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# Report On

FCC and ISED Permissive Change Report for the Ericsson Dot 2274 B25 B66, KRY 901 468/1 and Dot 2284 B25 B66, KRY 901 468/2, LTE, NR, WCDMA, LTE + NR, LTE + WCDMA, (2100 MHz), with compatible Main Unit in a Base Station configuration in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 27, ISED RSS-GEN and Industry Canada RSS-139.

COMMERCIAL-IN-CONFIDENCE

FCC: TA8AKRY901468-1 and TA8AKRY901468-2

ISED: 287AB-AS9014681 and 287AB-AS9014682

PREPARED BY

A handwritten signature in black ink, appearing to read "Glen Westwell".

Glen Westwell  
Senior Test Engineer

APPROVED BY

A handwritten signature in black ink, appearing to read "Scott Drysdale".

Scott Drysdale  
Authorised Signatory

DATED

March 21 2023

Document 75957631 Report 02 Issue 2

27-January-2023



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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	Dot 2284 B25B66 - KRY 901 468/2
IC Model Name	AS9014682
Serial Number(s)	TD3W081157
Software Version	CXP 203 0045/25 R15B19
Hardware Version	R2C
Non-Tested Variant (See Section 1.11 Additional Information)	Dot 2274 B25B66 - KRY 901 468/1
Test Specification/Issue/Date	FCC CFR 47 Part 2: 2021 FCC CFR 47 Part 27: 2021 ISED RSS-GEN: Issue 5: March 2019 Amendment 1, 2021 Amendment 2 Industry Canada RSS-139: Issue 4: 2022
Test Plan	FCC C2PC_DOT 2274_2284 B25_B66 addition NR253040
Start of Test	4-January-2023
Finish of Test	5-January-2023
Name of Engineer(s)	Glen Westwell
Related Document(s)	KDB 971168 D01 v02r02 KDB 662911 D01 v02r01 ICES-003:Issue 7 (2020-10) ANSI C63.26-2015

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### 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, FCC CFR 47 Part 27: 2021, ISED RSS-GEN: Issue 5: March 2019 Amendment 1, 2021 Amendment 2, Industry Canada RSS-139: Issue 4: 2022. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s):

A handwritten signature in black ink, appearing to read "Glen Westwell".

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Glen Westwell



## 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 27, ISED RSS-GEN and Industry Canada RSS-139 is shown below.

Section	Specification Clause				Test Description	Result
	FCC CFR 47 Part 2	FCC CFR 47 Part 27	RSS- GEN	RSS-139		
2.1	2.1046	27.50	6.11	5.5	Maximum Peak Output Power and Peak to Average Ratio - Conducted	Pass
2.2	2.1049	27.53	6.7	-	Occupied Bandwidth	Pass
2.3	2.1051	27.53	-	5.5	Band Edge	Pass
2.4	2.1051	27.53	6.13	5.6	Transmitter Spurious Emissions	Pass

Testing in this Report covers only B66 (2100MHz)

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

Test Report Ref 75957631 Report 01 – B25 (1900MHz)



### 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

Configuration A					
RAT	No. Of Carriers	Carrier Bandwidth	Carrier Frequency Configuration (MHz)		
			Bottom	Middle	Top
NR	1	25 MHz	2112.5	2155	2187.5
		30 MHz	2125	2155	2170
		40 MHz	2130	2155	2180

Configuration B – Contiguous Carriers					
RAT	No. Of Carriers	Carrier Bandwidth	Carrier Frequency Configuration (MHz)		
			Bottom	Middle	Top
NR	2	25 MHz	2122.5+2147.5	2142.5+2167.5	2162.5+2187.5
		30 MHz	2130+2160	2140+2170	2150+2180

Configuration B – Non-Contiguous Carriers					
RAT	No. Of Carriers	Carrier Bandwidth	Carrier Frequency Configuration (MHz)		
			Bottom	Middle	Top
NR	2	25 MHz	2122.5+2167.5	-	2147.5+2187.5
		30 MHz	2125+2165	-	2145_2185



## 1.5 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Dot 2274 B25B66 and Dot 2284 B25B66
MANUFACTURER	Ericsson
TYPE	Remote Radio Base Station
PART NUMBER	Dot 2274 B25B66: KRY 901 468/1 (internal antennas) Dot 2284 B25B66: KRY 901 468/2 (RF ports for external antennas)
SERIAL NUMBER	TD3W081157 (for the Dot 2284 B25B66 test sample)
HARDWARE VERSION	R2C
SOFTWARE VERSION	CXP2030045/25-R15B19
TRANSMITTER OPERATING RANGE	B25: 1930-1995 MHz, B66: 2110-2200MHz
RECEIVER OPERATING RANGE	B25: 1850-1915 MHz, B66: 1710-1780MHz
COUNTRY OF ORIGIN	China
INTERMEDIATE FREQUENCIES	None
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	<b>WCDMA:</b> 5M00F9W <b>LTE:</b> 5M00W7D, 10M0W7D, 15M0W7D, 20M0W7D <b>NBIoT Guardband:</b> 10M0W7D, 15M0W7D, 20M0W7D <b>NR:</b> 5M00F9W, 10M0F9W, 15M0F9W, 20M0F9W, 25M0F9W, 30M0F9W, 40M0F9W
MODULATION TYPES: (i.e. GMSK, QPSK)	WCDMA: QPSK, 16QAM, 64QAM LTE: QPSK, 16QAM, 64QAM, 256QAM NR: QPSK, 16QAM, 64QAM, 256QAM
HIGHEST INTERNALLY GENERATED FREQUENCY	2.2 GHz
OUTPUT POWER (W or dBm)	B25: 2 x 0.200W (23dBm/port) B66: 2 x 0.200W (23dBm/port)
ANTENNA GAIN	<b>Dot 2274 B25:</b> 2 port (MIMO) omni-directional (1850-1995 MHz) with 1.3 dBi maximum gain. <b>Dot 2274 B66:</b> 2 port (MIMO) omni-directional (1710-2200 MHz) with 1.1 dBi maximum gain. <b>Dot 2284:</b> This product includes no internal antennas. External antennas used on this product must have gains smaller or equal to the gains of the internal antenna variant of this product (Dot 2274 B25B66).
FCC ID	TA8AKRY901468-1 and TA8AKRY901468-2
INDUSTRY CANADA ID	287AB-AS9014681 and 287AB-AS9014682
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The Dot 2274 B25B66 (KRY 901 468/1) and Dot 2284 B25B66 (KRY 901 468/2) are dual band Remote Radio Units forming part of the Ericsson Radio Base Station (RBS) equipment. The products provides radio access for mobile and fixed devices and are intended for the indoor environment. The radio operates over 4 Transmit ports in MRO;Single, Multi-Carrier, and MIMO transmission with a maximum rated RF Output of 0.200W per port over an operational temperature of 5°C to +40°C. The unit is designed to be ceiling or wall mounted.

