



Sverige



Accred. no. 10363
Testing
ISO/IEC 17025

Report On

FCC Testing of the
Ericsson AIR 6419 B41, KRD 901 212/3 LTE and NR (2496-2690 MHz)
Base Station in accordance with FCC CFR 47 Part 2 and FCC CFR 47
Part 27

COMMERCIAL-IN-CONFIDENCE

FCC: TA8AKRD901212

PREPARED BY

APPROVED BY

DATED

A handwritten signature in black ink, appearing to read 'Maggie Whiting'.

Maggie Whiting
Key Account Manager

A handwritten signature in black ink, appearing to read 'Steve Scarfe'.

Steve Scarfe
Authorised Signatory

19 April 2022

Document 75954408 Report 01 Issue 2

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SECTION 1

REPORT INFORMATION



1.1 REPORT DETAILS

Manufacturer	Ericsson
Address	Torshamnsgatan 23 Kista SE-16480 Stockholm Sweden
Product Name & Product Number	AIR 6419 B41 - KRD 901 212/3
Serial Number(s)	Module 1 – C82A594312 Module 2 - C82A594324
Software Version	Module 1 – CXP2030039/7 Rev R18BD27 Module 2 - CXP2030039/7 Rev R18BD27
Hardware Version	Module 1 – R1D Module 2 – R1D
Non-Tested Variant (See Section 1.11 Additional Information)	KRD 901 212/1 KRD 901 212/11 KRD 901 212/31
Test Specification/Issue/Date	FCC CFR 47 Part 2: 2020 FCC CFR 47 Part 27: 2020
Test Plan	AIR 6419 B41 FCC Test Plan Ver 0.8
Start of Test	14-March-2022
Finish of Test	29-March-2022
Name of Engineer(s)	Raj Kumar Kallem Ashok Kumar Hector Eric Moreno Trujillo Brian Scarfe
Related Document(s)	KDB 971168 D01 v02r02 KDB 662911 D01 v02r01 ANSI C63.26-2015

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate compliance with and FCC CFR 47 Part 2: 2020 and FCC CFR 47 Part 27: 2020. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

Raj Kumar Kallem, Ashok Kumar, Hector Eric Moreno Trujillo, Brian Scarfe

This Report has been up issued to Issue 2 and should be read in place of Issue 1. This report has been up issued to Issue 2 to add missing results for Single Carrier NR and LTE Middle Channel in Section 2.1.



1.2 BRIEF SUMMARY OF RESULTS

The tests that have been selected are detailed in the customer Test Plan as defined in section 1.1 of this report.

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 27 is shown below.

Section	Specification Clause		Test Description	Result
	FCC CFR 47 Part 2	FCC CFR 47 Part 27		
2.1	2.1046	27.50	Maximum Peak Output Power and Peak to Average Ratio - Conducted	Pass
2.2	2.1049	27.53	Occupied Bandwidth	Pass
2.3	2.1051	27.53	Band Edge	Pass
2.4	2.1051	27.53	Transmitter Spurious Emissions	Pass
2.5	2.1055	27.54	Frequency Stability	Pass
-	2.1053	27.53	Radiated Emissions	Pass*

* - Testing for Radiated Spurious Emissions are recorded in the following reports

- FCC Part 15B – Intertek Test Report reference [2108464STO-102](#)
- FCC Part 27 – Intertek Test Report reference [2108464STO-101](#)



1.3 TEST RATIONALE

The tests that have been selected are detailed in the customer Test Plan as defined in section 1.1 of this report. The Test Plan is based on the TÜV SÜD FCC Test Plan Rationale, available on request.



1.4 CONFIGURATION DESCRIPTION

Config No	RAT	No Of carriers	Carrier Bandwidth	Carrier Frequency Configuration (MHz)				
				Channel position B (MHz)	Channel position M (MHz)	Channel position T (MHz)	Power (W) per carrier	Power (dBm) per RDNB connector
1		1	10 MHz 30kHz SCS	2501	2593	2685	40	27.96
			20 MHz 30kHz SCS	2506	2593	2680	80	30.97
			30 MHz 30kHz SCS	2511	2593	2675	120	32.73
			40 MHz 30kHz SCS	2516	2593	2670	160	33.98
			50 MHz 30kHz SCS	2521	2593	2665	200	34.95
			60 MHz 30kHz SCS	2526	2593	2660	240	35.74
			70 MHz 30kHz SCS	2531	2593	2655	280	36.41
			80 MHz 30kHz SCS	2536	2593	2650	320	36.99
			90 MHz 30kHz SCS	2541	2593	2645	320	36.99
			100 MHz 30kHz SCS	2546	2593	2640	320	36.99
2 MC-1	NR		10 MHz 30kHz SCS	-	2501+2685	-	2x 40	2x 27.96
			20 MHz 30kHz SCS	-	2506+2680	-	2x 80	2x 30.97
			30 MHz 30kHz SCS	-	2511+2675	-	2x 120	2x 32.73
			40 MHz 30kHz SCS	-	2516+2670	-	2x 160	2x 33.98
			50 MHz 30kHz SCS	-	2521+2665	-	2x 160	2x 33.98
			60 MHz 30kHz SCS	-	2531+2655	-	2x 160	2x 33.98
			70 MHz 30kHz SCS	-	2526+2660	-	2x 160	2x 33.98
			80 MHz 30kHz SCS	-	2536+2650	-	2x 160	2x 33.98
			90 MHz 30kHz SCS	-	2541+2645	-	2x 160	2x 33.98
			*100 MHz 30kHz SCS	-	2546+6245	-	2x 160	2x 33.98
2 MC-2		2	10 MHz 30kHz SCS	2501+2511	-	2675+2685	2x 40	2x 27.96
			20 MHz 30kHz SCS	2506+2526	-	2660+2680	2x 80	2x 30.97
			30 MHz 30kHz SCS	2511+2541	-	2645+2675	2x 120	2x 32.73
			40 MHz 30kHz SCS	2516+2566	-	2630+2670	2x 160	2x 33.98
			50 MHz 30kHz SCS	2521+2571	-	2615+2665	2x 160	2x 33.98
			60 MHz 30kHz SCS	2526+2586	-	2600+2660	2x 160	2x 33.98
			70 MHz 30kHz SCS	2531+2601	-	2585+2655	2x 160	2x 33.98
			80 MHz 30kHz SCS	2536+2616	-	2570+2650	2x 160	2x 33.98
			90 MHz 30kHz SCS	2541+2631	-	2555+2645	2x 160	2x 33.98
			*100 MHz 30kHz SCS	2546+2641	-	2550+2645	2x 160	2x 33.98

* Please note that although the configuration shows 2 Carrier NR as 2 x 100MHz BW, the actual tested was 100 MHz + 90 MHz because the whole band is 194 MHz maximum.



Config No	RAT	No Of carriers	Carrier Bandwidth	Carrier Frequency Configuration (MHz)					
				Channel position B (MHz)	Config No	RAT	No Of carriers	Carrier Bandwidth	
3	LTE	1	10 MHz	2501	2593	2685	60	29.72	
			15 MHz	2,503.5	2593	2,682.5	80	30.97	
			20 MHz	2,506.0	2593	2,680.0	60	29.72	
4 MC-1		2	10 MHz	-	2501+2685	-	2x 40	2x 27.96	
			15 MHz	-	2503.5+2682.5	-	2x 60	2x 29.72	
			20 MHz	-	2506+2680	-	2x 80	2x 30.97	
4-MC-2			10 MHz	2501+2511	-	2675+2685	2x 40	2x 27.96	
			15 MHz	2503.5+2518.5	-	2667.5+2682.5	2x 60	2x 29.72	
			20 MHz	2506+2526	-	2660+2680	2x 80	2x 30.97	
5 MC-1		5	10 MHz	-	2501+2511+2655+2675+2685	-	5x 40	5x 27.96	
			15 MHz	-	2503.5+2518.5+2652.5+2667.5+2682.5	-	5x 60	5x 29.72	
			20 MHz	-	2506+2526+2640+2660+2680	-	5x 64	5x 30.00	
5 MC-2			10 MHz	2501+2511+2521+2531+2541	-	2645+2655+2665+2675+2685	5x 40	5x 27.96	
			15 MHz	2563.5+2518.5+2533.5+2548.5+2563.5	-	2622.5+2637.5+2652.5+2667.5+2682.5	5x 60	5x 29.72	
	20 MHz		2506+2526+2546+2566+2586	-	2600+2620+2640+2680+2680	5x 64	5x 30.00		
6 MC-1	LTE +NR		2	80 MHz 30kHz SCS	-	2506+2650	-	2x160	36.99+29.72
20 MHz				2506+2556	-	2630+2680	2x160	36.99+29.72	
7 MC-1			5	80 MHz 30kHz SCS +80 MHz 30kHz SCS +	-	2506+2620+2640+2660+680	-	5x64	2 x 36.99+ 4 x29.72
7 MC-2		20 MHz+ 20 MHz + 20 MHz+ 20 MHz		2563.5+2518.5+2533.5+2548.5+2563.5	-	2622.5+2637.5+2652.5+2667.5+2682.5	5x64	2 x 36.99+ 4 x29.72	



1.5 DECLARATION OF BUILD STATUS

Equipment Description				
Technical Description: (Please provide a brief description of the intended use of the equipment including the technologies the product supports)	AIR Antenna Integrated Radio AAS			
Manufacturer:	Ericsson AB			
Model:	AIR 6419 B41			
Part Number:	KR D 901 212/1 (with un-security software and antenna) KR D 901 212/11** (with security software and antenna) KR D 901 212/3*(with un-security software and CAB/RDNB board for testing purpose) KR D 901 212/31(with security software and CAB/RDNB board for testing purpose) Note*: Tested unit Note**: This will be the marketed, sold unit.			
Hardware Version:	R1D			
Software Version:	CXP 2030039/7 R18BD27			
FCC ID of the product under test	TA8AKRD901212			
IC ID of the product under test	N/A			
Intentional Radiators				
RAT		LTE	NR	MRO
Frequency Range (MHz to MHz)	2496 - 2690 MHz			
Conducted Declared Output Power (dBm)	4W/MHz up to max 320W	10 MHz: 40W 15MHz: 60W, 20MHz: 80W	10 MHz: 40W 20MHz: 80W 30MHz: 120W 40MHz: 160W 50MHz: 200W 60MHz: 240W 70 MHz: 280W 80MHz / 90MHz / 100 MHz: 320W	
Antenna Gain (dBi)	25,8 dBi			
Total Horizontal Plane Beamwidth	65°			
Supported Bandwidth(s) (MHz)		10, 15, 20MHz	10,20,30,40,50,60,70,80,90,100 MHz	
Modulation Scheme(s)		QPSK,16QAM,64QA,256QAM	QPSK,16QAM,64QA,256QAM	
ITU Emission Designator		8M96W7D, 13M4W7D, 17M9W7D, 97M6W7D (max CA)	8M57W7D,18M3W7D, 28M0W7D, 38M0W7D, 47M6W7D, 58M0W7D, 67M6W7D, 77M6W7D, 87M6W7D,97M6W7D 187MW7D (max CA)	
CBW (total carrier Bandwidth)		SRO: 100 MHz MRO: 100 MHz	SRO: 190MHz MRO: 180 MHz	MRO: 190MHz
Maximum CBW per EO (Product contains two EO, see exhibit 12 for details)		SRO: 100 MHz MRO: 40	SRO: 100 MHz, MRO: 50 MHz	
IBW	194 MHz			
Maximum number of carriers		SRO: 5 MRO:3	SRO:2 MRO:2	MRO:5



Unintentional Radiators		
Highest frequency generated or used in the device or on which the device operates or tunes	CPRI 25,78 GHz	
Class B Digital Device (Use in residential environment)	Class B Digital Device	
DC Power Supply (Delete if Not Applicable)		
Nominal voltage:	-48V	
Extreme upper voltage:	-58.5V	
Extreme lower voltage:	-36V	
Max current:	40A	
Temperature		
Minimum temperature:	-40°C	
Maximum temperature:	55°C	
Antenna Characteristics		
Integral antenna	Type:	AAS (Advanced Antenna System)
Ancillaries		
Model:	Part Number:	Notes:
SFP+ CPRI & 10GBase-LR 10km 1310nm -40/+85C	RDH 102 65/3	Used during conducted tests by TUV, with exception below
SFP+ CPRI & 10GBase-LR Lite (Very High Temp) 1310nm	RDH 102 65/25	Used during frequency stability test by TUV
SFP28 25GBASE-LR -40/+85 C	RDH 102 75/3	Used during radiated emission test by Intertek
I hereby declare that I am entitled to sign on behalf of the manufacturer and that the information supplied is correct and complete.		
Name:	Audun B Helle	
Position held:	Regulatory Engineer	
Email address:	audun.helle@ericsson.com	
Telephone number:	(0)72 467 52 64	
Date:	29/03/2022	

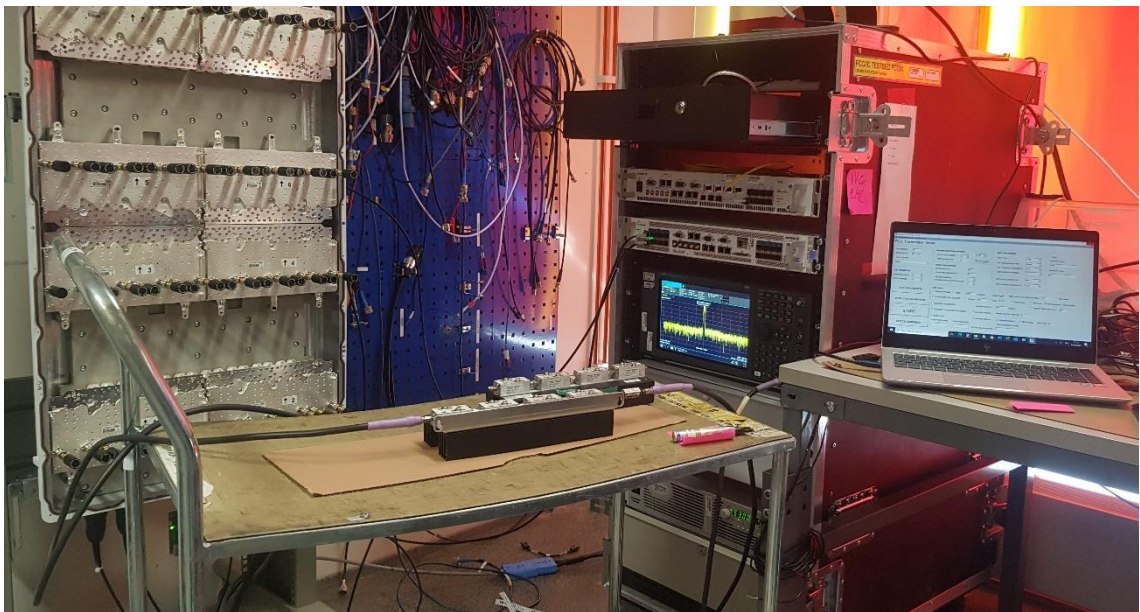
No responsibility will be accepted by TÜV SÜD as to the accuracy of the information declared in this document by the manufacturer.

1.6 PRODUCT INFORMATION

1.6.1 Technical Description

The Equipment Under Test (EUT) AIR 6419 B41 - KRD 901 212/3 is an Ericsson AB Radio Unit working in the public mobile service Band 41 band which provides communication connections to Band 41 network. The EUT operates from a -48V DC supply.

The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.

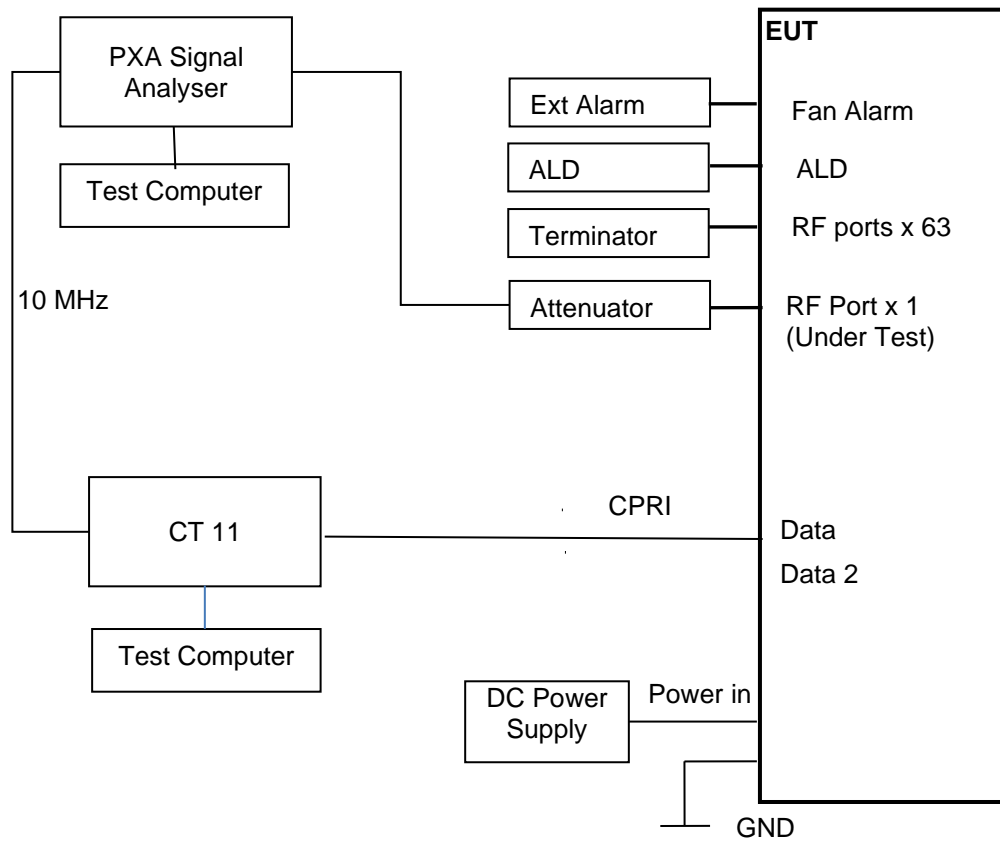


Equipment Under Test



1.7 TEST SETUP

Conducted Test Set Up





1.8 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated as described in the Test Method for each Test.

The EUT was powered from a -48V DC supply.

FCC Measurement Facility Registration Number
563983 Ericsson Test Laboratory, Kista
Postal Address: Ericsson AB, Isafjordsgatan 10, Stockholm, SE-16 440, Sweden

Under our group Swedac Accreditation, TÜV SÜD Sverige conducted the following tests
Ericsson Test Lab, Kista.

Test Case	Module 1	Module 2
Maximum Peak Output Power and Peak to Average Ratio - Conducted	Ashok Kumar, Hector Trujillo	Raj Kumar Kallem, Brian Scarfe
Occupied Bandwidth	Ashok Kumar, Hector Trujillo	Raj Kumar Kallem
Band Edge	Ashok Kumar, Hector Trujillo	Raj Kumar Kallem
Transmitter Spurious Emissions	Ashok Kumar, Hector Trujillo	Raj Kumar Kallem
Frequency Stability	N/A	Raj Kumar Kallem

1.9 DEVIATION FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.10 MODIFICATION RECORD

No modifications were made to the EUT during testing.



1.11 ADDITIONAL INFORMATION

The Test Plan is based on the TÜV SUD Document FCC and ISED Test Plan Rationale for Base Station Equipment.

Pre-testing was performed in accordance with the Test Plan to establish the worst-case Port, modulation schemes and bandwidths for both LTE and NR.

LTE worst case modulation was 16QAM.

The port with the highest power for LTE was Port 01.

The worst-case Bandwidth for LTE was 10 MHz.

NR worst case modulation was 16QAM.

The port with the highest power for NR was Port 59.

The worst-case Bandwidth for NR was 80 MHz.

These worst-case results are presented in this report to demonstrate compliance.

The AIR 6419 B41 was equipped with an RDNB-board to enable testing on each RF path/antenna port. The RDNB-board is replacing the AAS Antenna during the testing and only used in testing purpose. The RDNB-board has 64 identical ports. To expedite the testing that was required on performing all tests on all ports the Carrier Output Power was initially performed on all ports and then the ones with the highest output power were selected to perform the other tests for Bottom, Middle and Top channel in each bandwidth listed. The rationale for this can be seen in the Ericsson test plan AIR 6419 B41 FCC Test Plan Ver 0.8.

Ericsson have provided the following details about the variants of the AIR 6419 B41, KR D 901 221.

The differences between KR D 901 212/3 and KR D 901 212/1, KR D 901 212/11 and KR D 901 212/31 are as below:

KR D 901 212/1 (with un-security software and antenna)

KR D 901 212/11** (with security software and antenna)

KR D 901 212/3*(with un-security software and CAB/RDNB board for testing purpose)

KR D 901 212/31(with security software and CAB/RDNB board for testing purpose)

Note*: Tested unit

Note**: This will be the marketed, sold unit.

To expedite testing two AIR 6419 B41 radios were used, the Hardware and Software Versions were identical. The Module List in Annex A indicates which units were used for which tests and refers to them throughout as Module 1 and Module 2.

Therefore, KR D 901 212/1 is equivalent to KR D 901 212/11 in radiated radio performance terms, and KR D 901 212/3 is equivalent to KR D 901 212/31 in conducted radio performance terms, as such no extra testing is required to prove conformity.

Testing shows Regulatory Compliance for the AIR 6419 B41, KR D 901 212/3NR, LTE and NR + LTE.



SECTION 2

TEST DETAILS



2.1 MAXIMUM PEAK OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

2.1.1 Specification Reference

FCC CFR 47 Part 27, Clause 27.50
FCC CFR 47 Part 2, Clause 2.1046

2.1.2 Date of Test and Modification State

14, 15, 16, 17 and 23-March-2022 - Modification State 0

2.1.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.4 Environmental Conditions

Ambient Temperature 21.8 - 22.8°C
Relative Humidity 20.6 - 24.6%

2.1.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, clause 5.2.1 and summed in accordance with FCC KDB 662911 D01.

In accordance with FCC CFR 47 Part 27, Clause 27.50 (h)(1)(ii) the limits have been calculated using the formula :

$EIRP\ 33\ dBW + 10\text{Log}(X/Y)\ dBW + 10\text{Log}(360/\text{Beamwidth})\ dBW$

Where X = actual channel width, Y = 6MHz and Beamwidth is the total horizontal plane beamwidth of the individual transmitting antenna for the station or any sector measured at the half-power points.

