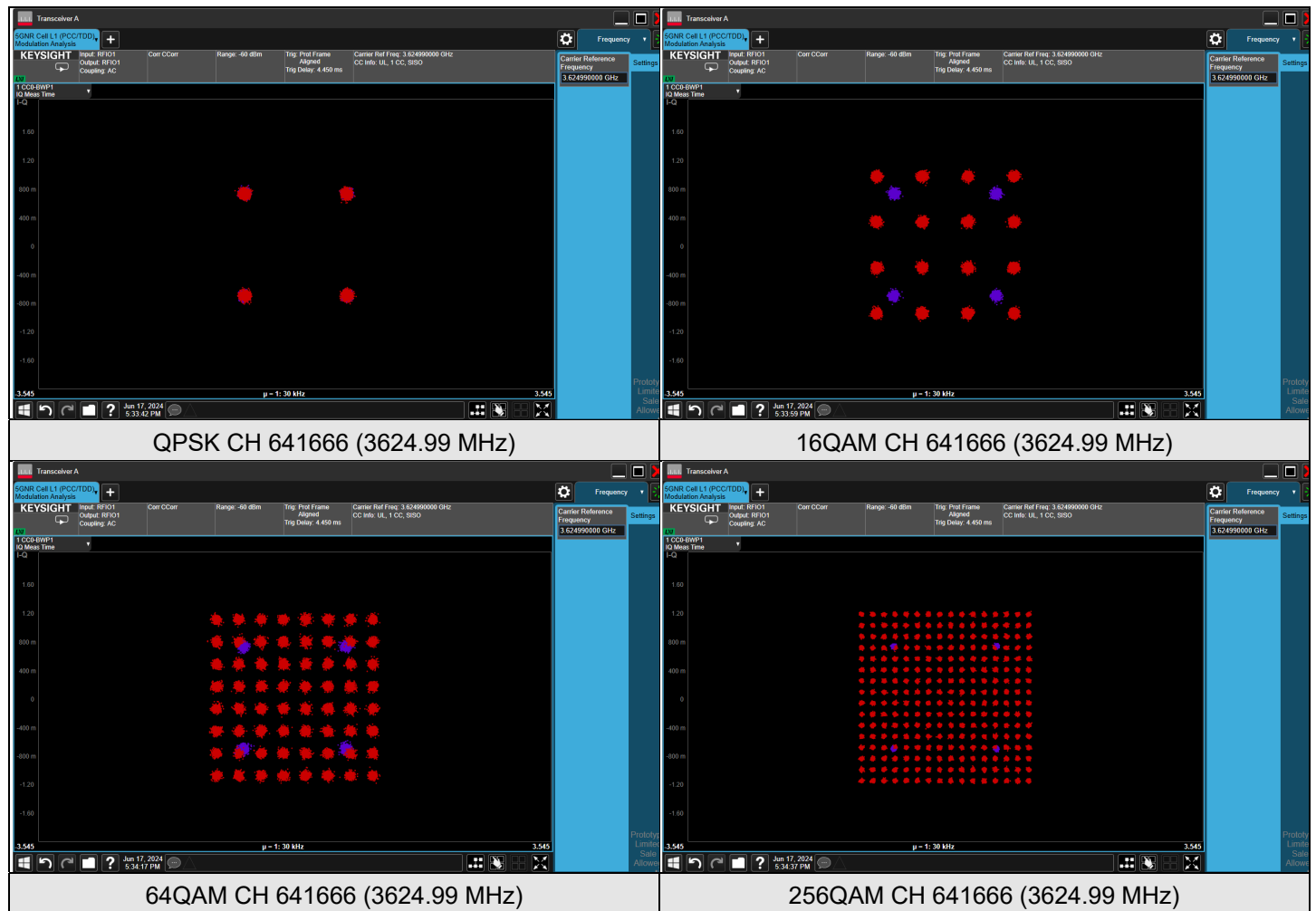
7.2.2 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – MIMO (Chain 0)

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz



7.2.3 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – MIMO (Chain 1)

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz



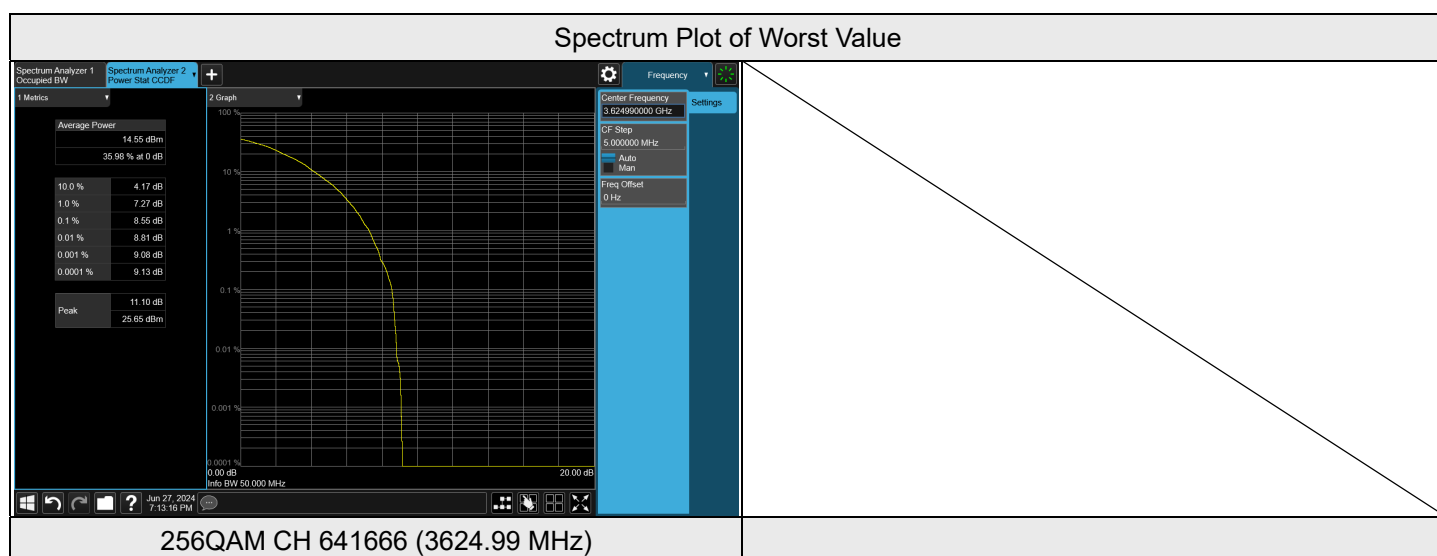
7.3 Peak to Average Ratio

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 71% RH	Tested By:	James Yang
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7.3.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – SISO

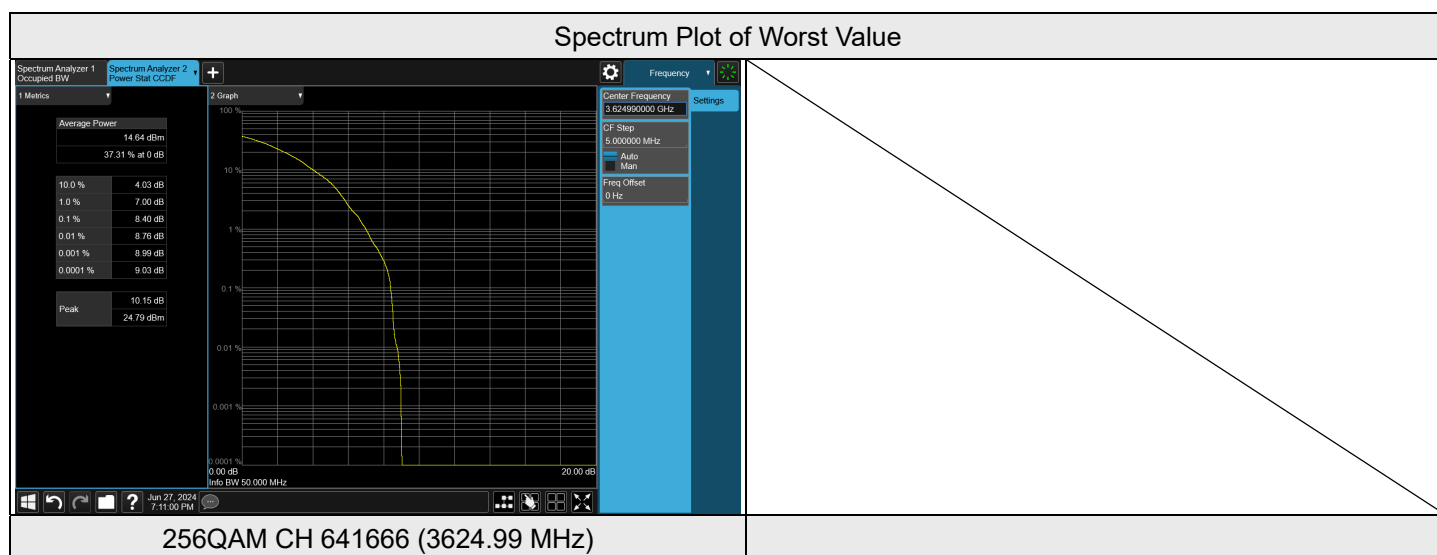
NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637000	CH 641666	CH 646332
			3555 MHz	3624.99 MHz	3694.98 MHz
BPSK	1	51	3.98	4.26	3.87
	1	0	3.96	4.32	3.96
	50	0	4.11	4.37	4.05
QPSK	1	51	5.37	5.59	5.58
	1	0	5.3	5.65	5.56
	52	0	5.49	5.7	5.68
16QAM	1	51	6.01	5.84	5.78
	1	0	6.04	5.81	5.81
	52	0	6.17	6	5.91
64QAM	1	51	7.81	7.99	7.65
	1	0	7.87	7.99	7.71
	52	0	7.95	8.17	7.82
256QAM	1	51	8.12	8.48	8.39
	1	0	8.19	8.5	8.35
	52	0	8.29	8.55	8.46