**Signature:**

X-BS

Denis Lalonde

Date: 24 January 2023

**Declaration of Build Status Serial Number:** TD3W081157



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

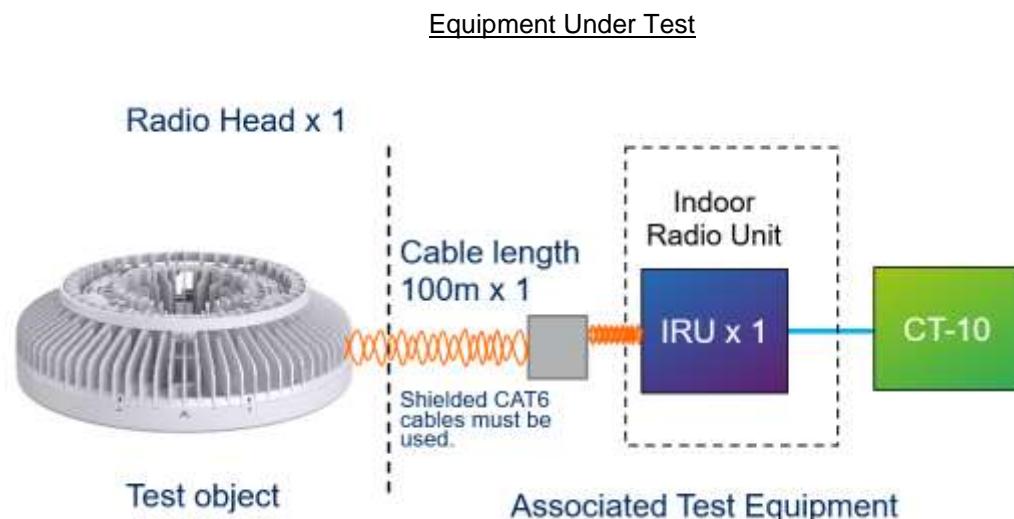
## 1.6 PRODUCT INFORMATION

### 1.6.1 Technical Description

The Equipment Under Test (EUT) Dot 2284 B25B66 - KRY 901 468/2 is an Ericsson AB Radio Unit working in the public mobile service Band 66 band which provides communication connections to Band 66 network.

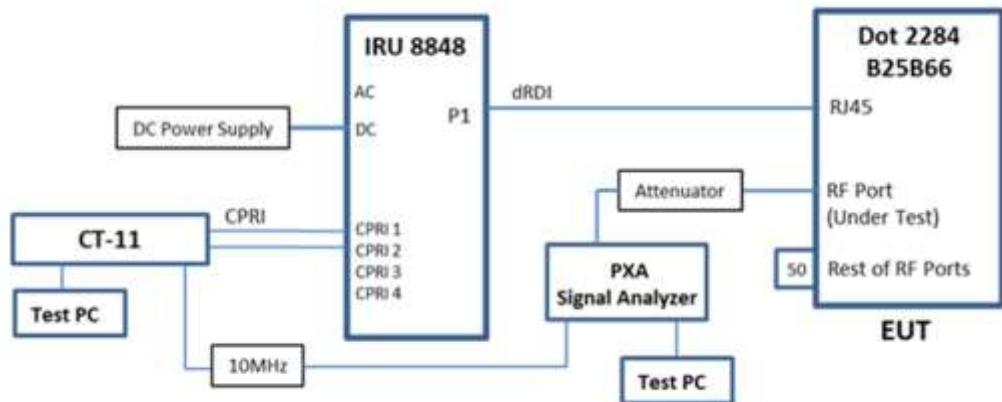
The EUT is declared as operating from a nominal -48V DC supply.

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



## 1.7 TEST SETUP

Conducted Test Set Up – Band Edge, Conducted Emissions





## 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 unless otherwise stated.

FCC Measurement Facility Registration Number  
CA4810 TUV SUD Ottawa, Canada, 1280 Teron Rd., Kanata On.

ISED Accreditation  
IC#24015 TUV SUD Ottawa, Canada, 1280 Teron Rd., Kanata On.

Under our A2LA Accreditation, TÜV SÜD Canada conducted the following tests Ericsson, Ottawa Laboratory: 349 Terry Fox Dr, Kanata, ON..

Test Name	Name of Engineer(s)
Maximum Peak Output Power and Peak to Average Ratio - Conducted	Glen Westwell
Occupied Bandwidth	Glen Westwell
Band Edge	Glen Westwell
Transceiver Spurious Emissions	Glen Westwell

## 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

1. This filing is for a previous Radio Certification for use in the USA and Canada under the following ID's:

FCC: TA8AKRY901468-1 and TA8AKRY901468-2  
ISED: 287AB-AS9014681 and 287AB-AS9014682

2. The permissive change is requested for the addition of 3 new modulation channel bandwidths: NR 25 / NR 30 / NR 40 MHz.

3. Transmitter performance was measured for top, mid & bottom channels, where applicable, across all antenna ports as presented in the average power measurement tables. Typical performance is presented.

## **SECTION 2**

### **TEST DETAILS**

## 1.12 MAXIMUM PEAK OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

### 1.12.1 Specification Reference

FCC CFR 47 Part 27, Clause 27.50  
ISED RSS-GEN, Clause 6.11  
Industry Canada RSS-139, Clause 5.5  
FCC CFR 47 Part 2, Clause 2.1046

### 1.12.2 Date of Test and Modification State

04 and 05-January-2023 - Modification State 0

### 1.12.3 Test Equipment Used

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

### 1.12.4 Environmental Conditions

Ambient Temperature 24.3 - 25.0°C  
Relative Humidity 31.3 - 31.7%

### 1.12.5 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.

### 1.12.6 Test Results

Configuration A

Maximum Output Power 23.00 dBm / Port

Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power				
			PAR (dB)	Channel Position B			
Antenna Port				Average Power			
		dBm	EIRP (dBm)	dBm/MHz	EIRP dBm/MHz		
A	NR: QPSK	25.0 MHz	8.25	22.52	23.62	9.77	10.87
B	NR: QPSK	25.0 MHz	-	22.48	23.58	9.77	10.87
Total			-	25.51	26.61	12.78	13.88
A	NR: QPSK	30.0 MHz	8.31	22.61	23.71	9.08	10.18
B	NR: QPSK	30.0 MHz	-	22.57	23.67	9.08	10.18
Total			-	25.60	26.70	12.09	13.19
A	NR: QPSK	40.0 MHz	8.26	22.62	23.72	7.65	8.75
B	NR: QPSK	40.0 MHz	-	22.62	23.72	7.65	8.75
Total			-	25.63	26.73	10.66	11.76

Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power				
			PAR (dB)	Channel Position M			
Antenna Port	Average Power						
A	NR: QPSK	25.0 MHz	8.26	22.52	23.62	9.55	10.65
B	NR: QPSK	25.0 MHz	-	22.60	23.70	9.55	10.65
Total			-	25.57	26.67	12.56	13.66
A	NR: QPSK	30.0 MHz	8.31	22.50	23.60	8.79	9.89
B	NR: QPSK	30.0 MHz	-	22.56	23.66	8.79	9.89
Total			-	25.54	26.64	11.80	12.90
A	NR: QPSK	40.0 MHz	8.26	22.54	23.64	7.49	8.59
B	NR: QPSK	40.0 MHz	-	22.57	23.67	7.49	8.59
Total			-	25.57	26.67	10.50	11.60

Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power				
			PAR (dB)	Channel Position T			
Antenna Port	Average Power						
A	NR: QPSK	25.0 MHz	8.24	22.46	23.56	9.63	10.73
B	NR: QPSK	25.0 MHz	-	22.42	23.52	9.63	10.73
Total			-	25.45	26.55	12.64	13.74
A	NR: QPSK	30.0 MHz	8.31	22.43	23.53	8.71	9.81
B	NR: QPSK	30.0 MHz	-	22.45	23.55	8.71	9.81
Total			-	25.45	26.55	11.72	12.82
A	NR: QPSK	40.0 MHz	8.25	22.46	23.56	7.47	8.57
B	NR: QPSK	40.0 MHz	-	22.48	23.58	7.47	8.57
Total			-	25.48	26.58	10.48	11.58

### Remarks

1. Transmitter performance has been presented for top, mid, bottom channels across all antenna ports as represented in the following tables.
2. Typical performance and measurement plot data has been presented for reference.
3. All plot data is on file and available upon request.