Bandwidth MHz	Beamwidth	EIRP Limit dBw	EIRP Limit W	EIRP Limit dBm
10	65	42.65	18417.81	72.65
15	65	44.41	27626.71	74.41
20	65	45.66	36835.61	75.66
30	65	47.42	55253.42	77.42
40	65	48.67	73671.22	78.67
50	65	49.64	92089.03	79.64
60	65	50.43	110506.84	80.43
70	65	51.10	128924.64	81.10
80	65	51.68	147342.45	81.68
90	65	52.19	165760.25	82.19
100	65	52.65	184178.06	82.65



2.1.6 Test Results

Configuration 1

Maximum Output Power per Carrier 27.96, 30.97, 32.73, 33.98, 34.95, 35.74, 36.41, 36.99 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD								
			Channel Position B								
			PAR (dB)	Average Power/PSD		Total Power Ports 0-63		Declared Gain	Total EIRP	EIRP Limit	Limit Margin
	dBm	dBm/MHz	dBm	dBm/MHz	dBi	dBm	dBm	dBm	dB		
59	16QAM	10.0 MHz 30 kHz SCS	9.64	28.75	20.70	46.81	38.76	25.80	72.65	72.65	0.04
59	16QAM	20.0 MHz 30 kHz SCS	9.27	31.45	20.82	49.51	38.88	25.80	75.66	75.66	0.35
59	16QAM	30.0 MHz 30 kHz SCS	9.34	33.14	21.13	51.20	39.19	25.80	77.42	77.42	0.42
59	16QAM	40.0 MHz 30 kHz SCS	9.30	34.37	21.12	52.43	39.18	25.80	78.67	78.67	0.44
59	16QAM	50.0 MHz 30 kHz SCS	9.44	35.44	20.94	53.50	39.00	25.80	79.64	79.64	0.34
59	16QAM	60.0 MHz 30 kHz SCS	9.27	36.21	21.06	54.27	39.12	25.80	80.43	80.43	0.36
59	16QAM	70.0 MHz 30 kHz SCS	9.32	36.82	21.08	54.88	39.14	25.80	81.10	81.10	0.42
59	16QAM	80.0 MHz 30 kHz SCS	8.96	36.98	21.08	55.04	39.14	25.80	81.68	81.68	0.84
59	16QAM	90.0 MHz 30 kHz SCS	8.56	37.19	20.24	55.25	38.30	25.80	82.19	82.19	1.14
59	16QAM	100.0 MHz 30 kHz SCS	8.99	37.25	19.84	55.31	37.90	25.80	82.65	82.65	1.54

Remarks

Calculations

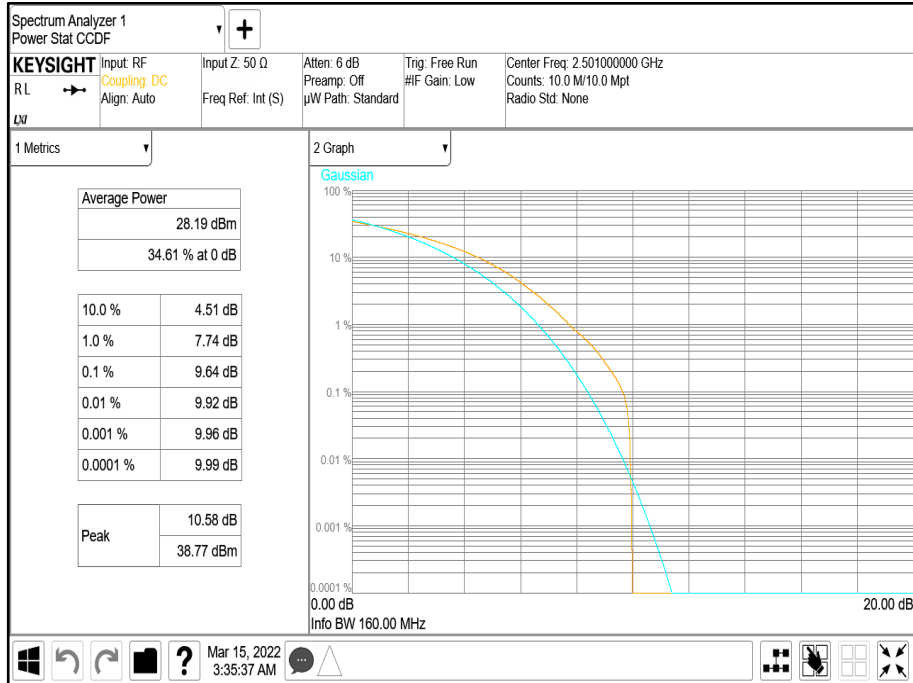
Total Power = Measured Output Power (port x, worst case) + 10log (NANT)

Where NANT refers to the number of Ports. Maximum Total Power (EIRP) = Total Power (port 59) + Antenna Gain +10log(64)

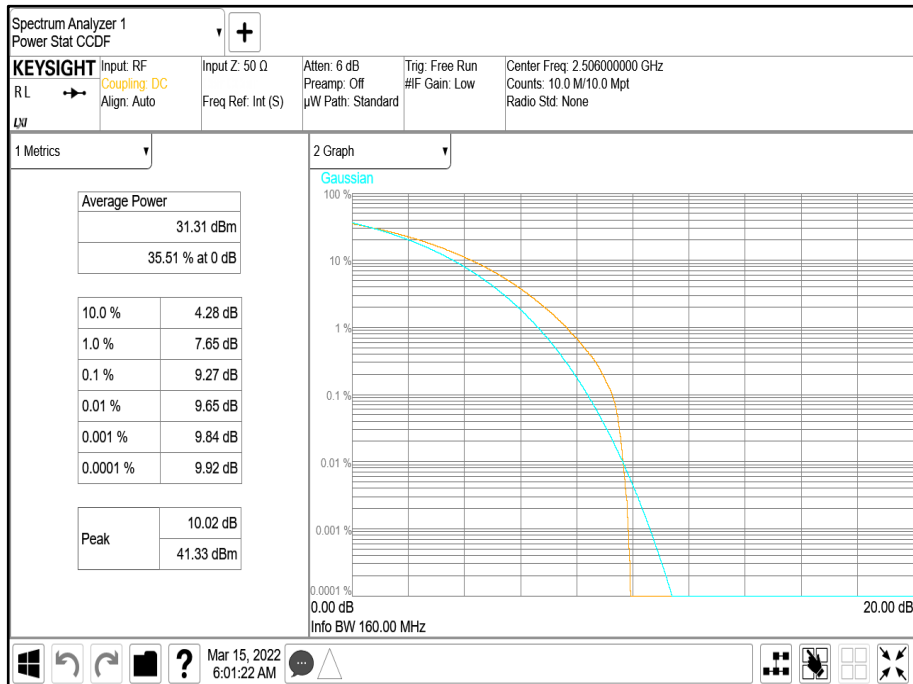
Total EIRP = Total Power +Declared Gain.



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position B

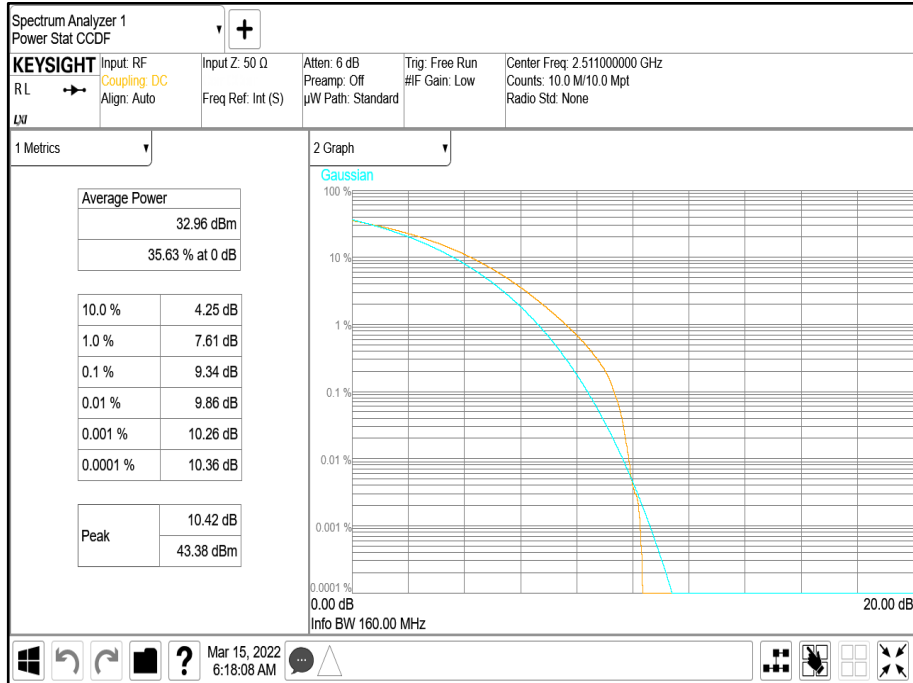


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position B

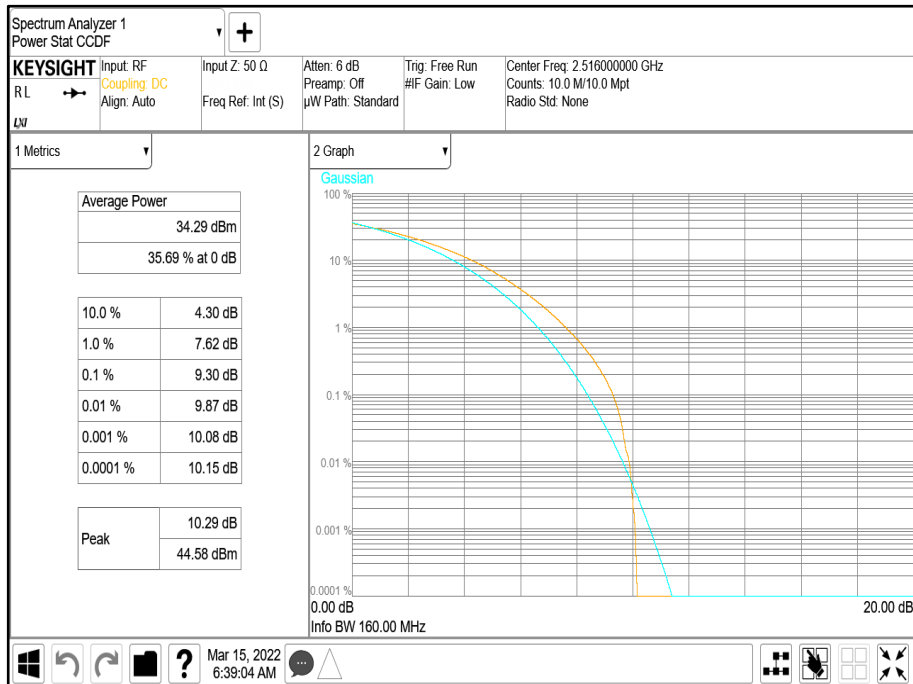




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position B

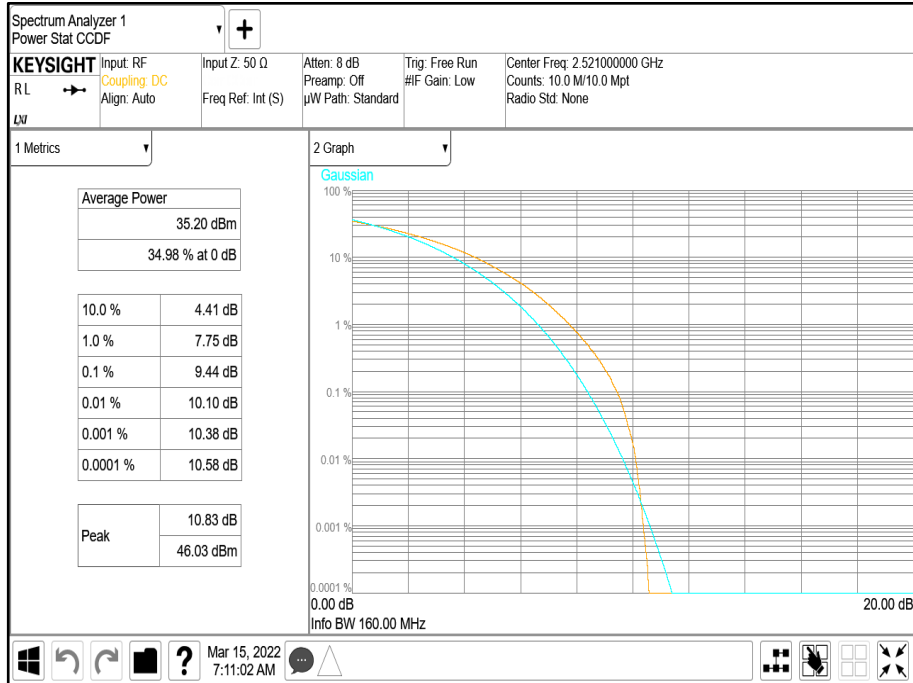


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position B

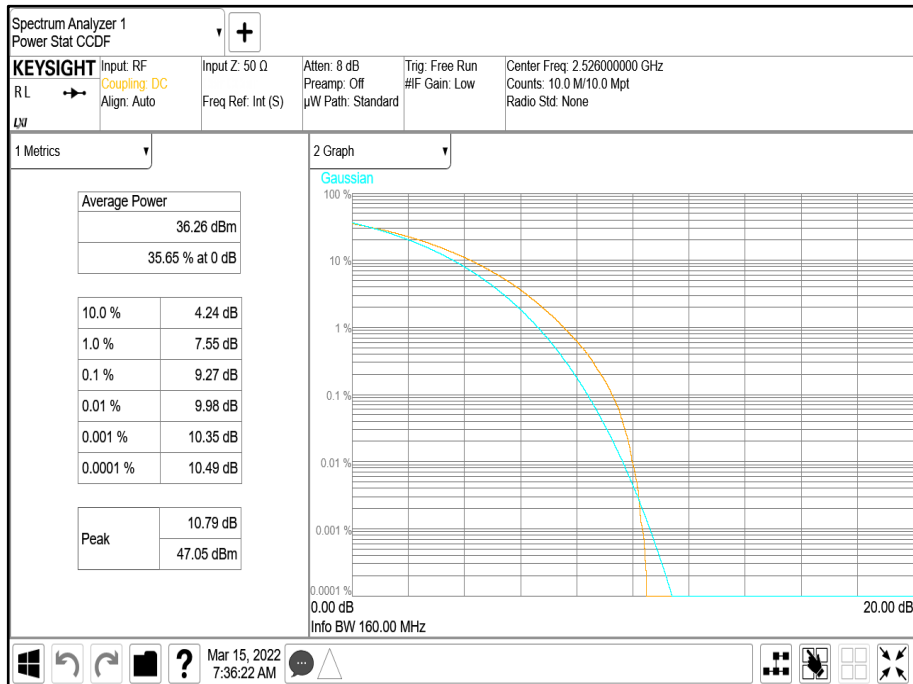




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position B

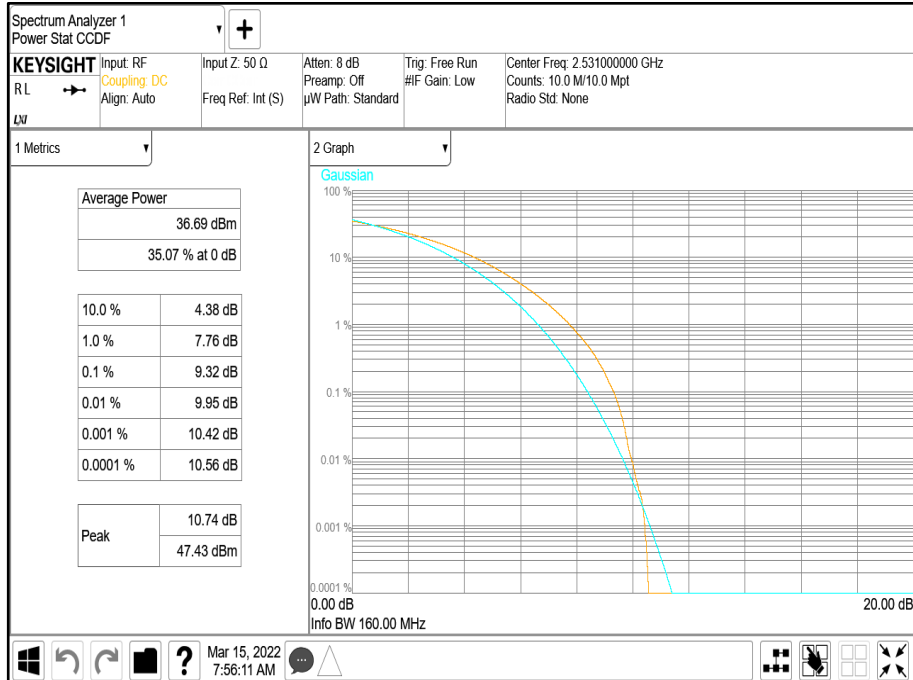


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position B

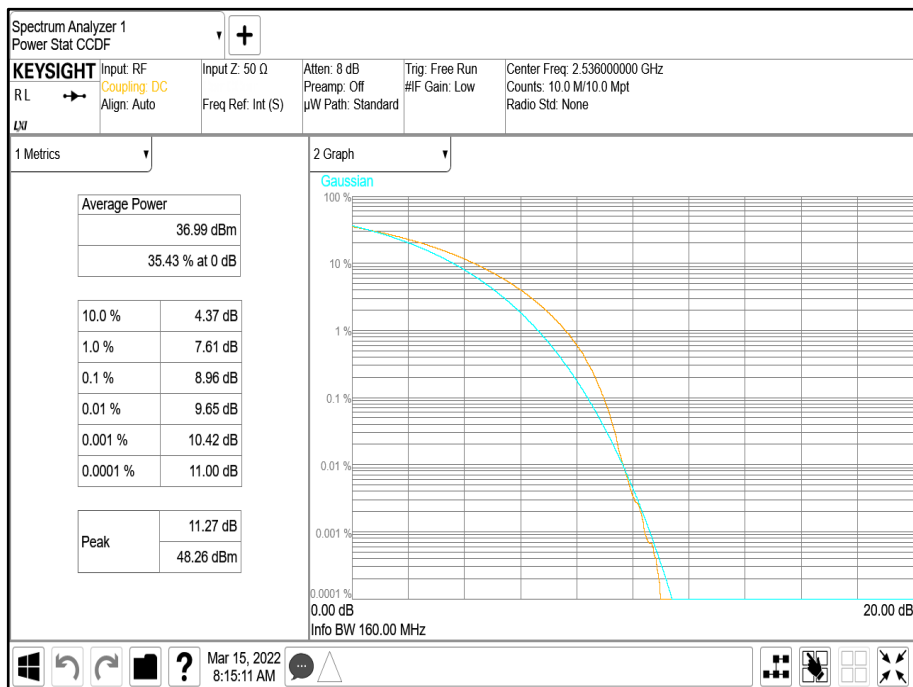




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position B

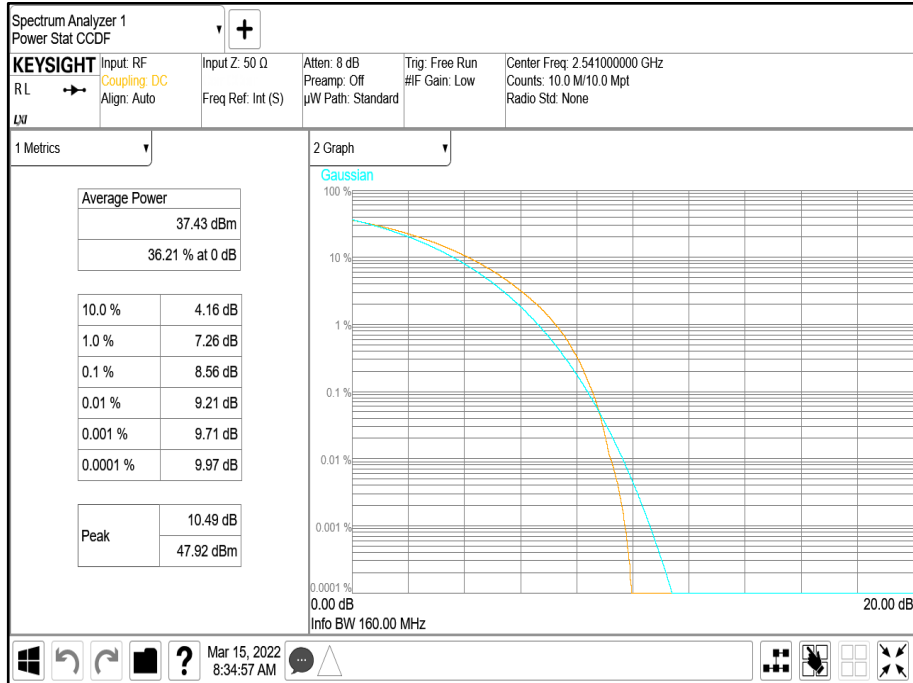


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position B

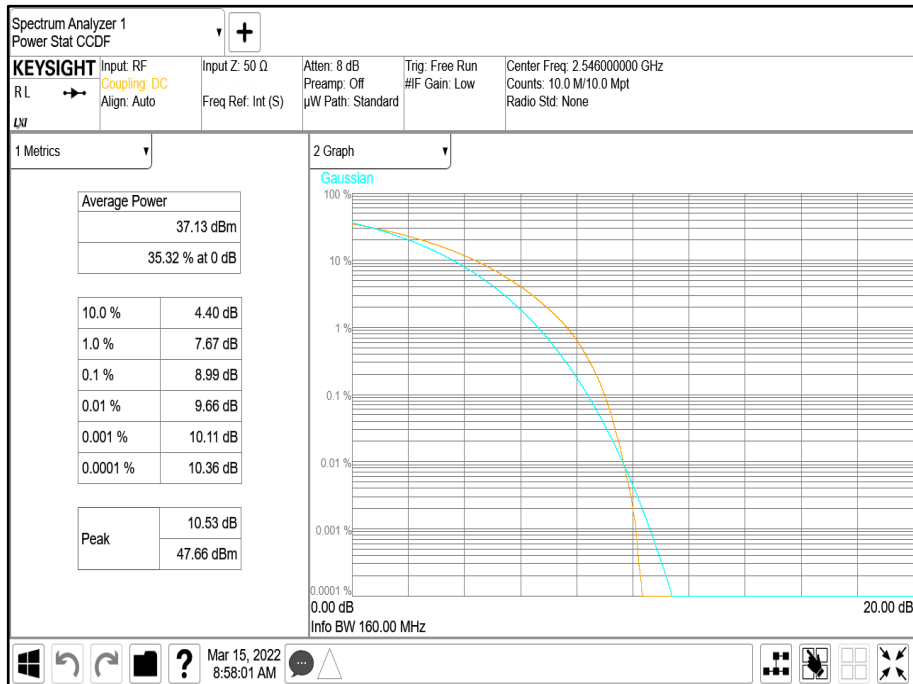




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position B



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 100.0 MHz 30 kHz SCS - Channel Position B