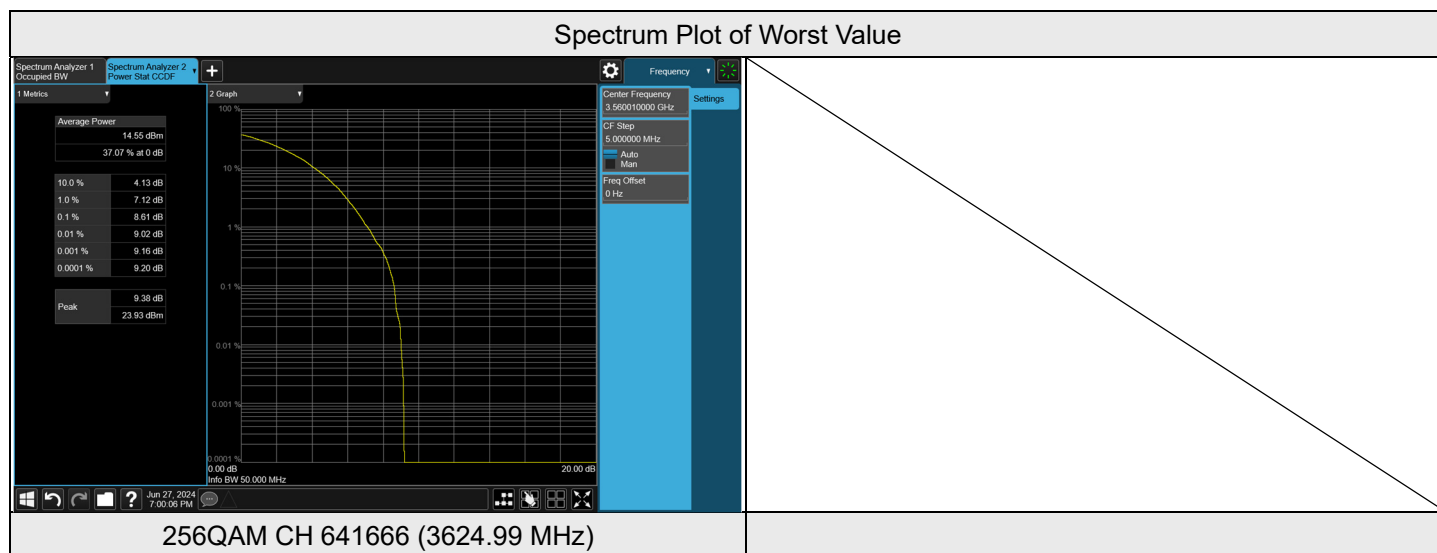
NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637168	CH 641666	CH 641666
			3557.52 MHz	3624.99 MHz	3692.49 MHz
BPSK	1	78	3.9	4	3.75
	1	0	3.92	3.91	3.67
	75	0	3.98	4.09	3.84
QPSK	1	78	5.29	5.85	5.64
	1	0	5.23	5.87	5.66
	79	0	5.38	5.98	5.8
16QAM	1	78	5.96	6.16	6.12
	1	0	5.89	6.16	6.17
	79	0	6.03	6.24	6.27
64QAM	1	78	7.47	8.01	7.85
	1	0	7.42	7.93	7.82
	79	0	7.55	8.08	7.91
256QAM	1	78	8.26	8.21	8.04
	1	0	8.13	8.22	8.05
	79	0	8.33	8.4	8.12



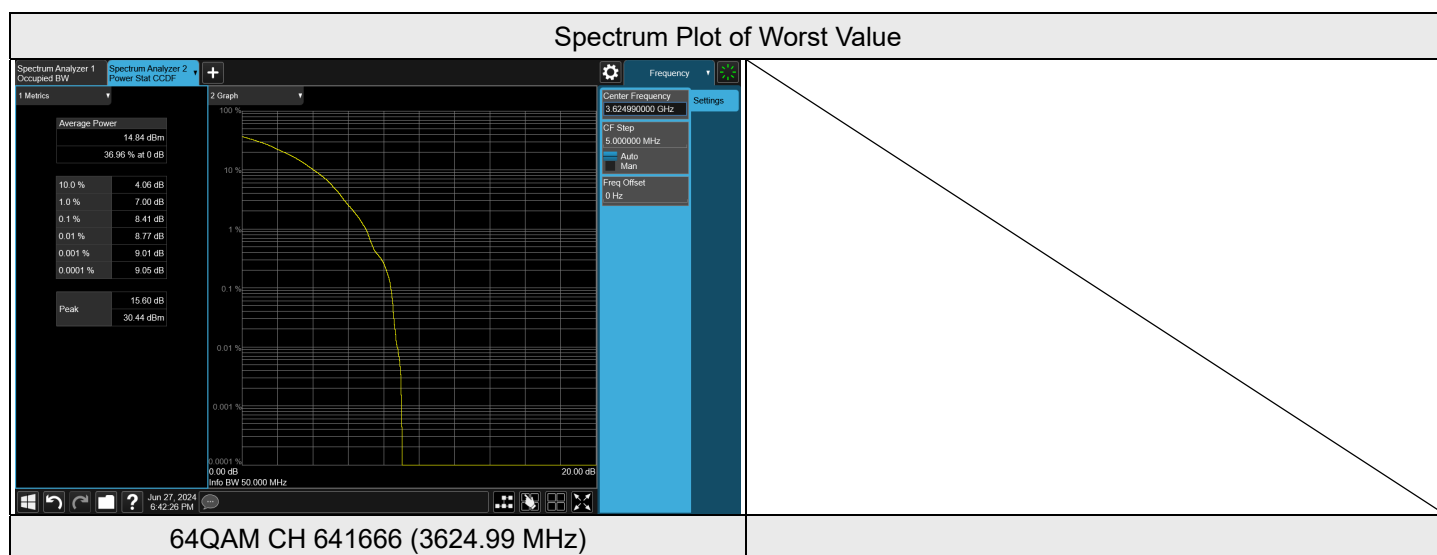
NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637334	CH 641666	CH 641000
			3560.01 MHz	3624.99 MHz	3690 MHz
BPSK	1	105	4.25	3.85	4.23
	1	0	4.18	3.84	4.22
	100	0	4.31	3.98	4.34
QPSK	1	105	5.65	5.74	5.25
	1	0	5.61	5.74	5.32
	106	0	5.75	5.83	5.43
16QAM	1	105	6.17	6.14	6.02
	1	0	6.28	6.25	6.09
	106	0	6.36	6.3	6.16
64QAM	1	105	8.09	7.48	8.02
	1	0	8.01	7.51	8.06
	106	0	8.21	7.64	8.21
256QAM	1	105	8.48	8.08	7.62
	1	0	8.5	8.12	7.63
	106	0	8.61	8.18	7.72



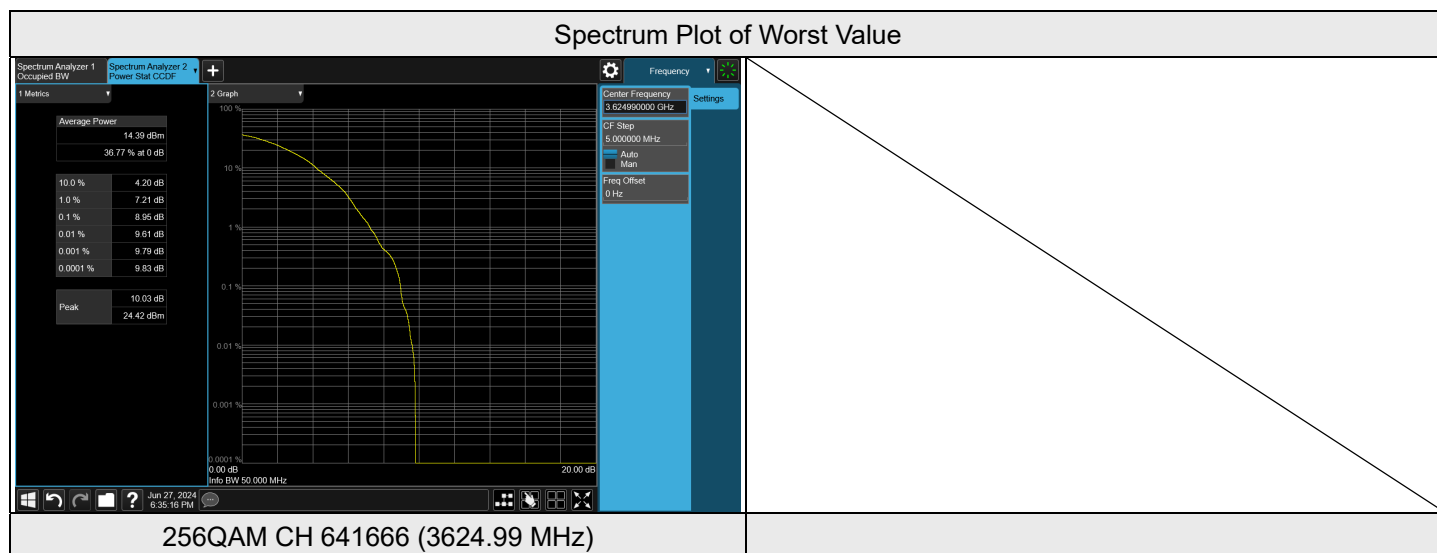
NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637668	CH 641666	CH 645666
			3565.02 MHz	3624.99 MHz	3684.99 MHz
BPSK	1	159	4.13	3.77	3.92
	1	0	4.17	3.74	3.8
	160	0	4.23	3.87	4
QPSK	1	159	5.58	5.82	5.58
	1	0	5.73	5.88	5.62
	160	0	5.78	6	5.67
16QAM	1	159	6.02	6.1	6.07
	1	0	6.08	6.12	6.07
	160	0	6.14	6.27	6.15
64QAM	1	159	7.63	8.26	7.81
	1	0	7.59	8.33	7.77
	160	0	7.78	8.44	7.91
256QAM	1	159	8.07	8.22	8.14
	1	0	8.09	8.34	8.13
	160	0	8.24	8.41	8.32



