



Sverige



Accred. no. 10363
Testing
ISO/IEC 17025

Report On

FCC Testing of the
Ericsson AIR 3268 B48, KRD 901 254/3, LTE and NR (3550-3700
MHz) Base Station in accordance with FCC CFR 47 Part 2 and FCC
CFR 47 Part 96

COMMERCIAL-IN-CONFIDENCE

FCC: TA8AKRD901254

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Authorised Signatory

DATED

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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 3268 B48 - KRD 901 254/3
Serial Number(s)	Module 1 - E23E345114 Module 2 - E23E352423 Module 3 - E23E352422
Software Version	Module 1 - CXP2030039/7 Rev R35A89 Module 2 - CXP2030039/7 Rev R35A89 Module 3 - CXP2030039/7 Rev R35A89
Hardware Version	Module 1 – R1B Module 2 – R1B Module 3 – R1B
Non-Tested Variant (See Section 1.11 Additional Information)	AIR 3268 B48 - KRD 901 254/1 AIR 3268 B48 - KRD 901 254/11 AIR 3268 B48 - KRD 901 254/31
Test Specification/Issue/Date	FCC CFR 47 Part 2: 2021 FCC CFR 47 Part 96: 2021
Test Plan	FCC Test Plan AIR 3268 B48 Rev E 221027
Start of Test	02-November-2022
Finish of Test	16-November-2022
Name of Engineer(s)	Shakir Salman & Shashi Kiran & Ashok Kumar & Hector Moreno
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: 2021 and FCC CFR 47 Part 96: 2021. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s).

Shakir Salman & Shashi Kiran & Ashok Kumar & Hector Moreno



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. The Test Plan is based on the TÜV SÜD FCC Test Plan Rationale, available on request.

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 96, is shown below.

Section	Specification Clause		Test Description	Result
	FCC CFR 47 Part 2	FCC CFR 47 Part 96		
2.1	2.1046	96.41 (b)(c)(g)	Peak Output Power and Peak to Average Ratio - Conducted	Pass
2.2	2.1049	96.41 (e)(3)(i)	Occupied Bandwidth	Pass
2.3	2.1051	96.41 (e)(1)(i)	Band Edge	Pass
2.4	2.1051	96.41 (e)(1)(i), (e)(2), (e)(3)	Transmitter Spurious Emissions	Pass
2.5	2.1055	-	Frequency Stability	Pass

This test report covers only testing for NR.

For additional configurations and test cases not contained within this test report, refer to the following reports:

TUV SUD Document 75956604 Report 02 – LTE

Intertek Report 2204406STO-101 contains Transmitter Spurious Radiated Emissions



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 (dBm) per RDNB connector
1		1	10 MHz	3555	3625	3695	19.52
			20 MHz	3560	3625	3690	22.27
			30 MHz	3565	3625	3685	24.49
			40 MHz	3570	3625	3680	25.80
			50 MHz	3575	3625	3675	26.93
			60 MHz	3580	3625	3670	27.83
			70 MHz	3585	3625	3665	28.58
			80 MHz	3590	3625	3660	29.21
			90 MHz	3595	3625	3655	29.77
			100 MHz	3600	3625	3650	30.26
2 MC-1	NR	2	10 MHz	-	3555 + 3695	-	2 x 19.52
			20 MHz	-	3560 + 3690	-	2 x 22.27
			30 MHz	-	3565+ 3684.99	-	2 x 24.49
			40 MHz	-	3555 + 3694.98	-	2 x 25.80
			50 MHz	-	3560 + 3690	-	2 x 26.93
			20 MHz + 80 MHz	-	3565+ 3684.99	-	22.27 + 29.21
			10 MHz + 20 MHz	-	3570 + 3679.98	-	19.52 + 22.27
			10 MHz	3555 + 3565	3620 + 3630	3685 + 3695	2 x 19.52
2 MC-2		2	20 MHz	3560 +3580	3615 + 3635	3670 + 3690	2 x 22.27
			30 MHz	3565 +3595	3610 + 3640	3655+3685	2 x 24.49
			40 MHz	3570+3610	3605 + 3645	3640 +3680	2 x 25.80
			50 MHz	3575+3625	3600 + 3650	3625 +3675	2 x 26.93
			20 MHz + 80 MHz	3560+3610	3585 + 3635	3630+3660	22.27 + 29.21
			10 MHz + 20 MHz	3555+3570	3615 +3630	3675+3690	19.52 + 22.27
			3 MC-1	LTE +NR	2	LTE x 20 MHz + NR	-
3 MC-2	40 MHz	3560(20LTE)+3590(40NR)	3615(20LTE)+3645(40NR)			3650(20LTE)+3680(40NR)	22.30 + 22.27
4 MC-5 (5 carriers)	5	3 x 20 MHz + 2 x 20 MHz	-		3560 + 3580 + 3600 + 3670 + 3690	-	5 x 22.27



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)	Antenna Integrated Radio Unit, B48, CBRS, LTE + NR, MRO				
Manufacturer:	Ericsson AB				
Model:	AIR 3268 B48				
Part Number:	KRD 901 254/1 With Antenna, Security Unlocked. KRD 901 254/11 With Antenna, Security Locked KRD 901 254/3 CAB-unit, Security Unlocked KRD 901 254/31 CAB unit, Security Locked				
Hardware Version:	R1B				
Software Version:	CXP2030039/7 Rev R35A89				
FCC ID of the product under test	TA8AKRD901254				
Intentional Radiators					
RAT	LTE			NR	MRO
Frequency Range (MHz to MHz)	3550 - 3700 MHz				
Conducted Declared Output Power (dBm)	30,4 dBm				
Antenna Gain (dBi)	11 (Layer compensated gain), 23 (Effective gain)				
Supported Bandwidth(s) (MHz)	10,20 MHz			10,20,30,40,50,60,70,80,90,100	
Modulation Scheme(s)	QPSK, 16QAM, 64QA, 256QAM				
Declared Worst Case Modulation Scheme & Test Model to be used	QPSK TM1.1.				
IBW	150 MHz				
OBW	100 MHz (Continuous and Non-Continuous)				
ITU Emission Designator	See measurements in Section 2.1				
Duty Cycle	As per measure				
Maximum number of carriers	6 (MRO: 3)			2 (MRO : 2)	5
Maximum Total Power EIRP	47 dBm per 10MHz				
Max Power per carrier	34W (All Branches)				
Sub Carrier Spacing (NR only)				10,20,30,40,50 MHz=> 15kHz // 10,20,30,40,50,60,70,80,90,100 MHz => 60 kHz // 10,20,30,40,50,60,70,80,90,100 MHz => 30kHz	
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 only)	Class B Digital Device				
DC Power Supply (Delete if Not Applicable)					
Nominal voltage:	-48V				
Operating voltage:					
Extreme upper voltage:	-58.5V				
Extreme lower voltage:	-36V				



Max current:	15A at 36 V		
Temperature			
Minimum temperature:	-40°C		
Maximum temperature:	55°C		
Antenna Characteristics			
Temporary antenna connector	State impedance	50	Ohm
Integral antenna	Type:	AAS (Advanced Antenna System)	
Standard Antenna Jack	No	If yes, describe how user is prohibited from changing antenna (if not professional installed):	
Equipment is only ever professionally installed	Yes		
Non-standard Antenna Jack	No		
Antenna detail specification			
EIRP Limit to be used	FCC		
Ancillaries			
Manufacturer:	Model:	Part Number:	Country of Origin:
SFP28 25GBASE-LR -40/+85 C ; Ericsson	RDH 102 75/3 / SEP6300LH-E1-W		China
I hereby declare that I am entitled to sign on behalf of the manufacturer and that the information supplied is correct and complete.			
Name:	Hans Östgaard		
Position held:	Regulatory Engineer		
Email address:	hans.ostgaard@ericsson.com		
Telephone number:	+4670307364		
Date:	24/11/2022		

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

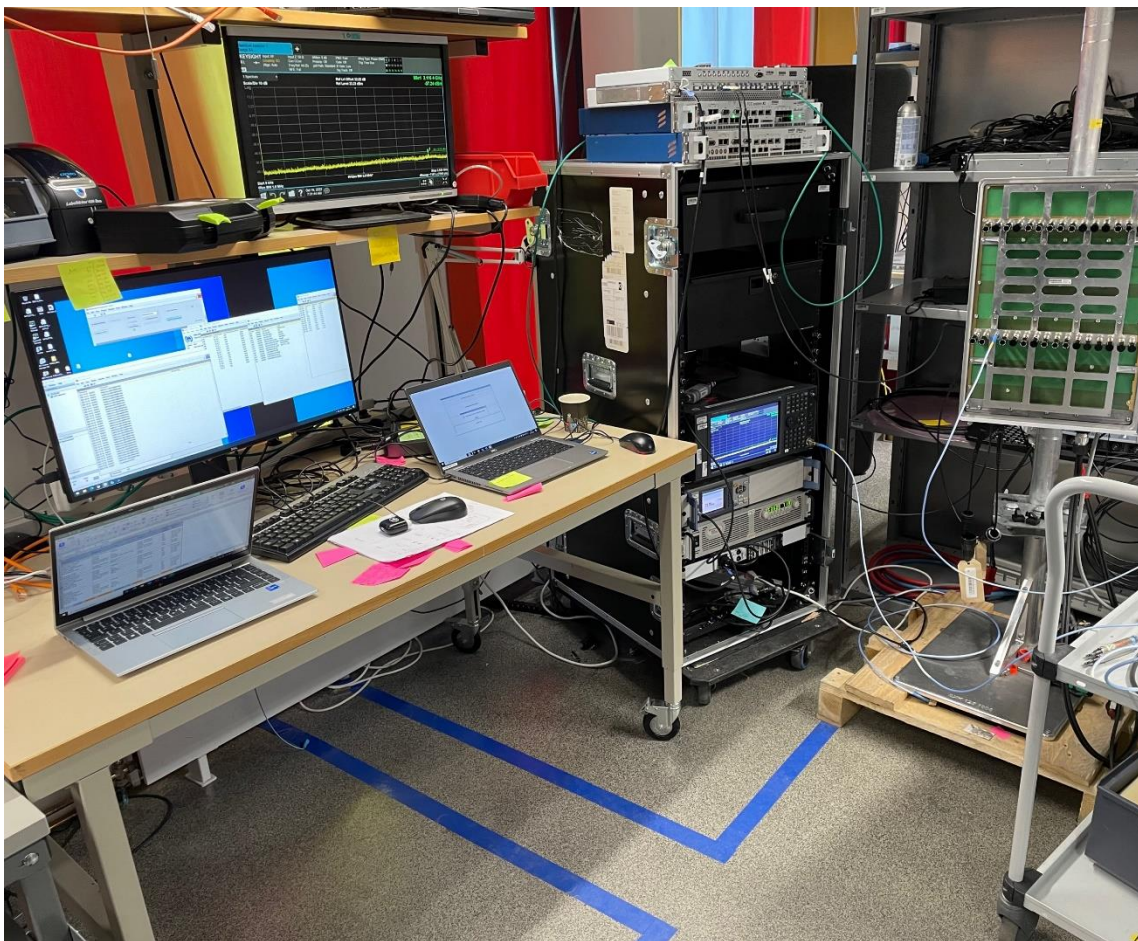
1.6 PRODUCT INFORMATION

1.6.1 Technical Description

The Equipment Under Test (EUT) AIR 3268 B48 - KR D 901 254/3 is an Ericsson AB Radio Unit working in the public mobile service Band 48 band which provides communication connections to Band 48 network.

The EUT is declared as operating from a nominal -48V DC supply.

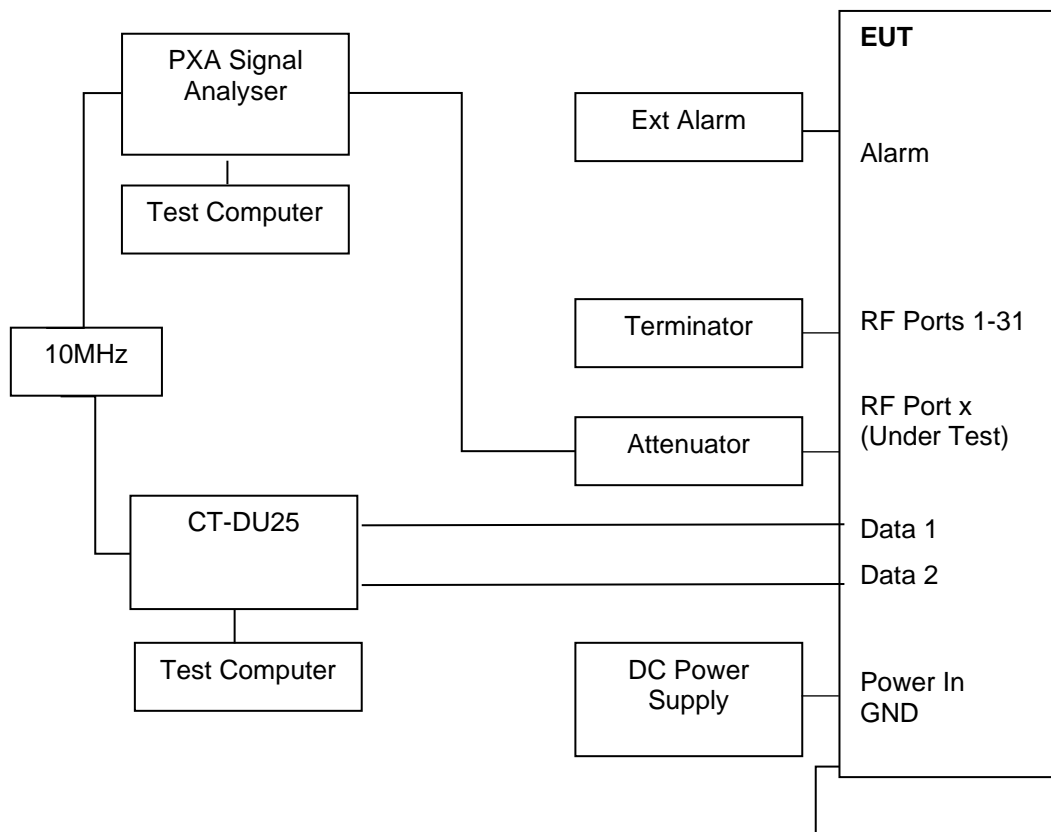
The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.