Configuration 1

Maximum Output Power per Carrier 27.96 dBm Per Port

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
0	16QAM	10.0 MHz 30 kHz SCS	9.36	28.16	20.32
1	16QAM	10.0 MHz 30 kHz SCS	9.54	28.23	20.25
2	16QAM	10.0 MHz 30 kHz SCS	9.45	28.16	20.18
3	16QAM	10.0 MHz 30 kHz SCS	9.34	28.02	20.32
4	16QAM	10.0 MHz 30 kHz SCS	9.56	28.13	20.26
5	16QAM	10.0 MHz 30 kHz SCS	9.58	28.07	20.09
6	16QAM	10.0 MHz 30 kHz SCS	9.51	28.05	20.15
7	16QAM	10.0 MHz 30 kHz SCS	9.60	28.20	20.20
8	16QAM	10.0 MHz 30 kHz SCS	9.38	28.11	20.15
9	16QAM	10.0 MHz 30 kHz SCS	9.44	28.11	20.01
10	16QAM	10.0 MHz 30 kHz SCS	9.60	27.96	20.27
11	16QAM	10.0 MHz 30 kHz SCS	9.16	28.23	20.35
12	16QAM	10.0 MHz 30 kHz SCS	9.40	28.24	20.18
13	16QAM	10.0 MHz 30 kHz SCS	9.29	28.09	20.38
14	16QAM	10.0 MHz 30 kHz SCS	9.36	28.02	20.10
15	16QAM	10.0 MHz 30 kHz SCS	9.49	28.15	20.14
16	16QAM	10.0 MHz 30 kHz SCS	9.44	28.20	20.09
17	16QAM	10.0 MHz 30 kHz SCS	9.56	28.19	20.14
18	16QAM	10.0 MHz 30 kHz SCS	9.55	28.21	20.12
19	16QAM	10.0 MHz 30 kHz SCS	9.34	28.29	20.30
20	16QAM	10.0 MHz 30 kHz SCS	9.70	28.25	20.30
21	16QAM	10.0 MHz 30 kHz SCS	9.47	28.13	20.05
22	16QAM	10.0 MHz 30 kHz SCS	9.41	28.27	20.06
23	16QAM	10.0 MHz 30 kHz SCS	9.38	28.19	20.17
24	16QAM	10.0 MHz 30 kHz SCS	9.60	28.29	20.46
25	16QAM	10.0 MHz 30 kHz SCS	9.38	28.10	20.26
26	16QAM	10.0 MHz 30 kHz SCS	9.48	28.33	20.26
27	16QAM	10.0 MHz 30 kHz SCS	9.55	28.17	20.12
28	16QAM	10.0 MHz 30 kHz SCS	9.57	28.07	20.33
29	16QAM	10.0 MHz 30 kHz SCS	9.29	28.04	20.06
30	16QAM	10.0 MHz 30 kHz SCS	9.21	28.04	19.99
31	16QAM	10.0 MHz 30 kHz SCS	9.53	28.21	20.25
32	16QAM	10.0 MHz 30 kHz SCS	9.19	28.02	20.23
33	16QAM	10.0 MHz 30 kHz SCS	9.40	28.12	20.31
34	16QAM	10.0 MHz 30 kHz SCS	9.23	28.10	20.15
35	16QAM	10.0 MHz 30 kHz SCS	9.71	28.31	20.24
36	16QAM	10.0 MHz 30 kHz SCS	9.45	28.21	20.30
37	16QAM	10.0 MHz 30 kHz SCS	9.42	28.25	20.24
38	16QAM	10.0 MHz 30 kHz SCS	9.77	28.14	20.14
39	16QAM	10.0 MHz 30 kHz SCS	9.38	28.13	20.41
40	16QAM	10.0 MHz 30 kHz SCS	9.73	28.04	20.12
41	16QAM	10.0 MHz 30 kHz SCS	9.40	28.27	20.20
42	16QAM	10.0 MHz 30 kHz SCS	9.47	28.26	20.35
43	16QAM	10.0 MHz 30 kHz SCS	9.39	28.40	20.33
44	16QAM	10.0 MHz 30 kHz SCS	9.49	28.33	20.28
45	16QAM	10.0 MHz 30 kHz SCS	9.81	28.41	20.36
46	16QAM	10.0 MHz 30 kHz SCS	9.85	28.26	20.20
47	16QAM	10.0 MHz 30 kHz SCS	9.37	28.49	20.46
48	16QAM	10.0 MHz 30 kHz SCS	9.24	28.23	20.30



Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
49	16QAM	10.0 MHz 30 kHz SCS	9.58	28.25	20.37
50	16QAM	10.0 MHz 30 kHz SCS	9.60	28.28	20.33
51	16QAM	10.0 MHz 30 kHz SCS	9.52	28.30	20.36
52	16QAM	10.0 MHz 30 kHz SCS	9.46	28.20	20.25
53	16QAM	10.0 MHz 30 kHz SCS	9.14	28.07	20.17
54	16QAM	10.0 MHz 30 kHz SCS	9.61	28.18	20.15
55	16QAM	10.0 MHz 30 kHz SCS	9.67	28.09	20.08
56	16QAM	10.0 MHz 30 kHz SCS	9.40	28.13	20.25
57	16QAM	10.0 MHz 30 kHz SCS	9.35	28.11	20.21
58	16QAM	10.0 MHz 30 kHz SCS	9.48	28.51	20.48
59	16QAM	10.0 MHz 30 kHz SCS	9.40	28.54	20.53
60	16QAM	10.0 MHz 30 kHz SCS	9.34	28.31	20.58
61	16QAM	10.0 MHz 30 kHz SCS	9.45	28.51	20.59
62	16QAM	10.0 MHz 30 kHz SCS	9.32	28.20	20.25
63	16QAM	10.0 MHz 30 kHz SCS	9.59	28.32	20.18
Summed Total			-	46.26	38.31

Remarks

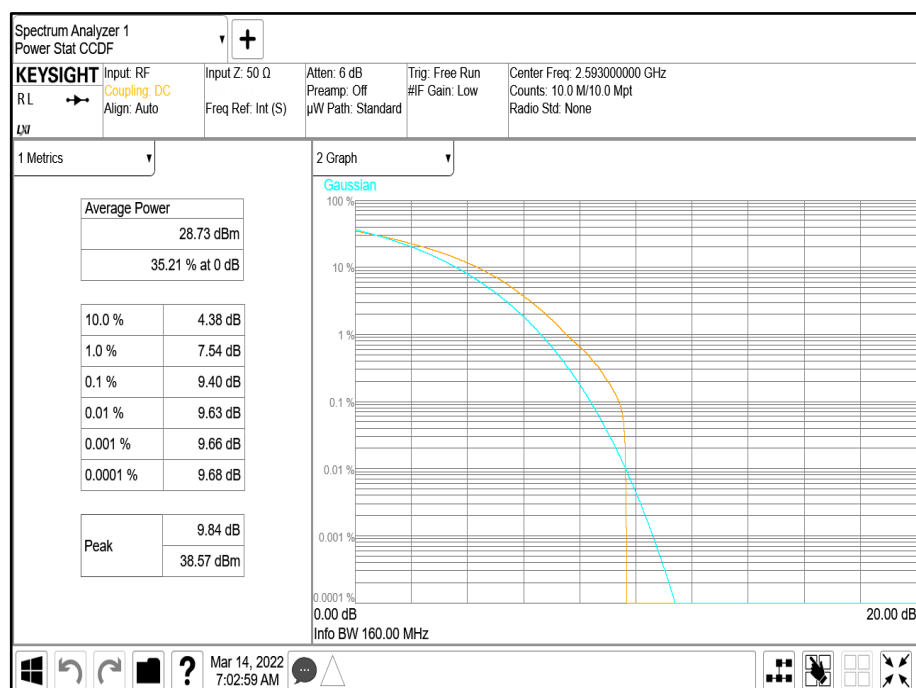
The plot results presented are the measured worst case and represent typical performance for all antenna ports, plot data performance is on file and available on request.

Calculations:

Total EIRP = Summed Average Power on all 64 Ports + Antenna Gain.

NR Carrier Bandwidth	Summed Average Power	Declared Maximum Antenna Gain	Total EIRP	Limit EIRP	Limit Margin
	dBm	dBi	dBm	dBm	dB
10.0 MHz 30 kHz SCS	46.26	25.8	72.06	72.65	0.59

Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position M





Configuration 1

Maximum Output Power per Carrier 27.96, 30.97, 32.73, 33.98, 34.95, 35.74, 36.41, 36.99 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD								
			PAR (dB)	Average Power/PSD		Total Power Ports 0-63		Declared Gain dBi	Total EIRP dBm	EIRP Limit dBm	Limit Margin dB
				dBm	dBm/MHz	dBm	dBm/MHz				
59	16QAM	20.0 MHz 30 kHz SCS	9.44	31.63	20.87	49.69	38.93	25.80	75.49	75.66	0.17
59	16QAM	30.0 MHz 30 kHz SCS	9.82	33.29	21.19	51.35	39.25	25.80	77.15	77.42	0.27
59	16QAM	40.0 MHz 30 kHz SCS	9.45	34.69	21.21	52.75	39.27	25.80	78.55	78.67	0.12
59	16QAM	50.0 MHz 30 kHz SCS	9.14	35.44	21.02	53.50	39.08	25.80	79.30	79.64	0.34
59	16QAM	60.0 MHz 30 kHz SCS	9.43	36.39	20.99	54.45	39.05	25.80	80.25	80.43	0.18
59	16QAM	70.0 MHz 30 kHz SCS	8.95	36.86	21.11	54.92	39.17	25.80	80.72	81.10	0.38
59	16QAM	80.0 MHz 30 kHz SCS	9.05	37.76	21.16	55.82	39.22	25.80	81.62	81.68	0.06
59	16QAM	90.0 MHz 30 kHz SCS	8.57	37.68	20.72	55.74	38.78	25.80	81.54	82.19	0.65
59	16QAM	100.0 MHz 30 kHz SCS	8.70	37.66	20.32	55.72	38.38	25.80	81.52	82.65	1.13

Remarks

Calculations

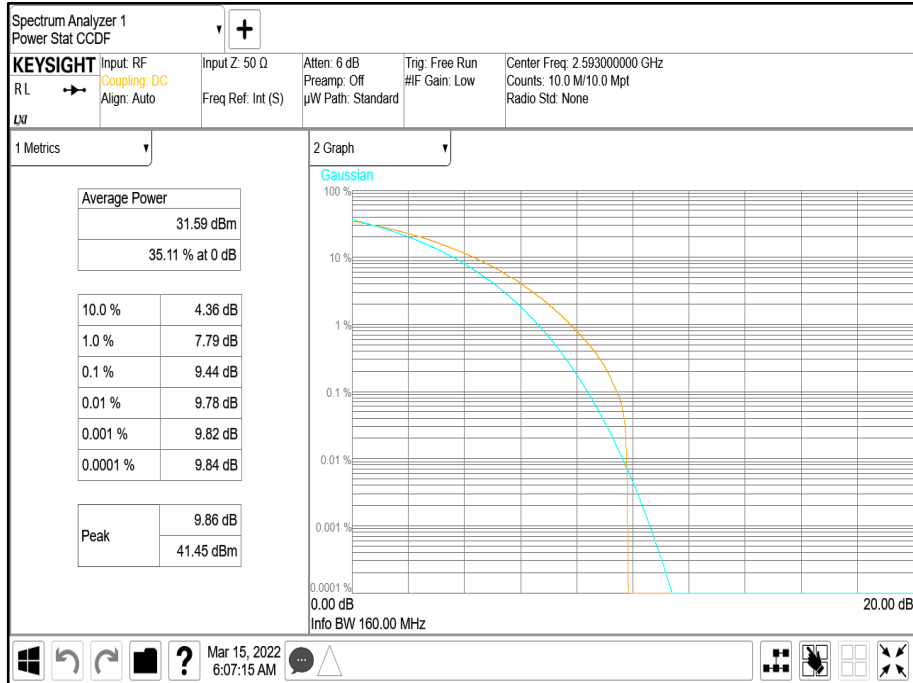
Total Power = Measured Output Power (port x, worst case) + 10log (NANT)

Where NANT refers to the number of Ports. Maximum Total Power (EIRP) = Total Power (port 59) + Antenna Gain +10log(64)

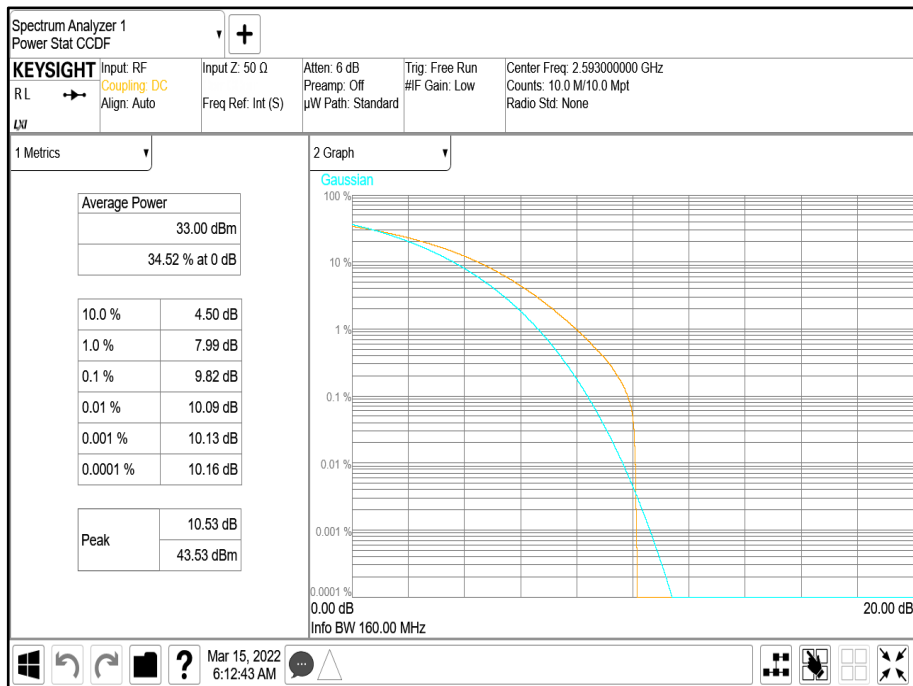
Total EIRP = Total Power +Declared Gain.