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 638000	CH 641666	CH 645332
			3570 MHz	3624.99 MHz	3679.98 MHz
BPSK	1	215	4.13	3.9	3.83
	1	0	4.09	3.97	3.82
	216	0	4.23	4.05	3.99
QPSK	1	215	5.35	5.81	5.56
	1	0	5.29	5.88	5.5
	216	0	5.45	5.95	5.61
16QAM	1	215	6.05	6.04	5.64
	1	0	6.11	6.08	5.72
	216	0	6.18	6.23	5.84
64QAM	1	215	8.08	7.56	7.94
	1	0	8.02	7.57	7.96
	216	0	8.18	7.66	8.07
256QAM	1	215	7.82	8.86	8.16
	1	0	7.81	8.81	8.19
	216	0	8.01	8.95	8.32

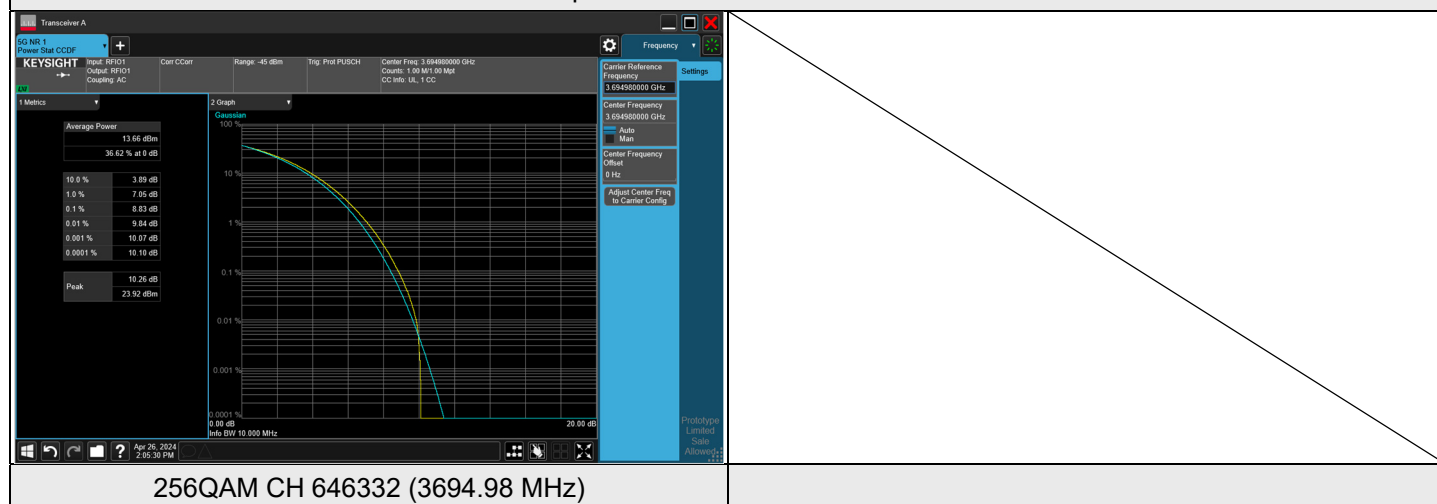


7.3.2 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – MIMO (Chain 0)

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637000	CH 641666	CH 646332
			3555 MHz	3624.99 MHz	3694.98 MHz
QPSK	1	23	6.80	6.52	6.60
	1	0	6.74	6.58	6.77
	24	0	6.85	6.81	6.64
16QAM	1	23	6.85	6.70	6.83
	1	0	6.74	6.83	6.85
	24	0	6.93	6.80	6.88
64QAM	1	23	7.28	7.10	7.25
	1	0	7.27	7.53	7.14
	24	0	7.13	7.09	7.23
256QAM	1	23	8.01	8.11	8.24
	1	0	8.11	7.88	8.05
	24	0	8.71	8.81	8.83

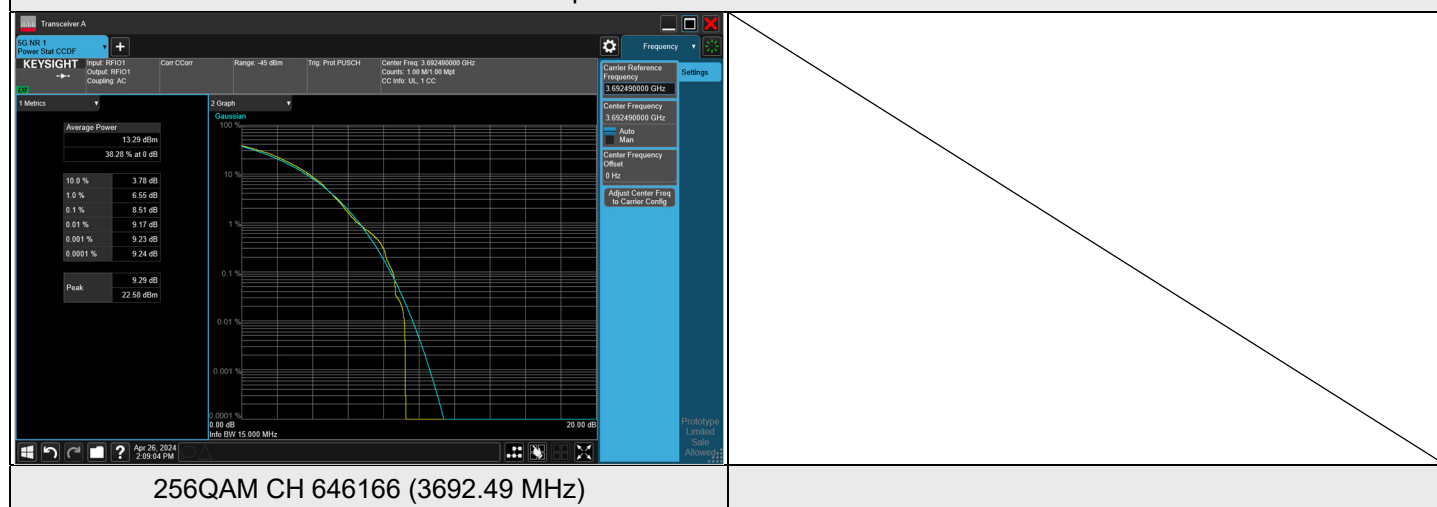
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637168	CH 641666	CH 646166
			3557.52 MHz	3624.99 MHz	3692.49 MHz
QPSK	1	37	6.96	6.69	6.66
	1	0	6.75	6.71	6.61
	38	0	6.82	6.67	6.74
16QAM	1	37	6.87	6.66	6.56
	1	0	6.68	6.71	6.63
	38	0	6.70	6.73	6.87
64QAM	1	37	7.23	7.30	7.33
	1	0	7.32	7.07	7.09
	38	0	7.27	7.60	7.34
256QAM	1	37	8.40	8.15	8.51
	1	0	8.05	8.07	7.97
	38	0	8.40	8.42	8.19

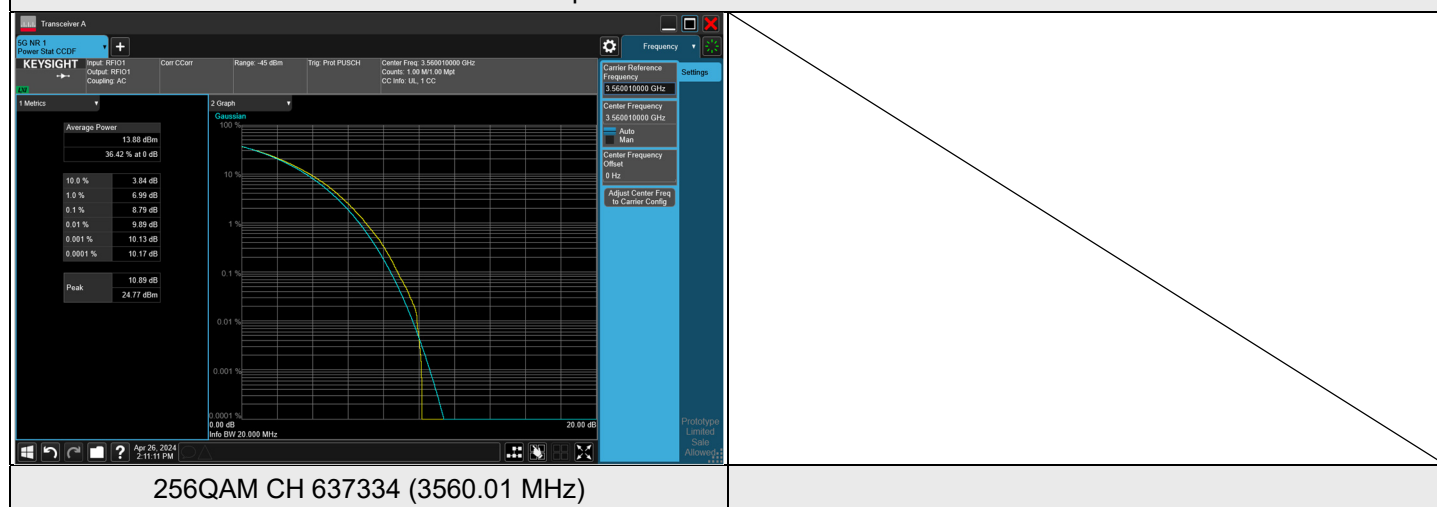
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637334	CH 641666	CH 646000
			3560.01 MHz	3624.99 MHz	3690 MHz
QPSK	1	50	6.96	6.62	6.74
	1	0	6.96	6.61	6.78
	51	0	6.64	6.71	6.65
16QAM	1	50	6.57	6.81	6.55
	1	0	6.78	6.62	6.63
	51	0	6.76	6.92	6.70
64QAM	1	50	7.18	7.00	7.35
	1	0	7.22	7.08	7.29
	51	0	7.35	7.33	7.28
256QAM	1	50	7.75	7.75	7.94
	1	0	8.12	7.66	7.90
	51	0	8.79	8.51	8.58