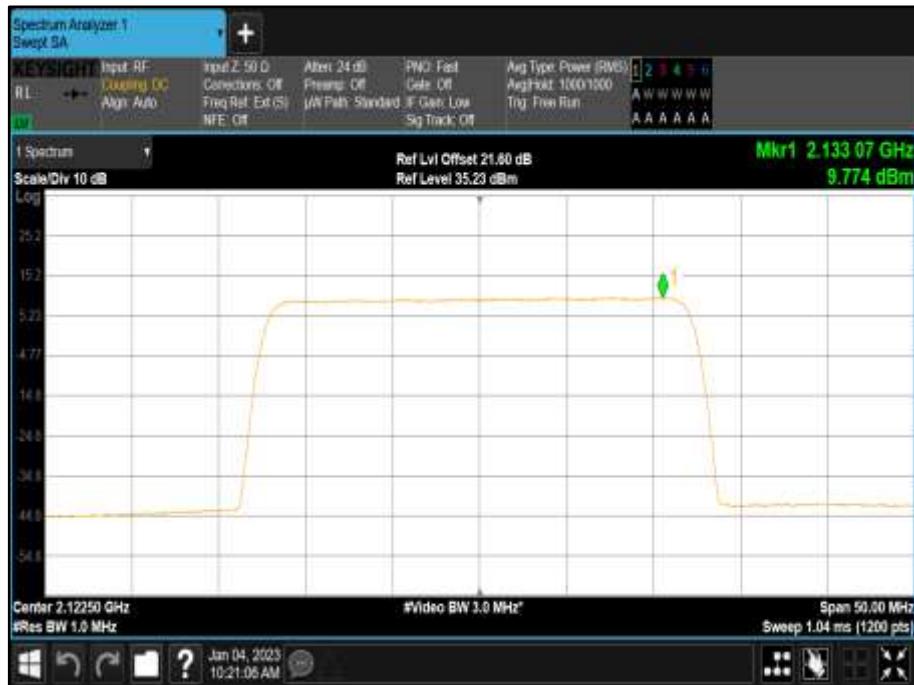
Antenna Port A Carrier Power - Modulation NR: QPSK - Carrier Bandwidth 25.0 MHz - Channel Position B



Antenna Port A Pk-Av Ratio - Modulation NR: QPSK - Carrier Bandwidth 25.0 MHz - Channel Position B



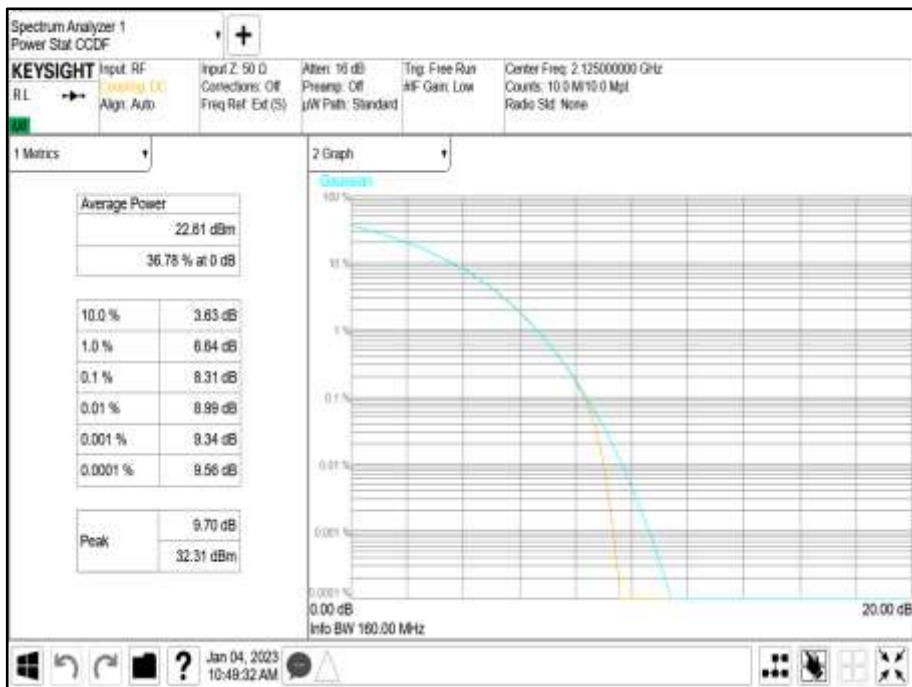
## Antenna Port A PSD - Modulation NR: QPSK - Carrier Bandwidth 25.0 MHz - Channel Position B



## Antenna Port A Carrier Power - Modulation NR: QPSK - Carrier Bandwidth 30.0 MHz - Channel Position B



Antenna Port A Pk-Av Ratio - Modulation NR: QPSK - Carrier Bandwidth 30.0 MHz - Channel Position B



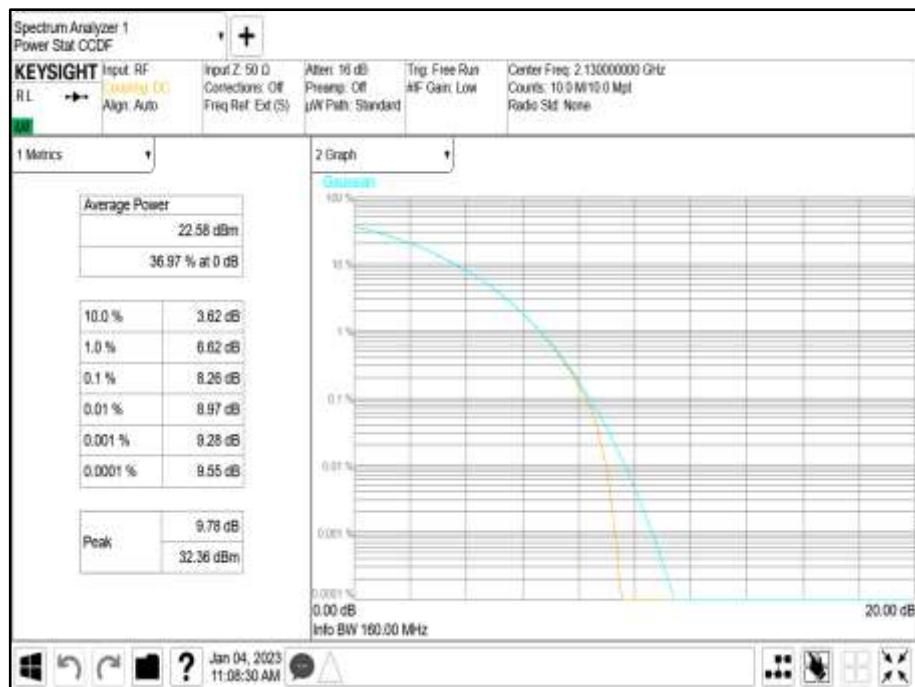
Antenna Port A PSD - Modulation NR: QPSK - Carrier Bandwidth 30.0 MHz - Channel Position B