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position M

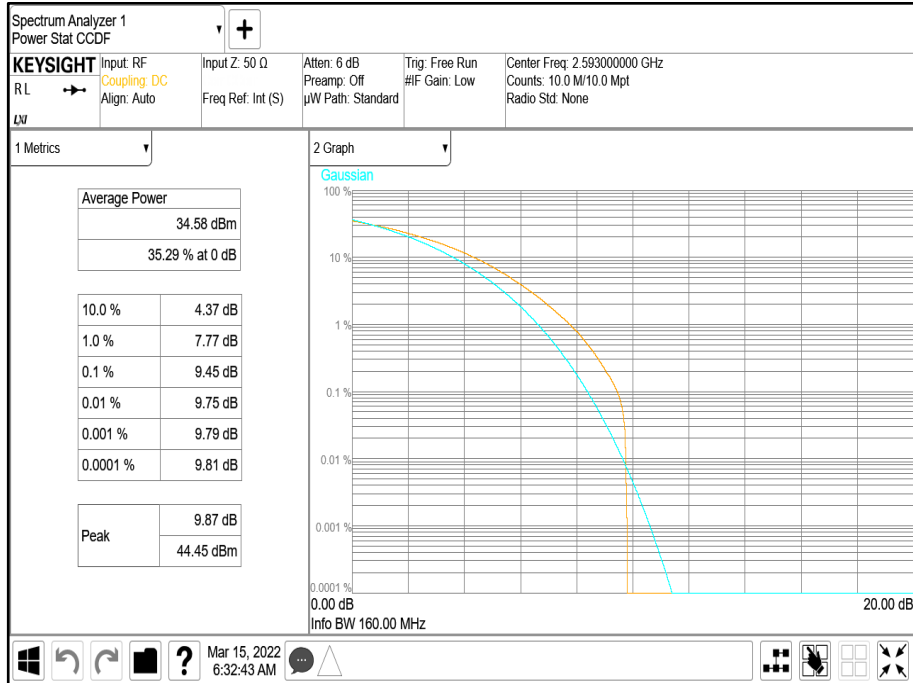


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position M

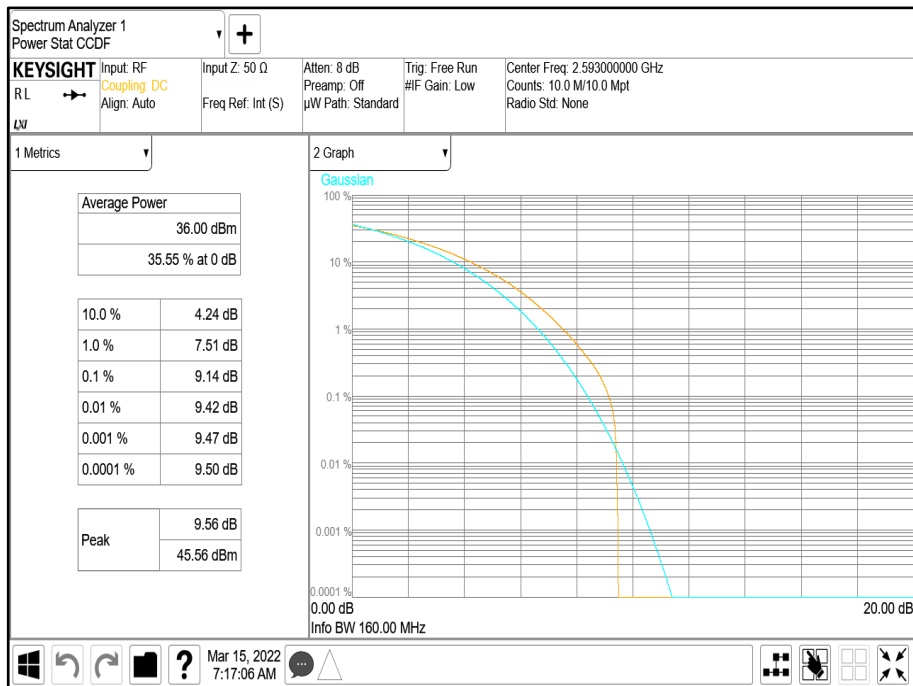




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position M

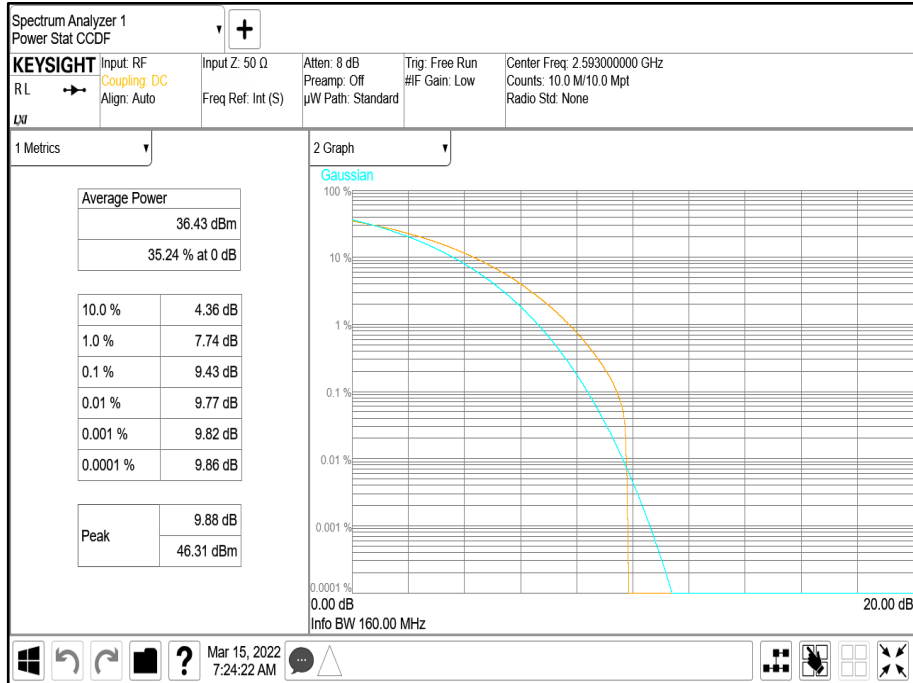


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position M

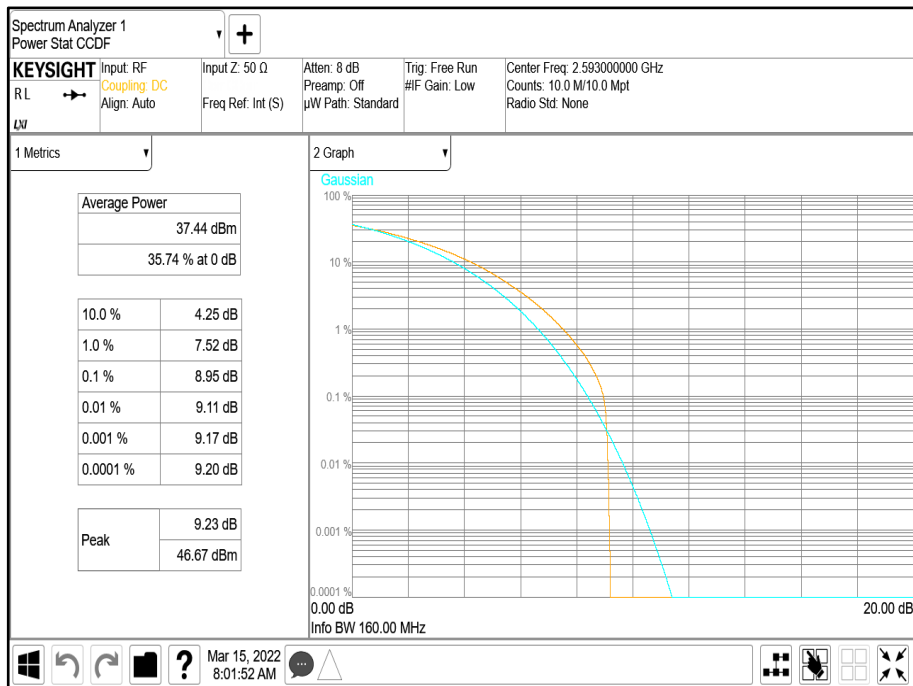




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position M

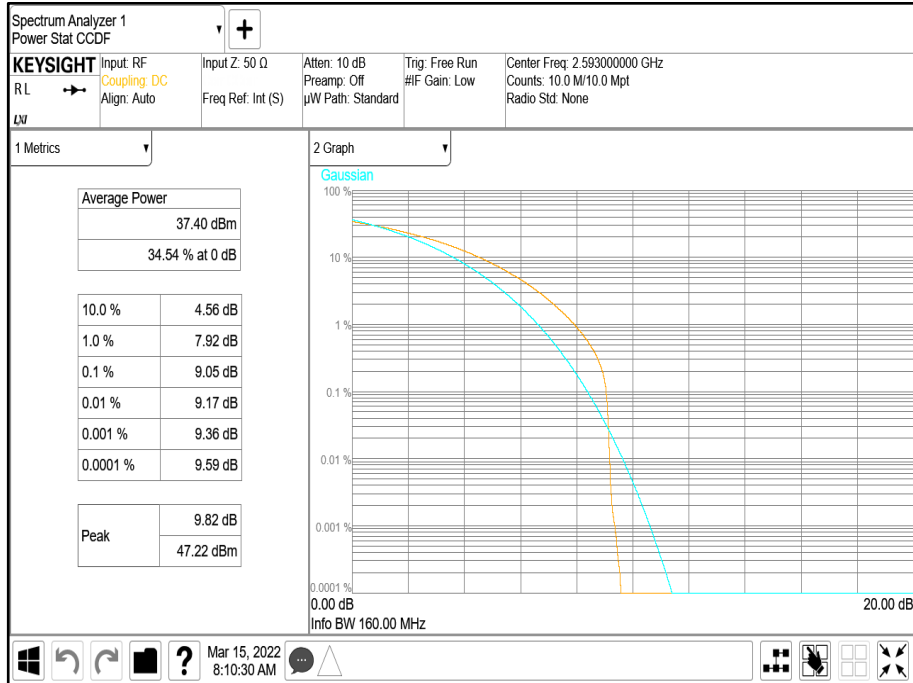


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position M

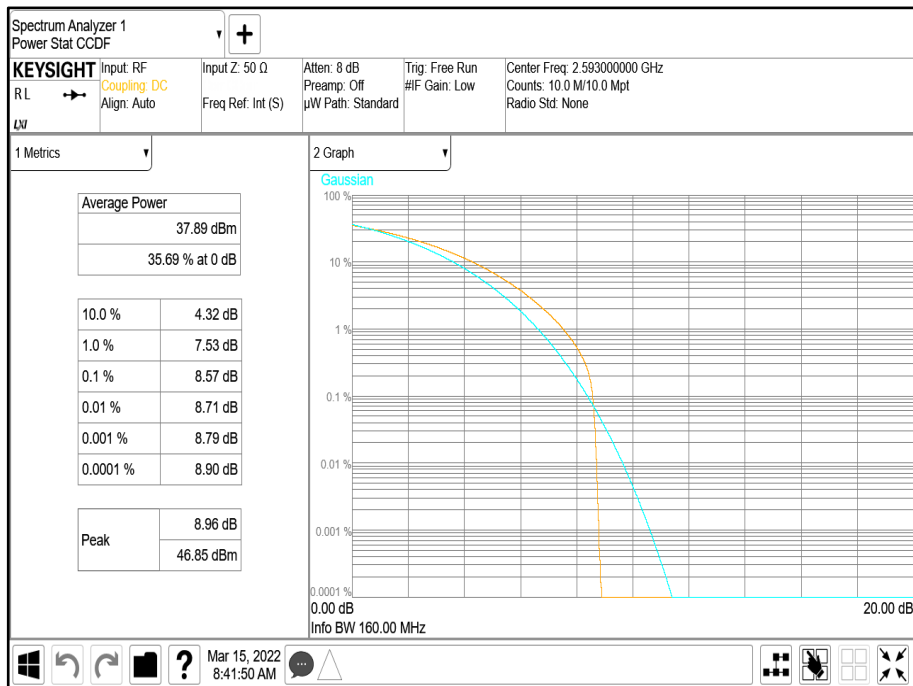




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position M

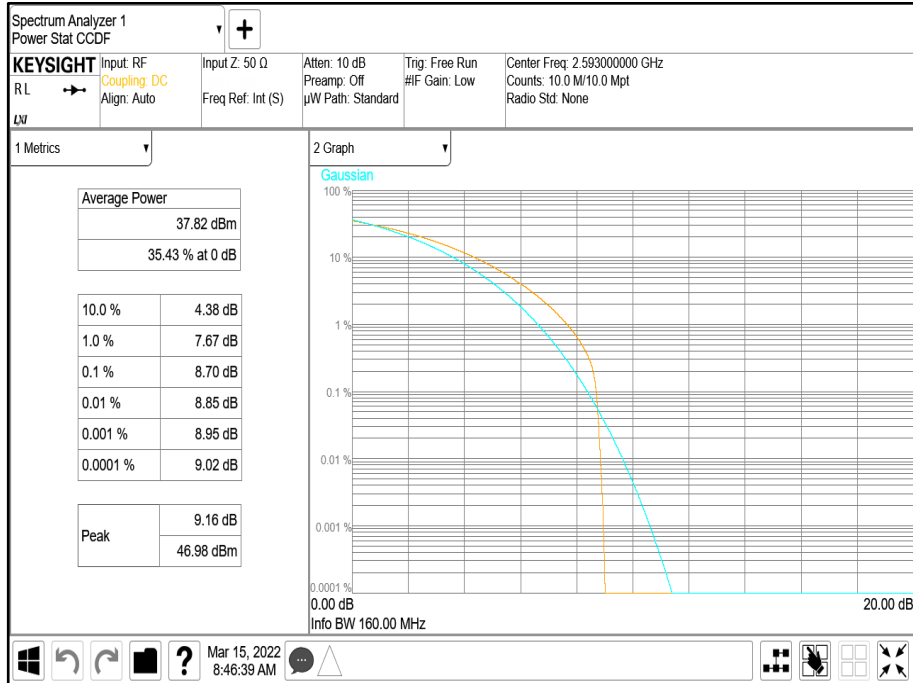


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position M





Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 100.0 MHz 30 kHz SCS - Channel Position M





Configuration 1

Maximum Output Power per Carrier 27.96, 30.97, 32.73, 33.98, 34.95, 35.74, 36.41, 36.99 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD									
			PAR (dB)	Average Power/PSD		Total Power Ports 0-63		Declared Gain dBi	Total EIRP dBm	EIRP Limit dBm	Limit Margin dB	
				dBm	dBm/MHz	dBm	dBm/MHz					
59	16QAM	10.0 MHz 30 kHz SCS	9.60	28.53	20.81	46.59	38.87	25.80	71.39	72.65	0.26	
59	16QAM	20.0 MHz 30 kHz SCS	9.28	31.36	20.95	49.42	39.01	25.80	74.22	75.66	0.44	
59	16QAM	30.0 MHz 30 kHz SCS	9.52	33.16	21.15	51.22	39.21	25.80	76.02	77.42	0.40	
59	16QAM	40.0 MHz 30 kHz SCS	8.95	34.57	21.38	52.63	39.44	25.80	77.43	78.67	0.24	
59	16QAM	50.0 MHz 30 kHz SCS	9.45	35.37	21.32	53.43	39.38	25.80	78.23	79.64	0.41	
59	16QAM	60.0 MHz 30 kHz SCS	9.24	36.28	21.07	54.34	39.13	25.80	79.14	80.43	0.29	
59	16QAM	70.0 MHz 30 kHz SCS	9.35	36.94	21.17	55.00	39.23	25.80	79.80	81.10	0.30	
59	16QAM	80.0 MHz 30 kHz SCS	8.85	37.41	20.90	55.47	38.96	25.80	80.27	81.68	0.41	
59	16QAM	90.0 MHz 30 kHz SCS	8.83	37.29	20.51	55.35	38.57	25.80	80.15	82.19	1.04	
59	16QAM	100.0 MHz 30 kHz SCS	8.82	37.28	20.08	55.34	38.14	25.80	80.14	82.65	1.51	

Remarks

Calculations

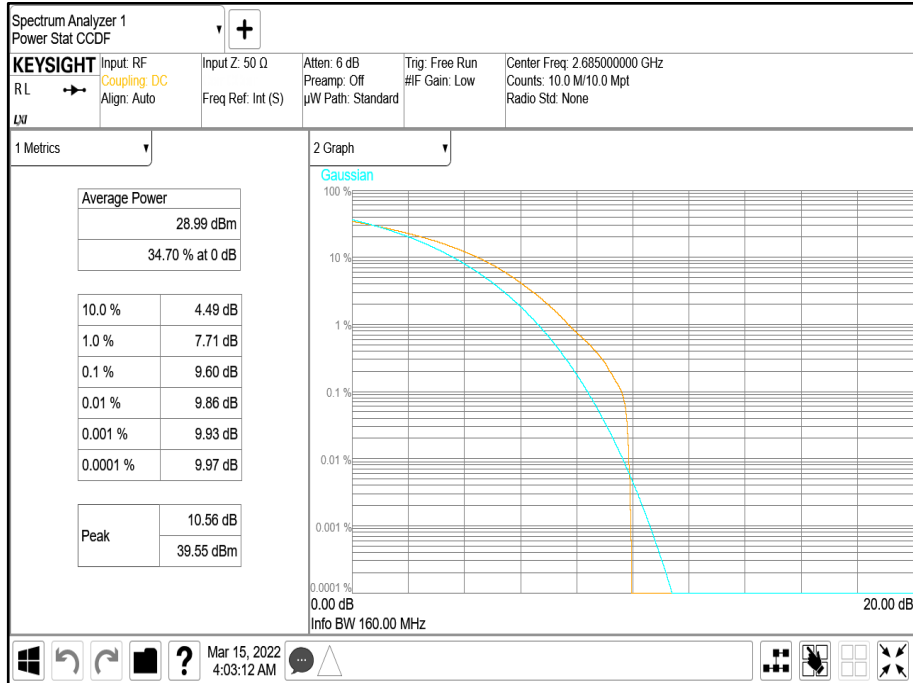
Total Power = Measured Output Power (port x, worst case) + 10log (NANT)

Where NANT refers to the number of Ports. Maximum Total Power (EIRP) = Total Power (port 59) + Antenna Gain +10log(64)

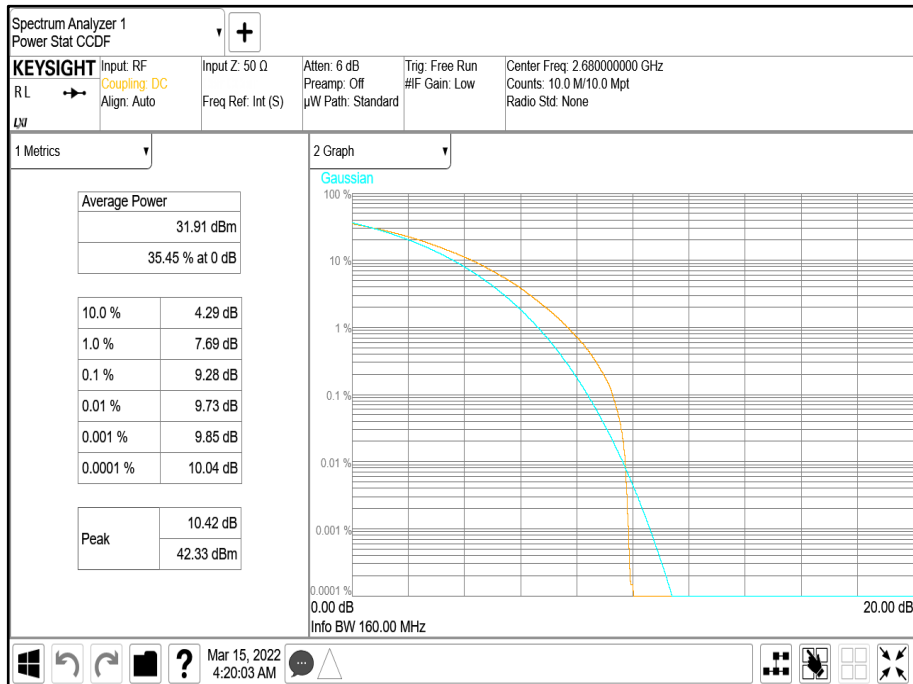
Total EIRP = Total Power +Declared Gain.



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position T



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position T

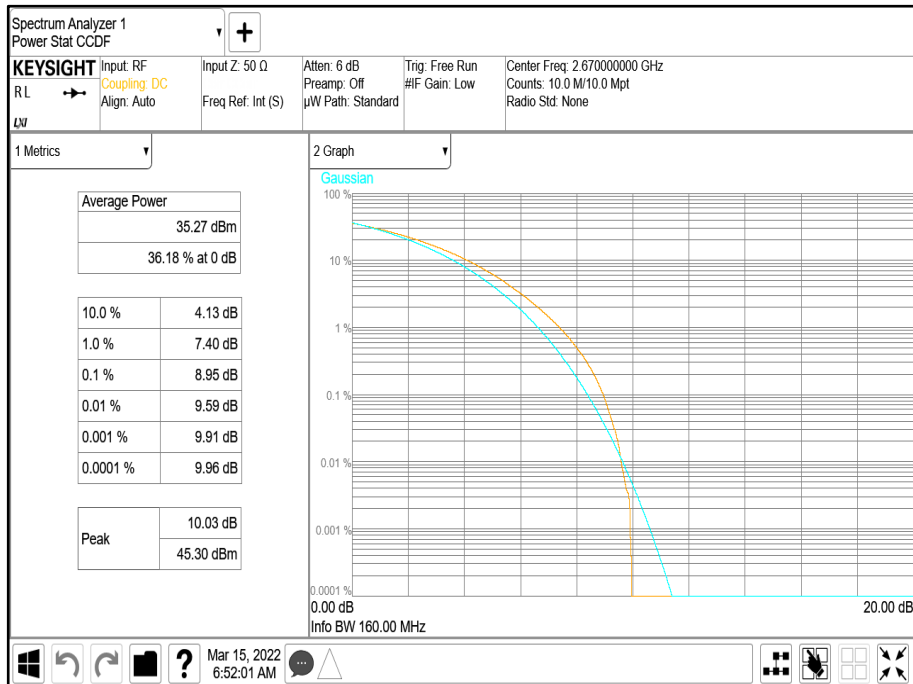




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position T



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position T

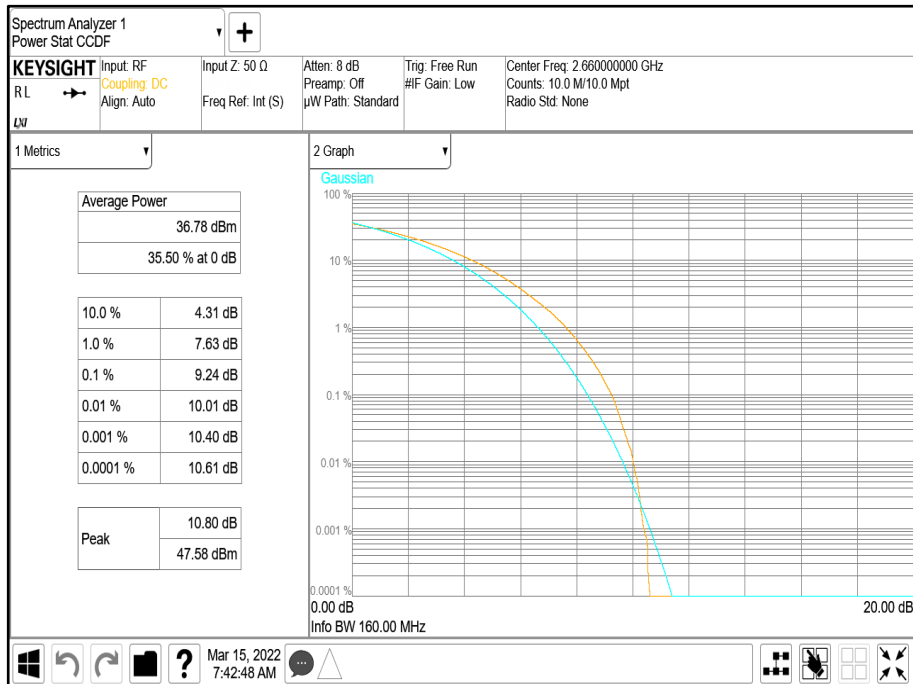




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position T

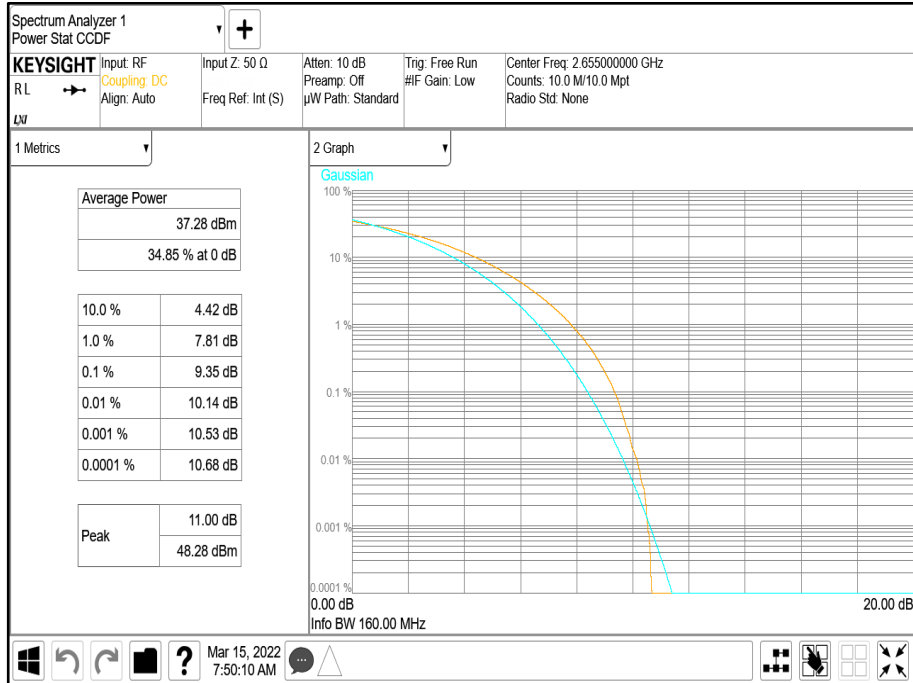


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position T

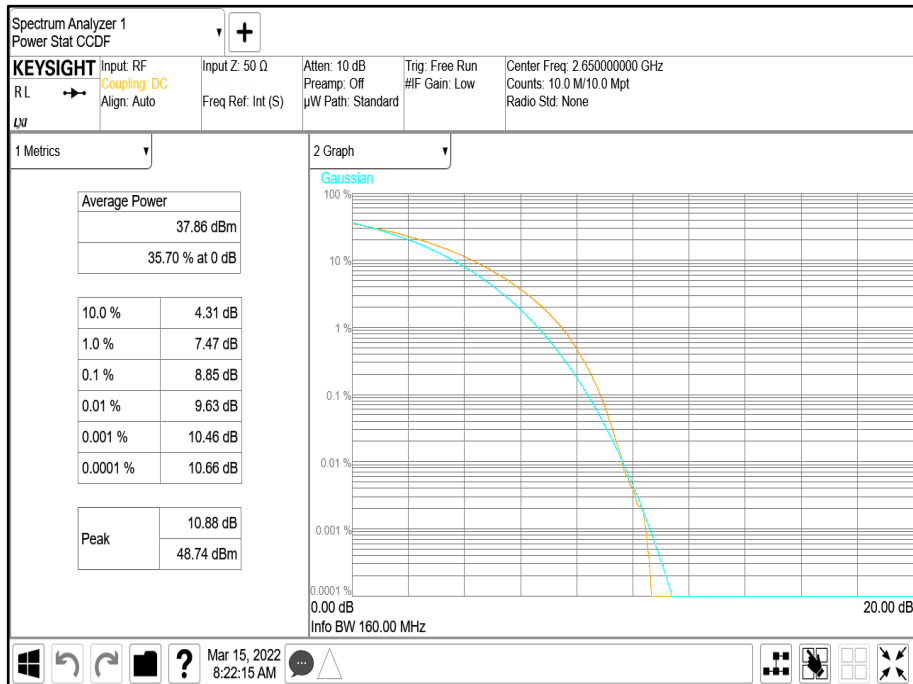




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position T

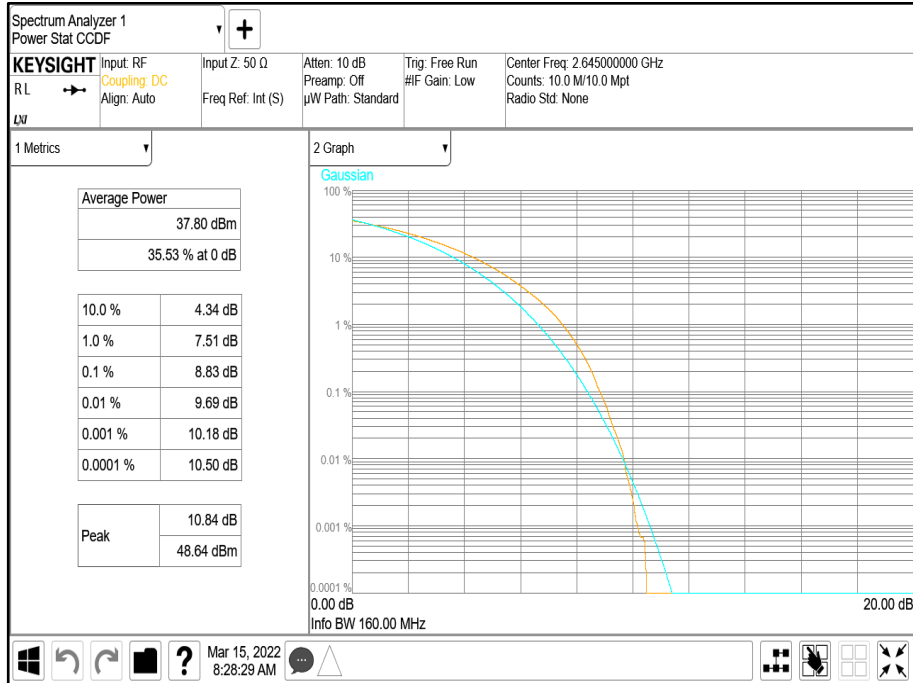


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position T

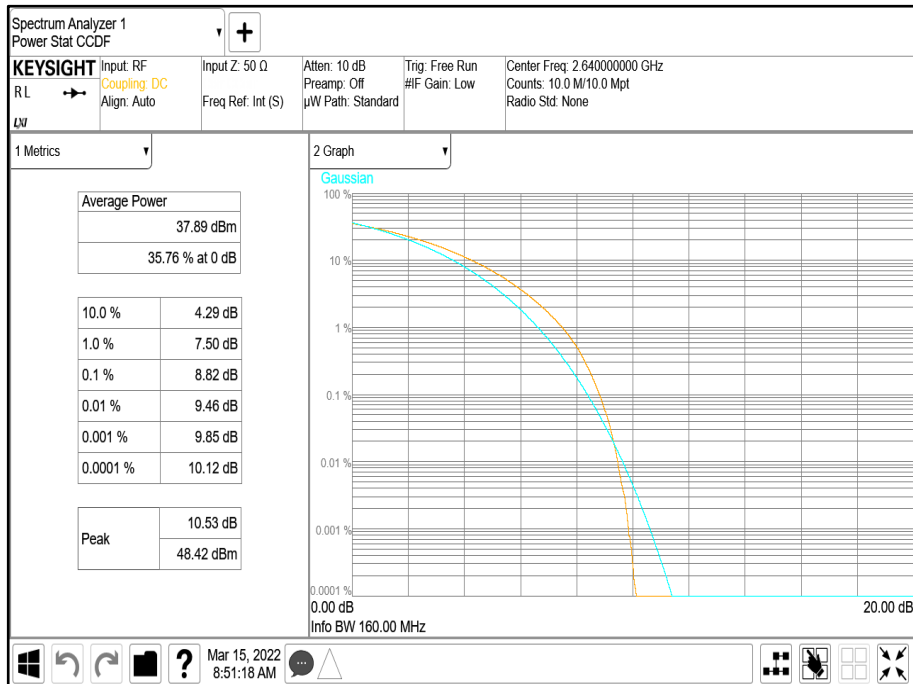




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position T



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 100.0 MHz 30 kHz SCS - Channel Position T