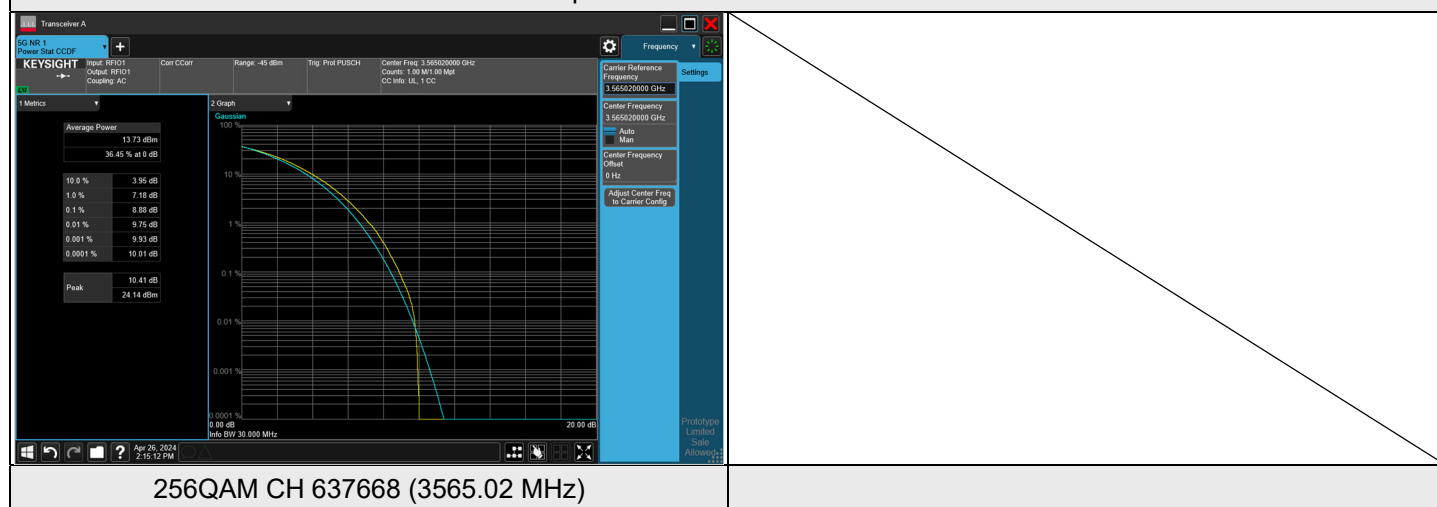
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 30 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637668	CH 641666	CH 645666
			3565.02 MHz	3624.99 MHz	3684.99 MHz
QPSK	1	77	6.37	6.49	5.95
	1	0	6.40	6.49	6.30
	78	0	6.66	6.80	6.71
16QAM	1	77	6.46	6.16	5.95
	1	0	6.30	6.45	6.28
	78	0	6.81	6.71	6.83
64QAM	1	77	7.00	6.80	6.46
	1	0	6.54	6.93	6.52
	78	0	7.28	7.55	7.43
256QAM	1	77	7.62	7.68	6.76
	1	0	7.38	8.03	7.40
	78	0	8.88	8.47	8.50

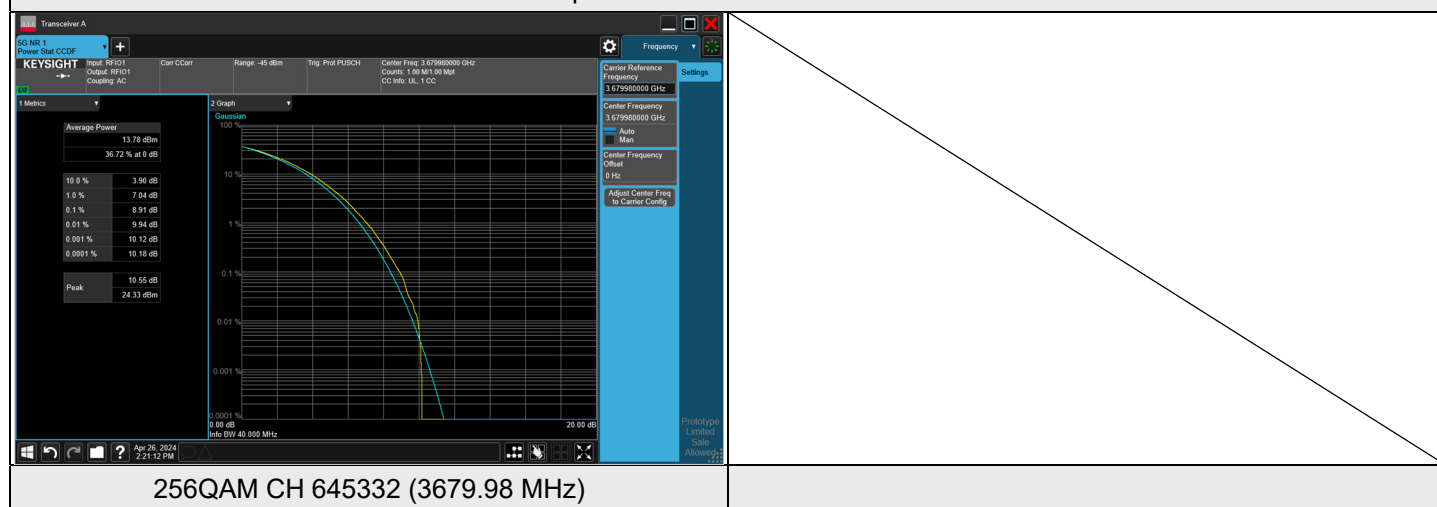
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 40 MHz

Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 638000	CH 641666	CH 645332
			3570 MHz	3624.99 MHz	3679.98 MHz
QPSK	1	105	6.69	6.14	6.52
	1	0	6.56	6.51	6.24
	106	0	6.64	6.62	6.66
16QAM	1	105	6.35	6.45	6.02
	1	0	6.36	6.53	6.02
	106	0	6.64	6.67	6.82
64QAM	1	105	6.77	6.93	6.48
	1	0	6.89	7.08	6.63
	106	0	7.21	7.19	7.18
256QAM	1	105	7.61	7.51	7.15
	1	0	7.10	8.15	7.44
	106	0	8.61	8.89	8.91

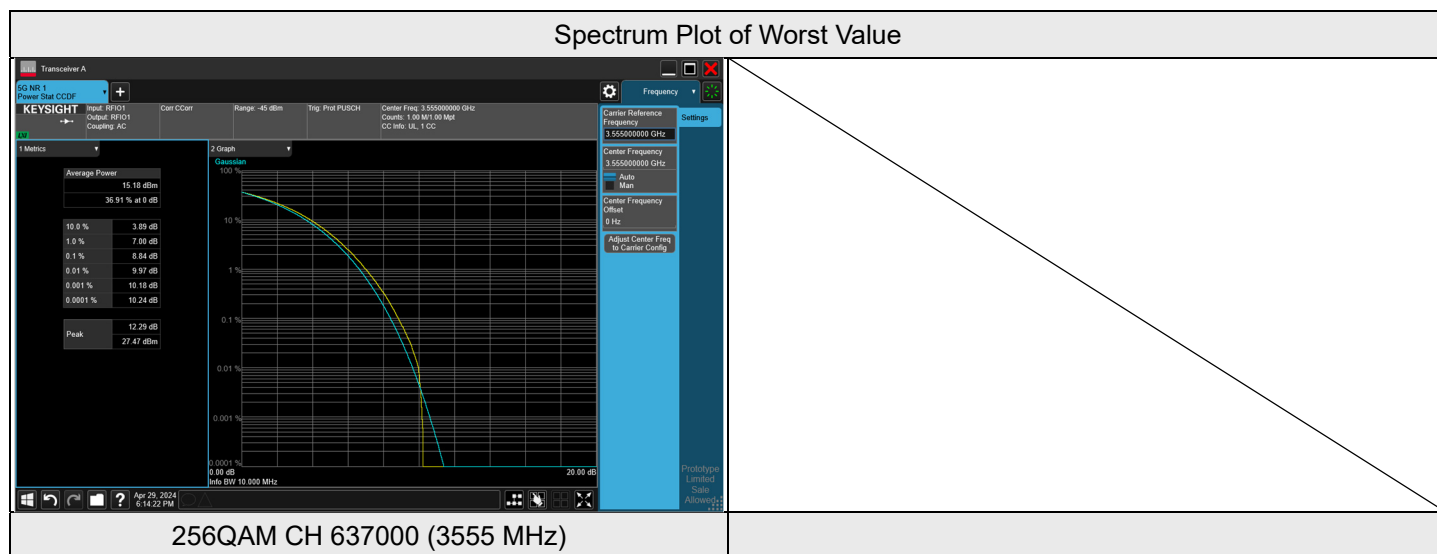
Spectrum Plot of Worst Value



7.3.3 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – MIMO (Chain 1)