Antenna Port A Carrier Power - Modulation NR: QPSK - Carrier Bandwidth 40.0 MHz - Channel Position B



Antenna Port A Pk-Av Ratio - Modulation NR: QPSK - Carrier Bandwidth 40.0 MHz - Channel Position B



Antenna Port A PSD - Modulation NR: QPSK - Carrier Bandwidth 40.0 MHz - Channel Position B



## Configuration B

Maximum Output Power 23.00 dBm / Port

Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Output Power	
			Channel Position B	
			Average Power (dBm)	
			dBm	EIRP (dBm)
A	NR25+NR25: QPSK	25+25 MHz	22.61	23.71
B	NR25+NR25: QPSK	25+25 MHz	22.59	23.69
	Total		25.61	26.71
A	NR30+NR30: QPSK	30+30 MHz	22.57	23.67
B	NR30+NR30: QPSK	30+30 MHz	22.61	23.71
	Total		25.60	26.70
A	* NR25+NR25: QPSK	25+25 MHz	22.47	23.57
B	* NR25+NR25: QPSK	25+25 MHz	22.56	23.66
	Total		25.53	26.63
A	* NR30+NR30: QPSK	30+30 MHz	22.53	23.63
B	* NR30+NR30: QPSK	30+30 MHz	22.59	23.69
	Total		25.57	26.67

Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Output Power	
			Channel Position M	
			Average Power (dBm)	
			dBm	EIRP (dBm)
A	NR25+NR25: QPSK	25+25 MHz	22.51	23.61
B	NR25+NR25: QPSK	25+25 MHz	22.61	23.71
	Total		25.57	26.67
A	NR30+NR30: QPSK	30+30 MHz	22.52	23.62
B	NR30+NR30: QPSK	30+30 MHz	22.61	23.71
	Total		25.58	26.68
A	* NR25+NR25: QPSK	25+25 MHz	22.47	23.57
B	* NR25+NR25: QPSK	25+25 MHz	22.56	23.66
	Total		25.53	26.63
A	* NR30+NR30: QPSK	30+30 MHz	22.53	23.63
B	* NR30+NR30: QPSK	30+30 MHz	22.59	23.69
	Total		25.57	26.67

Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Output Power	
			Channel Position T	
			Average Power (dBm)	
			dBm	EIRP (dBm)
A	NR25+NR25: QPSK	25+25 MHz	22.48	23.58
B	NR25+NR25: QPSK	25+25 MHz	22.47	23.57
	Total		25.49	26.59
A	NR30+NR30: QPSK	30+30 MHz	22.57	23.67
B	NR30+NR30: QPSK	30+30 MHz	22.53	23.63
	Total		25.56	26.66
A	* NR25+NR25: QPSK	25+25 MHz	22.47	23.57
B	* NR25+NR25: QPSK	25+25 MHz	22.56	23.66
	Total		25.53	26.63
A	* NR30+NR30: QPSK	30+30 MHz	22.53	23.63
B	* NR30+NR30: QPSK	30+30 MHz	22.59	23.69
	Total		25.57	26.67

### Remarks

1. The table results are measured at all antenna ports, worst-case performance presented.
2. The plot results represent typical radio performance across all channels.
3. Plot data performance for all transmitter ports and channels are available on request.
- 4 \* indicates a Non-Contiguous (NC) configuration.

Antenna Port B Carrier Power - Modulation NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B



### Antenna Port B Carrier Power - Modulation NR30+NR30: QPSK - Carrier Bandwidth 30+30 MHz - Channel Position B



Antenna Port B Carrier Power - Modulation \* NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B



Antenna Port B Carrier Power - Modulation \* NR30+NR30: QPSK - Carrier Bandwidth 30+30 MHz - Channel Position B



Limit	
Peak Power	≤ 1640 W/MHz or ≤+62.15 dBm / MHz
Peak to Average Ratio	13 dB

## **1.13 OCCUPIED BANDWIDTH**

### **1.13.1 Specification Reference**

FCC CFR 47 Part 27, Clause 27.53  
ISED RSS-GEN, Clause 6.7  
FCC CFR 47 Part 2, Clause 2.1049

### **1.13.2 Date of Test and Modification State**

04-January-2023 - Modification State 0

### **1.13.3 Test Equipment Used**

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

### **1.13.4 Environmental Conditions**

Ambient Temperature	25.0°C
Relative Humidity	31.7%

### **1.13.5 Test Method**

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 analyser).

### 1.13.6 Test Results

#### Configuration A

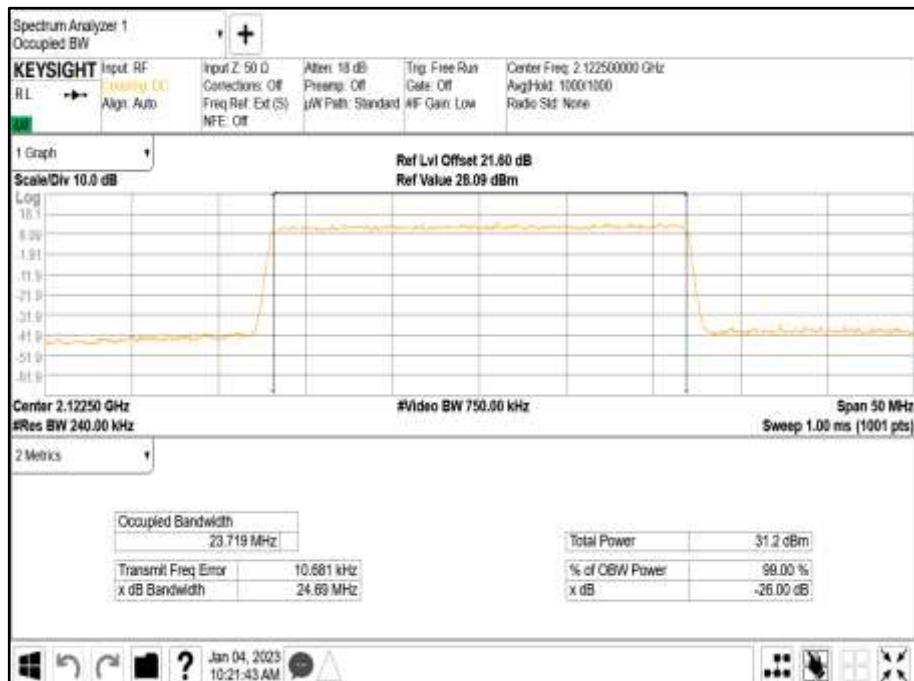
Maximum Output Power 23.00 dBm / Port

Modulation	Carrier Bandwidth	Result (MHz)
		Channel Bandwidth
		Occupied Bandwidth
NR: QPSK	NR: 25.0 MHz	23.719
NR: QPSK	NR: 30.0 MHz	28.517
NR: QPSK	NR: 40.0 MHz	38.591