Configuration 2

Maximum Output Power per Carrier 2x 29.72, 2x 30.97, 2x 32.73, 7 x (2x 33.98) dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD		
			Channel Position M		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
59	16QAM	10.0 MHz 30 kHz SCS	-	30.50	20.43
59	16QAM	20.0 MHz 30 kHz SCS	-	34.06	20.75
59	16QAM	30.0 MHz 30 kHz SCS	-	36.06	21.31
59	16QAM	40.0 MHz 30 kHz SCS	-	37.02	20.84
59	16QAM	50.0 MHz 30 kHz SCS	-	37.44	20.25
59	16QAM	60.0 MHz 30 kHz SCS	-	37.25	19.21
59	16QAM	70.0 MHz 30 kHz SCS	-	37.59	18.73
59	16QAM	80.0 MHz 30 kHz SCS	-	37.39	18.31
59	16QAM	90.0 MHz 30 kHz SCS	-	37.68	17.69
59	16QAM	100.0 MHz 30 kHz SCS	-	37.61	17.67

Configuration 3

Maximum Output Power per Carrier 27.96, 29.72, 30.97 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD								
			Channel Position B								
			PAR (dB)	Average Power/PSD		Total Power Ports 1-64		Declared Gain	Total EIRP	EIRP Limit	EIRP Limit Margin
dBm	dBm/MHz	dBm		dBm/MHz							
1	16QAM	10.0 MHz	9.49	27.75	19.90	45.81	37.96	25.80	70.61	72.65	1.04
1	16QAM	15.0 MHz	9.59	29.31	20.14	47.37	38.20	25.80	72.17	74.41	1.24
1	16QAM	20.0 MHz	9.27	30.67	19.58	48.73	37.64	25.80	73.53	75.66	1.13

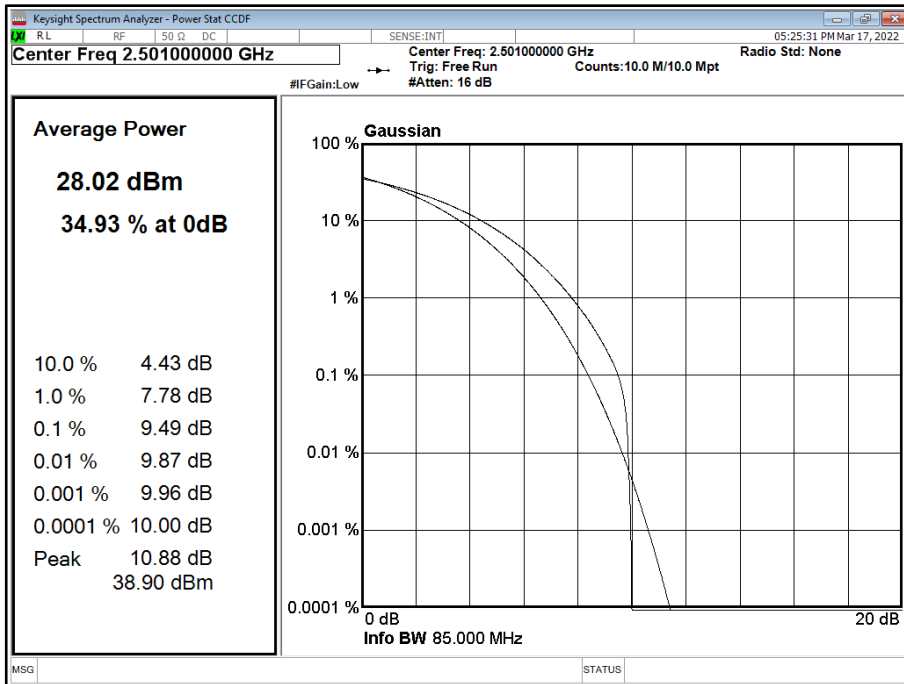
Remarks

Total Power = Measured Output Power (port x, worst case) + 10log (NANT)
 Where NANT refers to the number of Ports.

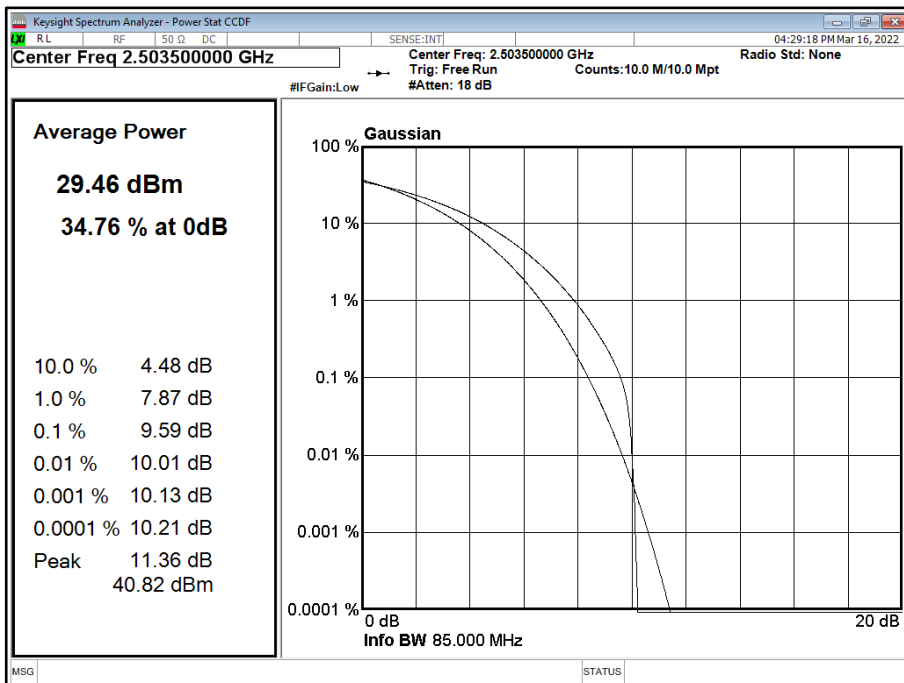
Total Power (EIRP) = Total Power (port 1) + Antenna Gain +10log(64)



Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position B

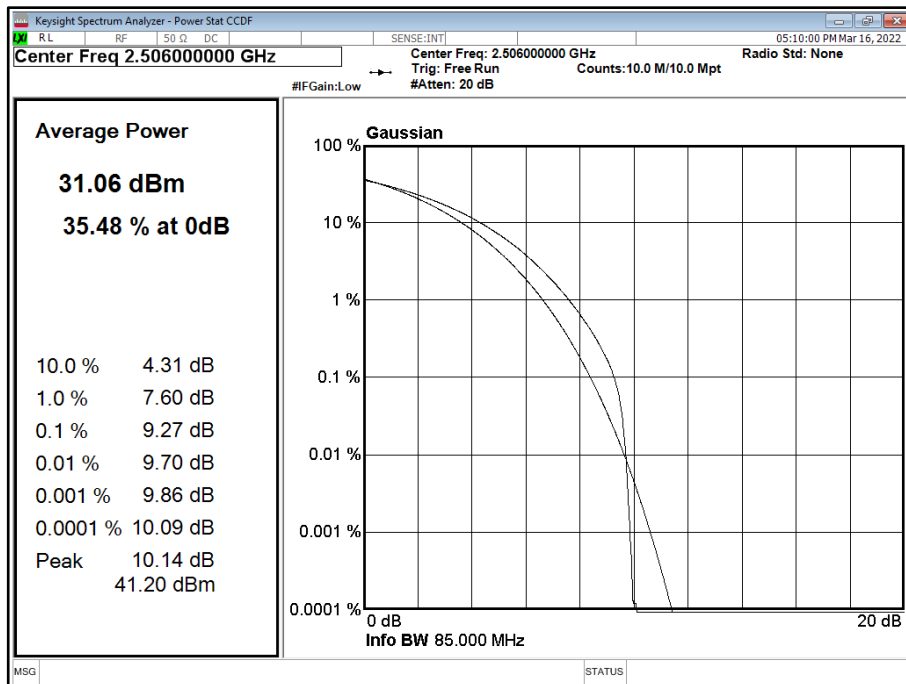


Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B





Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B





Configuration 3

Maximum Output Power per Carrier 27.96, 29.72, 30.97 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD		
			Channel Position M		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
0	16QAM	10.0 MHz	9.91	27.79	19.59
1	16QAM	10.0 MHz	9.67	28.01	19.98
2	16QAM	10.0 MHz	9.66	27.66	19.68
3	16QAM	10.0 MHz	9.75	27.55	19.62
4	16QAM	10.0 MHz	9.72	27.55	19.66
5	16QAM	10.0 MHz	9.91	27.50	19.65
6	16QAM	10.0 MHz	9.60	27.42	19.49
7	16QAM	10.0 MHz	9.81	27.49	19.46
8	16QAM	10.0 MHz	9.73	27.54	19.44
9	16QAM	10.0 MHz	9.50	27.61	19.43
10	16QAM	10.0 MHz	9.59	27.28	19.48
11	16QAM	10.0 MHz	9.87	27.54	19.51
12	16QAM	10.0 MHz	9.76	27.55	19.78
13	16QAM	10.0 MHz	10.08	27.70	19.65
14	16QAM	10.0 MHz	9.61	27.48	19.45
15	16QAM	10.0 MHz	9.58	27.77	19.62
16	16QAM	10.0 MHz	9.78	27.53	19.54
17	16QAM	10.0 MHz	9.61	27.57	19.47
18	16QAM	10.0 MHz	10.01	27.49	19.50
19	16QAM	10.0 MHz	9.41	27.42	19.32
20	16QAM	10.0 MHz	9.69	27.51	19.37
21	16QAM	10.0 MHz	9.44	27.55	19.25
22	16QAM	10.0 MHz	9.97	27.30	19.37
23	16QAM	10.0 MHz	9.53	27.39	19.41
24	16QAM	10.0 MHz	9.44	27.54	19.68
25	16QAM	10.0 MHz	9.60	27.45	19.39
26	16QAM	10.0 MHz	9.65	27.52	19.49
27	16QAM	10.0 MHz	9.83	27.36	19.37
28	16QAM	10.0 MHz	9.79	27.50	19.36
29	16QAM	10.0 MHz	9.69	27.47	19.37
30	16QAM	10.0 MHz	9.76	27.44	19.43
31	16QAM	10.0 MHz	9.82	27.43	19.57
32	16QAM	10.0 MHz	9.56	27.45	19.62
33	16QAM	10.0 MHz	9.73	27.58	19.64
34	16QAM	10.0 MHz	9.78	27.67	19.67
35	16QAM	10.0 MHz	9.53	27.64	19.52
36	16QAM	10.0 MHz	10.14	27.39	19.56
37	16QAM	10.0 MHz	9.83	27.46	19.32
38	16QAM	10.0 MHz	9.72	27.33	19.31
39	16QAM	10.0 MHz	9.92	27.44	19.43
40	16QAM	10.0 MHz	9.59	27.40	19.39
41	16QAM	10.0 MHz	9.42	27.35	19.67
42	16QAM	10.0 MHz	9.74	27.44	19.53
43	16QAM	10.0 MHz	9.70	27.49	19.42
44	16QAM	10.0 MHz	9.56	27.46	19.62
45	16QAM	10.0 MHz	10.25	27.47	19.34
46	16QAM	10.0 MHz	9.90	27.57	19.43
47	16QAM	10.0 MHz	9.98	27.69	19.60
48	16QAM	10.0 MHz	9.60	27.59	19.57



Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD		
			Channel Position M		
			PAR (dB)	Average Power/PSD	
PAR (dB)	dBm	dBm/MHz			
49	16QAM	10.0 MHz	9.38	27.58	19.28
50	16QAM	10.0 MHz	9.76	27.41	19.56
51	16QAM	10.0 MHz	9.52	27.64	19.44
52	16QAM	10.0 MHz	9.76	27.33	19.57
53	16QAM	10.0 MHz	9.50	27.51	19.34
54	16QAM	10.0 MHz	9.63	27.43	19.41
55	16QAM	10.0 MHz	9.63	27.36	19.42
56	16QAM	10.0 MHz	9.73	27.36	19.60
57	16QAM	10.0 MHz	9.70	27.46	19.56
58	16QAM	10.0 MHz	9.92	27.63	20.01
59	16QAM	10.0 MHz	9.52	27.69	19.78
60	16QAM	10.0 MHz	9.61	27.74	19.56
61	16QAM	10.0 MHz	10.04	27.80	19.74
62	16QAM	10.0 MHz	9.84	27.69	19.42
63	16QAM	10.0 MHz	10.06	27.39	19.47
Summed Total			-	45.59	37.58

Remarks

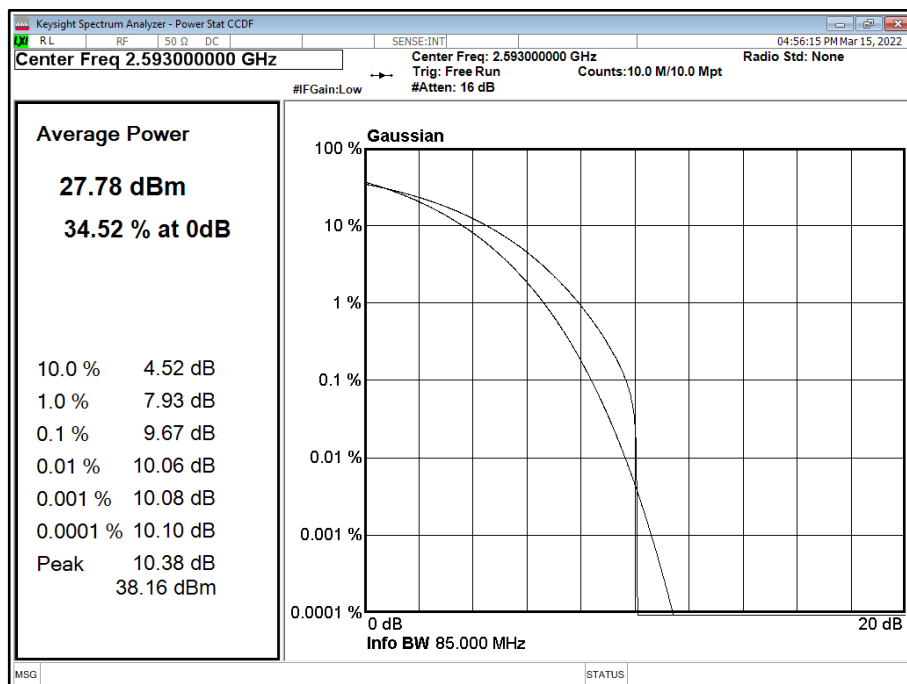
The plot results presented are the measured worst case and represent typical performance for all antenna ports, plot data performance is on file and available on request.

Calculations:

Total EIRP = Summed Average Power on all 64 Ports + Antenna Gain.

NR Carrier Bandwidth	Summed Average Power	Declared Maximum Antenna Gain	Total EIRP	Limit EIRP	Limit Margin
	dBm	dBi	dBm	dBm	dB
10.0 MHz 30 kHz SCS	45.59	25.80	71.39	72.65	1.26

Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position M





Configuration 3

Maximum Output Power per Carrier 27.96, 29.72, 30.97 dBm

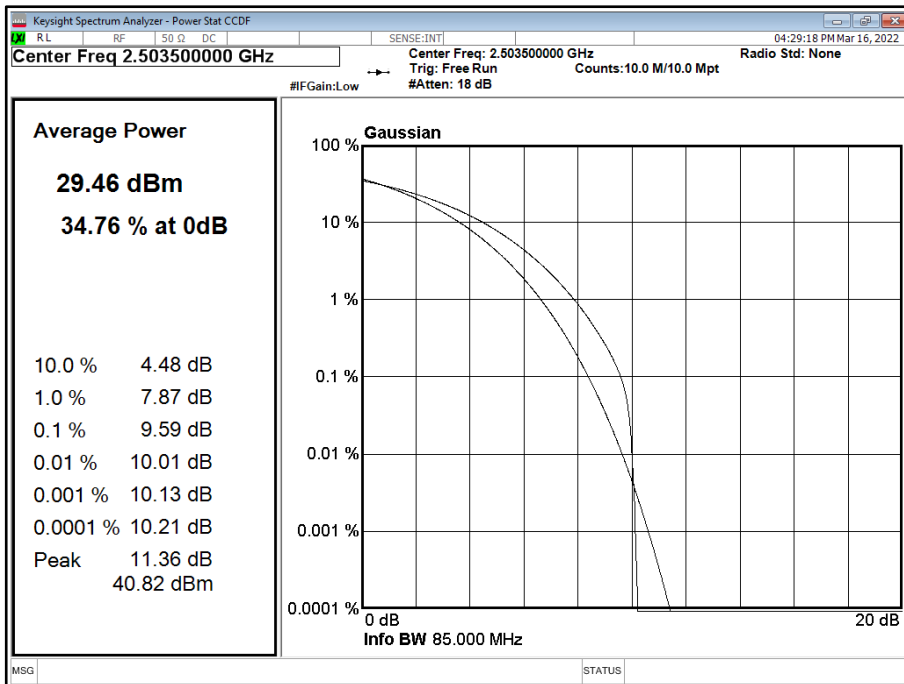
Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD								
			Channel Position M								
			PAR (dB)	Average Power/PSD		Total Power Ports 1-64		Declared Gain	Total EIRP	EIRP Limit	EIRP Limit Margin
			dBm	dBm/MHz	dBm	dBm/MHz	dBi	dBm	dBm	dB	
1	16QAM	15.0 MHz	9.59	29.31	20.14	47.37	38.20	25.80	73.17	74.41	1.24
1	16QAM	20.0 MHz	9.27	30.67	19.58	48.73	37.64	25.80	74.53	75.66	1.13

Remarks

Total Power = Measured Output Power (port x, worst case) + 10log (NANT)
 Where NANT refers to the number of Ports.