Equipment Under Test

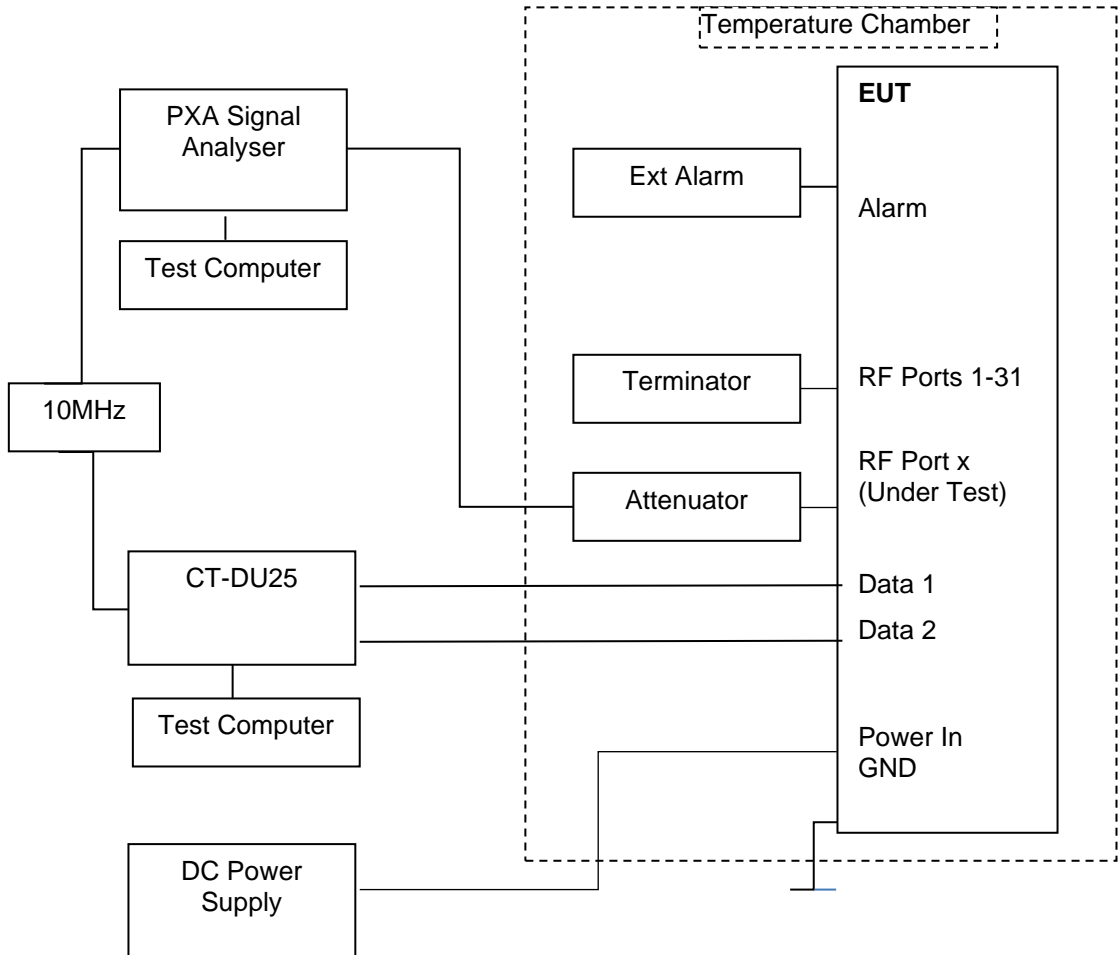
1.7 TEST SETUP

Conducted Test Set Up – Band Edge, Conducted Emissions



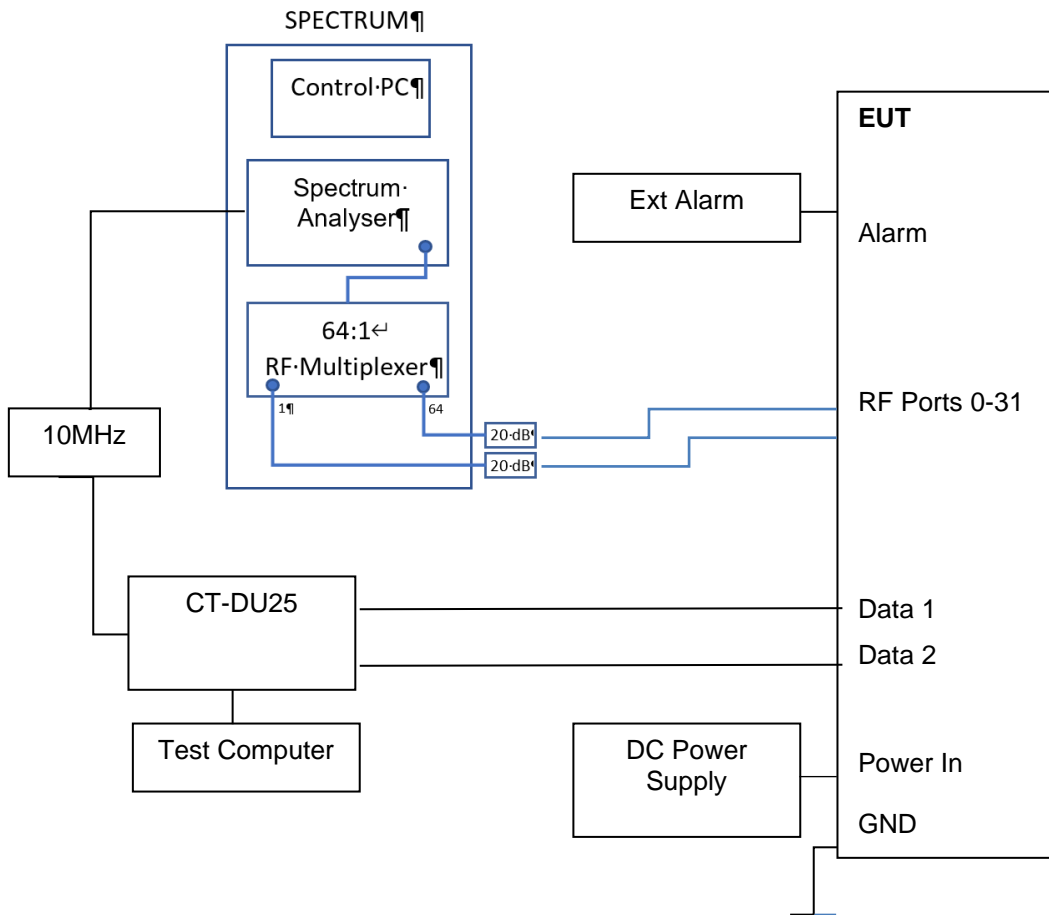


Conducted Test Set Up – Frequency Stability
Dashed line indicates equipment inside the Temperature Chamber for testing





Conducted Test Set Up, Power, PSD, PAR, Occupied Bandwidth





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 -54V DC supply unless otherwise stated.

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 Name	Name of Engineer(s)	Radio Serial Number
Peak Output Power and Peak to Average Ratio - Conducted	Shashi Kiran & Hector Moreno	Module 1 - E23E345114
Occupied Bandwidth	Shashi Kiran & Hector Moreno	Module 1 - E23E345114
Band Edge	Shakir Salman	Module 2 - E23E352423
Transmitter Spurious Emissions	Shakir Salman	Module 2 - E23E352423
Frequency Stability	Ashok Kumar	Module 3 - E23E352422

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.

The Port with the highest power, worst case port was Port 10 for NR and Port 12 for LTE. Worst case modulation was QPSK for both NR and LTE. Worst case bandwidth was 40MHz for NR and 20MHz for LTE

For Max number of Carriers 2 - bandwidth 40MHz for NR and 20MHz for LTE was identified as the worst case.

For Max number of Carriers 5 – bandwidths 2 x 20MHz for NR and 3 x 20 MHz for LTE were selected, as these filled the entire IBW, even though 40MHz was the worst case for NR. If 40MHz had been selected then it would not be possible to fill the whole IBW.

This EUT uses the same port for Tx and Rx and therefore RX Spurious Emissions has not been performed.

Rx Spurious Emissions have been covered by testing to FCC Part 15B, which are covered by a separate test report.

Ericsson have provided the following details about the variants of the AIR 3268 B48, KR D 901 254/3. The differences between KR D 901 254/3 and KR D 901 254/1, KR D 901 254/11 and KR D 901 254/31 are as below:

KR D 901 254/1 (with un-security software and antenna)

KR D 901 254/11** (with security software and antenna)

KR D 901 254/3*(with un-security software and CAB/RD N B board for testing purpose)

KR D 901 254/31(with security software and CAB/RD N B board for testing purpose)

Note*: Tested unit

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

To expedite testing three AIR 3268 B48 radios were used, the Hardware and Software Versions were identical. The table in Section 1.8 indicates which units were used for which tests and refers to them throughout as Module 1, Module 2 and Module 3. Ericsson declared that testing on Modules 2 and 3 should use the same worst case Ports that were measured on Module 1 as this would be representative.

Throughout this report the power unit dBm is used. dBm is a unit of level used to indicate that a power level is expressed in decibels (dB) with reference to one milliwatt (mW). It is used as a convenient measure of absolute power because of its capability to express both very large and very small values in a short form.



SECTION 2

TEST DETAILS



2.1 PEAK OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

2.1.1 Specification Reference

FCC CFR 47 Part 96, Clause 96.41 (b)(c)(g)
 FCC CFR 47 Part 2, Clause 2.1046

2.1.2 Date of Test and Modification State

03, 07, 14 and 22-24-November-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 23.02-23.20 °C
 Relative Humidity 38.2-38.8%

2.1.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, clause 5.2.1, FCC KDB 662911 D01 and ANSI C63.26 Clause 6.4.3.2.2

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

Duty Cycle Correction Factor (DCCF) was added to the spectrum analyser reference level offset.

2.1.6 Test Results

Configuration 1

Maximum Output Power 19.52 dBm per Port

DUT Configuration			
Carrier Configuration:	NR 10 MHz 1C QPSK 32 ports	Duty Cycle (%):	73.9
RFBW:	10 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ			
Bottom (3555 MHz)	32	19.20	19.88	34.63	45.63	47.00	-1.37
Middle (3625 MHz)	32	17.24	20.17	33.92	44.92	47.00	-2.08
Top (3695 MHz)	32	18.18	19.16	33.83	44.83	47.00	-2.17

FCC Maximum Output Power Results



Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3555 MHz)	32	10.69	12.57	25.99	36.99	37.00	-0.01
Middle (3625 MHz)	32	10.23	11.27	25.00	36.00	37.00	-1.00
Top (3695 MHz)	32	9.82	11.99	25.12	36.12	37.00	-0.88

FCC Maximum Power Spectral Density Results

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3555 MHz)	32	8.57	8.75	13.00	-4.25
Middle (3625 MHz)	32	8.61	8.83	13.00	-4.17
Top (3695 MHz)	32	8.57	8.81	13.00	-4.19

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 22.27 dBm

DUT Configuration			
Carrier Configuration:	NR 20 MHz 1C QPSK 32 ports	Duty Cycle (%):	73.9
RFBW:	20 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			Total EIRP (dBm)	Calculated Total EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)
		Min	Max	Σ				
Bottom (3560 MHz)	32	21.88	22.62	37.29	48.29	45.67	47.00	-1.33
Middle (3625 MHz)	32	21.98	22.88	37.42	48.42	45.81	47.00	-1.19
Top (3690 MHz)	32	21.69	22.89	37.42	48.42	45.81	47.00	-1.19

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3560 MHz)	32	9.42	11.57	25.37	36.37	37.00	-0.63
Middle (3625 MHz)	32	10.79	11.42	25.31	36.31	37.00	-0.69
Top (3690 MHz)	32	9.50	12.20	25.32	36.32	37.00	-0.68

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3560 MHz)	32	8.50	8.85	13.00	-4.15
Middle (3625 MHz)	32	8.60	8.91	13.00	-4.09
Top (3690 MHz)	32	8.55	8.94	13.00	-4.06

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 24.49 dBm

DUT Configuration			
Carrier Configuration:	NR 30 MHz 1C QPSK 32 ports	Duty Cycle (%):	73.9
RFBW:	30 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			Total EIRP (dBm)	Calculated Total EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)
		Min	Max	Σ				
Bottom (3565 MHz)	32	23.90	24.78	39.49	50.49	46.04	47.00	-0.96
Middle (3625 MHz)	32	24.33	25.03	39.73	50.73	46.27	47.00	-0.73
Top (3685 MHz)	32	23.35	26.15	39.83	50.83	46.37	47.00	-0.63

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie $48.29\text{dBm} - (10\log(18.3/10)) = 48.29 - 2.52 = 45.67 \text{ dBm/10MHz}$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3565 MHz)	32	10.03	12.13	25.48	36.48	37.00	-0.52
Middle (3625 MHz)	32	11.10	11.88	25.79	36.79	37.00	-0.21
Top (3685 MHz)	32	10.67	12.33	25.91	36.91	37.00	-0.09

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3565 MHz)	32	8.66	9.02	13.00	-3.98
Middle (3625 MHz)	32	8.64	9.10	13.00	-3.91
Top (3685 MHz)	32	8.67	9.07	13.00	-3.93

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 25.80 dBm

DUT Configuration			
Carrier Configuration:	NR 40 MHz 1C QPSK 32 ports	Duty Cycle (%):	73.8
RFBW:	40 MHz	DCCF (dB):	1.32
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			Total EIRP (dBm)	Calculated Total EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)
		Min	Max	Σ				
Bottom (3570 MHz)	32	24.74	25.19	40.09	51.09	45.30	47.00	-1.70
Middle (3625 MHz)	32	25.74	26.23	41.01	52.01	46.22	47.00	-0.78
Top (3680 MHz)	32	25.56	26.57	41.24	52.24	46.45	47.00	-0.55

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

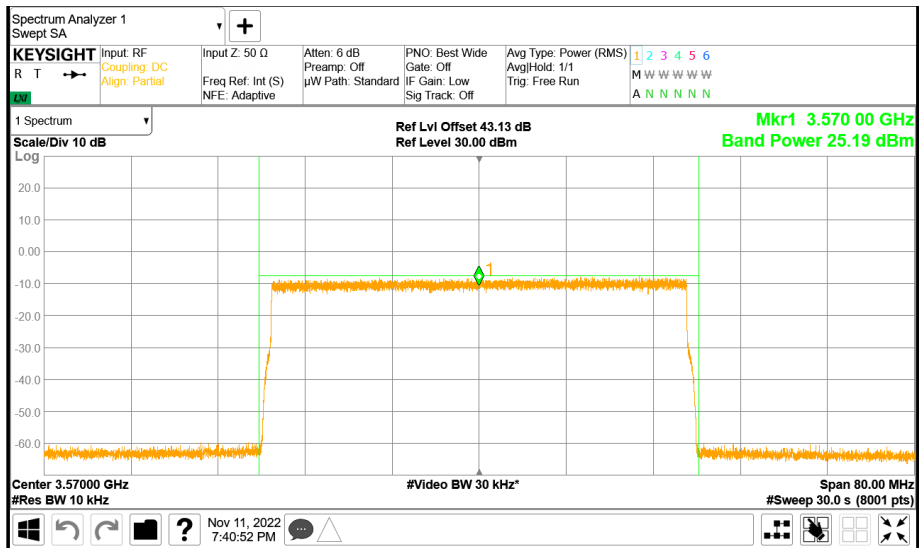
In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