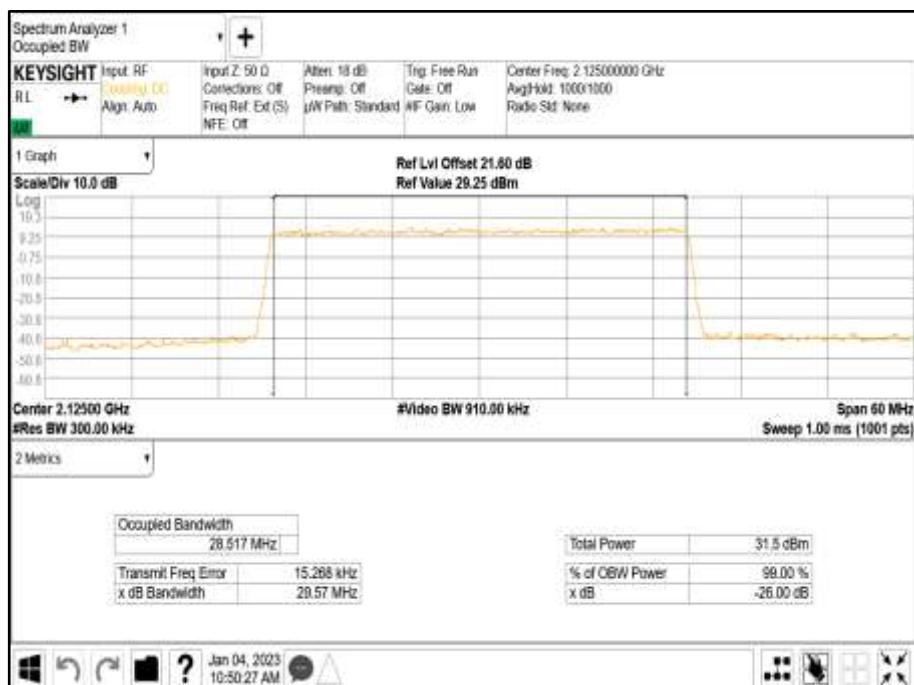
#### Remarks

Representative occupied bandwidth performance results presented. Plot data performance for all transmitter ports and channel positions are on file and available on request.

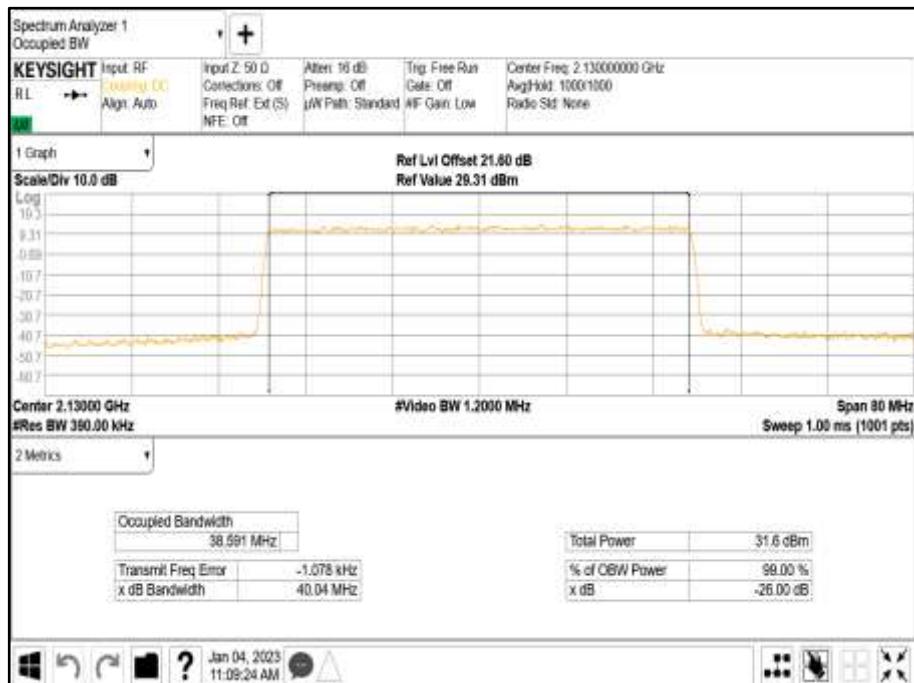
### Antenna A - Modulation NR: QPSK - LTE Carrier Bandwidth NR: 25.0 MHz - Channel Position B



### Antenna A - Modulation NR: QPSK - LTE Carrier Bandwidth NR: 30.0 MHz - Channel Position B



Antenna A - Modulation NR: QPSK - LTE Carrier Bandwidth NR: 40.0 MHz - Channel Position B



## 1.14 BAND EDGE

### 1.14.1 Specification Reference

FCC CFR 47 Part 27, Clause 27.53  
Industry Canada RSS-139, Clause 5.5  
FCC CFR 47 Part 2, Clause 2.1051

### 1.14.2 Date of Test and Modification State

05-January-2023 - Modification State 0

### 1.14.3 Test Equipment Used

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

### 1.14.4 Environmental Conditions

Ambient Temperature 24.3°C  
Relative Humidity 31.3%

### 1.14.5 Test Method

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

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  $10 * \log(N)$ , where N is equal to the number of MIMO antenna ports.

For dual port, the limit was calculated as being  $-13 \text{ dBm} - 10 * \log(2) = -16 \text{ dBm}$ .

### 1.14.6 Test Results

Configuration A

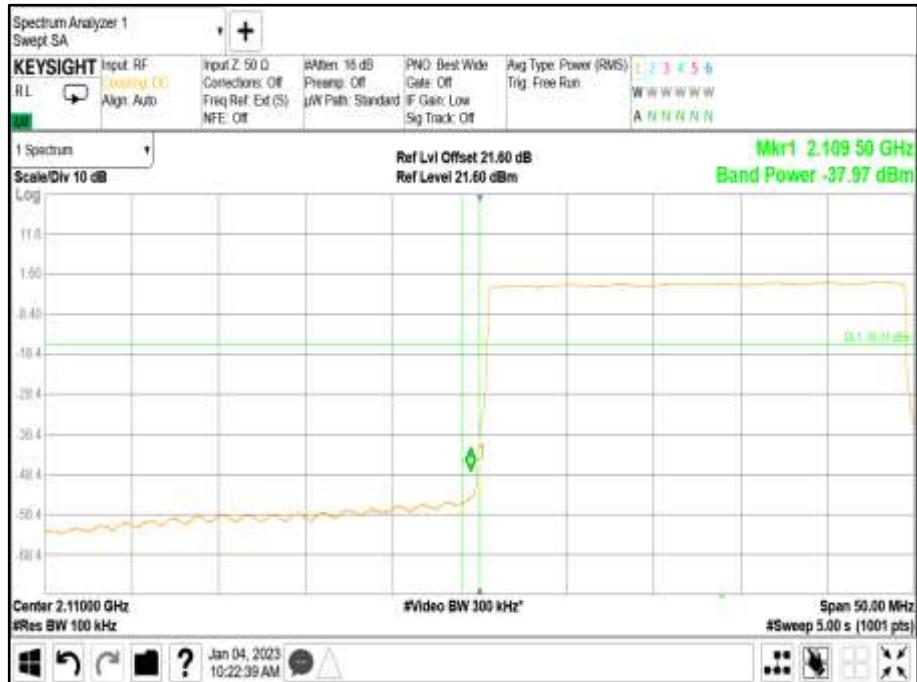
Maximum Output Power 23.00 dBm / Port

Modulation	Carrier Bandwidth	Band Edge (MHz)	
		Channel Position B	Channel Position T
NR: QPSK	NR: 25.0 MHz	2,122.5	2,187.5
NR: QPSK	NR: 30.0 MHz	2,125.0	2,170.0
NR: QPSK	NR: 40.0 MHz	2,130.0	2,180.0