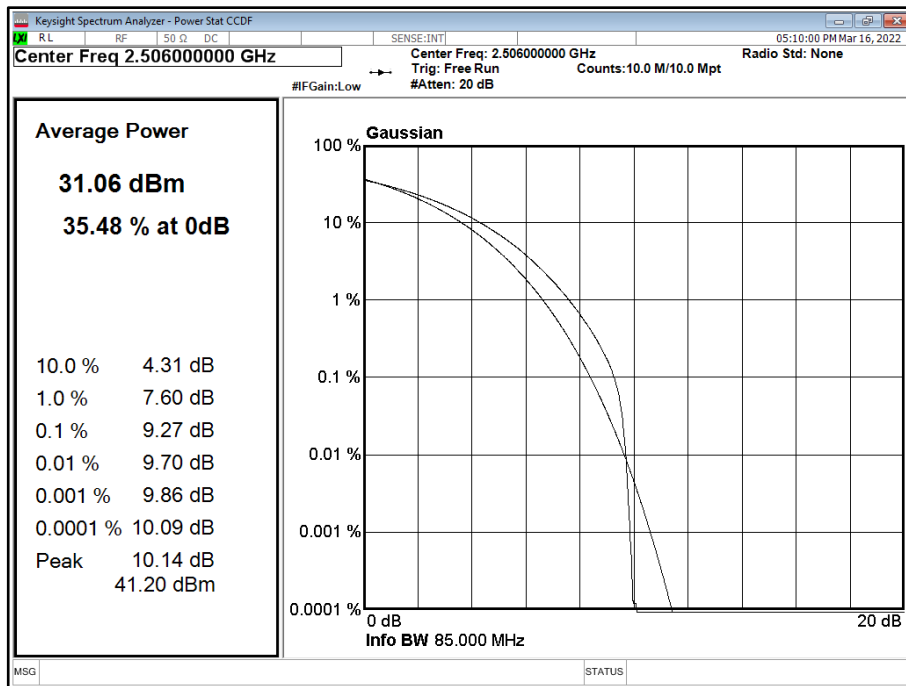
Total Power (EIRP) = Total Power (port 1) + Antenna Gain +10log(64)

Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B





Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



Configuration 3

Maximum Output Power per Carrier 27.96, 29.72, 30.97 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD								
			Channel Position T								
			PAR (dB)	Average Power/PSD		Total Power Ports 1-64		Declared Gain	Total EIRP	EIRP Limit	EIRP Limit Margin
	dBm	dBm/MHz	dBm	dBm/MHz	dBi	dBm	dBm	dBm	dB		
1	16QAM	10.0 MHz	9.72	27.73	19.91	45.79	37.97	25.80	70.59	72.65	1.06
1	16QAM	15.0 MHz	10.15	29.58	20.18	47.64	38.24	25.80	72.44	74.41	0.97
1	16QAM	20.0 MHz	9.70	30.87	19.74	48.93	37.80	25.80	73.73	75.66	0.93

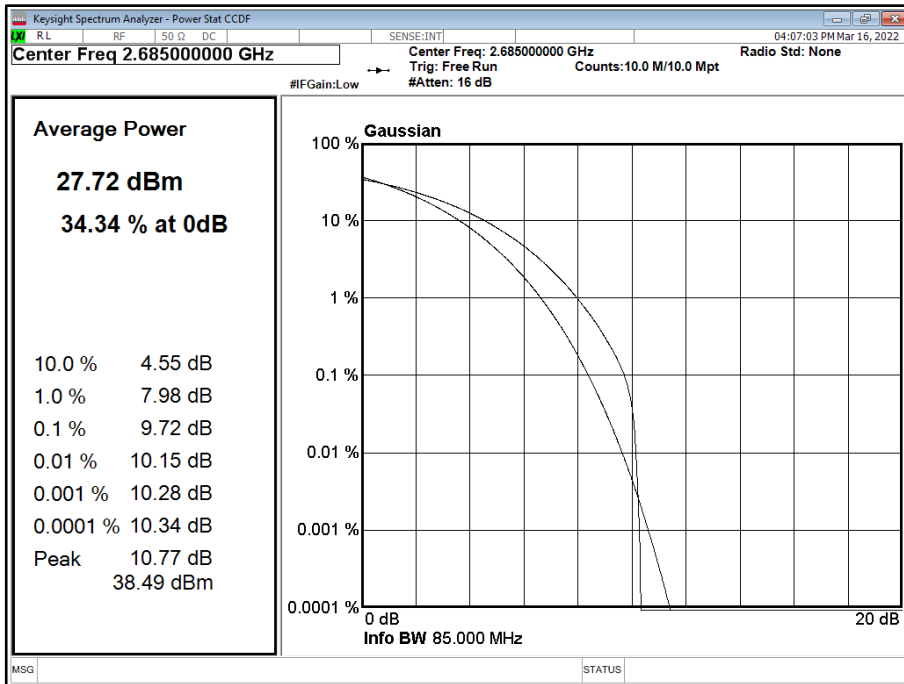
Remarks

Total Power = Measured Output Power (port x, worst case) + 10log (NANT)
Where NANT refers to the number of Ports.

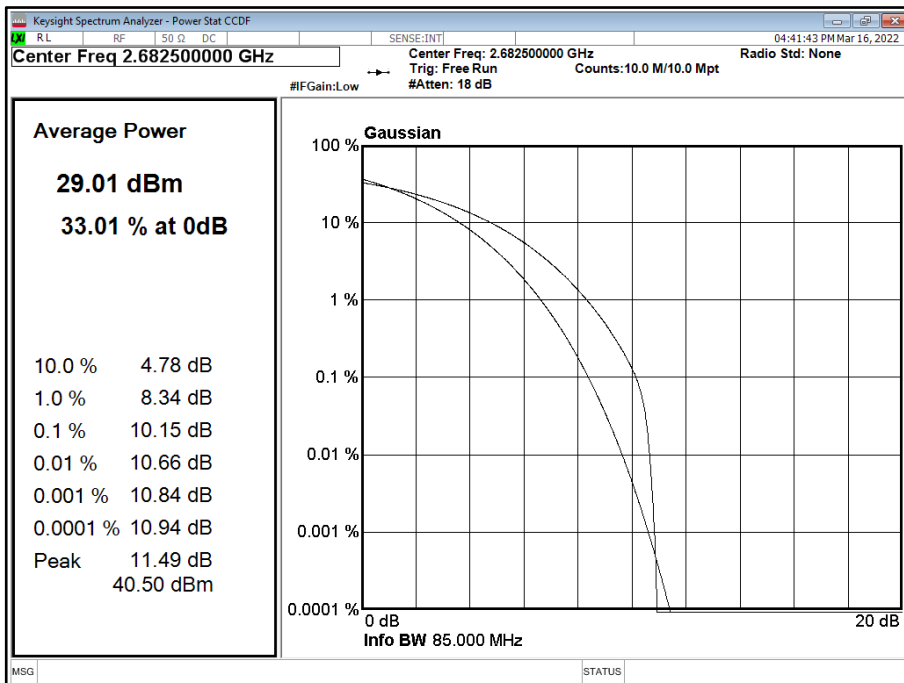
Total Power (EIRP) = Total Power (port 1) + Antenna Gain +10log(64)



Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position T

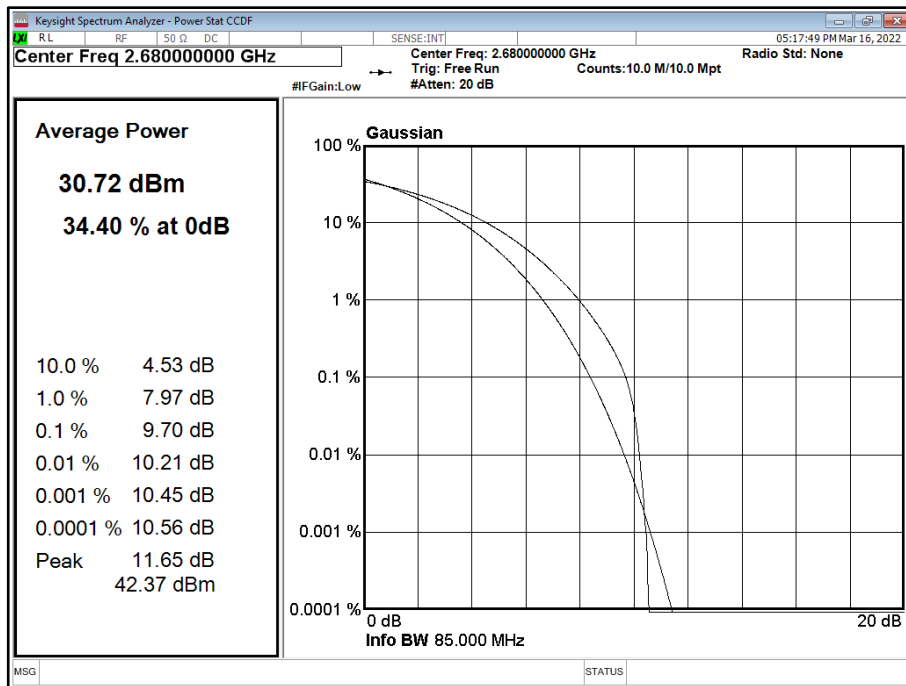


Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position T





Antenna 1 - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position T





Configuration 4

Maximum Output Power per Carrier 2x27.96,2x 29.72, 2x30.97 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD		
			Channel Position M		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
1	16QAM	10.0 MHz	-	30.09	19.19
1	16QAM	15.0 MHz	-	31.85	19.65
1	16QAM	20.0 MHz	-	33.15	18.96

Configuration 5

Maximum Output Power per Carrier 5x27.96,5x 29.72, 5x30.97 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD		
			Channel Position M		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
59	16QAM	10.0 MHz	-	34.36	18.74
59	16QAM	15.0 MHz	-	36.48	20.48
59	16QAM	20.0 MHz	-	36.50	17.66

Configuration 6

Maximum Output Power per Carrier 30.97, 36.99 dBm

Antenna	NR / LTE Modulation	NR / LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD		
			Channel Position M _{RFBW}		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
59	16QAM / 16QAM	80MHz 30kHz SCS + 20.00 MHz	-	36.96	17.97

Configuration 7

Maximum Output Power per Carrier 36.99, 4 x 30.97 dBm

Antenna	NR / LTE Modulation	NR / LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power / PSD		
			Channel Position M _{RFBW}		
			PAR (dB)	Average Power/PSD	
dBm	dBm/MHz				
59	16QAM / 16QAM	2 x 80MHz 30kHz SCS + 3 x 20.00 MHz	-	37.36	17.81



Limit 27.50 (h)(1)(ii)

Bandwidth MHz	EIRP Limit dBm
10	72.65
15	74.41
20	75.66
30	77.42
40	78.67
50	79.64
60	80.43
70	81.10
80	81.68
90	82.19
100	82.65



2.2 OCCUPIED BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 27, Clause 27.53
FCC CFR 47 Part 2, Clause 2.1049

2.2.2 Date of Test and Modification State

15, 16, 18, 21 and 23-March-2022 - Modification State 0

2.2.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.4 Environmental Conditions

Ambient Temperature	21.8 - 23.5°C
Relative Humidity	18.0 - 24.6%

2.2.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 4.2 and 4.3. The Spectrum Analyser RBW was configured to be at least 1% of the channel bandwidth of the carrier to be measured.

For 26 dB Bandwidth, in accordance with KDB 971168 D01, a peak detector and a trace setting of Max Hold were used. The trace was allowed to stabilise. Using the Spectrum Analyser function, the 26dB measurement result was obtained.

4.2 Occupied bandwidth – relative measurement procedure

The reference value is the highest level of the spectral envelope of the modulated signal, unless otherwise specified in an applicable rule section.

Subclause 5.4.3 of ANSI C63.26-2015 is applicable.

4.3 Occupied bandwidth – power bandwidth (99 %) measurement procedure

Subclause 5.4.4 of ANSI C63.26-2015 is applicable (wherein the recommendation is to use the 99 % power bandwidth function of a spectrum analyzer).



2.2.6 Test Results

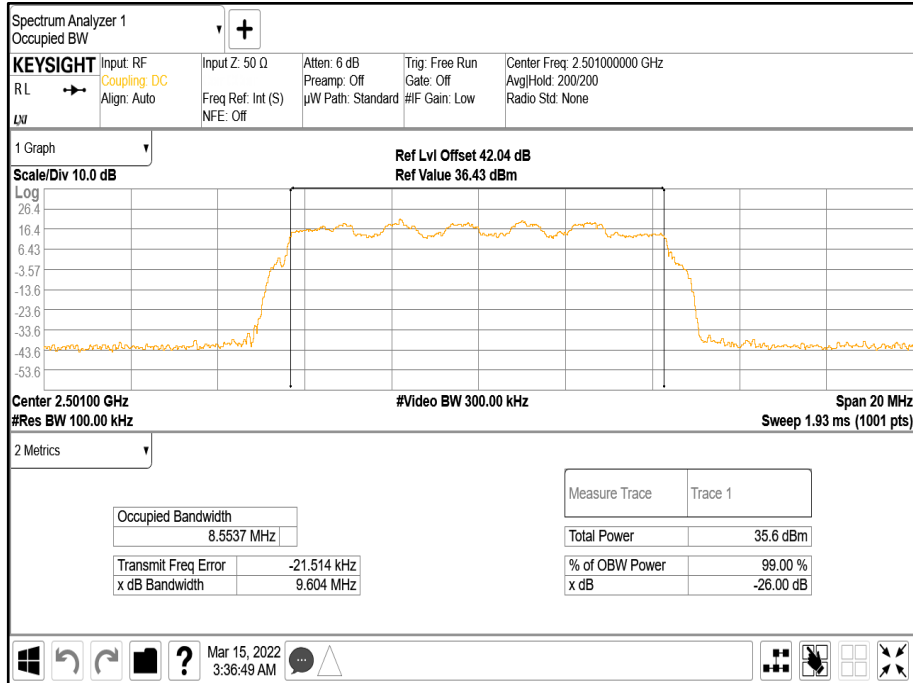
Configuration 1

Maximum Output Power per Carrier 27.96, 30.97, 32.73, 33.98, 34.95, 35.74, 36.41, 36.99 dBm

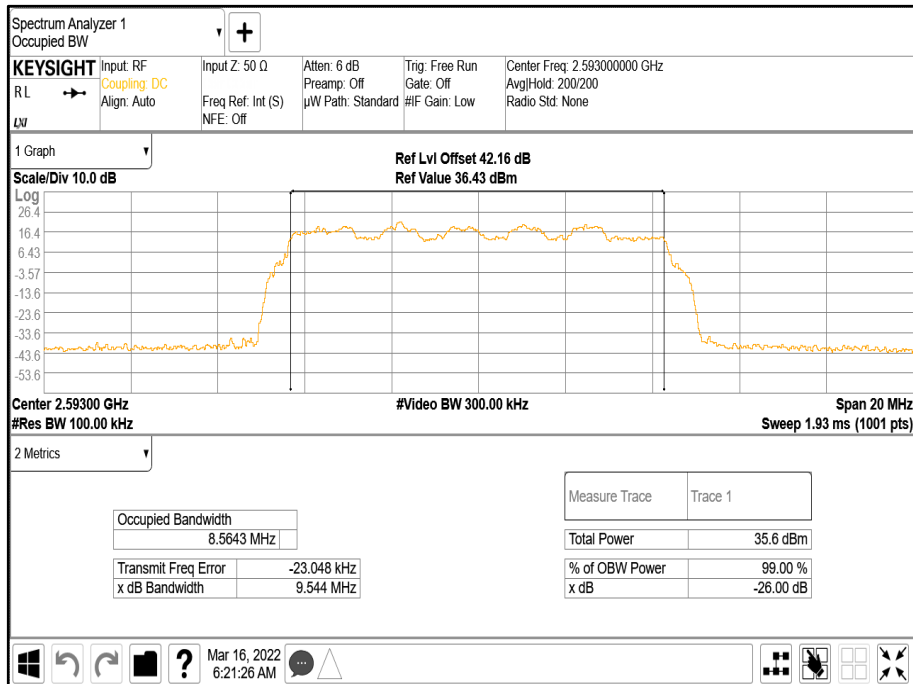
Antenna	NR Modulation	NR Carrier Bandwidth	Result (kHz)					
			Channel Position B		Channel Position M		Channel Position T	
			Occupied Bandwidth	-26 dB Bandwidth	Occupied Bandwidth	-26 dB Bandwidth	Occupied Bandwidth	-26 dB Bandwidth
59	16QAM	10.0 MHz 30 kHz SCS	8553.74	9604.32	8559.63	9544.10	8565.05	9560.77
59	16QAM	20.0 MHz 30 kHz SCS	18300.43	19728.42	18295.64	19591.07	18311.28	19688.18
59	16QAM	30.0 MHz 30 kHz SCS	27908.70	29426.86	27973.16	29542.94	27958.87	29539.81
59	16QAM	40.0 MHz 30 kHz SCS	37994.24	39673.30	38008.50	39735.29	37957.98	39579.54
59	16QAM	50.0 MHz 30 kHz SCS	47557.89	49584.09	47544.50	49575.68	47531.61	49626.01
59	16QAM	60.0 MHz 30 kHz SCS	57927.23	59732.88	57926.58	59822.43	58039.98	59777.60
59	16QAM	70.0 MHz 30 kHz SCS	67634.20	69686.88	67476.21	69737.53	67601.02	69691.22
59	16QAM	80.0 MHz 30 kHz SCS	77551.53	79907.74	77604.76	80027.50	77510.24	79949.61
59	16QAM	90.0 MHz 30 kHz SCS	87607.48	90265.66	87629.83	90253.65	87579.78	90245.88
59	16QAM	100.0 MHz 30 kHz SCS	97348.22	100574.30	97590.06	100535.06	97441.74	100493.14