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 1, Channel Bandwidth: 10 MHz

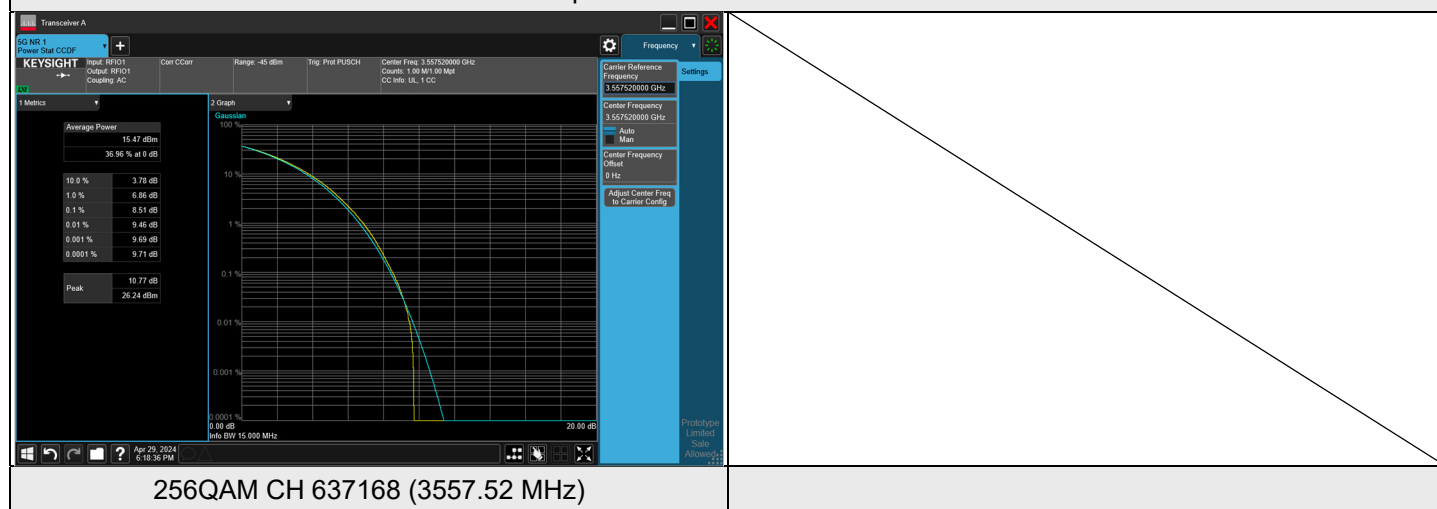
NR n48 SCS 30 kHz (3550-3700 MHz) 10M					
Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637000	CH 641666	CH 646332
			3555 MHz	3624.99 MHz	3694.98 MHz
QPSK	1	23	6.72	6.77	6.54
	1	0	6.81	6.67	6.73
	24	0	6.83	6.86	6.85
16QAM	1	23	6.74	6.65	6.49
	1	0	6.87	6.68	6.72
	24	0	6.87	6.79	6.87
64QAM	1	23	7.70	7.44	7.19
	1	0	7.36	7.32	7.22
	24	0	7.22	7.19	7.16
256QAM	1	23	8.33	7.90	8.23
	1	0	8.42	7.86	8.37
	24	0	8.84	8.62	8.74



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 1, Channel Bandwidth: 15 MHz

NR n48 SCS 30 kHz (3550-3700 MHz) 15M					
Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637168	CH 641666	CH 646166
			3557.52 MHz	3624.99 MHz	3692.49 MHz
QPSK	1	37	6.91	6.73	6.81
	1	0	6.71	6.73	6.74
	38	0	6.68	6.74	6.69
16QAM	1	37	6.80	6.70	6.79
	1	0	7.00	6.86	6.82
	38	0	6.57	6.73	6.69
64QAM	1	37	7.34	7.18	7.23
	1	0	7.47	7.29	7.13
	38	0	7.34	7.29	7.34
256QAM	1	37	7.89	8.24	8.20
	1	0	8.45	7.90	8.34
	38	0	8.51	8.20	8.22

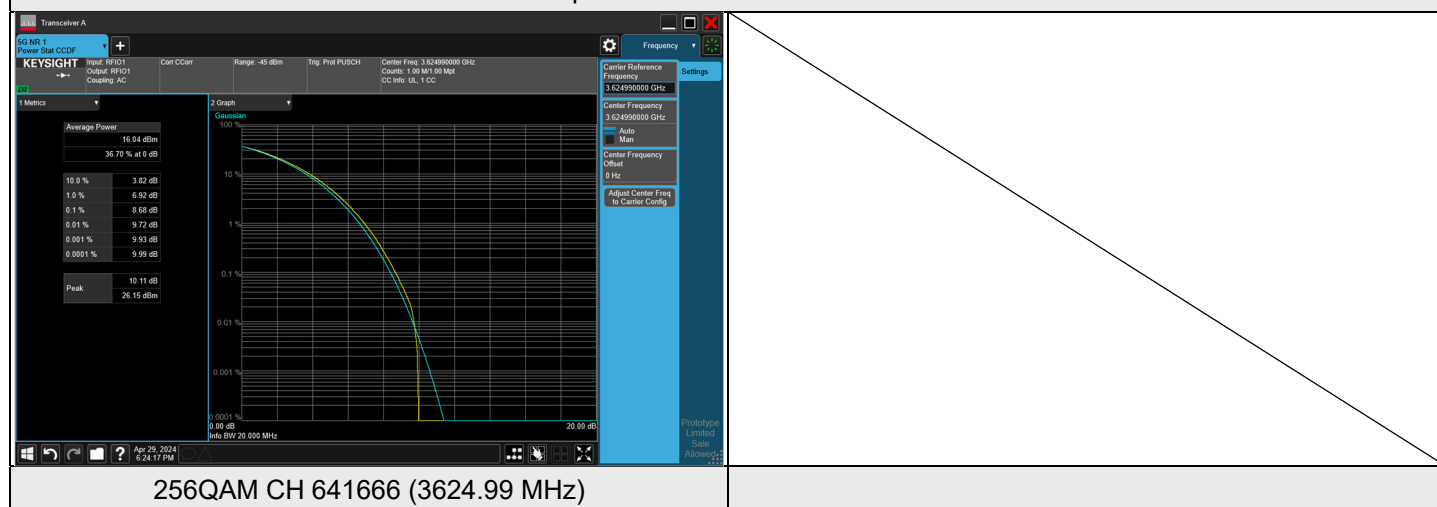
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 1, Channel Bandwidth: 20 MHz

NR n48 SCS 30 kHz (3550-3700 MHz) 20M					
Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637334	CH 641666	CH 646000
			3560.01 MHz	3624.99 MHz	3690 MHz
QPSK	1	50	6.80	6.73	6.60
	1	0	6.93	6.61	6.68
	51	0	6.67	6.75	6.72
16QAM	1	50	6.91	6.83	6.83
	1	0	6.96	6.89	6.83
	51	0	6.63	6.75	6.93
64QAM	1	50	7.23	7.06	7.24
	1	0	7.47	7.11	7.31
	51	0	7.34	7.35	7.35
256QAM	1	50	8.02	8.05	7.87
	1	0	8.21	8.19	8.27
	51	0	8.57	8.68	8.59

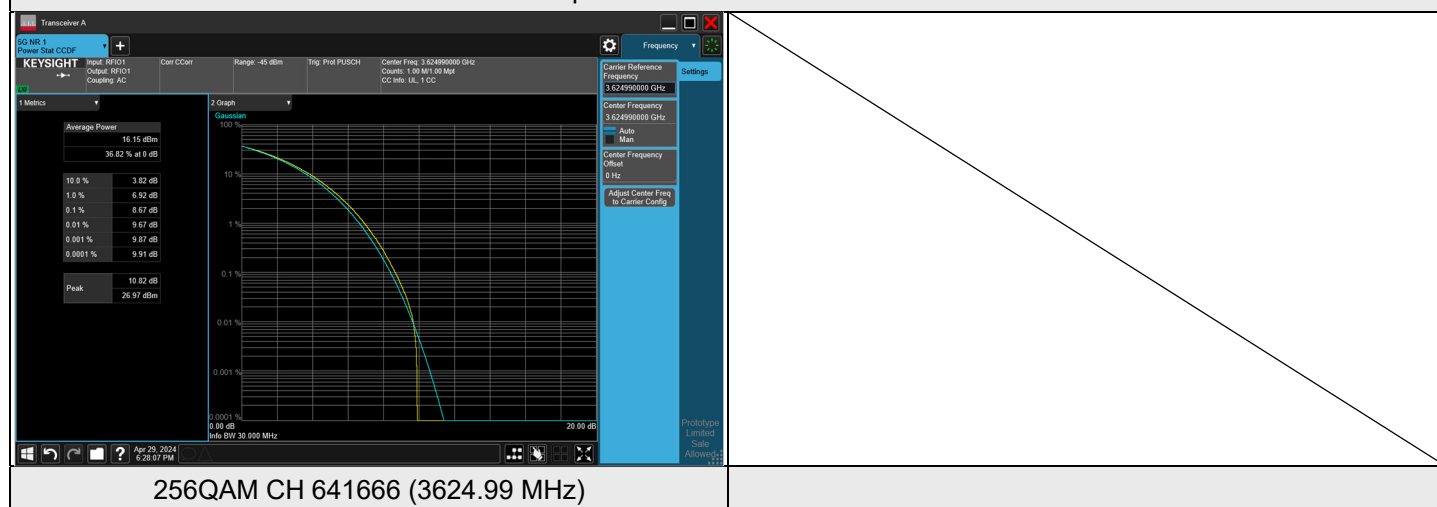
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 1, Channel Bandwidth: 30 MHz