#### Remarks

1. Bandedge data was captured from the transmit port with maximum measured power.
2. Worst case bandedge data presented.

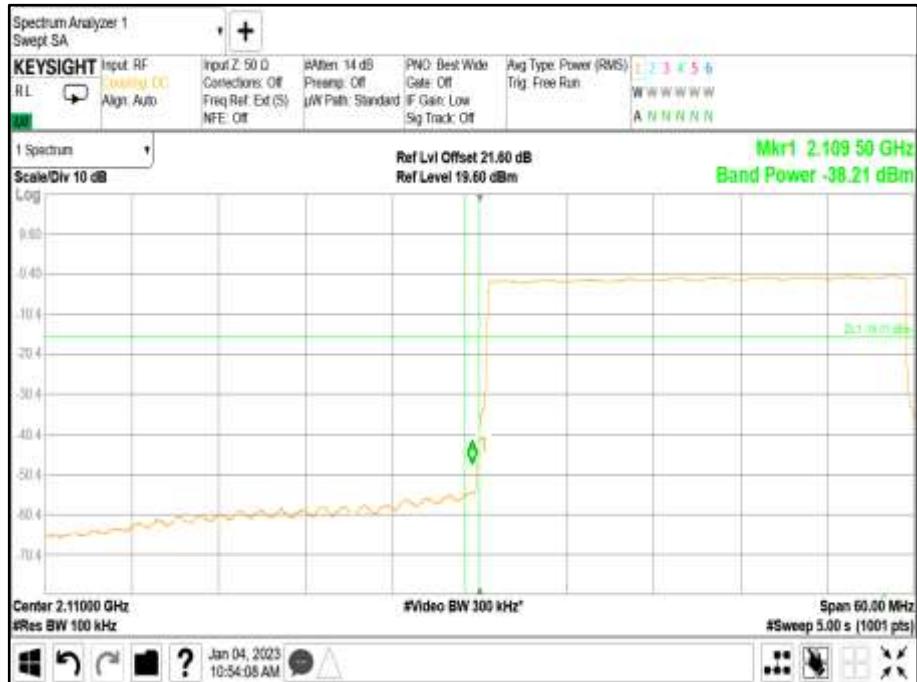
Antenna A - Modulation NR: QPSK - Carrier Bandwidth NR: 25.0 MHz - Channel Position B



Antenna A - Modulation NR: QPSK - Carrier Bandwidth NR: 25.0 MHz - Channel Position T



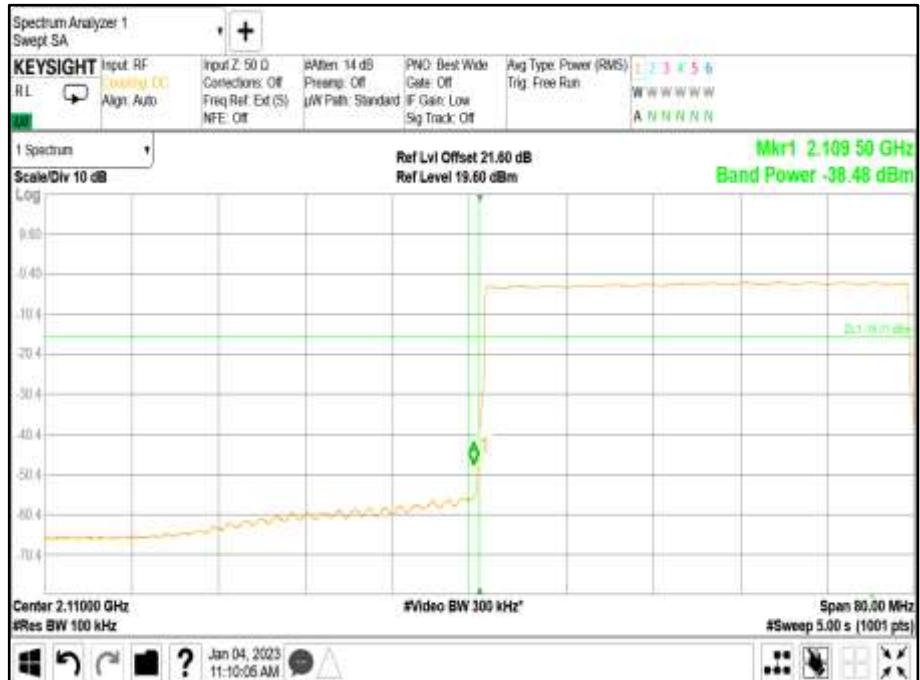
Antenna A - Modulation NR: QPSK - Carrier Bandwidth NR: 30.0 MHz - Channel Position B



Antenna A - Modulation NR: QPSK - Carrier Bandwidth NR: 30.0 MHz - Channel Position T



Antenna A - Modulation NR: QPSK - Carrier Bandwidth NR: 40.0 MHz - Channel Position B



Antenna A - Modulation NR: QPSK - Carrier Bandwidth NR: 40.0 MHz - Channel Position T



## Configuration B

Maximum Output Power 23.00 dBm / Port

Antenna	Modulation	Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
4A	NR25+NR25: QPSK	25+25 MHz	2122.5+2147.5	2162.5+2187.5
4B	NR30+NR30: QPSK	30+30 MHz	2125+2155	2140+2170
4A	* NR25+NR25: QPSK	25+25 MHz	2122.5+2167.5	2147.5+2187.5
4B	* NR30+NR30: QPSK	30+30 MHz	2125+2165	2145+2185

### Remarks

1. The plots results represent typical radio performance.
2. \* indicates a Non-Contiguous (NC) configuration.

Antenna Port A A - Modulation NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B



Antenna Port A A - Modulation NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position T



Antenna Port A A - Modulation NR30+NR30: QPSK - Carrier Bandwidth 30+30 MHz - Channel Position B



Antenna Port A A - Modulation NR30+NR30: QPSK - Carrier Bandwidth 30+30 MHz - Channel Position T



Antenna Port A A - Modulation \* NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B



Antenna Port A A - Modulation \* NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position T



Antenna Port A A - Modulation \* NR30+NR30: QPSK - Carrier Bandwidth 30+30 MHz - Channel Position B



Antenna Port A A - Modulation \* NR30+NR30: QPSK - Carrier Bandwidth 30+30 MHz - Channel Position T



Limit	-16 dBm
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## 1.15 TRANSMITTER SPURIOUS EMISSIONS

### 1.15.1 Specification Reference

FCC CFR 47 Part 27, Clause 27.53  
ISED RSS-GEN, Clause 6.13  
Industry Canada RSS-139, Clause 5.6  
FCC CFR 47 Part 2, Clause 2.1051

### 1.15.2 Date of Test and Modification State

05-January-2023 - Modification State 0

### 1.15.3 Test Equipment Used

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

### 1.15.4 Environmental Conditions

Ambient Temperature	24.3°C
Relative Humidity	31.3%

### 1.15.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 6.1.

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  $10 * \log(N)$ , where N is equal to the number of MIMO antenna ports.