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position B

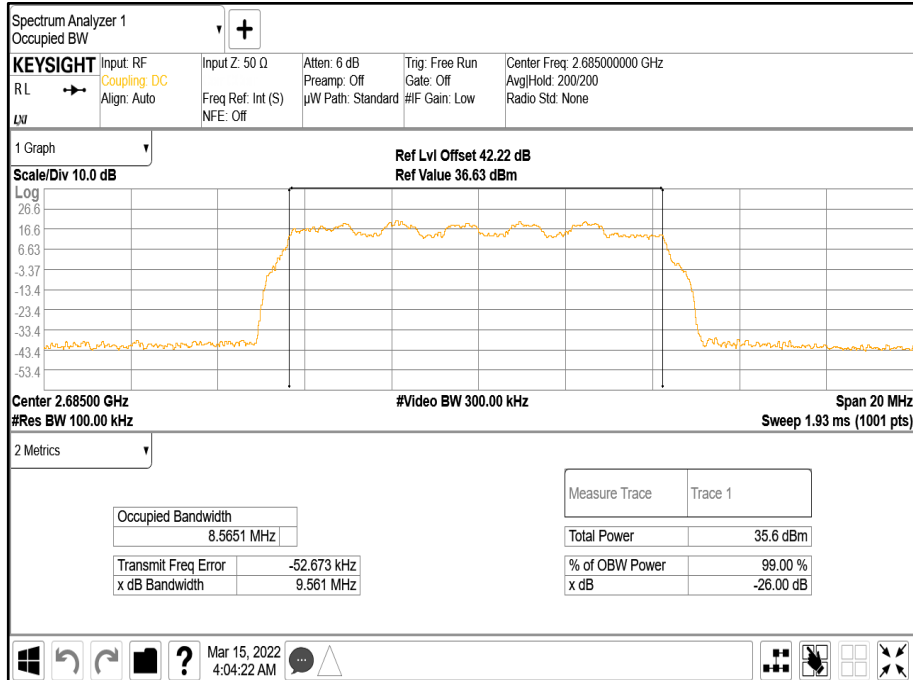


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position M

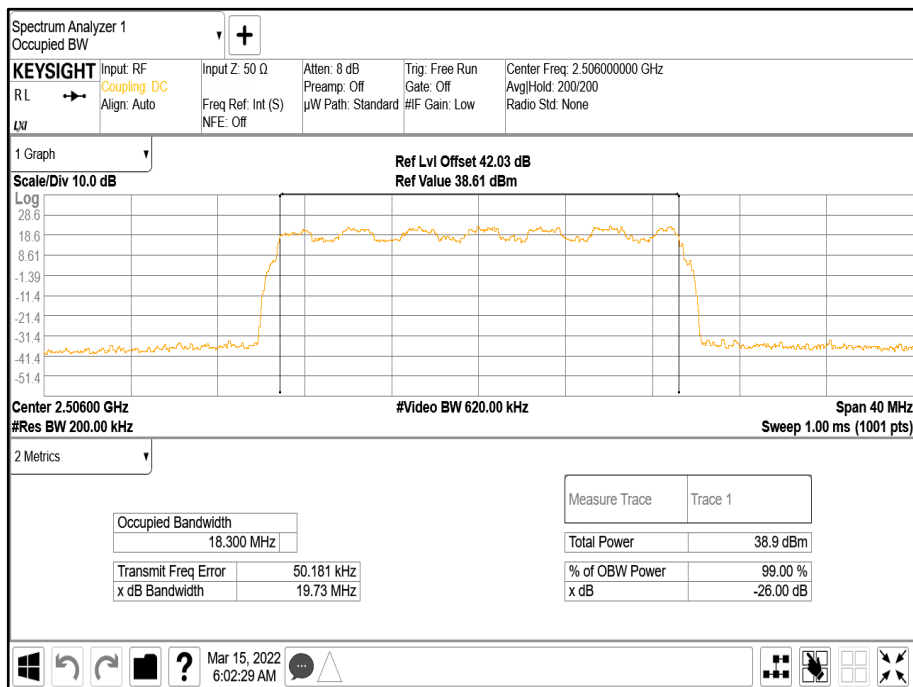




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position T

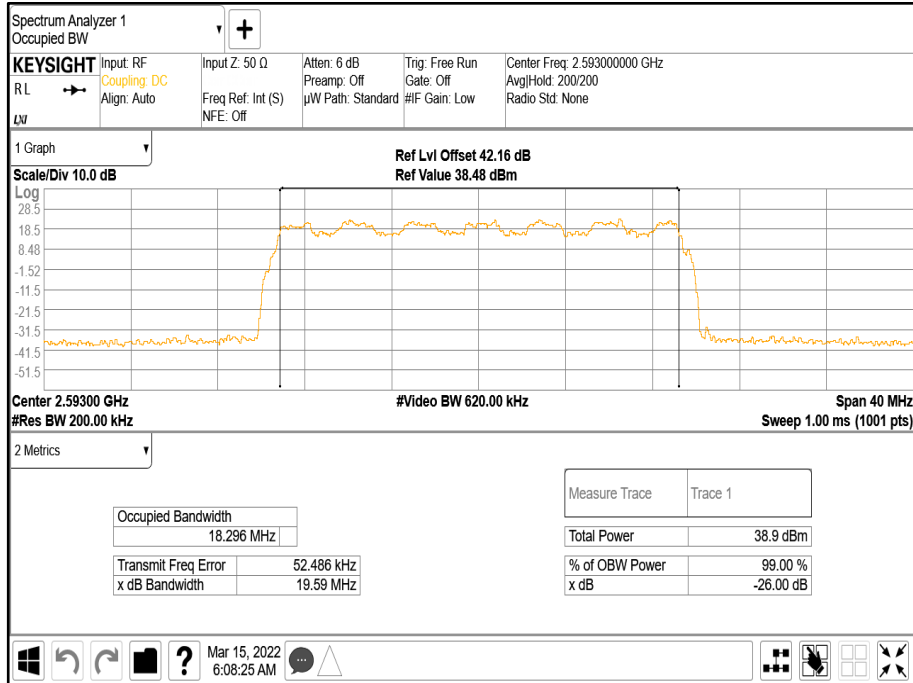


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position B

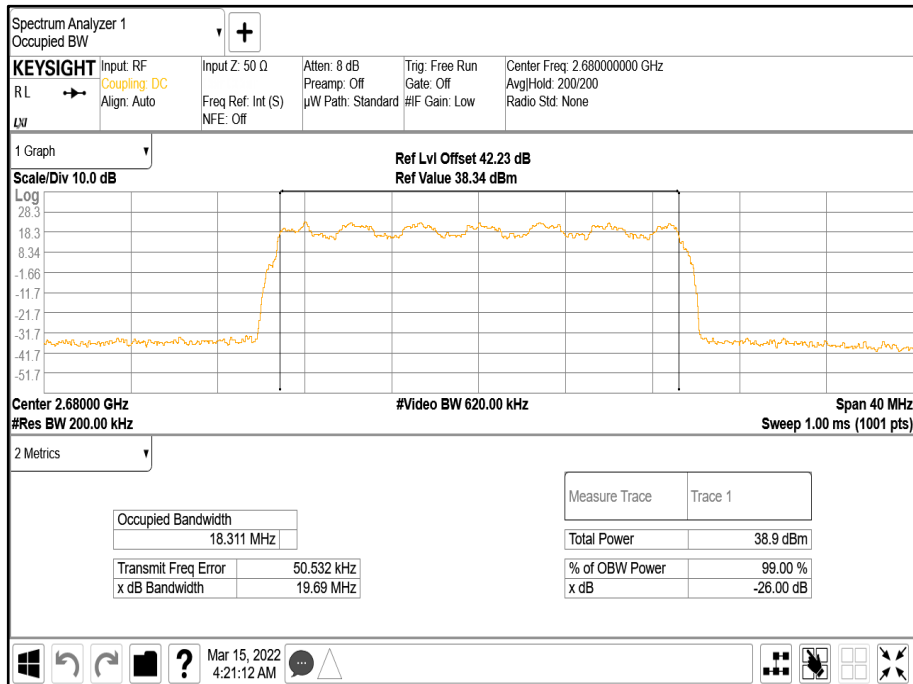




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position M

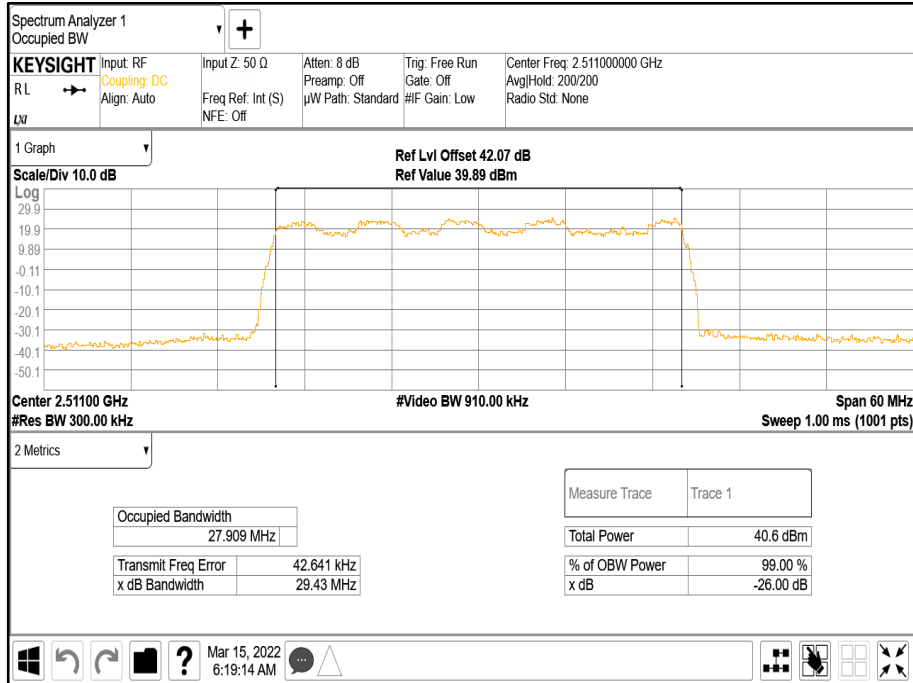


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position T

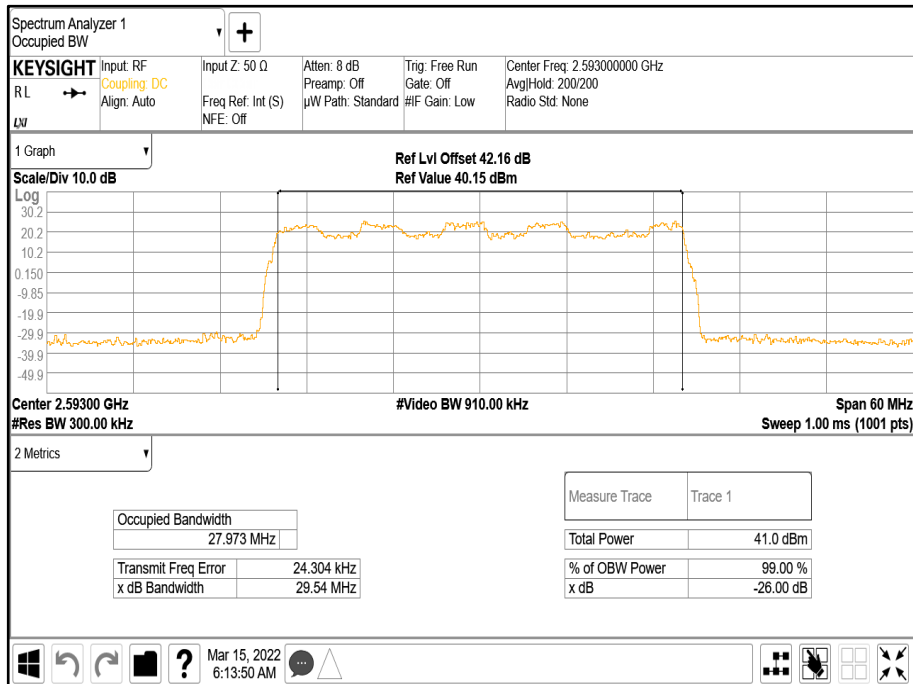




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position B

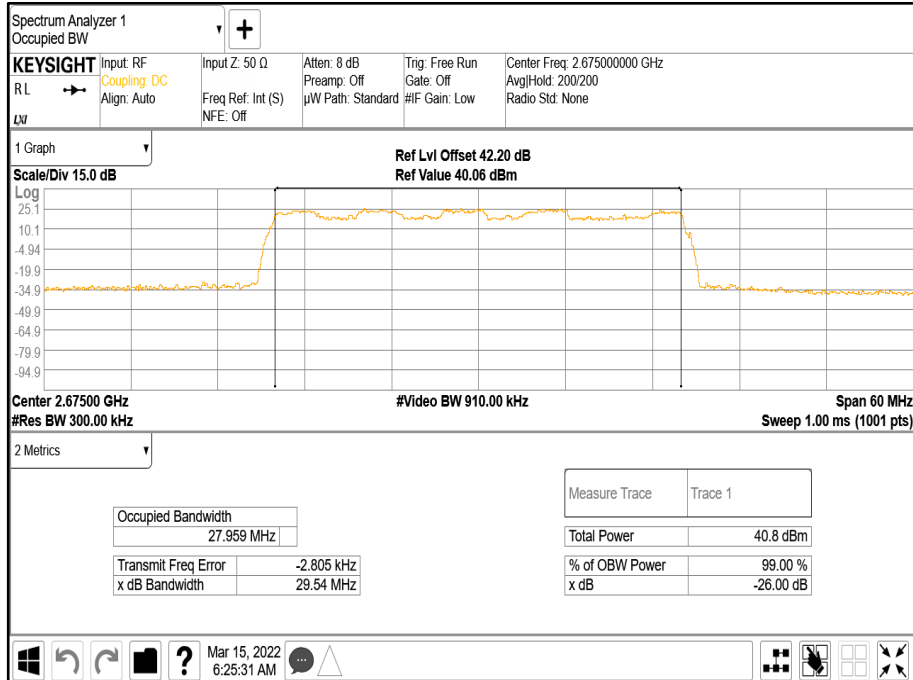


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position M

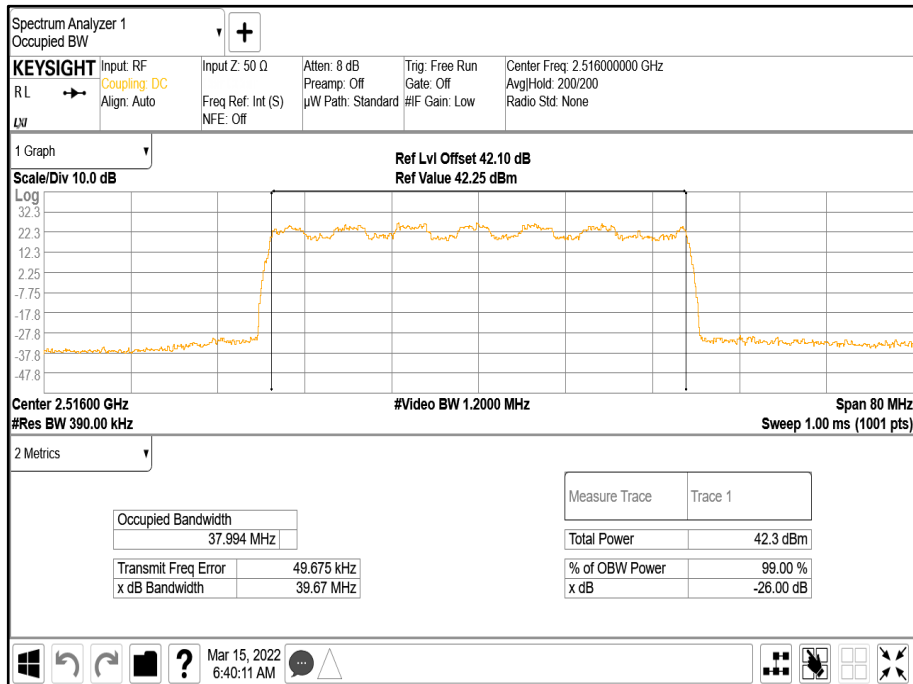




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position T

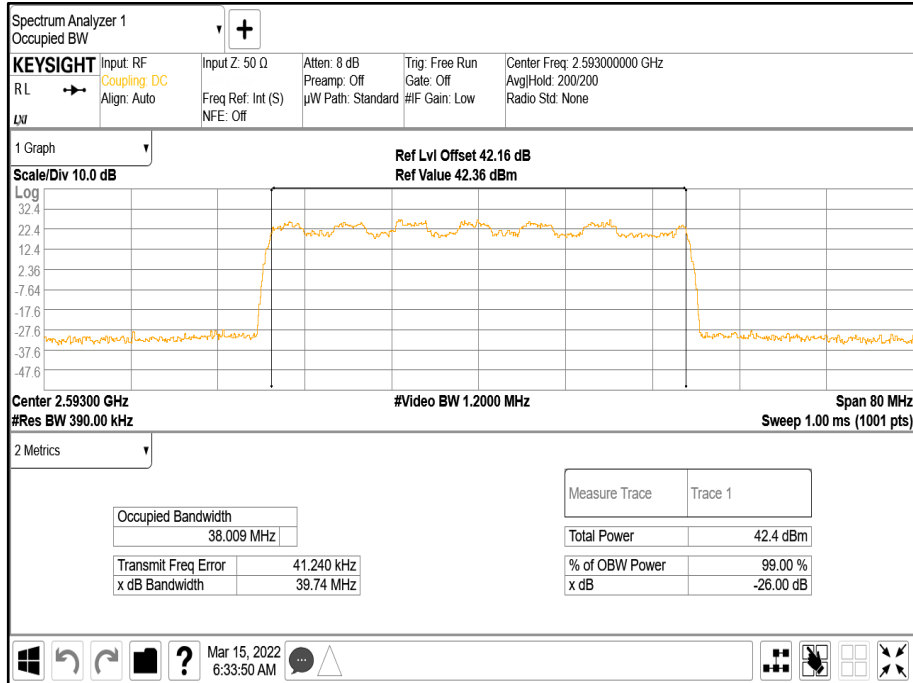


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position B

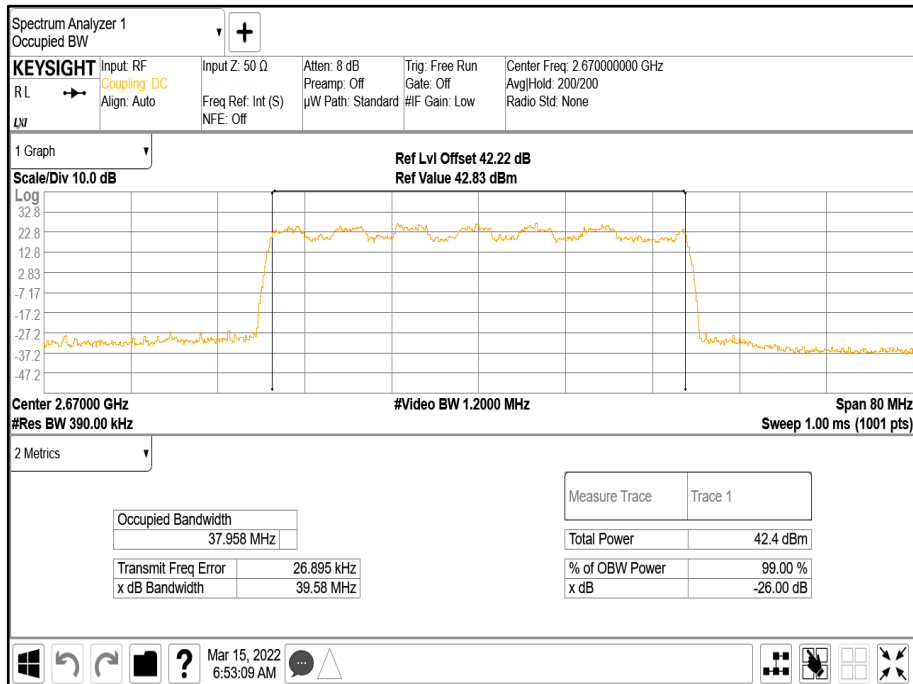




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position M

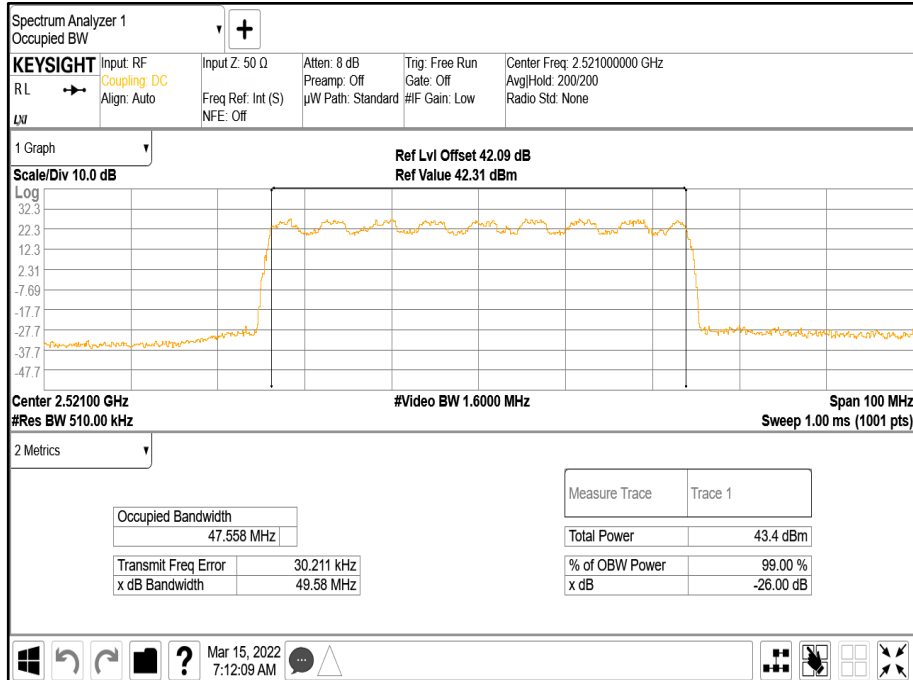


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position T

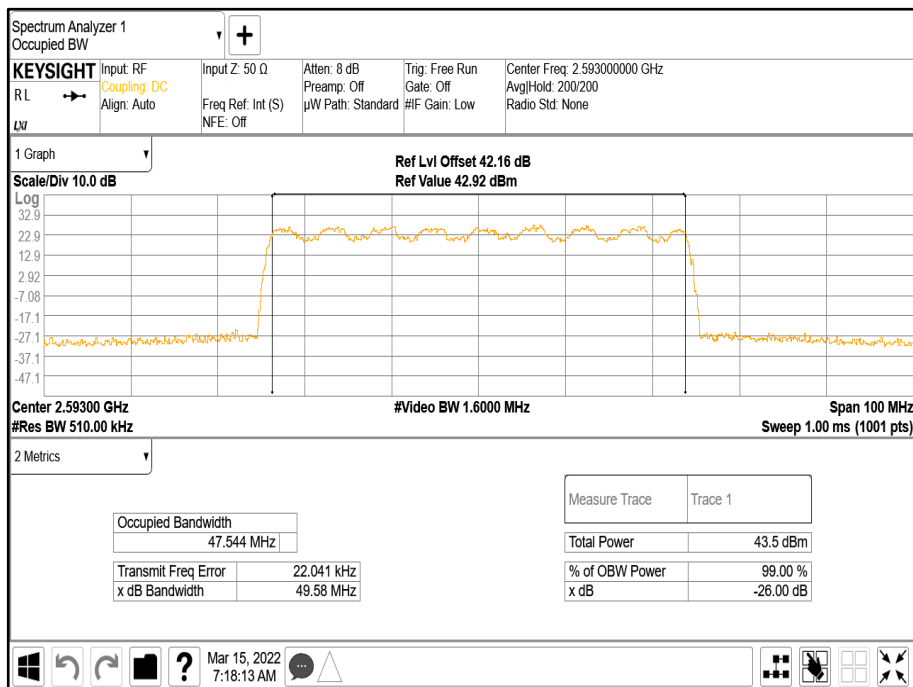




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position B

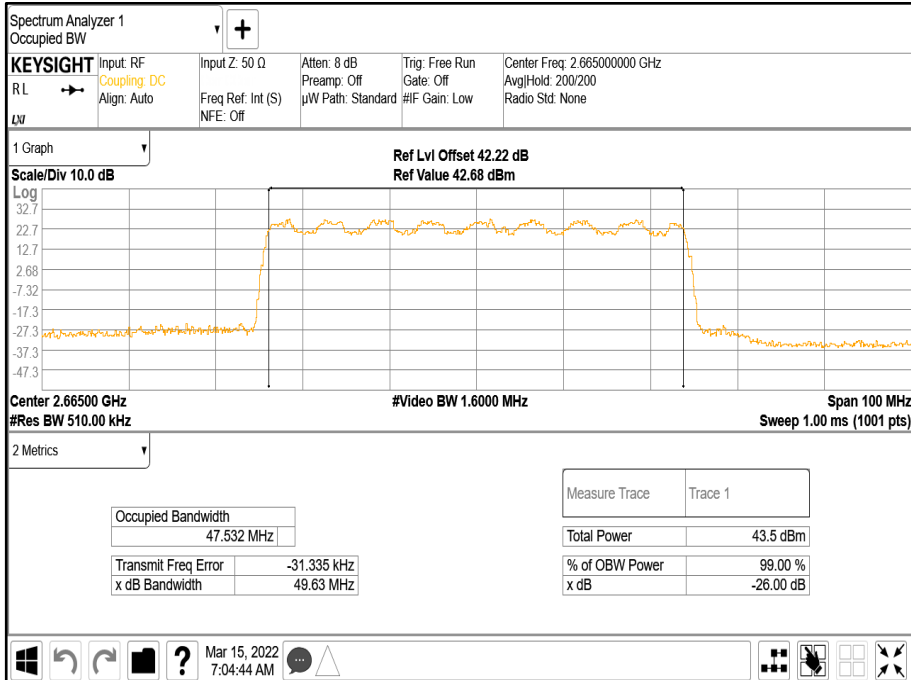


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position M