NR n48 SCS 30 kHz (3550-3700 MHz) 30M					
Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 637668	CH 641666	CH 645666
			3565.02 MHz	3624.99 MHz	3684.99 MHz
QPSK	1	77	6.31	6.64	5.96
	1	0	6.32	6.82	6.16
	78	0	6.85	6.68	6.84
16QAM	1	77	7.08	6.39	5.94
	1	0	6.73	6.80	6.31
	78	0	6.69	6.68	7.12
64QAM	1	77	6.83	6.64	6.42
	1	0	6.73	6.95	6.93
	78	0	7.73	7.14	7.27
256QAM	1	77	7.79	7.86	7.14
	1	0	7.70	7.96	7.35
	78	0	8.60	8.67	8.38

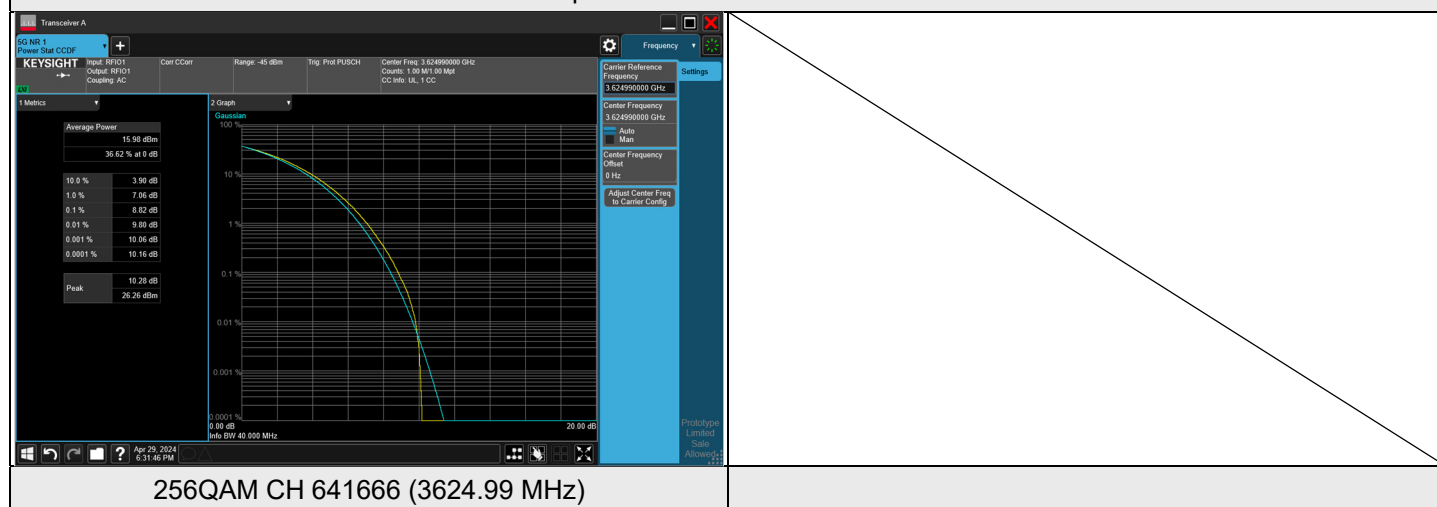
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 1, Channel Bandwidth: 40 MHz

NR n48 SCS 30 kHz (3550-3700 MHz) 40M					
Modulation	RB Size	RB Offset	Peak To Average Ratio (dB)		
			CH 638000	CH 641666	CH 645332
			3570 MHz	3624.99 MHz	3679.98 MHz
QPSK	1	105	6.45	6.32	5.93
	1	0	6.34	6.40	6.22
	106	0	6.50	6.81	6.76
16QAM	1	105	6.55	6.70	5.70
	1	0	6.01	6.36	6.08
	106	0	6.90	6.79	6.70
64QAM	1	105	7.10	6.91	6.39
	1	0	6.67	7.06	6.41
	106	0	7.19	7.22	7.20
256QAM	1	105	7.89	7.44	6.92
	1	0	7.50	7.75	7.39
	106	0	8.78	8.82	8.53

Spectrum Plot of Worst Value



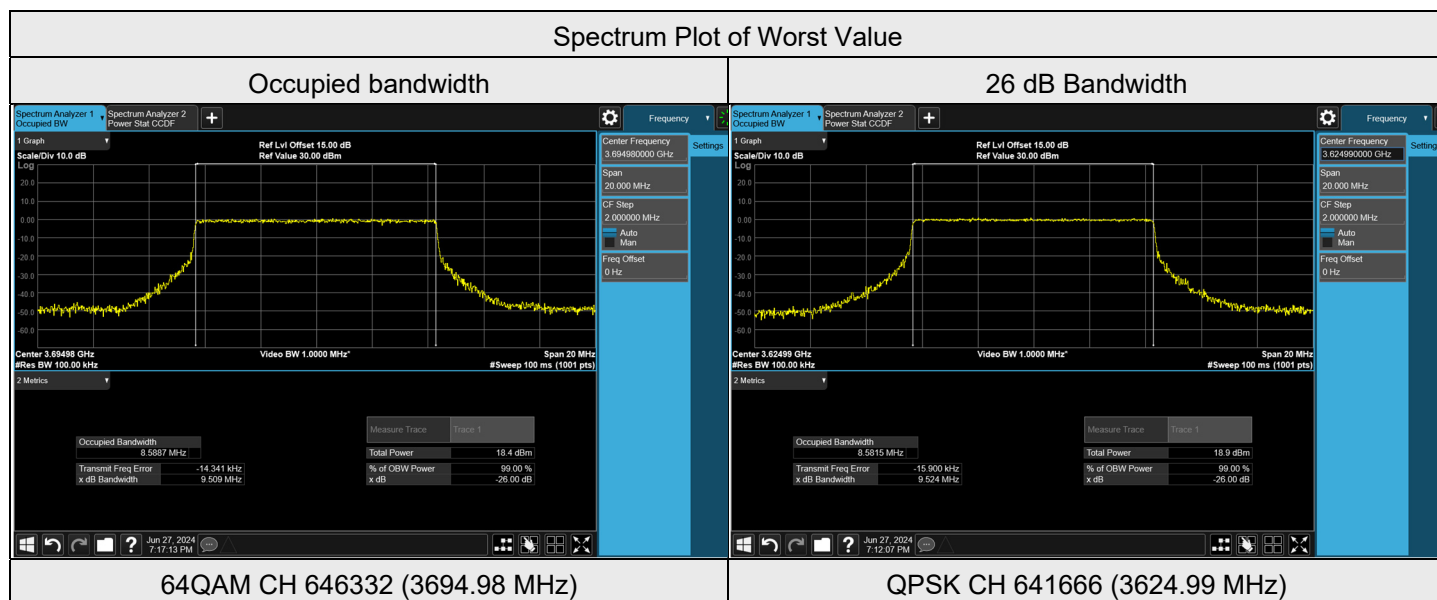
7.4 Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 71% RH	Tested By:	James Yang
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7.4.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – SISO

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 10 MHz

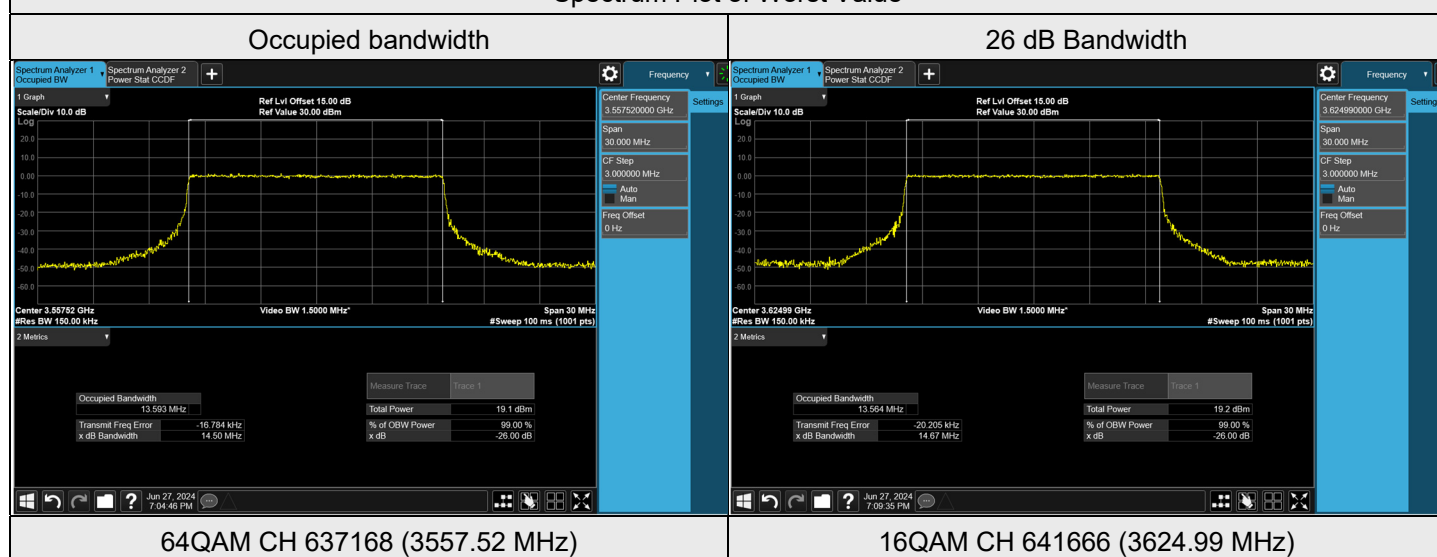
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
BPSK	637000	3555	8.5589	9.286
BPSK	641666	3624.99	8.5792	9.278
BPSK	646332	3694.98	8.5821	9.285
QPSK	637000	3555	8.5823	9.496
QPSK	641666	3624.99	8.5815	9.524
QPSK	646332	3694.98	8.5829	9.489
16QAM	637000	3555	8.5781	9.46
16QAM	641666	3624.99	8.5825	9.289
16QAM	646332	3694.98	8.5748	9.367
64QAM	637000	3555	8.583	9.444
64QAM	641666	3624.99	8.5811	9.322
64QAM	646332	3694.98	8.5887	9.509
256QAM	637000	3555	8.5795	9.327
256QAM	641666	3624.99	8.5695	9.18
256QAM	646332	3694.98	8.5788	9.409