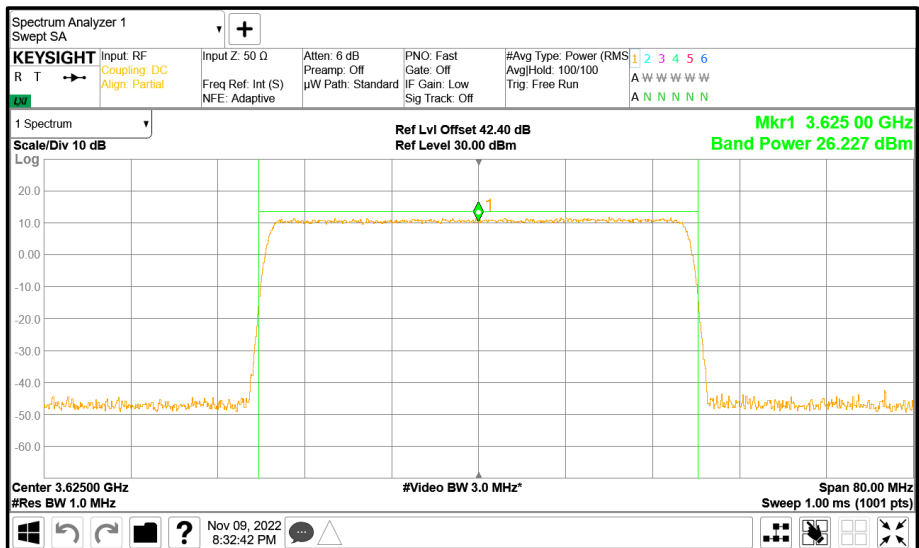
ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3570 MHz)	32	9.55	10.00	24.79	35.79	37.00	-1.21
Middle (3625 MHz)	32	11.09	11.73	25.73	36.73	37.00	-0.27
Top (3680 MHz)	32	11.22	12.38	25.98	36.98	37.00	-0.02

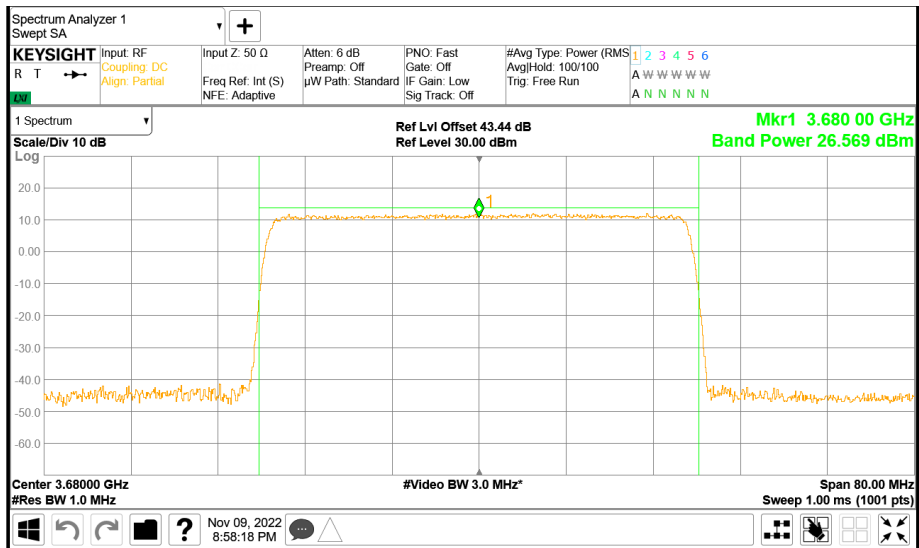
FCC Maximum Power Spectral Density Results



Bottom Channel Port 16



Middle Channel Port 21



Top Channel Port 1

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3570 MHz)	32	8.57	9.10	13.00	-3.90
Middle (3625 MHz)	32	8.80	9.24	13.00	-3.76
Top (3680 MHz)	32	8.78	9.31	13.00	-3.70

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 26.93 dBm

DUT Configuration			
Carrier Configuration:	NR 50 MHz 1C QPSK 32 ports	Duty Cycle (%):	73.8
RFBW:	50 MHz	DCCF (dB):	1.32
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Bottom (3575 MHz)	32	26.59	27.06	41.93	52.93	46.17	47.00	-0.83
Middle (3625 MHz)	32	26.17	26.61	41.44	52.44	45.68	47.00	-1.32
Top (3675 MHz)	32	25.99	26.37	41.22	52.22	45.46	47.00	-1.54

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3575 MHz)	32	10.41	10.94	25.80	36.80	37.00	-0.20
Middle (3625 MHz)	32	9.86	10.28	25.09	36.09	37.00	-0.91
Top (3675 MHz)	32	9.65	10.12	24.92	35.92	37.00	-1.08

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3575 MHz)	32	8.57	9.10	13.00	-3.90
Middle (3625 MHz)	32	9.09	9.74	13.00	-3.26
Top (3675 MHz)	32	9.08	9.62	13.00	-3.38

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 27.83 dBm

DUT Configuration			
Carrier Configuration:	NR 60 MHz 1C QPSK 32 ports	Duty Cycle (%):	73.8
RFBW:	60 MHz	DCCF (dB):	1.32
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Bottom (3580 MHz)	32	26.87	27.31	42.20	53.20	45.58	47.00	-1.42
Middle (3625 MHz)	32	27.03	27.45	42.28	53.28	45.65	47.00	-1.35
Top (3670 MHz)	32	26.93	27.31	42.17	53.17	45.55	47.00	-1.45

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

le 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3580 MHz)	32	9.89	10.36	25.19	36.19	37.00	-0.81
Middle (3625 MHz)	32	10.01	10.39	25.19	36.19	37.00	-0.81
Top (3670 MHz)	32	9.93	10.45	25.21	36.21	37.00	-0.79

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3580 MHz)	32	8.66	9.12	13.00	-3.88
Middle (3625 MHz)	32	9.11	9.60	13.00	-3.40
Top (3670 MHz)	32	9.06	9.58	13.00	-3.42

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 28.58 dBm

DUT Configuration			
Carrier Configuration:	NR 70 MHz 1C QPSK 32 Ports	Duty Cycle (%):	74.0
RFBW:	70 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Bottom (3585 MHz)	32	27.67	28.08	42.95	53.95	45.65	47.00	-1.35
Middle (3625 MHz)	32	27.60	28.11	42.96	53.96	45.66	47.00	-1.34
Top (3665 MHz)	32	27.62	28.00	42.88	53.88	45.59	47.00	-1.41

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3585 MHz)	32	10.06	10.50	25.25	36.25	37.00	-0.75
Middle (3625 MHz)	32	9.96	10.49	25.25	36.25	37.00	-0.75
Top (3665 MHz)	32	10.12	10.67	25.41	36.41	37.00	-0.59

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3585 MHz)	32	8.68	9.44	13.00	-3.56
Middle (3625 MHz)	32	9.20	9.74	13.00	-3.26
Top (3665 MHz)	32	9.17	9.74	13.00	-3.26

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 29.21 dBm

DUT Configuration			
Carrier Configuration:	NR 80 MHz 1C QPSK 32 Ports	Duty Cycle (%):	73.9
RFBW:	80 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Bottom (3590 MHz)	32	28.21	28.63	43.50	54.50	45.61	47.00	-1.39
Middle (3625 MHz)	32	28.29	28.77	43.58	54.58	45.69	47.00	-1.31
Top (3660 MHz)	32	28.27	28.68	43.53	54.53	45.64	47.00	-1.36

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3590 MHz)	32	9.94	10.36	25.18	36.18	37.00	-0.82
Middle (3625 MHz)	32	10.02	10.55	25.26	36.26	37.00	-0.74
Top (3660 MHz)	32	10.12	10.64	25.42	36.42	37.00	-0.58

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3590 MHz)	32	8.72	9.63	13.00	-3.37
Middle (3625 MHz)	32	9.44	10.04	13.00	-2.97
Top (3660 MHz)	32	9.44	10.15	13.00	-2.85

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 29.77 dBm

DUT Configuration			
Carrier Configuration:	NR 90 MHz 1C QPSK 32 Ports	Duty Cycle (%):	73.8
RFBW:	90 MHz	DCCF (dB):	1.32
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Bottom (3595 MHz)	32	28.78	29.17	44.04	55.04	45.61	47.00	-1.39
Middle (3625 MHz)	32	28.80	29.27	44.06	55.06	45.63	47.00	-1.37
Top (3655 MHz)	32	28.85	29.29	44.11	55.11	45.70	47.00	-1.30

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3595 MHz)	32	10.09	10.45	25.30	36.30	37.00	-0.70
Middle (3625 MHz)	32	10.01	10.56	25.24	36.24	37.00	-0.76
Top (3655 MHz)	32	10.16	10.66	25.47	36.47	37.00	-0.53

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3595 MHz)	32	8.38	9.11	13.00	-3.89
Middle (3625 MHz)	32	9.18	10.09	13.00	-2.91
Top (3655 MHz)	32	9.15	9.83	13.00	-3.18

Peak To Average Power Ratio Results



Configuration 1

Maximum Output Power 30.26 dBm

DUT Configuration			
Carrier Configuration:	NR 100 MHz 1C QPSK 32 Ports	Duty Cycle (%):	74.0
RFBW:	100 MHz	DCCF (dB):	1.30
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Bottom (3600 MHz)	32	29.33	29.79	44.63	55.63	45.75	47.00	-1.25
Middle (3625 MHz)	32	29.31	29.75	44.59	55.59	45.70	47.00	-1.30
Top (3650 MHz)	32	29.33	29.76	44.61	55.61	45.73	47.00	-1.27

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Bottom (3600 MHz)	32	10.16	10.52	25.34	36.34	37.00	-0.66
Middle (3625 MHz)	32	10.12	10.62	25.43	36.43	37.00	-0.57
Top (3650 MHz)	32	10.20	10.66	25.45	36.45	37.00	-0.55

FCC Maximum Power Spectral Density Results



Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of Measurements	PAPR (dB)		Limit (dB)	Margin (dB)
		Min	Max		
Bottom (3600 MHz)	32	8.07	9.41	13.00	-3.59
Middle (3625 MHz)	32	9.37	10.26	13.00	-2.74
Top (3650 MHz)	32	9.35	10.13	13.00	-2.87

Peak To Average Power Ratio Results



Configuration 2

Maximum Output Power 2 x 19.52 dBm

DUT Configuration			
Carrier Configuration:	NR 10 MHz 2C QPSK 32 Ports	Duty Cycle (%):	73.9
RFBW:	2 x 10 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	21.76	22.30	37.09	48.09	45.42	47.00	-1.58

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

le $48.29\text{dBm} - (10\log(18.3/10)) = 48.29 - 2.52 = 45.67 \text{ dBm}/10\text{MHz}$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	9.99	10.61	25.29	36.29	37.00	-0.71

FCC Maximum Power Spectral Density Results

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.



Configuration 2

Maximum Output Power 2 x 22.27 dBm

DUT Configuration			
Carrier Configuration:	NR 20 MHz 2C QPSK 32 Ports	Duty Cycle (%):	74.0
RFBW:	2 x 20 MHz	DCCF (dB):	1.30
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	24.67	25.15	39.99	50.99	45.17	47.00	-1.83

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie $48.29\text{dBm} - (10\log(18.3/10)) = 48.29 - 2.52 = 45.67 \text{ dBm}/10\text{MHz}$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	9.71	10.24	24.83	35.83	37.00	-1.17

FCC Maximum Power Spectral Density Results

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.



Configuration 2

Maximum Output Power 2 x 24.49 dBm

DUT Configuration			
Carrier Configuration:	NR 30 MHz 2C QPSK 32 Ports	Duty Cycle (%):	74.0
RFBW:	2 x 30 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	26.82	27.34	42.16	53.16	45.56	47.00	-1.44

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

$$\text{ie } 48.29\text{dBm} - (10\log(18.3/10)) = 48.29-2.52 = 45.67 \text{ dBm}/10\text{MHz}$$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	10.02	10.67	25.38	36.38	37.00	-0.62

FCC Maximum Power Spectral Density Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.



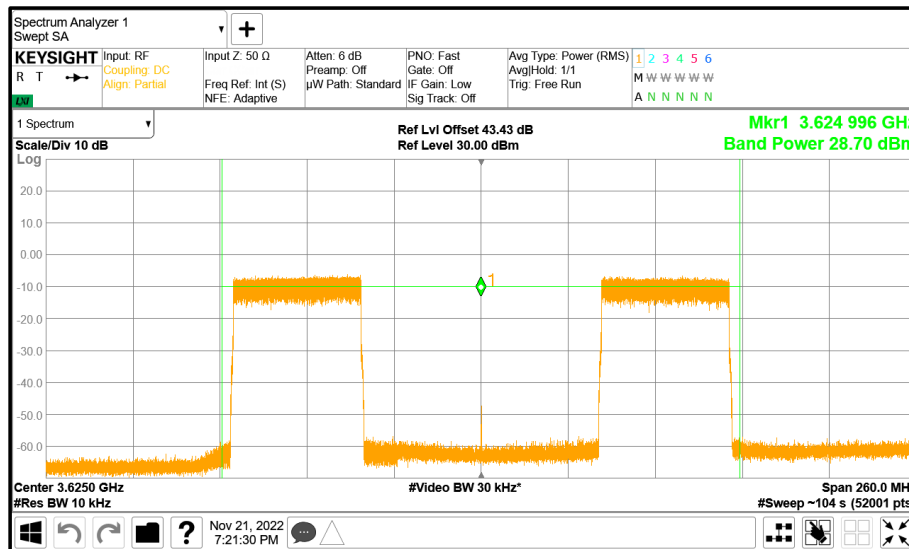
Configuration 2

Maximum Output Power 2 x 25.80 dBm

DUT Configuration			
Carrier Configuration:	NR 40 MHz 2C QPSK 32 Ports	Duty Cycle (%):	73.9
RFBW:	2x 40 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	28.20	28.71	43.51	54.51	45.62	47.00	-1.38

FCC Maximum Output Power Results



Middle Channel Port 16

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;



Total EIRP-10log/measured Bandwidth/10MHz

$$\text{ie } 48.29\text{dBm} - (10\log(18.3/10)) = 48.29 - 2.52 = 45.67 \text{ dBm}/10\text{MHz}$$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	10.02	10.71	25.27	36.27	37.00	-0.73

FCC Maximum Power Spectral Density Results

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.