For dual port, the limit was calculated as being  $-13 \text{ dBm} - 10 * \log(2) = -16 \text{ dBm}$ .

### 1.15.6 Test Results

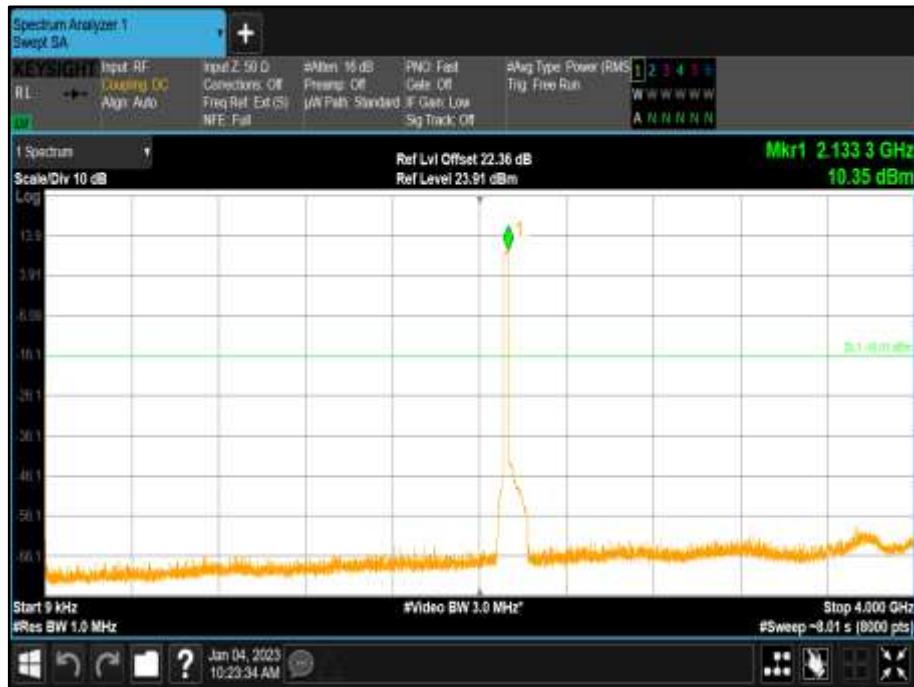
Configuration A

Maximum Output Power 23.00 dBm / Port

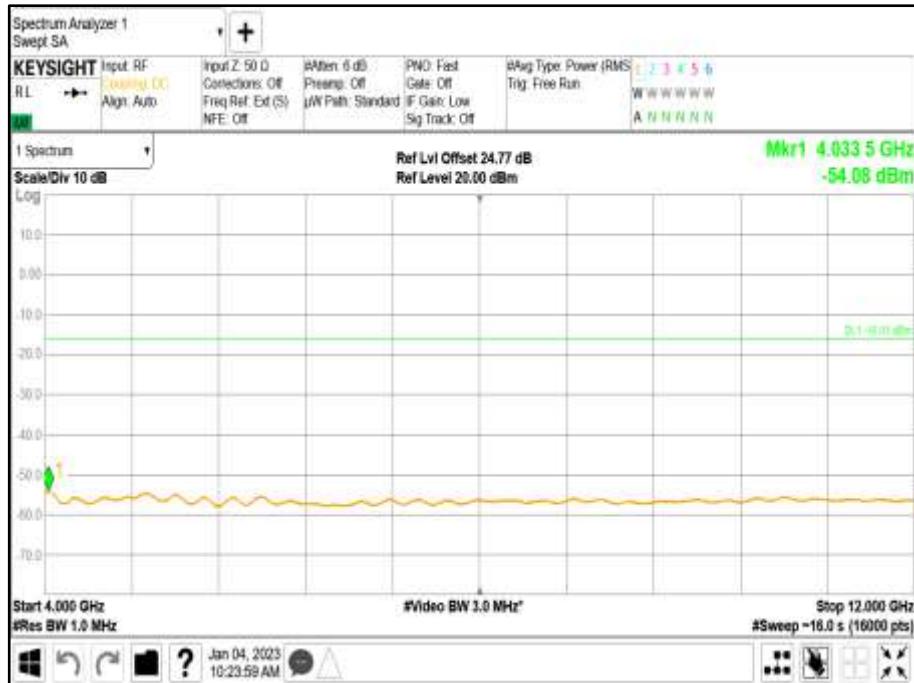
#### Remarks

1. Transceiver spurious emissions have been searched for all channel bandwidths and antenna ports.
2. Representative spurious emissions performance using the most narrow channel bandwidth has been presented for all modulations. The smallest Ch BW has been found to result in the worst case performance.
3. Plot data performance for all channel bandwidths, and channel positions are on file and available on request.

Antenna A - Modulation NR: QPSK - Carrier Bandwidth 25.0 MHz - Channel Position B - Band 1  
- Range 0.009 to 4000 MHz



Antenna A - Modulation NR: QPSK - Carrier Bandwidth 25.0 MHz - Channel Position B - Band 2  
- Range 4000 to 12000 MHz



Antenna A - Modulation NR: QPSK - Carrier Bandwidth 25.0 MHz - Channel Position B - Band 3  
- Range 12000 to 22000 MHz



Configuration B

Maximum Output Power 23.00 dBm / Port

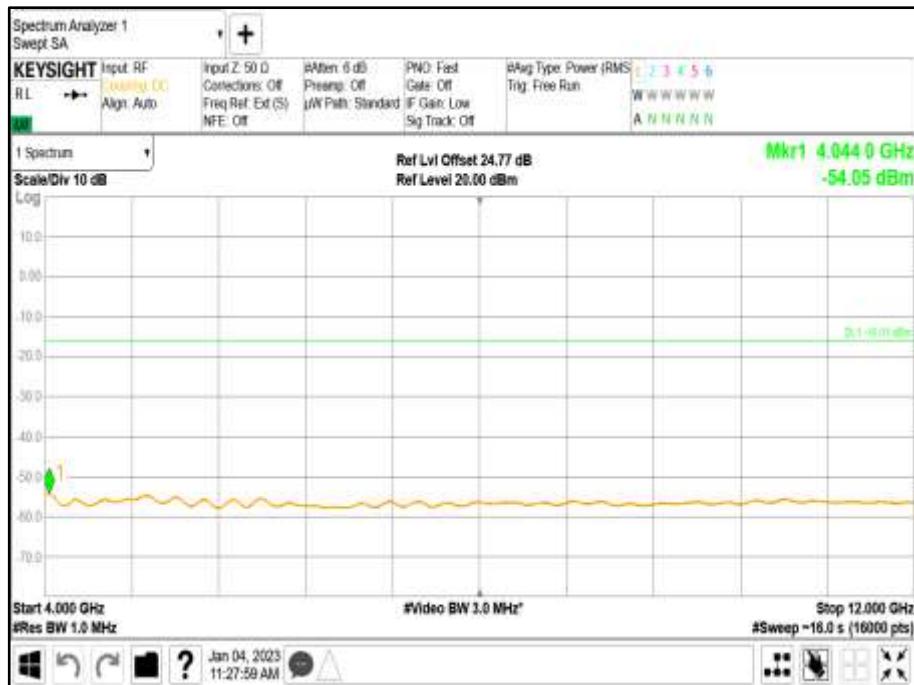
Remarks

1. Representative worst-case spurious emissions performance has been presented.
2. All channel BW plots are available upon request.