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
BPSK	637168	3557.52	12.864	13.61
BPSK	641666	3624.99	12.875	13.58
BPSK	646166	3692.49	12.855	13.59
QPSK	637168	3557.52	13.567	14.42
QPSK	641666	3624.99	13.572	14.48
QPSK	646166	3692.49	13.571	14.63
16QAM	637168	3557.52	13.568	14.55
16QAM	641666	3624.99	13.564	14.67
16QAM	646166	3692.49	13.566	14.44
64QAM	637168	3557.52	13.593	14.5
64QAM	641666	3624.99	13.591	14.51
64QAM	646166	3692.49	13.589	14.57
256QAM	637168	3557.52	13.569	14.4
256QAM	641666	3624.99	13.562	14.47
256QAM	646166	3692.49	13.575	14.3

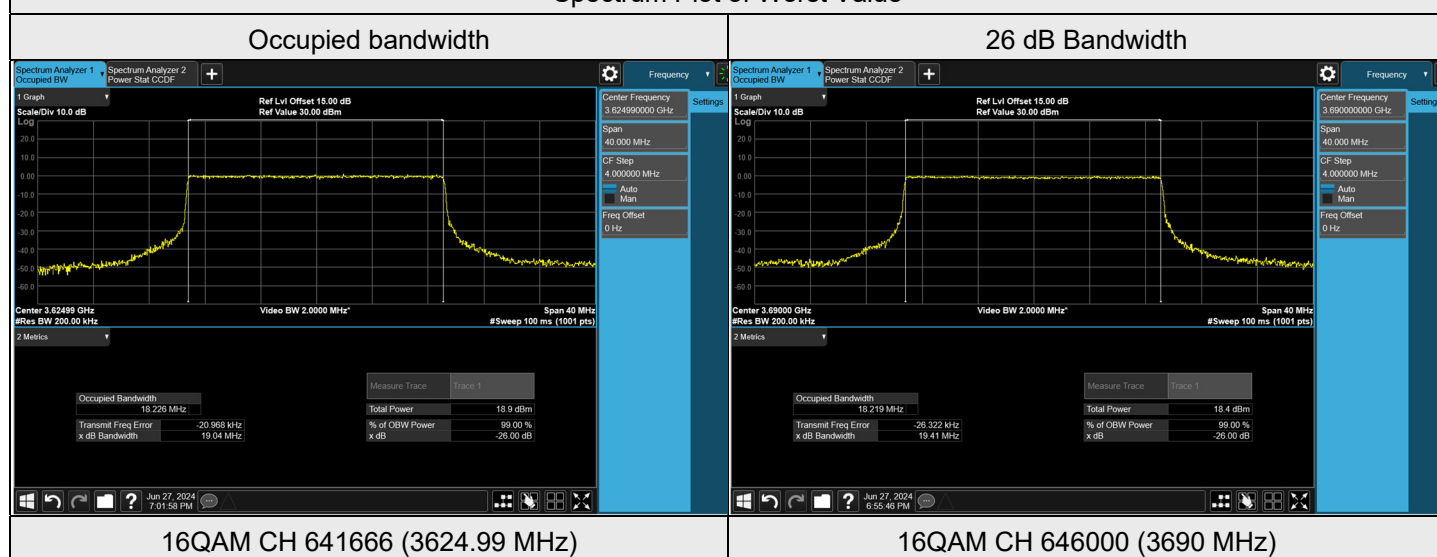
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
BPSK	637334	3560.01	17.851	18.73
BPSK	641666	3624.99	17.859	18.65
BPSK	646000	3690	17.857	18.68
QPSK	637334	3560.01	18.214	19.18
QPSK	641666	3624.99	18.207	19.24
QPSK	646000	3690	18.201	19.18
16QAM	637334	3560.01	18.206	19.04
16QAM	641666	3624.99	18.226	19.04
16QAM	646000	3690	18.219	19.41
64QAM	637334	3560.01	18.212	19.13
64QAM	641666	3624.99	18.191	19.23
64QAM	646000	3690	18.207	19.13
256QAM	637334	3560.01	18.208	19.05
256QAM	641666	3624.99	18.206	19.07
256QAM	646000	3690	18.221	19.12

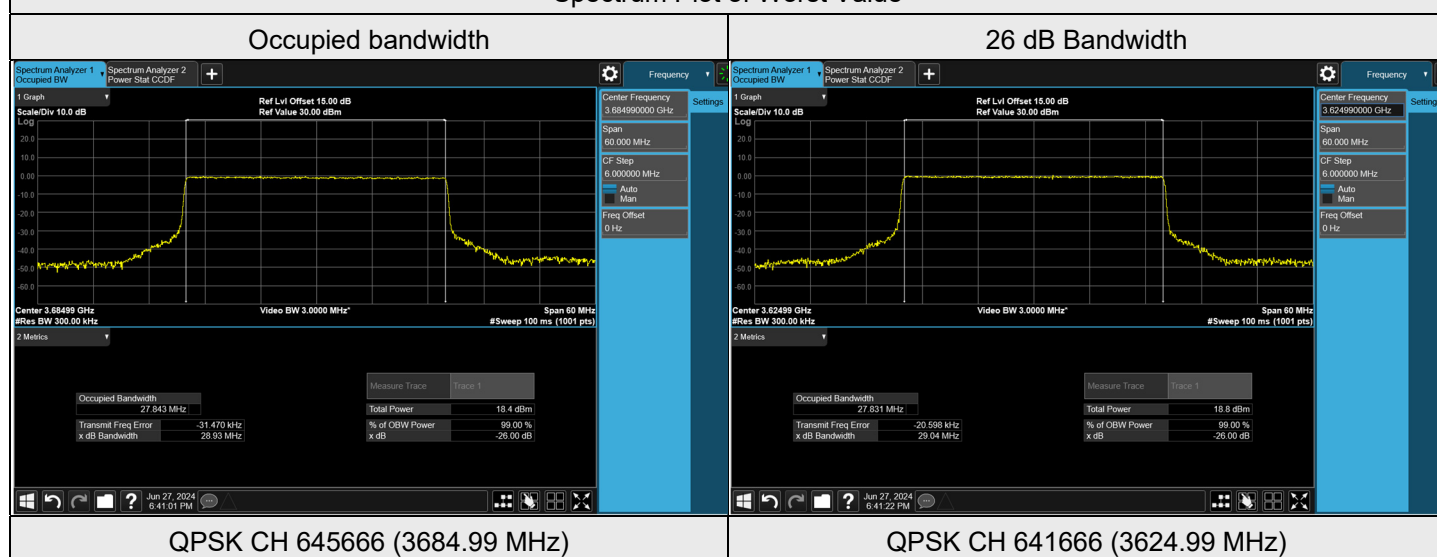
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
BPSK	637668	3565.02	26.796	27.81
BPSK	641666	3624.99	26.829	27.87
BPSK	645666	3684.99	26.808	27.87
QPSK	637668	3565.02	27.833	28.95
QPSK	641666	3624.99	27.831	29.04
QPSK	645666	3684.99	27.843	28.93
16QAM	637668	3565.02	27.813	28.93
16QAM	641666	3624.99	27.832	28.83
16QAM	645666	3684.99	27.818	28.93
64QAM	637668	3565.02	27.827	28.91
64QAM	641666	3624.99	27.821	28.93
64QAM	645666	3684.99	27.822	28.96
256QAM	637668	3565.02	27.829	28.89
256QAM	641666	3624.99	27.839	28.86
256QAM	645666	3684.99	27.822	28.92