Configuration 2

Maximum Output Power 2 x 26.93 dBm

DUT Configuration			
Carrier Configuration:	NR 50 MHz 2C QPSK 32 Ports	Duty Cycle (%):	74.0
RFBW:	2 x 50 MHz	DCCF (dB):	1.31
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	29.18	29.71	44.50	55.50	45.63	47.00	-1.37

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz
 ie 48.29dBm – (10log(18.3/10)) = 48.29-2.52 = 45.67 dBm/10MHz

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	10.07	10.69	25.45	36.45	37.00	-0.55

FCC Maximum Power Spectral Density Results

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Configuration 2

Maximum Output Power 19.52 + 22.27 dBm



DUT Configuration			
Carrier Configuration:	NR 10+20 MHz 2C QPSK 32 Ports	Duty Cycle (%):	74.1
RFBW:	10MHz + 20 MHz	DCCF (dB):	1.30
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	23.49	24.03	38.83	49.83	45.31	47.00	-1.69

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

ie $48.29\text{dBm} - (10\log(18.3/10)) = 48.29 - 2.52 = 45.67 \text{ dBm}/10\text{MHz}$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	9.97	10.67	25.33	36.33	37.00	-0.67

FCC Maximum Power Spectral Density Results

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.



Configuration 2

Maximum Output Power 22.27 + 29.21dBm

DUT Configuration			
Carrier Configuration:	NR 20+80 MHz 2C QPSK 32 Ports	Duty Cycle (%):	74.0
RFBW:	20 MHz + 80 MHz	DCCF (dB):	1.30
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	29.16	29.73	44.53	55.53	45.64	47.00	-1.36

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

$$\text{le } 48.29\text{dBm} - (10\log(18.3/10)) = 48.29-2.52 = 45.67 \text{ dBm}/10\text{MHz}$$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	10.20	10.81	25.57	36.57	37.00	-0.43

FCC Maximum Power Spectral Density Results

Remarks

Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.



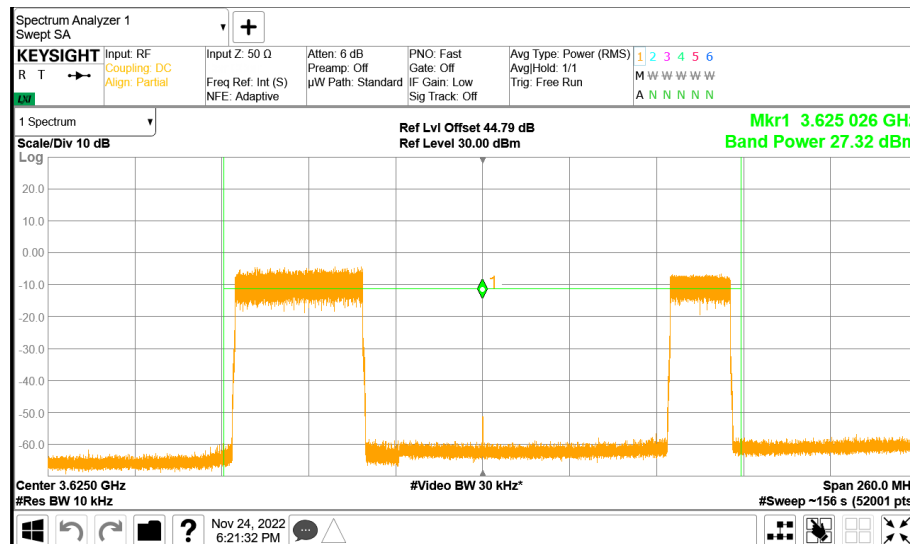
Configuration 3

Maximum Output Power 22.30 + 25.80 dBm

DUT Configuration			
Carrier Configuration:	NR+LTE 40+20 MHz 2C QPSK 32 Ports	Duty Cycle (%):	54.0
RFBW:	40 MHz + 20 MHz	DCCF (dB):	2.67
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	26.81	27.32	42.16	53.16	45.64	47.00	-1.36

FCC Maximum Output Power Results



Middle Channel Port 16

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.



In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

$$\text{ie } 48.29\text{dBm} - (10\log(18.3/10)) = 48.29-2.52 = 45.67 \text{ dBm/10MHz}$$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	10.09	10.72	25.48	36.48	37.00	-0.52

FCC Maximum Power Spectral Density Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.



Configuration 4

Maximum Output Power 2 x 22.27 + 3 x 22.27 dBm

DUT Configuration			
Carrier Configuration:	NR+LTE 20+20 MHz 5C QPSK 32 Ports	Duty Cycle (%):	54.6
RFBW:	20 MHz + 20 MHz+ 20 MHz+ 20 MHz+ 20 MHz	DCCF (dB):	2.63
		Peak Antenna Gain (dBi):	11.00

Test Channel	Number of Measurements	PWR (dBm)			EIRP (dBm)	Calculated(dBm)	Limit (dBm)	Margin (dB)
		Min	Max	Σ				
Middle (3625 MHz)	32	28.77	29.26	44.09	55.09	45.20	47.00	-1.80

FCC Maximum Output Power Results



Middle Channel Port 16

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In lieu of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;



Total EIRP-10log/measured Bandwidth/10MHz

ie $48.29\text{dBm} - (10\log(18.3/10)) = 48.29 - 2.52 = 45.67 \text{ dBm}/10\text{MHz}$

Test Channel	Number of Measurements	PSD (dBm/MHz)			EIRP (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
		Min	Max	Σ			
Middle (3625 MHz)	32	9.80	10.42	25.14	36.14	37.00	-0.86

FCC Maximum Power Spectral Density Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

FCC CFR 47 Part 2, Clause 2.1046

FCC CFR 47 Part 96, Clause 96.41 (b)(c)(g)

Limit	
Maximum EIRP	Category A CBSD Maximum EIRP: 30 dBm/10 MHz Maximum PSD: 20 dBm/MHz
	Category B CBSD Maximum EIRP: 47 dBm/10 MHz Maximum PSD: 37 dBm/MHz
Peak to Average Ratio	13 dB



2.2 OCCUPIED BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 96, Clause 96.41 (e)(3)
 FCC CFR 47 Part 2, Clause 2.1049

2.2.2 Date of Test and Modification State

04, 07, 08, 16 and 23-24 November-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 22.5-23.7°C
 Relative Humidity 38.2-40.2%

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

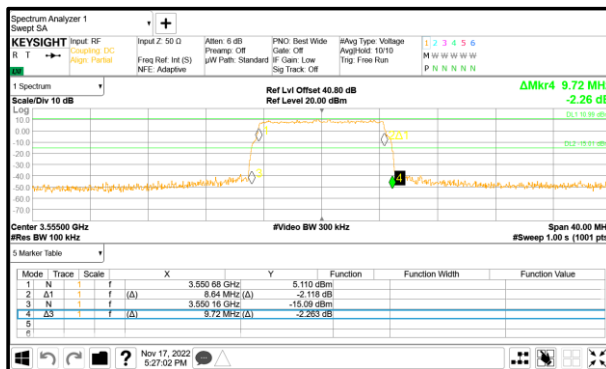
Configuration 1

Maximum Output Power 19.56 dBm

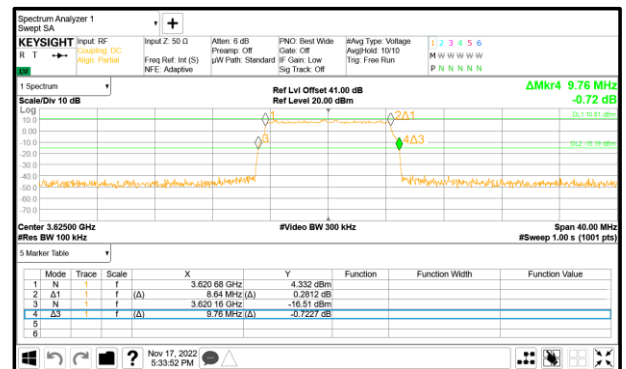
DUT Configuration			
Carrier Configuration:	NR 10 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	10 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-



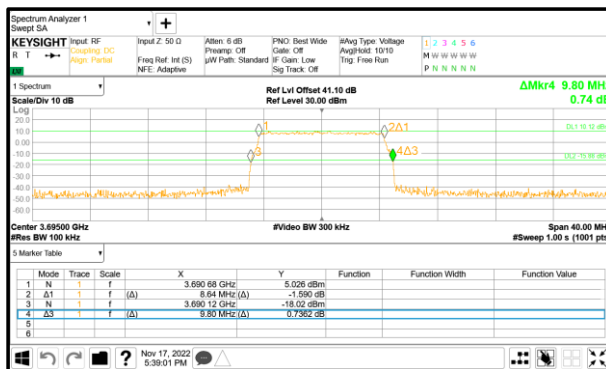
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3555 MHz)	10	8.640	9.720
Middle (3625 MHz)	10	8.640	9.760
Top (3695 MHz)	10	8.640	9.800



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

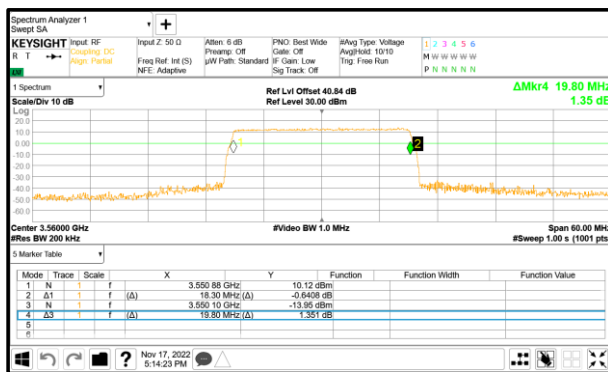


Configuration 1

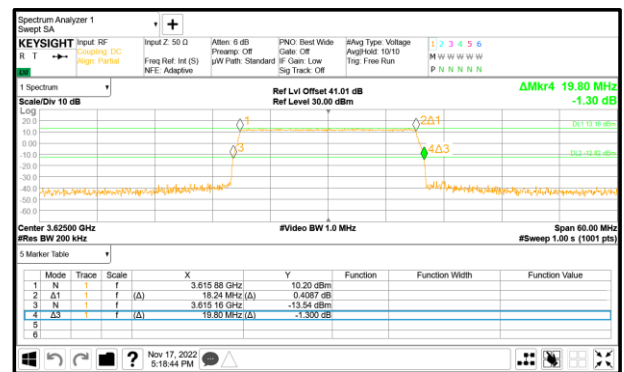
Maximum Output Power 22.27 dBm

DUT Configuration			
Carrier Configuration:	NR 20 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	20 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

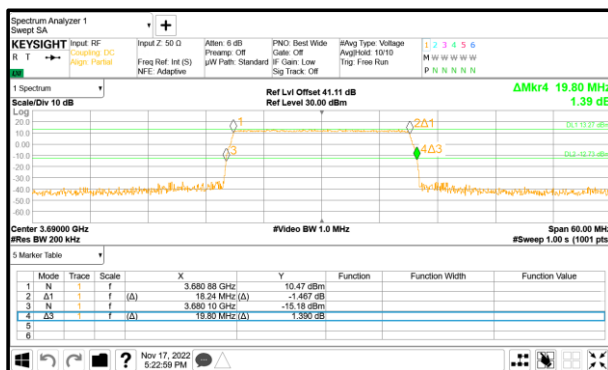
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3560 MHz)	10	18.300	19.800
Middle (3625 MHz)	10	18.240	19.800
Top (3690 MHz)	10	18.240	19.800



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

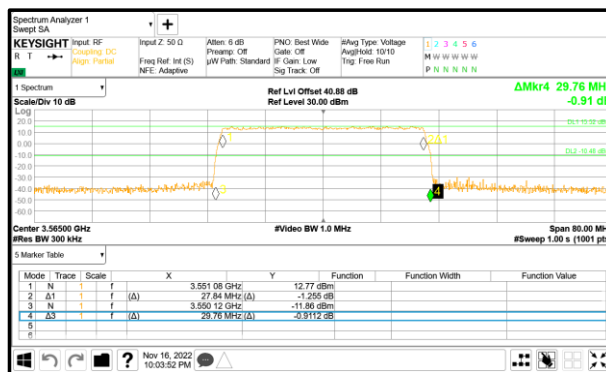


Configuration 1

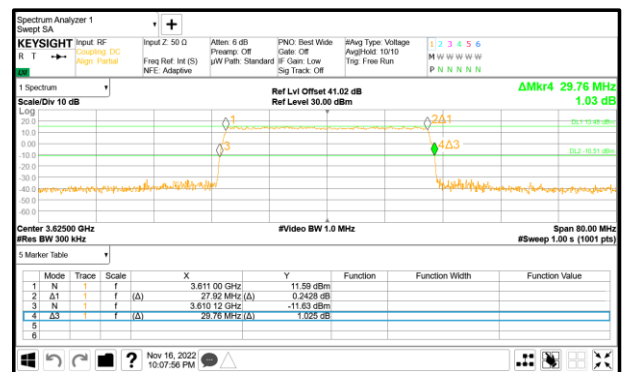
Maximum Output Power 24.49 dBm

DUT Configuration			
Carrier Configuration:	NR 30 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	30 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3565 MHz)	10	27.840	29.760
Middle (3625 MHz)	10	27.920	29.760
Top (3685 MHz)	10	27.920	29.760



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

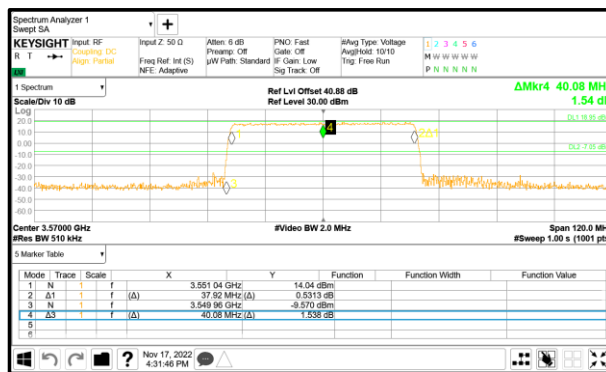


Configuration 1

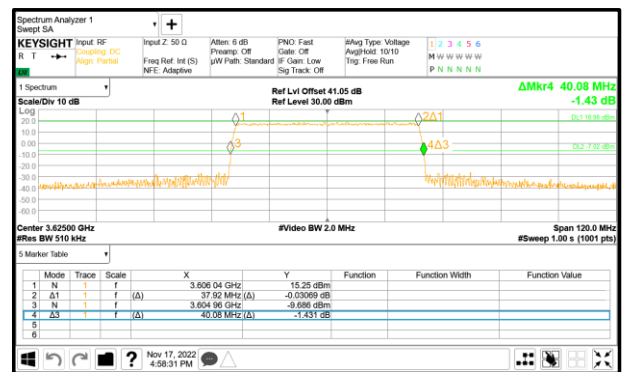
Maximum Output Power 25.80 dBm

DUT Configuration			
Carrier Configuration:	NR 40 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	40 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3570 MHz)	10	37.920	40.080
Middle (3625 MHz)	10	37.920	40.080
Top (3680 MHz)	10	37.920	40.200