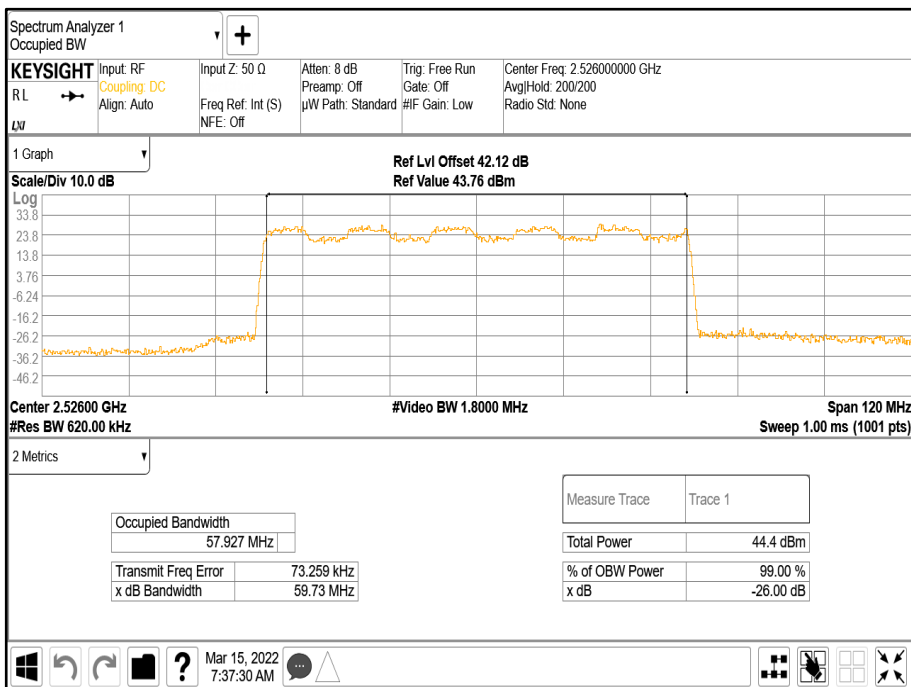




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position T

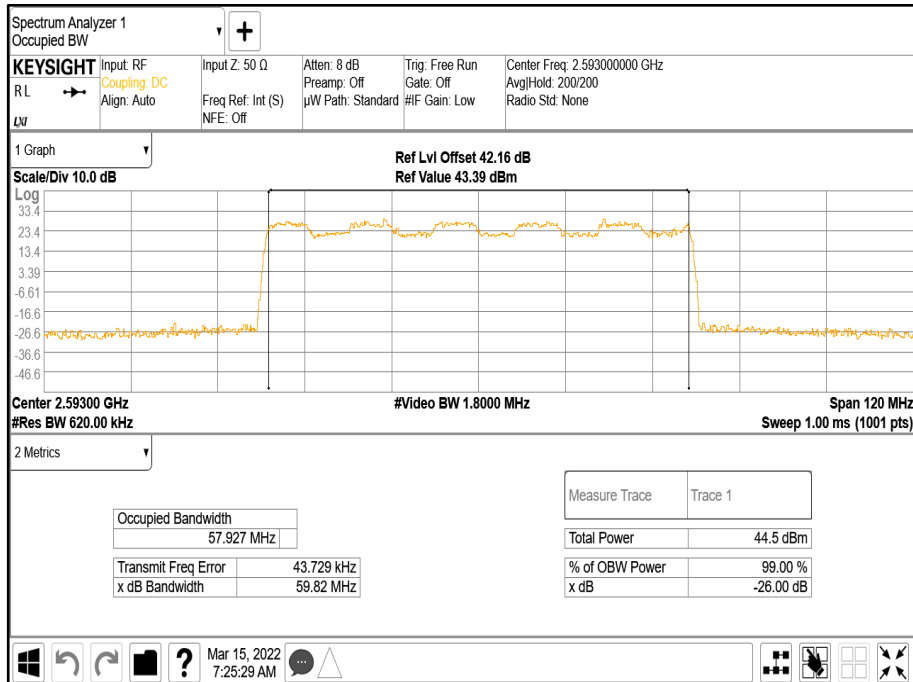


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position B

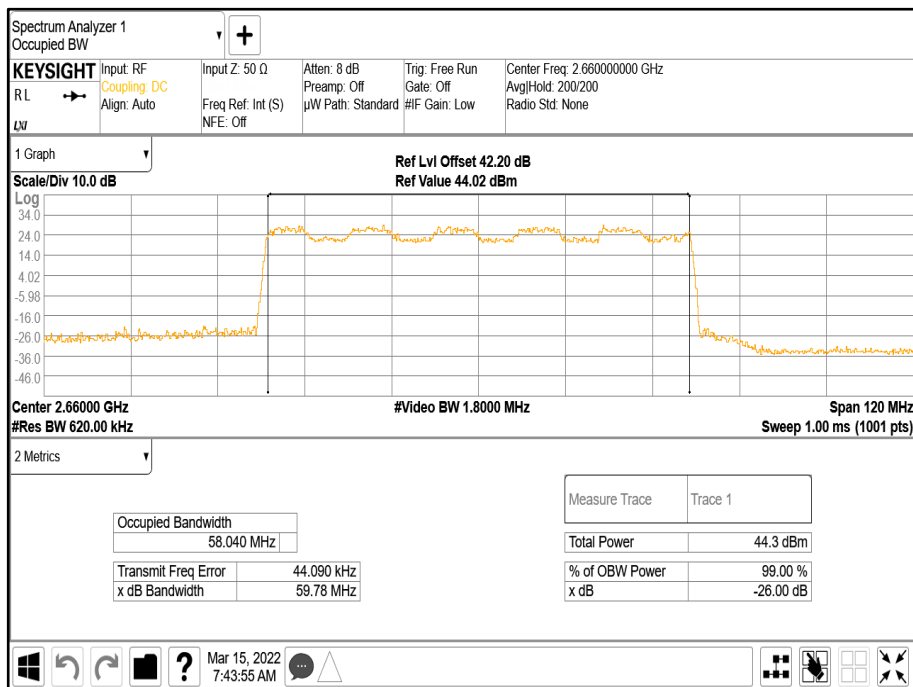




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position M

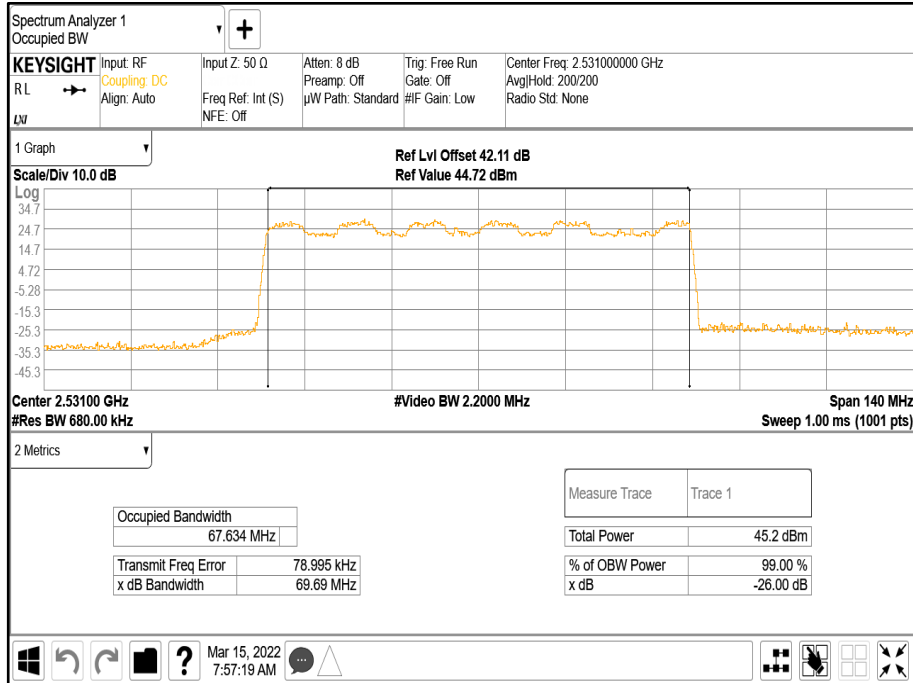


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position T

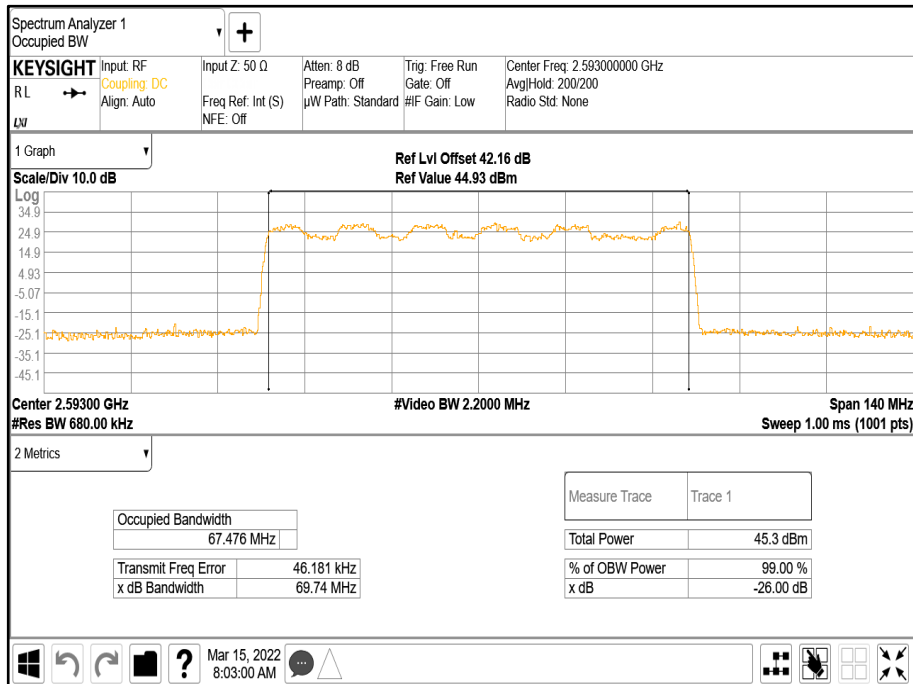




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position B

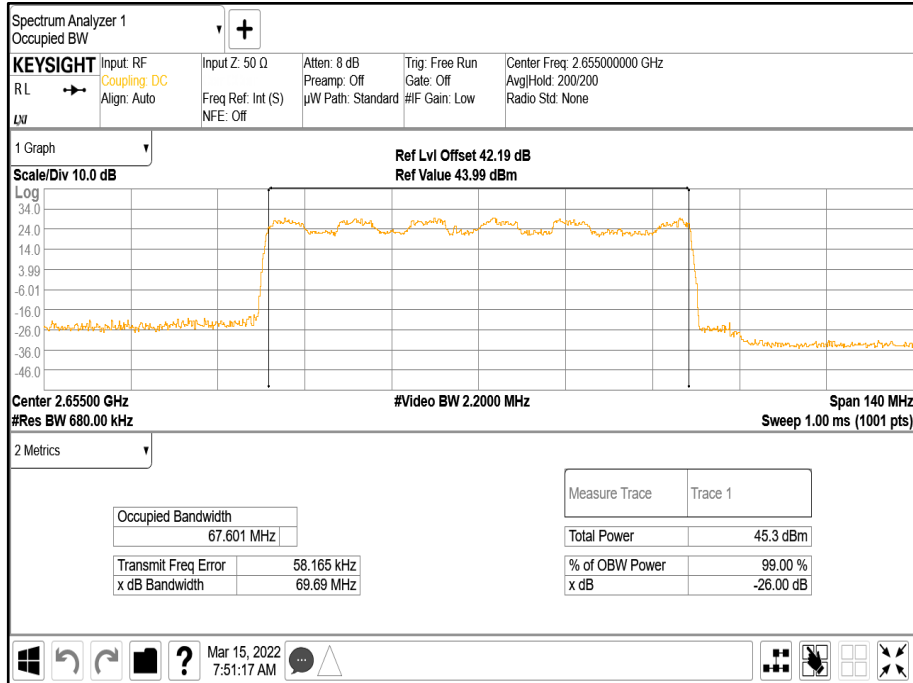


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position M

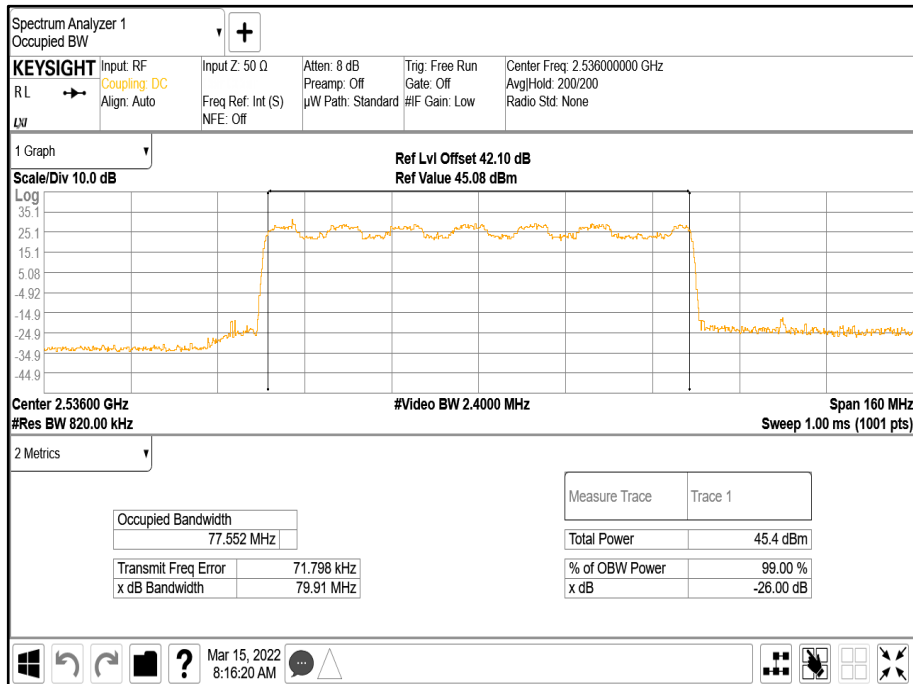




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position T

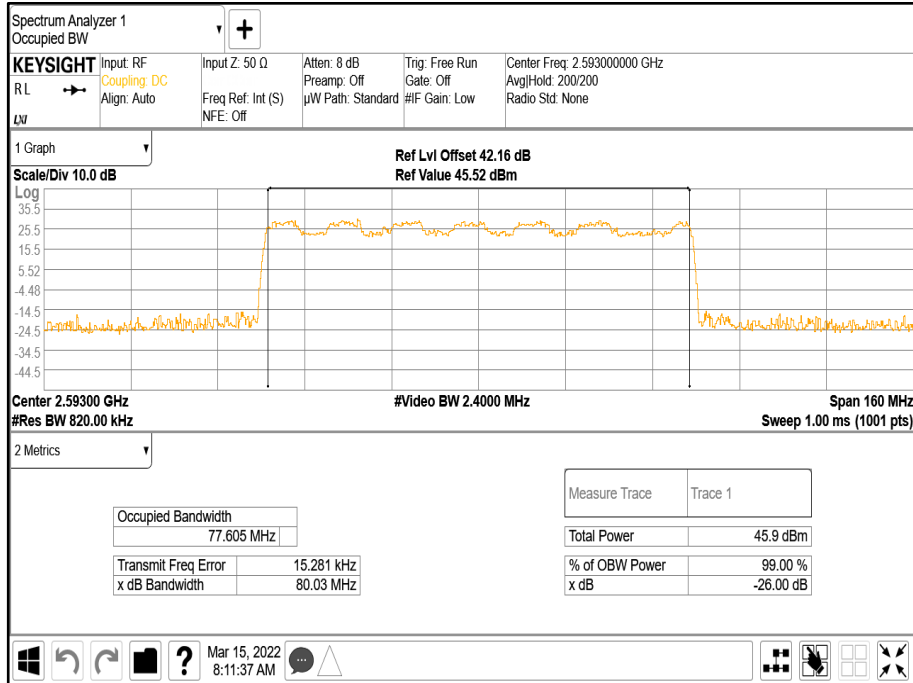


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position B

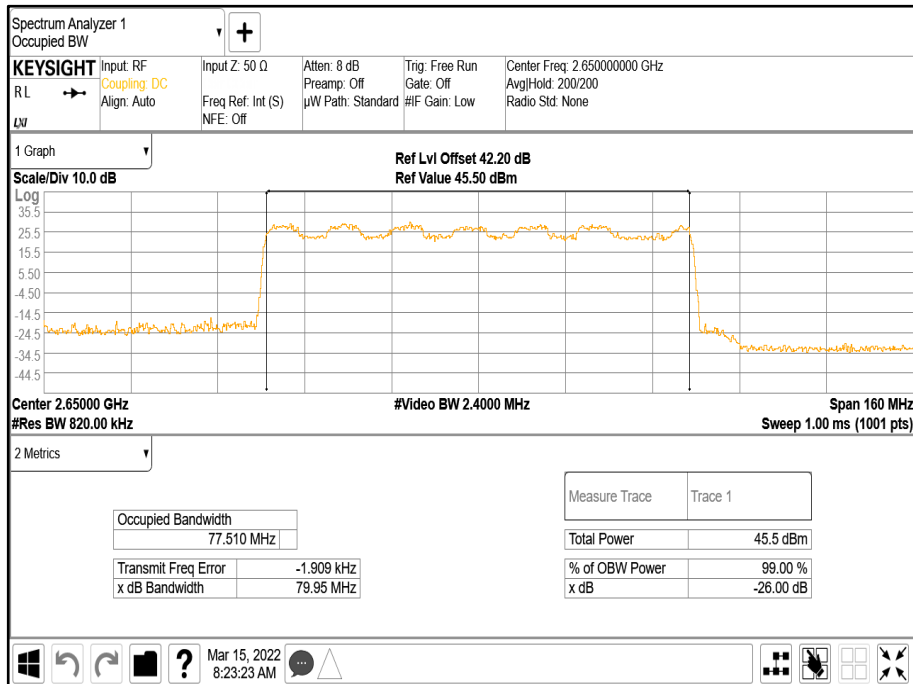




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position M

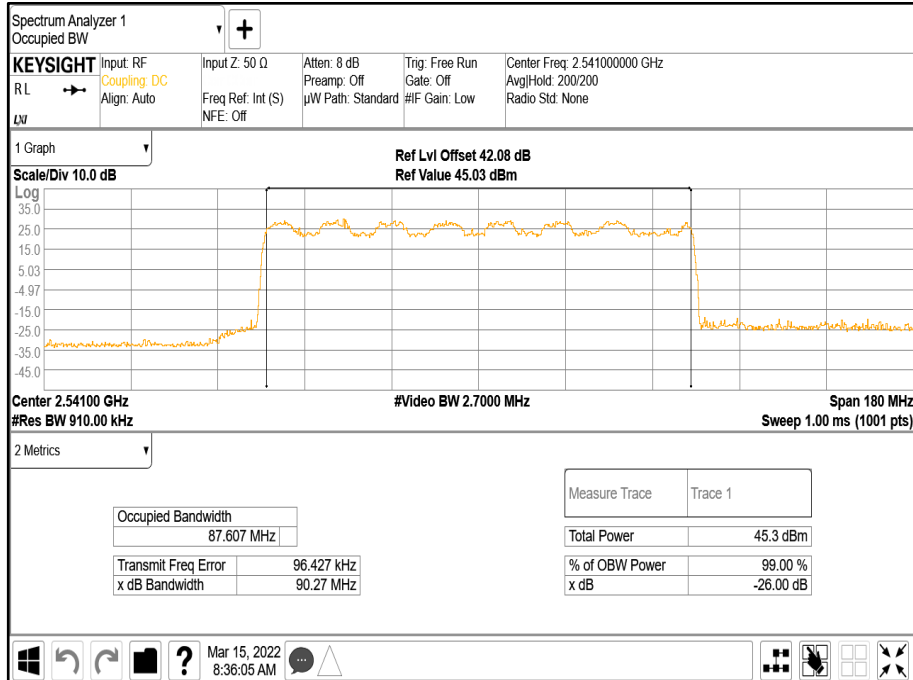


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position T

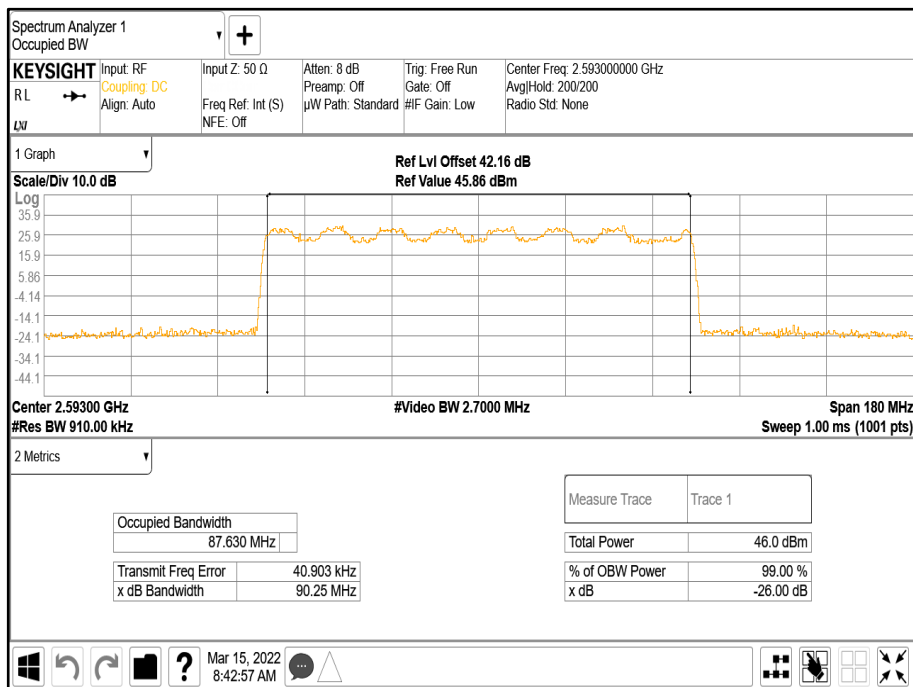




Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position B

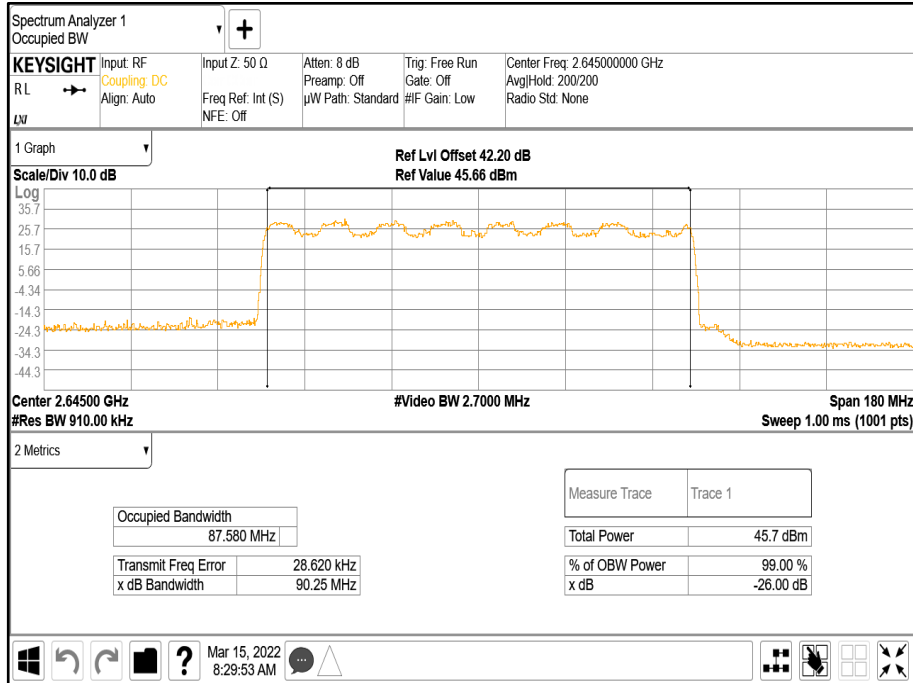


Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position M





Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position T



Antenna 59 - NR Modulation 16QAM - NR Carrier Bandwidth 100.0 MHz 30 kHz SCS - Channel Position B