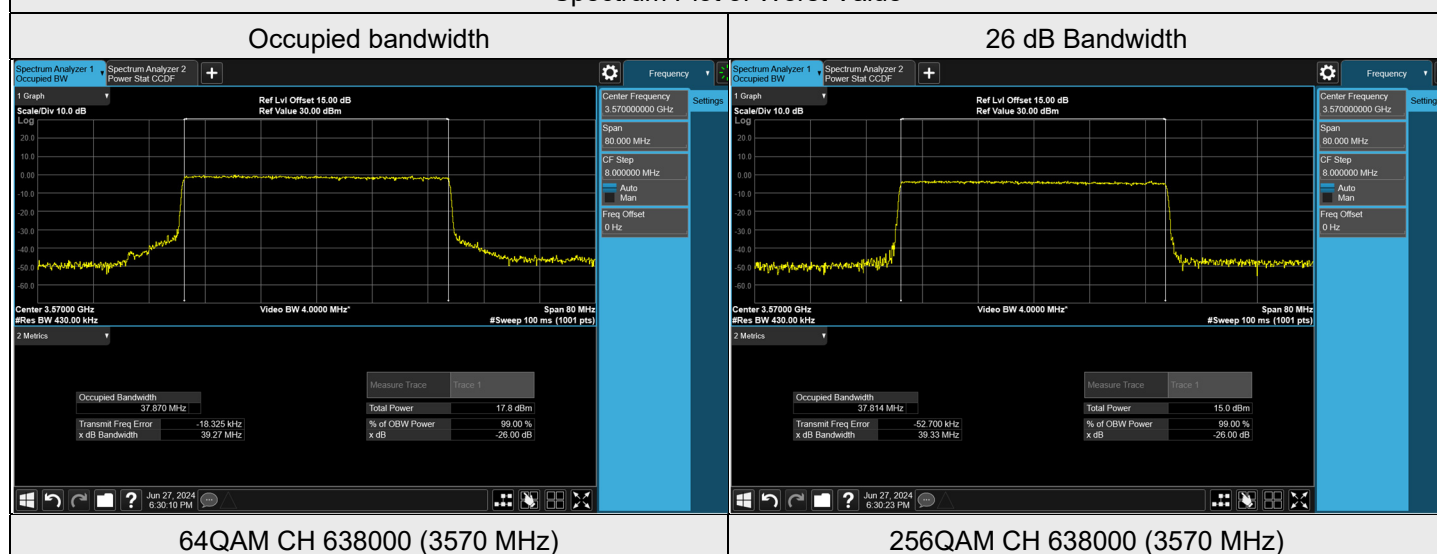
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
BPSK	638000	3570	35.724	37.08
BPSK	641666	3624.99	35.727	37.11
BPSK	645332	3679.98	35.67	37.06
QPSK	638000	3570	37.818	39.31
QPSK	641666	3624.99	37.835	39.29
QPSK	645332	3679.98	37.826	39.3
16QAM	638000	3570	37.839	39.24
16QAM	641666	3624.99	37.839	39.26
16QAM	645332	3679.98	37.849	39.25
64QAM	638000	3570	37.87	39.27
64QAM	641666	3624.99	37.841	39.27
64QAM	645332	3679.98	37.843	39.27
256QAM	638000	3570	37.814	39.33
256QAM	641666	3624.99	37.822	39.33
256QAM	645332	3679.98	37.819	39.3

Spectrum Plot of Worst Value

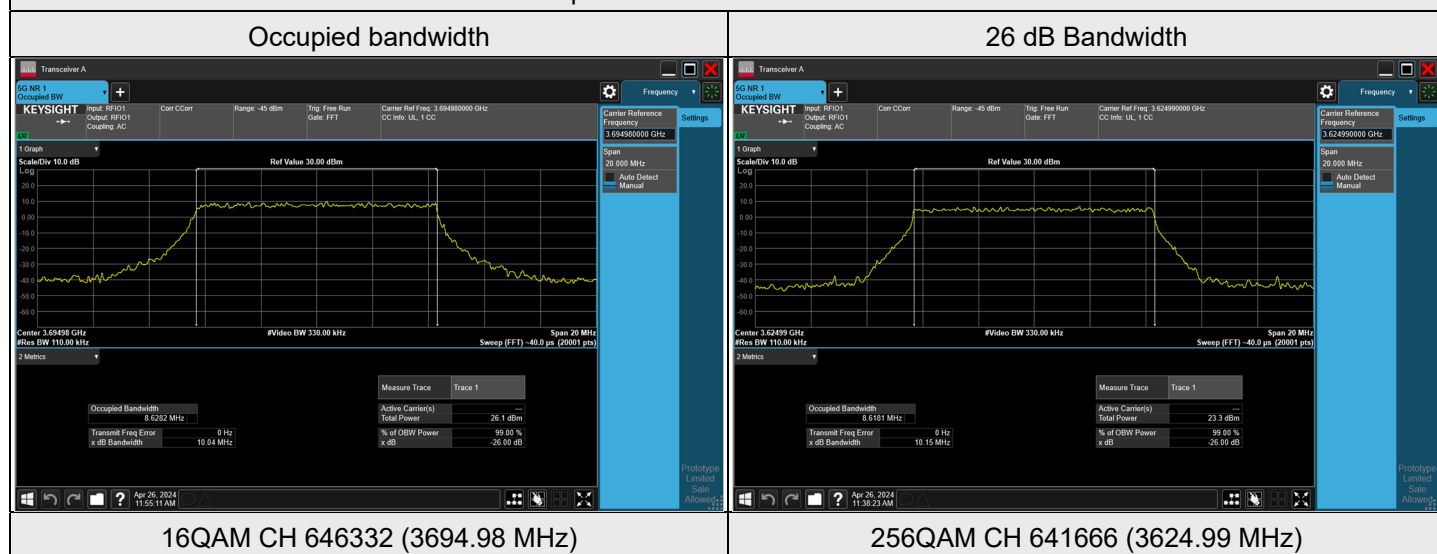


7.4.2 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) – MIMO (Chain 0)

NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	637000	3555	8.6120	9.770
QPSK	641666	3624.99	8.6045	9.692
QPSK	646332	3694.98	8.5829	9.660
16QAM	637000	3555	8.5880	9.782
16QAM	641666	3624.99	8.5806	9.639
16QAM	646332	3694.98	8.6282	10.04
64QAM	637000	3555	8.5748	9.908
64QAM	641666	3624.99	8.5668	9.556
64QAM	646332	3694.98	8.5723	9.795
256QAM	637000	3555	8.5827	9.704
256QAM	641666	3624.99	8.6181	10.15
256QAM	646332	3694.98	8.5887	9.872

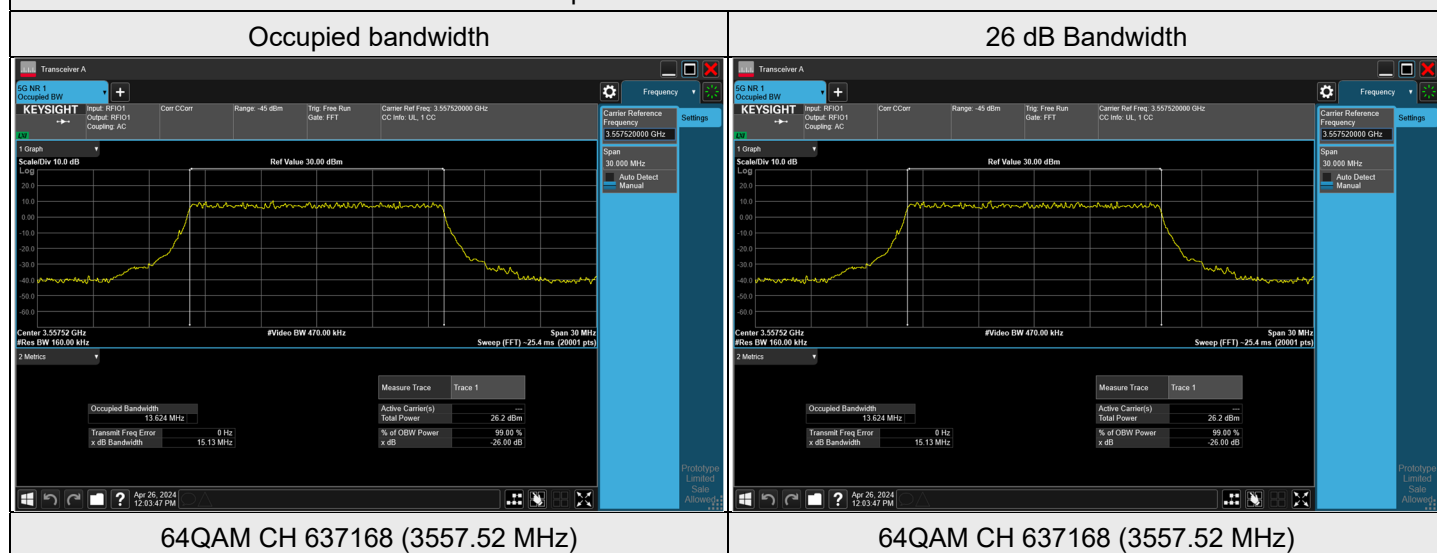
Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	637168	3557.52	13.612	14.82
QPSK	641666	3624.99	13.570	14.90
QPSK	646166	3692.49	13.573	14.90
16QAM	637168	3557.52	13.564	14.69
16QAM	641666	3624.99	13.597	15.02
16QAM	646166	3692.49	13.552	14.90
64QAM	637168	3557.52	13.624	15.13
64QAM	641666	3624.99	13.575	14.92
64QAM	646166	3692.49	13.560	14.97
256QAM	637168	3557.52	13.588	14.93
256QAM	641666	3624.99	13.558	15.08
256QAM	646166	3692.49	13.566	14.82

Spectrum Plot of Worst Value



NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz) Chain 0, Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	637334	3560.01	18.193	19.61
QPSK	641666	3624.99	18.181	19.70
QPSK	646000	3690	18.229	19.89
16QAM	637334	3560.01	18.185	19.86
16QAM	641666	3624.99	18.217	19.96
16QAM	646000	3690	18.194	19.78
64QAM	637334	3560.01	18.232	20.63
64QAM	641666	3624.99	18.208	19.75
64QAM	646000	3690	18.198	19.79
256QAM	637334	3560.01	18.184	19.70
256QAM	641666	3624.99	18.210	19.81
256QAM	646000	3690	18.194	19.85

Spectrum Plot of Worst Value