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

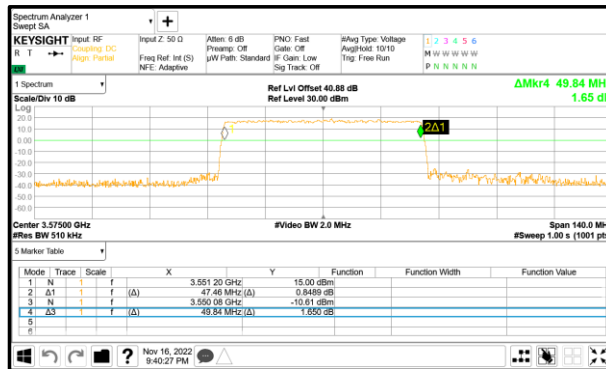


Configuration 1

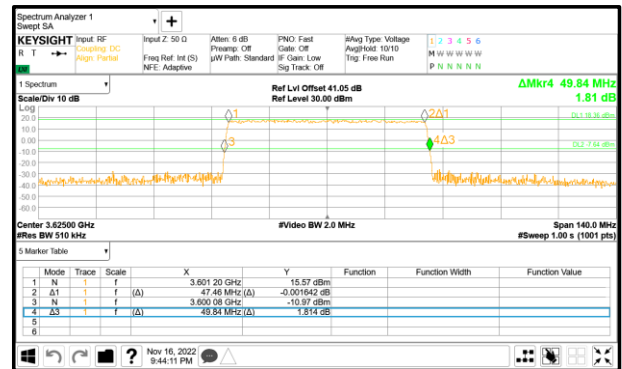
Maximum Output Power 26.93 dBm

DUT Configuration			
Carrier Configuration:	NR 50 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	50 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

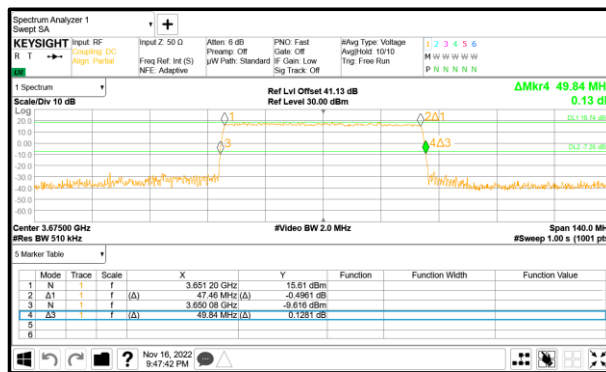
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3575 MHz)	10	47.460	49.840
Middle (3625 MHz)	10	47.460	49.840
Top (3675 MHz)	10	47.460	49.840



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

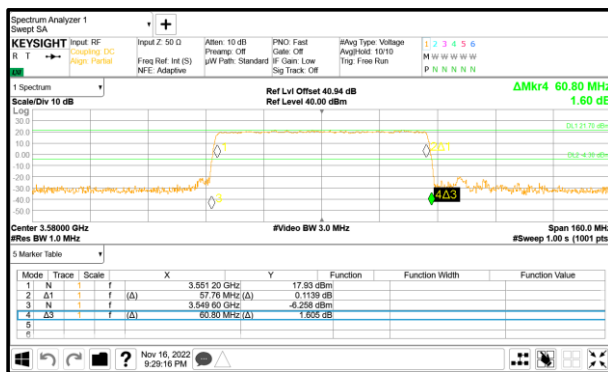


Configuration 1

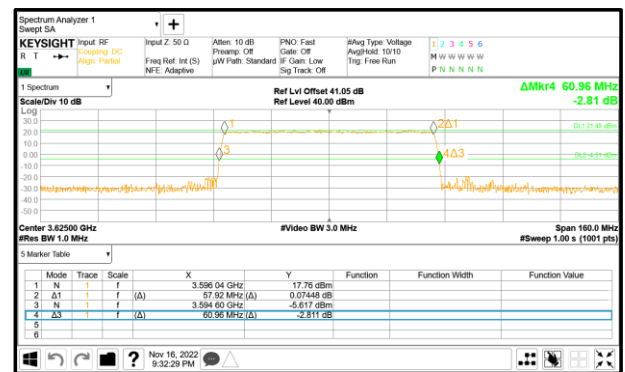
Maximum Output Power 27.83 dBm

DUT Configuration			
Carrier Configuration:	NR 60 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	60 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

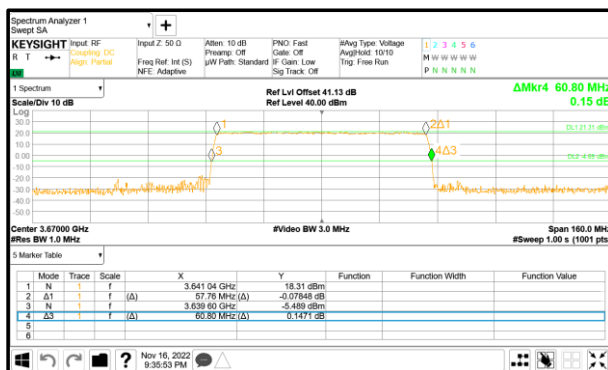
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3580 MHz)	10	57.760	60.800
Middle (3625 MHz)	10	57.920	60.960
Top (3670 MHz)	10	57.760	60.800



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth



Configuration 1

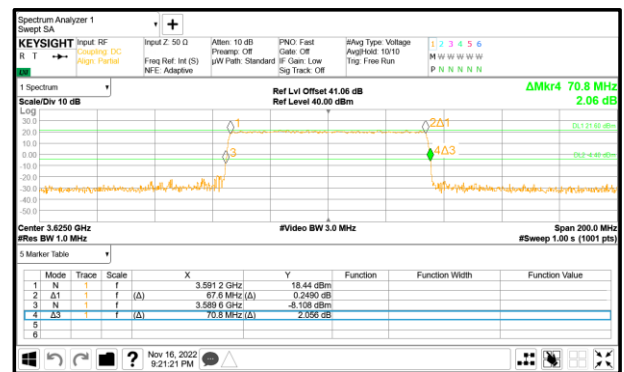
Maximum Output Power 28.58 dBm

DUT Configuration			
Carrier Configuration:	NR 70 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	70 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

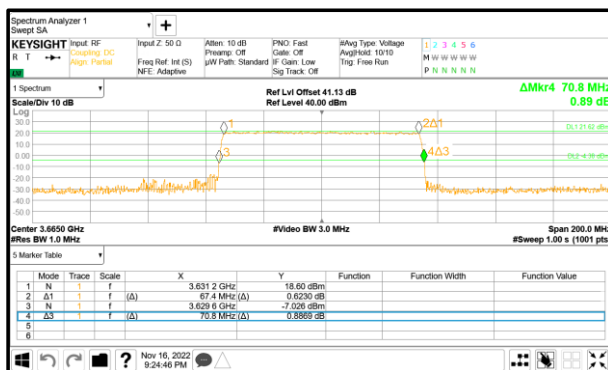
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3585 MHz)	10	67.600	70.800
Middle (3625 MHz)	10	67.600	70.800
Top (3665 MHz)	10	67.400	70.800



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

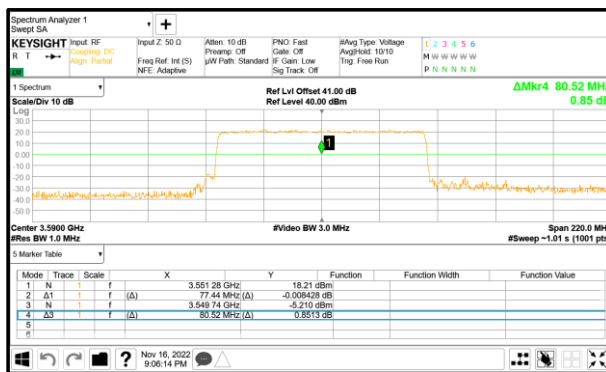


Configuration 1

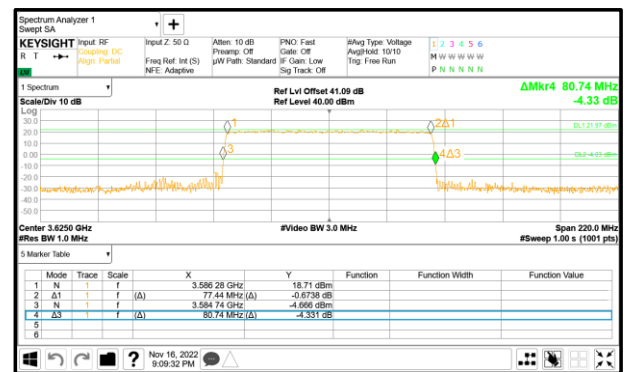
Maximum Output Power 29.21 dBm

DUT Configuration			
Carrier Configuration:	NR 80 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	80 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

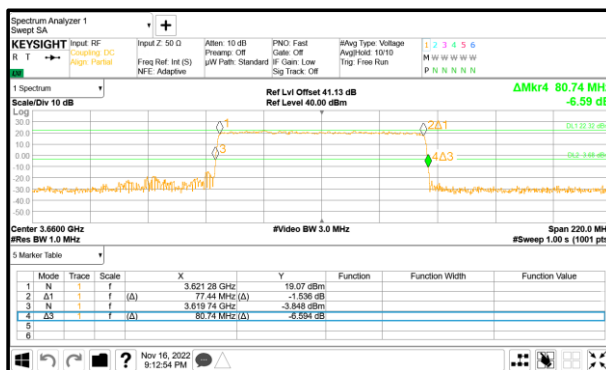
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3590 MHz)	10	77.440	80.520
Middle (3625 MHz)	10	77.440	80.740
Top (3660 MHz)	10	77.440	80.740



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth



Configuration 1

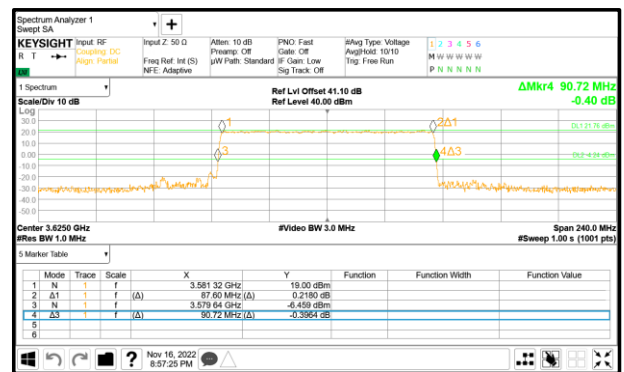
Maximum Output Power 29.77 dBm

DUT Configuration			
Carrier Configuration:	NR 90 MHz 1C QPSK Port 10	Duty Cycle (%):	-
RFBW:	90 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

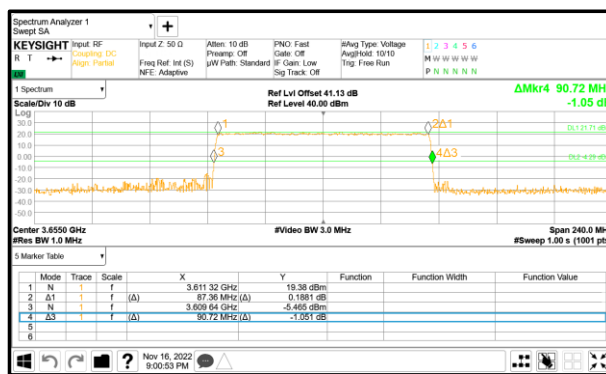
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3595 MHz)	10	87.600	90.720
Middle (3625 MHz)	10	87.600	90.720
Top (3655 MHz)	10	87.360	90.720



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

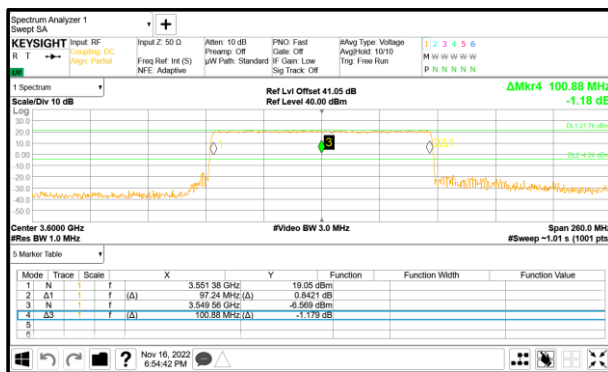


Configuration 1

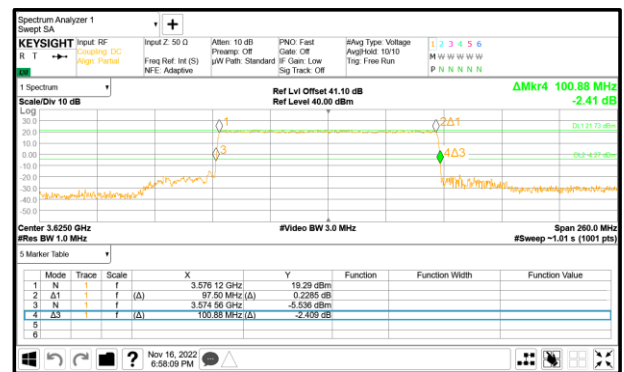
Maximum Output Power 30.26 dBm

DUT Configuration			
Carrier Configuration:	NR 100 MHz 1C QPSK 32 Ports	Duty Cycle (%):	-
RFBW:	100 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

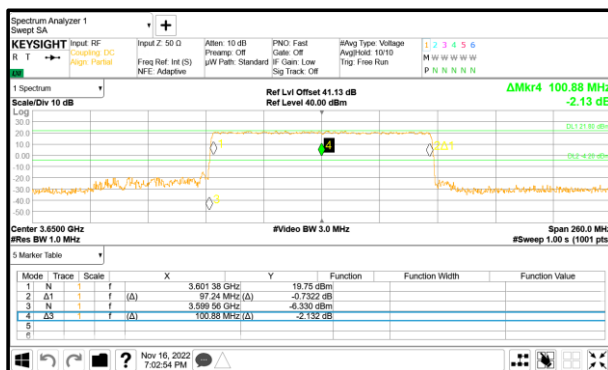
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3600 MHz)	10	97.240	100.880
Middle (3625 MHz)	10	97.500	100.880
Top (3650 MHz)	10	97.240	100.880