Antenna A - Modulation NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



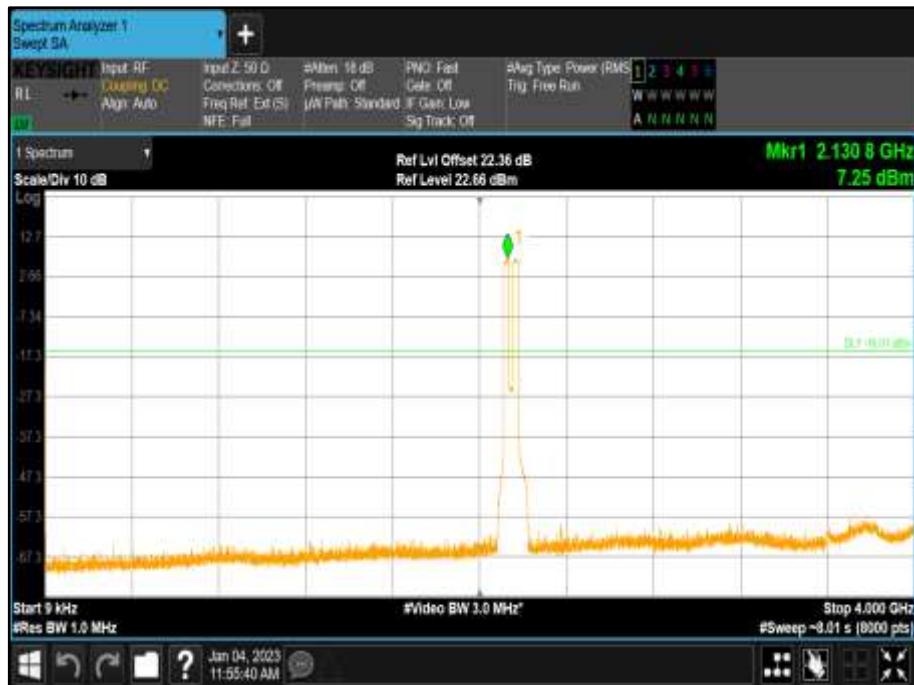
Antenna A - Modulation NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



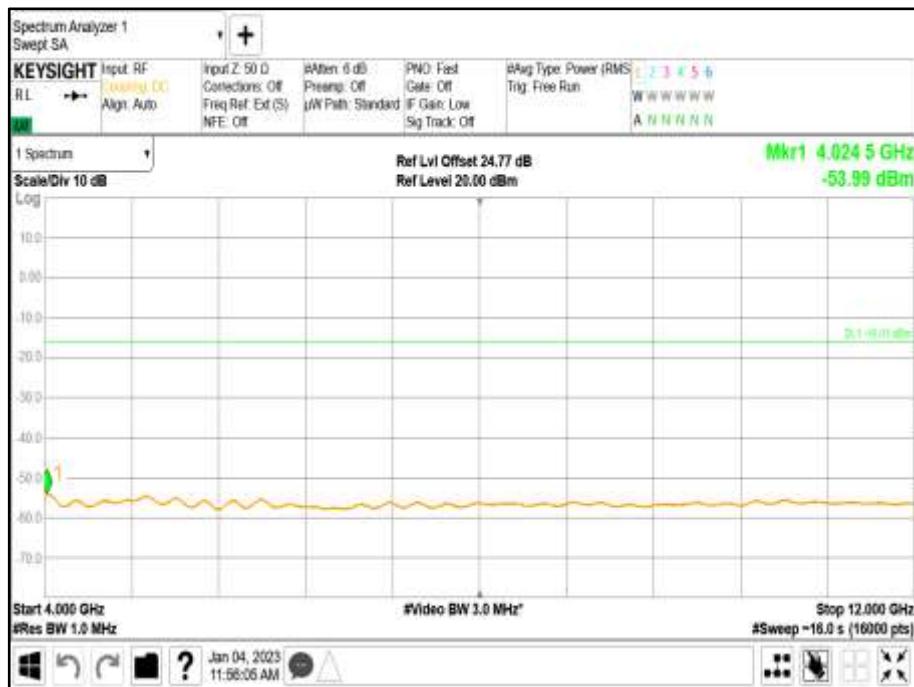
## Antenna A - Modulation NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B - Band 3 - Range 12000 to 22000 MHz



Antenna A - Modulation \* NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



Antenna A - Modulation \* NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



Antenna A - Modulation \* NR25+NR25: QPSK - Carrier Bandwidth 25+25 MHz - Channel Position B - Band 3 - Range 12000 to 22000 MHz



Limit	-16dBm
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## **SECTION 3**

### **TEST EQUIPMENT USED**

## 2.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Spectrum Analyzer	Keysight	PXA N9030B	MY57144347	12	25/03/2023
Thermometer / Refrigeration	VWR	89094-746	210697579	24	13/08/2023
PSU	Xantrex	XKW60-50	E00109862	-	O/P Mon
Attenuator (20dB)	Mini-Circuits	BW-K10-2W44+	-	-	O/P Mon
Switching Control Unit	HP	11713A	3748A060876	-	O/P Mon

O/P Mon – Output Monitored with Calibrated Equipment.

## 2.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Conducted Maximum Peak Output Power	30 MHz to 20 GHz Amplitude	$\pm 0.7$ dB
Conducted Emissions	30 MHz to 20 GHz Amplitude	$\pm 2.1$ dB
Frequency Stability	30 MHz to 2 GHz	$\pm 5.0$ Hz
Occupied Bandwidth	Up to 20 MHz Bandwidth	5 MHz Bandwidth $\pm 11547$ Hz
		10 MHz Bandwidth $\pm 23094$ Hz
		15 MHz Bandwidth $\pm 34641$ Hz
		20 MHz Bandwidth $\pm 46188$ Hz
Band Edge	30 MHz to 20 GHz Amplitude	$\pm 0.8$ dB
Radiated Spurious Emissions	30 MHz to 1 GHz	$\pm 5.2$ dB
	1 GHz to 40GHz	$\pm 6.3$ dB

### Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the results of the compliance measurement and does not take into account measurement instrumentation uncertainty as defined in ANSI C63.26:2015 Clause 1.3.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8

## **SECTION 4**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**

### 3.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Certificate # 2955.19

This report relates only to the actual item/items tested.

Our A2LA Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our A2LA Accreditation.

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TÜV SÜD  
TUV SUD Canada, 1280 Teron Rd., Kanata On.

## **ANNEX A**

### **MODULE LIST**

Configuration A/B			
Product	Product No	R-State	Serial No
CT11	LPC 102 494/1	R2A	T01G4955060
RD 2284 B25B66	KRY 901 468/2	R2C	TD3W081157
IRU 8848	KRC 161 889/1	R1C	TD3F076678
Software Version:			
	CXP 203 0045/25	R15B19	