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth



Configuration 2

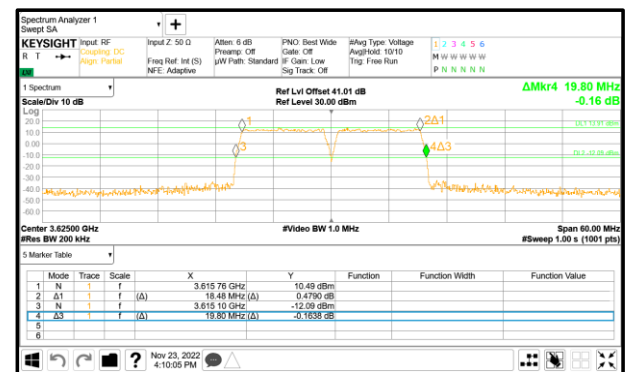
Maximum Output Power 2 x 19.52 dBm

DUT Configuration			
Carrier Configuration:	NR 10 MHz 2C QPSK Port 10	Duty Cycle (%):	-
RFBW:	20 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

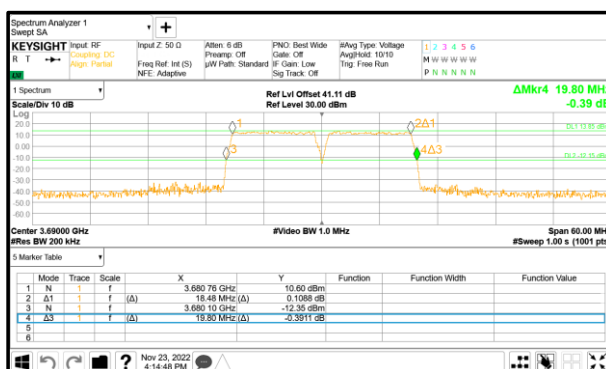
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3560 MHz)	10	18.540	19.920
Middle (3625 MHz)	10	18.480	19.800
Top (3690 MHz)	10	18.480	19.800



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



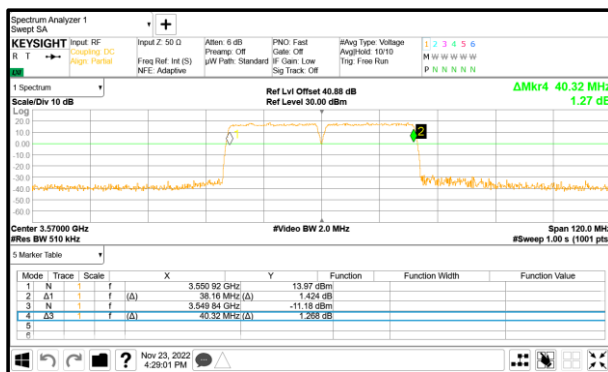
Top Channel Port 10 26 dB and 99% Bandwidth



Configuration 2
Maximum Output Power 2 x 22.27 dBm

DUT Configuration			
Carrier Configuration:	NR 20 MHz 2C QPSK Port 10	Duty Cycle (%):	-
RFBW:	40 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

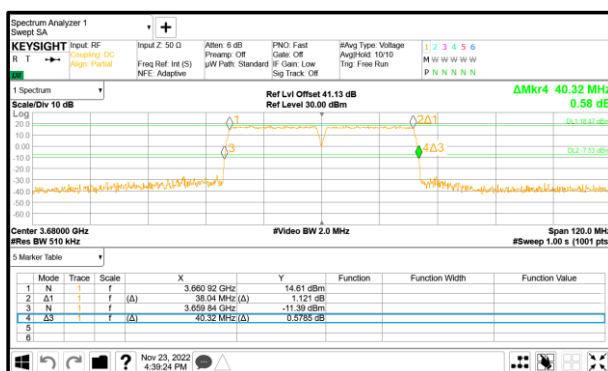
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3570 MHz)	10	38.160	40.320
Middle (3625 MHz)	10	38.160	40.200
Top (3680 MHz)	10	38.040	40.320



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

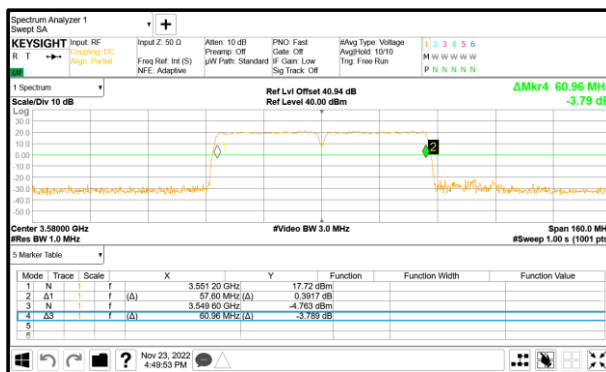


Configuration 2

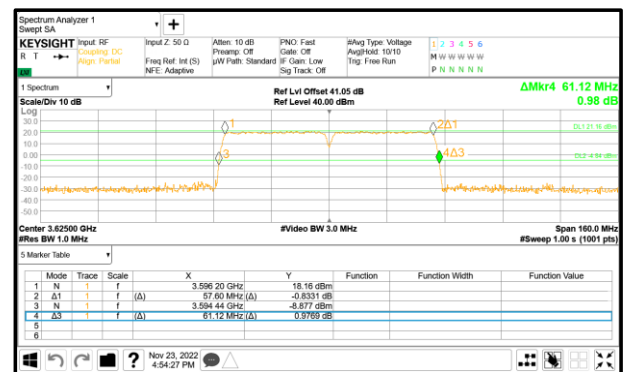
Maximum Output Power 2 x 24.49 dBm

DUT Configuration			
Carrier Configuration:	NR 30 MHz 2C QPSK Port 10	Duty Cycle (%):	-
RFBW:	60 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

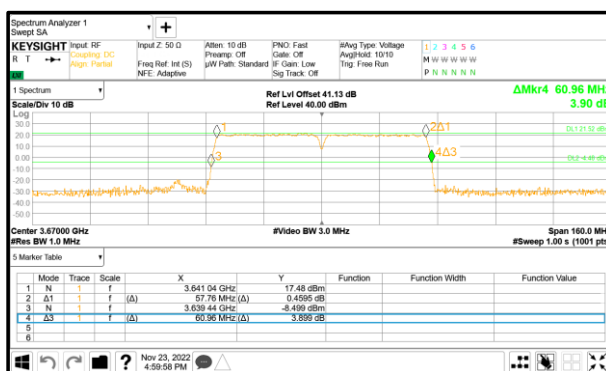
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3580 MHz)	10	57.600	60.960
Middle (3625 MHz)	10	57.600	61.120
Top (3670 MHz)	10	57.760	60.960



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

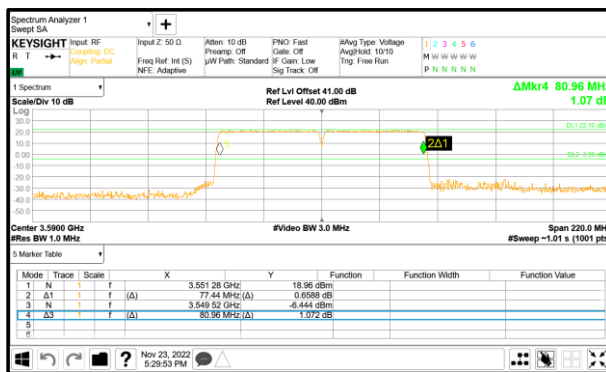


Configuration 2

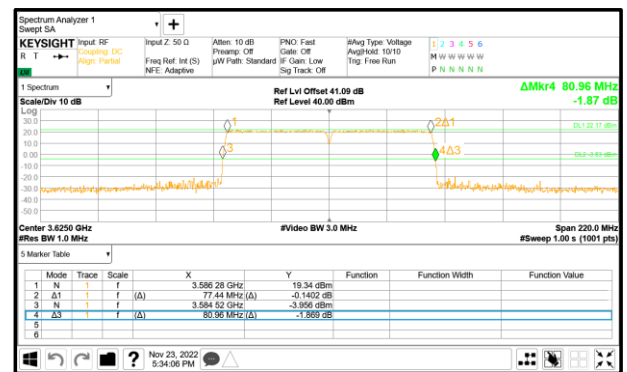
Maximum Output Power 2 x 25.80 dBm

DUT Configuration			
Carrier Configuration:	NR 40 MHz 2C QPSK Port 10	Duty Cycle (%):	-
RFBW:	80 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

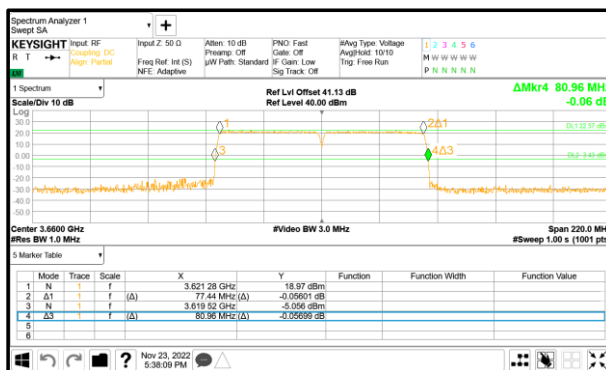
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3590 MHz)	10	77.440	80.960
Middle (3625 MHz)	10	77.440	80.960
Top (3660 MHz)	10	77.440	80.960



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

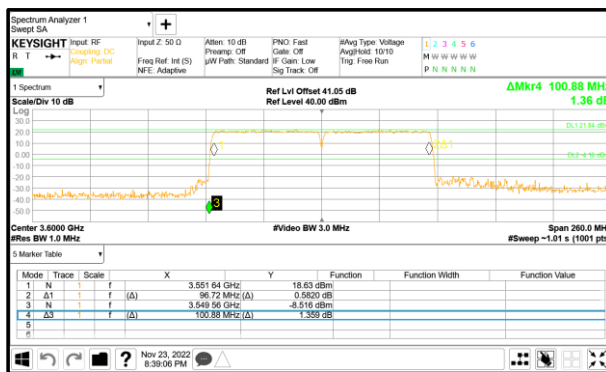


Configuration 2

Maximum Output Power 2 x 26.93 dBm

DUT Configuration			
Carrier Configuration:	NR 50 MHz 2C QPSK Port 10	Duty Cycle (%):	-
RFBW:	100 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

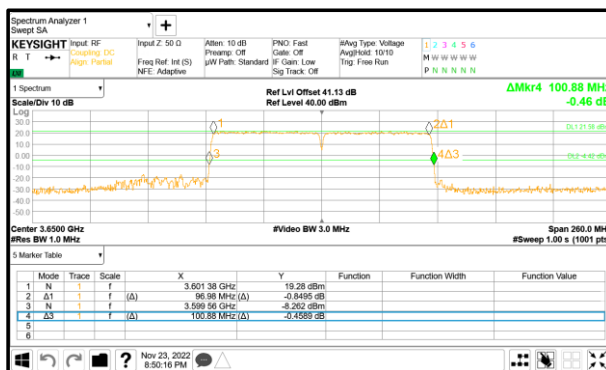
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3600 MHz)	10	96.720	100.880
Middle (3625 MHz)	10	96.980	100.880
Top (3650 MHz)	10	96.980	100.880



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

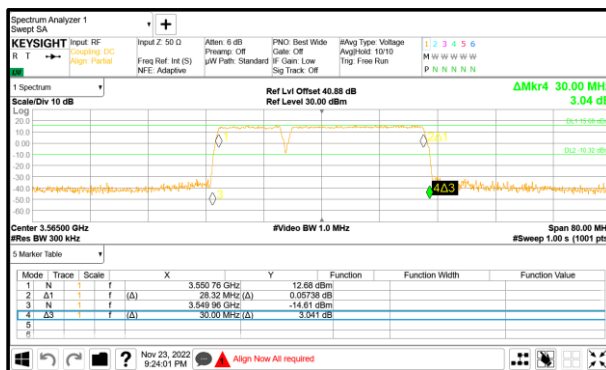


Configuration 2

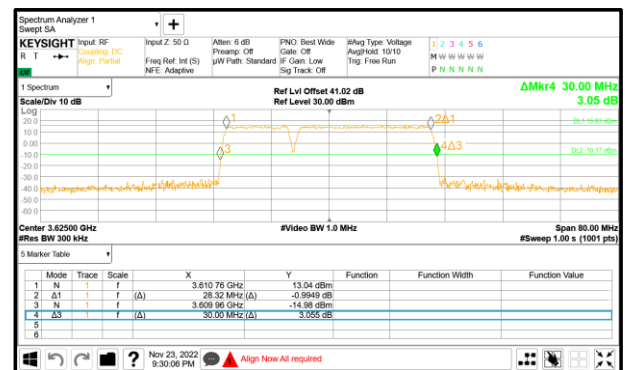
Maximum Output Power 19.52 + 22.27 dBm

DUT Configuration			
Carrier Configuration:	NR 10+20 MHz 2C QPSK Port 10	Duty Cycle (%):	-
RFBW:	30 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

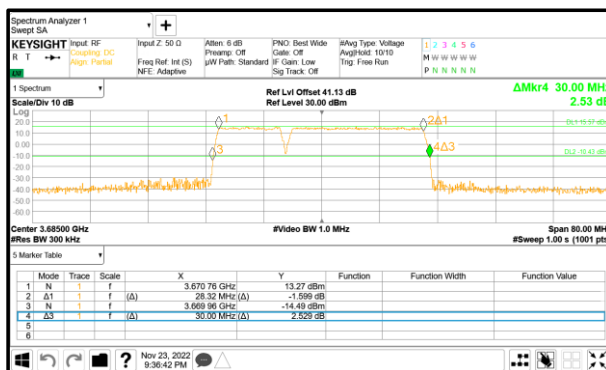
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3565 MHz)	10	28.320	30.000
Middle (3625 MHz)	10	28.320	30.000
Top (3685 MHz)	10	28.320	30.000



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth

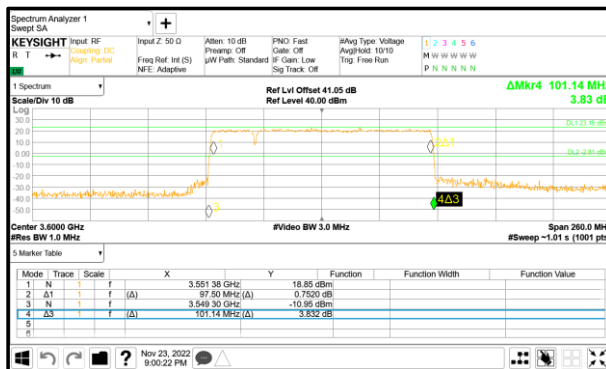


Configuration 2

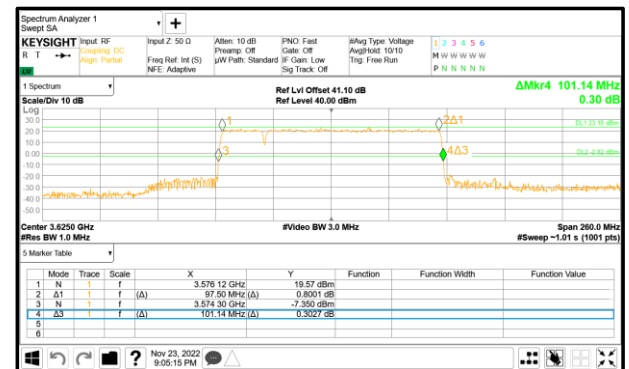
Maximum Output Power 22.27 + 29.21 dBm

DUT Configuration			
Carrier Configuration:	NR 20+80 MHz 2C QPSK Port 10	Duty Cycle (%):	-
RFBW:	100 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

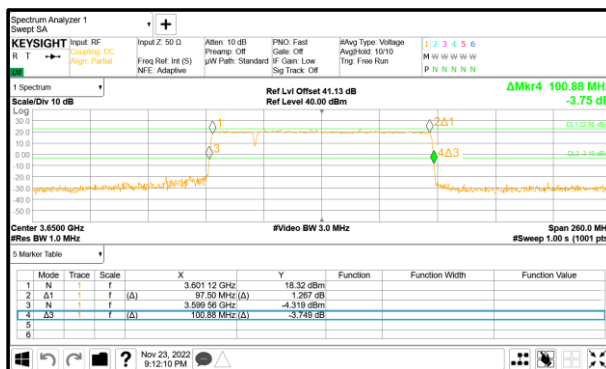
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3600 MHz)	10	97.500	101.140
Middle (3625 MHz)	10	97.500	101.140
Top (3650 MHz)	10	97.500	100.880



Bottom Channel Port 10 26 dB and 99% Bandwidth



Middle Channel Port 10 26 dB and 99% Bandwidth



Top Channel Port 10 26 dB and 99% Bandwidth



2.3 BAND EDGE

2.3.1 Specification Reference

FCC CFR 47 Part 96, Clause 96.41 (e)(1)(i)
 FCC CFR 47 Part 2, Clause 2.1051

2.3.2 Date of Test and Modification State

09 and 14 November-2022 - Modification State 0

2.3.3 Test Equipment Used

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

2.3.4 Environmental Conditions

Ambient Temperature 22.5 - 22.9°C
 Relative Humidity 39.1 - 41.9%

2.3.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 6.0.

Band Edge measurements were used an Integration Bandwidth of at least 1% of the measured 26dB Bandwidth.

Each antenna port has been declared as being equivalent, therefore measurements were made on one antenna port only. To account for this, the limit was tightened by $10 * \text{Log}(N)$, where N is equal to the number of MIMO antenna ports.

For single port, the limit was calculated as being $-13 \text{ dBm} - 10 * \text{Log}(32) = -28.05 \text{ dBm}$.

2.3.6 Test Results

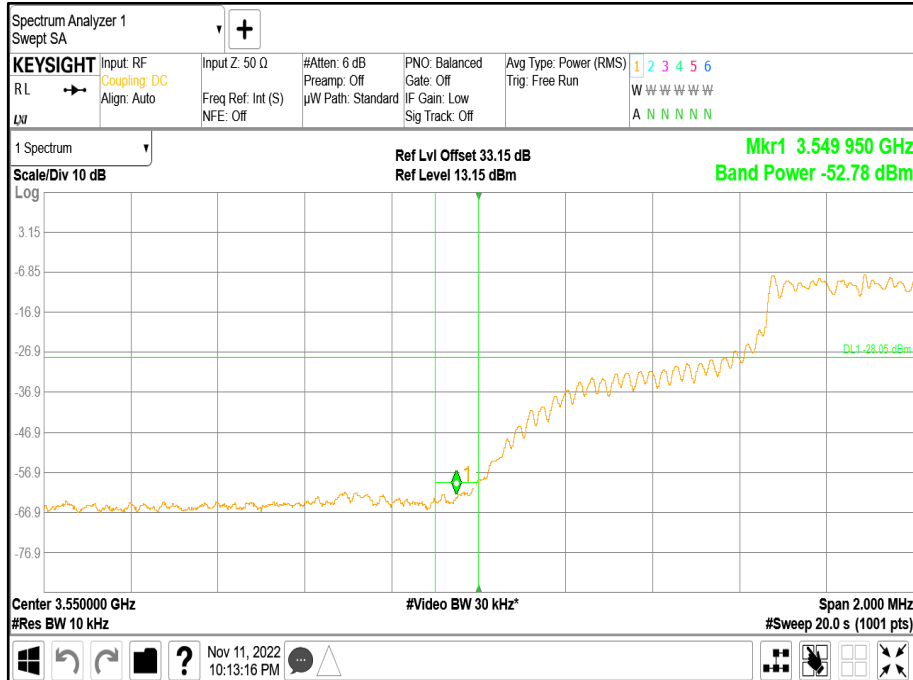
Configuration 1

Maximum Output Power 19.56,22.27,24.49,25.80,26.93,27.83,28.58,29.21,29.77,30.26 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
10	QPSK	10.0 MHz 30 kHz SCS	3,555.0	3,695.0
10	QPSK	20.0 MHz 30 kHz SCS	3,560.0	3,690.0
10	QPSK	30.0 MHz 30 kHz SCS	3,565.0	3,685.0
10	QPSK	40.0 MHz 30 kHz SCS	3,570.0	3,680.0
10	QPSK	50.0 MHz 30 kHz SCS	3,575.0	3,675.0
10	QPSK	60.0 MHz 30 kHz SCS	3,580.0	3,670.0
10	QPSK	70.0 MHz 30 kHz SCS	3,585.0	3,665.0
10	QPSK	80.0 MHz 30 kHz SCS	3,590.0	3,660.0
10	QPSK	90.0 MHz 30 kHz SCS	3,595.0	3,655.0
10	QPSK	100.0 MHz 30 kHz SCS	3,600.0	3,650.0



Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position B

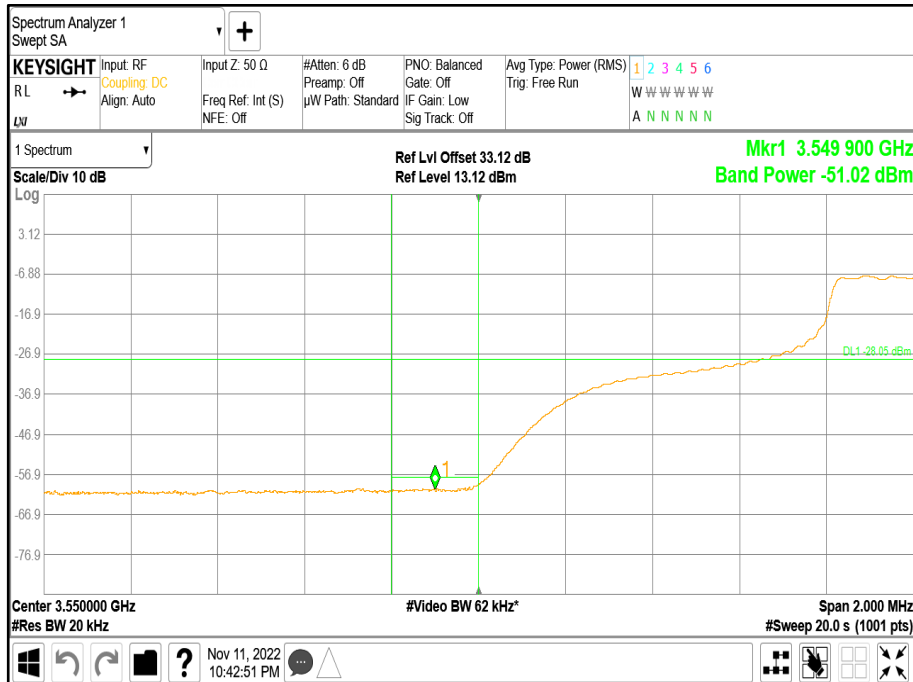


Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position T





Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position B



Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position T

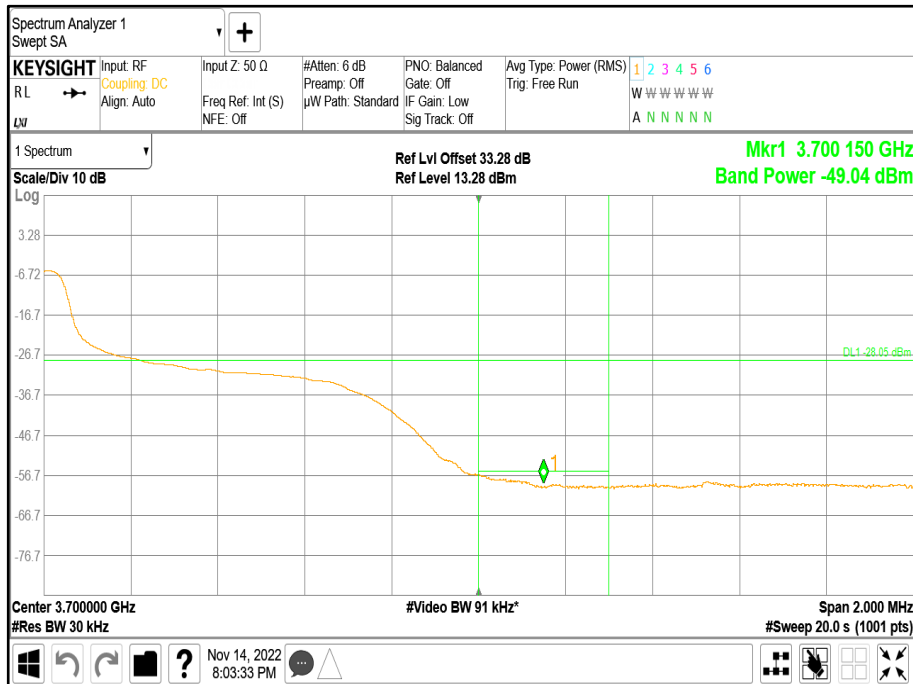




Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position B

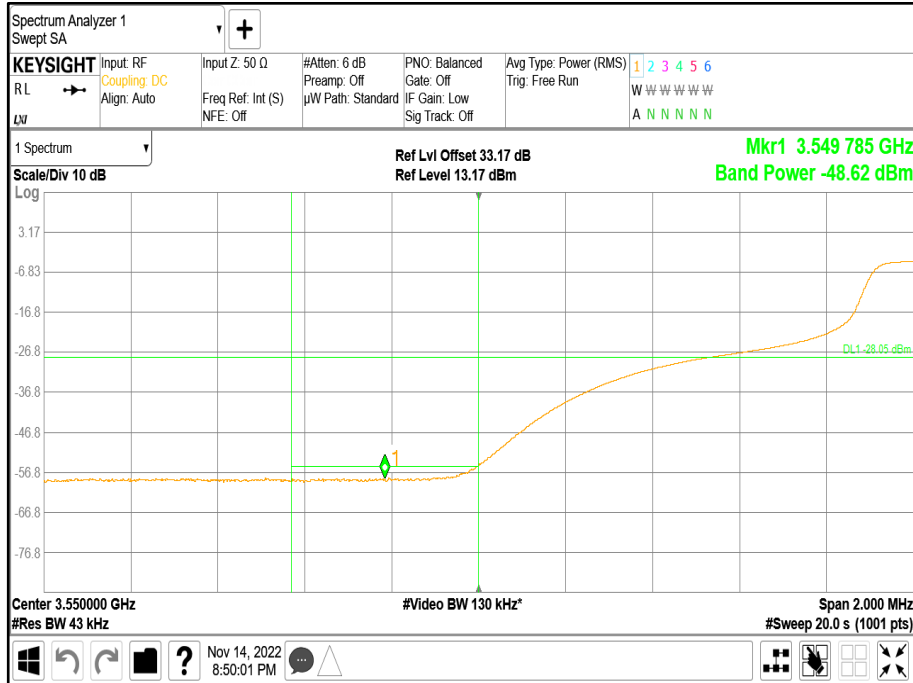


Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 30.0 MHz 30 kHz SCS - Channel Position T

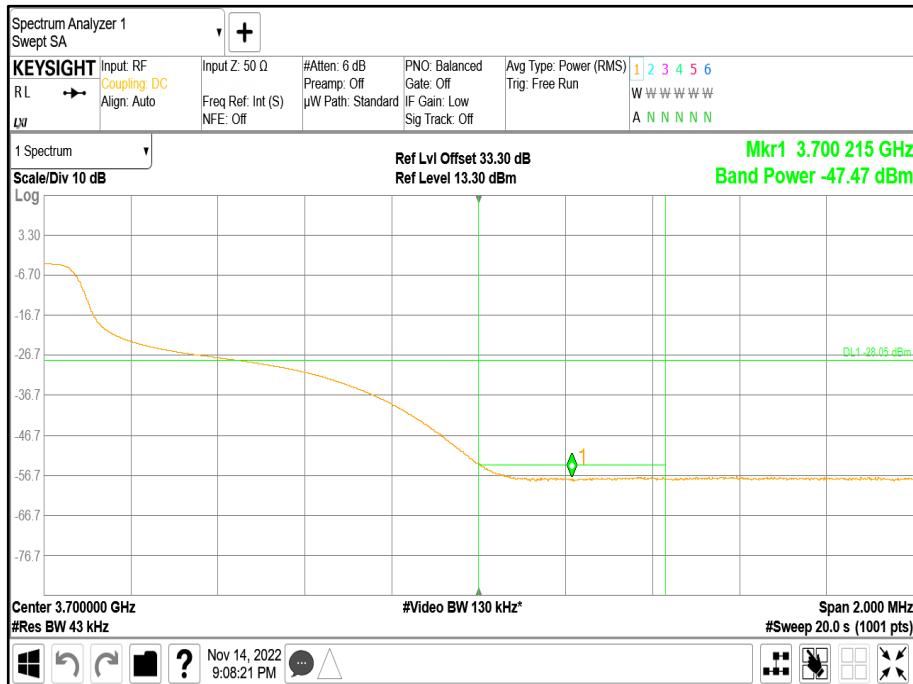




Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position B

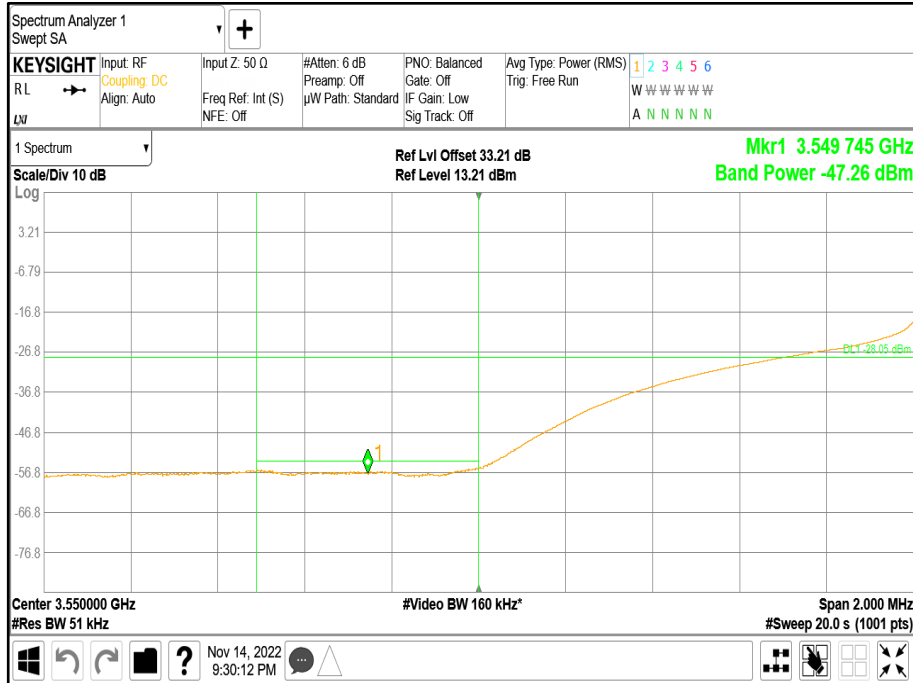


Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 40.0 MHz 30 kHz SCS - Channel Position T

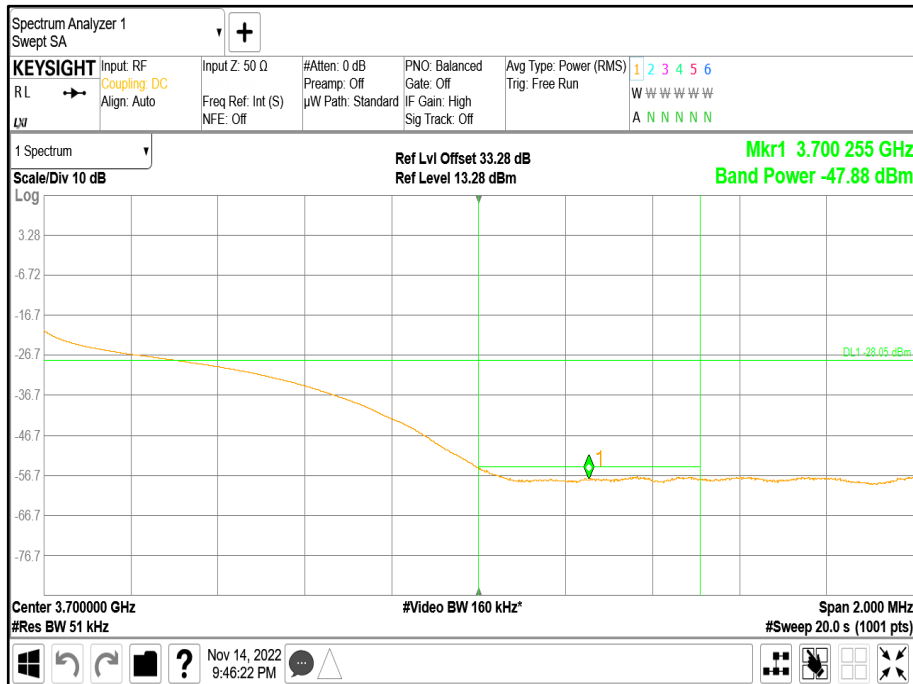




Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position B

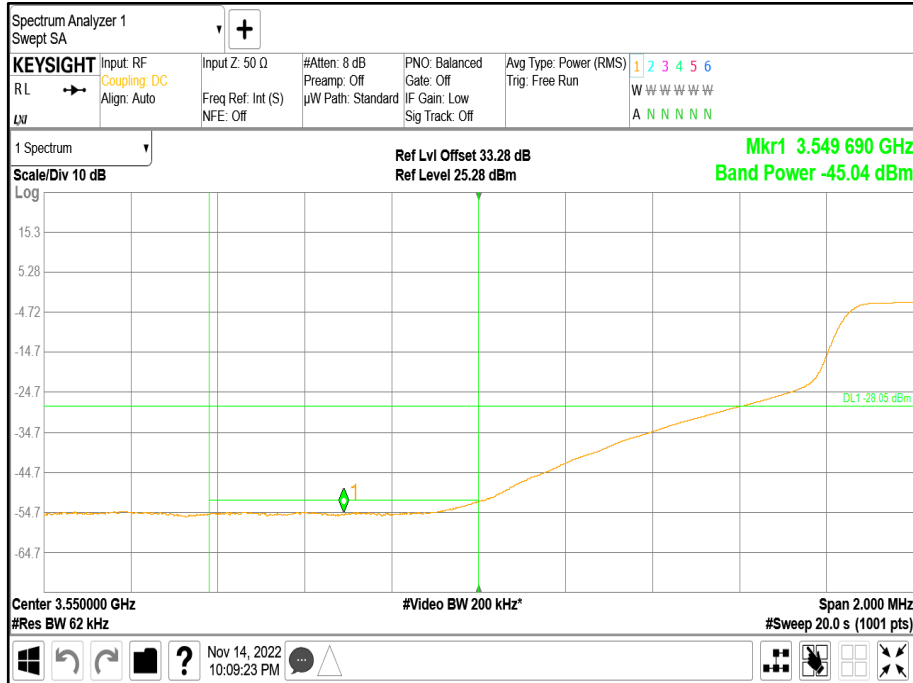


Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 50.0 MHz 30 kHz SCS - Channel Position T

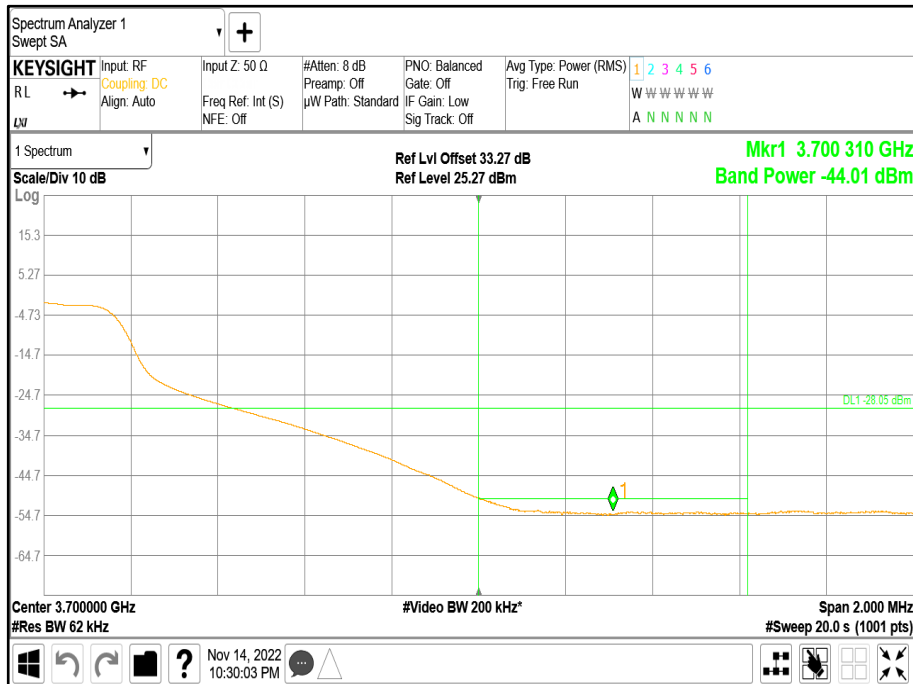




Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position B



Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 60.0 MHz 30 kHz SCS - Channel Position T

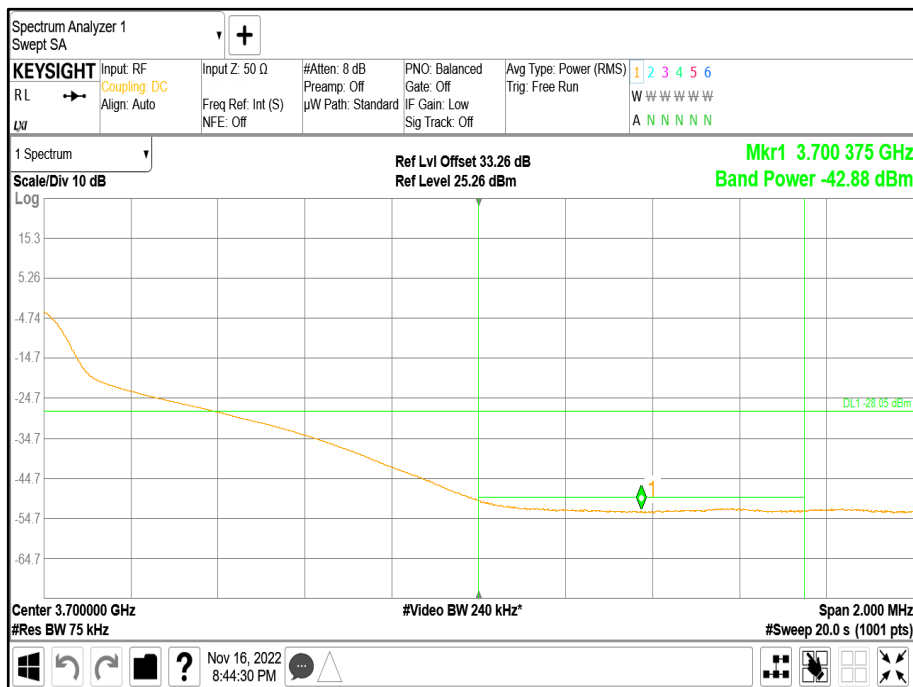




Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position B



Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 70.0 MHz 30 kHz SCS - Channel Position T

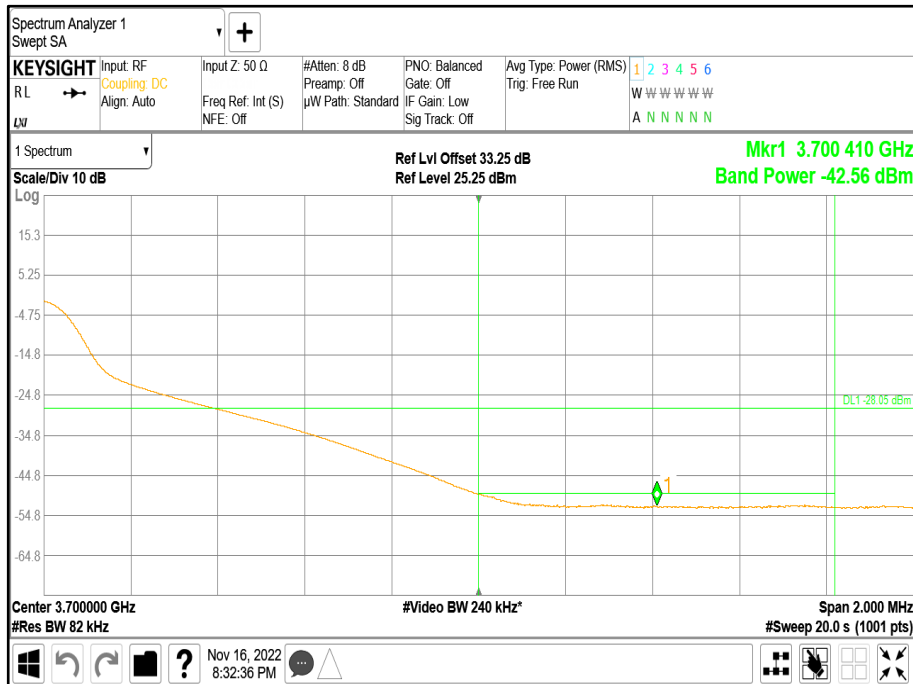




Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position B

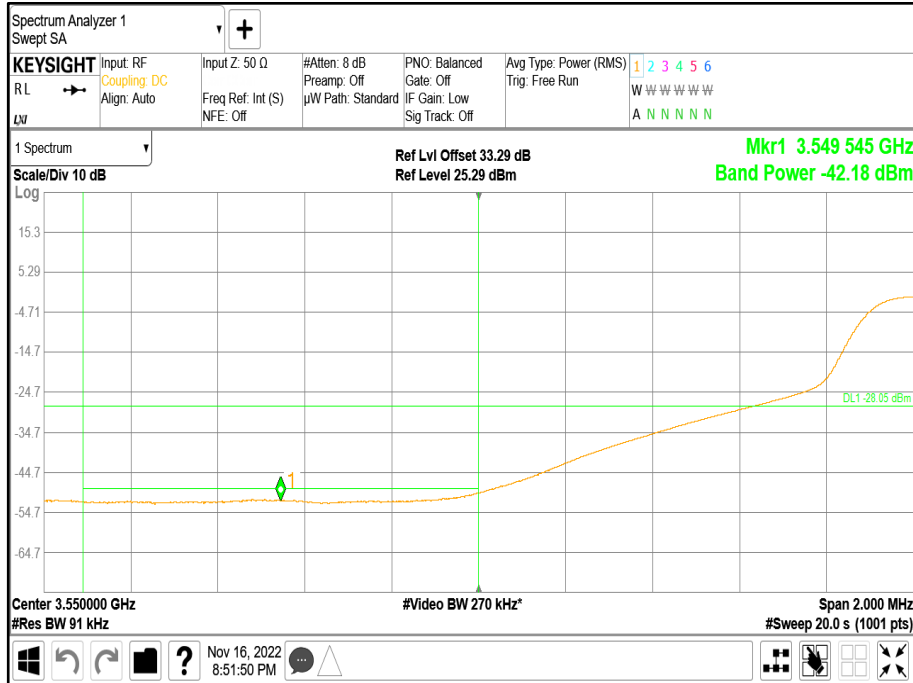


Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 80.0 MHz 30 kHz SCS - Channel Position T





Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position B



Antenna 10 - NR Modulation QPSK - NR Carrier Bandwidth 90.0 MHz 30 kHz SCS - Channel Position T

