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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, (1900 MHz), with compatible Main Unit in a Base Station configuration in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 24, ISED RSS-GEN and Industry Canada RSS-133.

COMMERCIAL-IN-CONFIDENCE

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

PREPARED BY

Glen Westwell
Senior Test Engineer

APPROVED BY

Scott Drysdale
Authorised Signatory

DATED

18-Sept 2023

Document 7169013649 B25 Report 01 Issue 1

20-September-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 0045/28 R18A668
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: 2023 FCC CFR 47 Part 24: 2023 ISED RSS-GEN: Issue 5: April 2018, Amendment 1, 2019 Amendment 2, 2021 Industry Canada RSS-133: Issue 6: January 2018 Amendment 1
Test Plan	FCC C2PC_DOT 2274_2284 B25_B66 addition NR35
Start of Test	18-Sept-2023
Finish of Test	18-Sept-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

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 24: 2021, ISED RSS-GEN: Issue 5: March 2019 Amendment 1, 2021 Amendment 2, Industry Canada RSS-133: Issue 6: January 2018 Amendment 1 The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

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 24, ISED RSS-GEN and Industry Canada RSS-133 is shown below.

Section	Specification Clause				Test Description	Result
	FCC CFR 47 Part 2	FCC CFR 47 Part 24	RSS-GEN	RSS-133		
2.1	2.1046	24.232	-	6.4	Maximum Peak Output Power and Peak to Average Ratio - Conducted	Pass
2.2	2.1049	24.238 (b)	6.7	6.5	Occupied Bandwidth	Pass
2.3	2.1051	24.238 (b)	-	6.5	Band Edge	Pass
2.4	2.1051	24.238 (a)	6.13	6.5	Transmitter Spurious Emissions	Pass

Testing in this Report covers only B25 (1900MHz)

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

Test Report Ref 7169013649 B66 Report 01 – B66 (2100MHz)



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	35 MHz	1947.5	1962.5	1977.5



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	KRY 901 468/1 and KRY 901 468/2
SERIAL NUMBER	TD3W081148
HARDWARE VERSION	R2C
SOFTWARE VERSION	CXP 203 0045/28 - R18A668
TRANSMITTER OPERATING RANGE	B25: 1930-1995MHz B66: 2110-2200MHz
RECEIVER OPERATING RANGE	B25: 1850-1915MHz B66: 1710-1780MHz
COUNTRY OF ORIGIN	China
INTERMEDIATE FREQUENCIES	None
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	WCDMA: 5M00F9W LTE: 5M00W7D, 10M0W7D, 15M0W7D, 20M0W7D LTE+NBIoT: 10M0W7D, 15M0W7D, 20M0W7D NR: 5M00F9W, 10M0F9W, 15M0F9W, 20M0F9W, 25M0F9W, 30M0F9W, 35M0F9W, 40M0F9W
MODULATION TYPES: (i.e. GMSK, QPSK)	WCDMA: QPSK, 16QAM, 64QAM NR: QPSK, 16QAM, 64QAM, 256QAM LTE: QPSK, 16QAM, 64QAM, 256QAM
HIGHEST INTERNALLY GENERATED FREQUENCY	2.2 GHz
OUTPUT POWER (W or dBm)	B25: 2 x 0.2W (23dBm) B66: 2 x 0.2W (23dBm)
Antenna gain (dBi)	B25: 1.30 dBi B66: 1.10 dBi
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)	Dot 2274 B25B66 (KRY 901 468/1) and Dot 2284 B25B66 (KRY 901 468/2) are Remote Radio Units forming part of the Ericsson Radio Base Station (RBS) equipment. The Dot provides radio access for mobile and fixed devices and is intended for the indoor environment. The radio operates over 4 Transmit ports in MRO (NR+LTE); Single, Multi-Carrier, and MIMO transmission with a maximum rated RF Output up to 0.2W per port over an operational temperature of 5°C to +40°C. The unit is designed to be ceiling or wall mounted. The 2274 and 2284 radios are identical except that Dot 2274 has internal antennas and Dot 2284 has external RF ports.

Signature:

.....

Denis Lalonde

Date: 19 September 2023

Declaration of Build Status Serial Number: TD3W081148

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

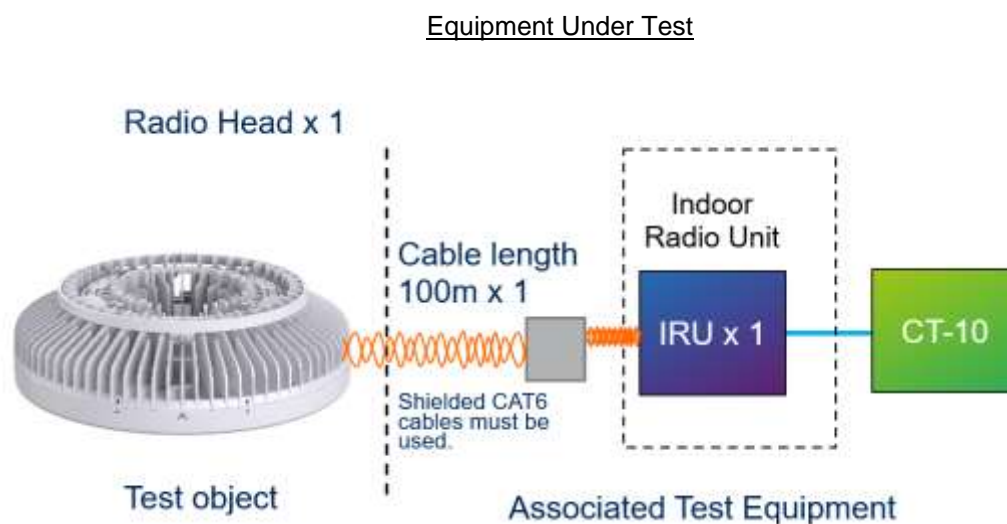
1.6 PRODUCT INFORMATION

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 25 band which provides communication connections to Band 25 network.

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

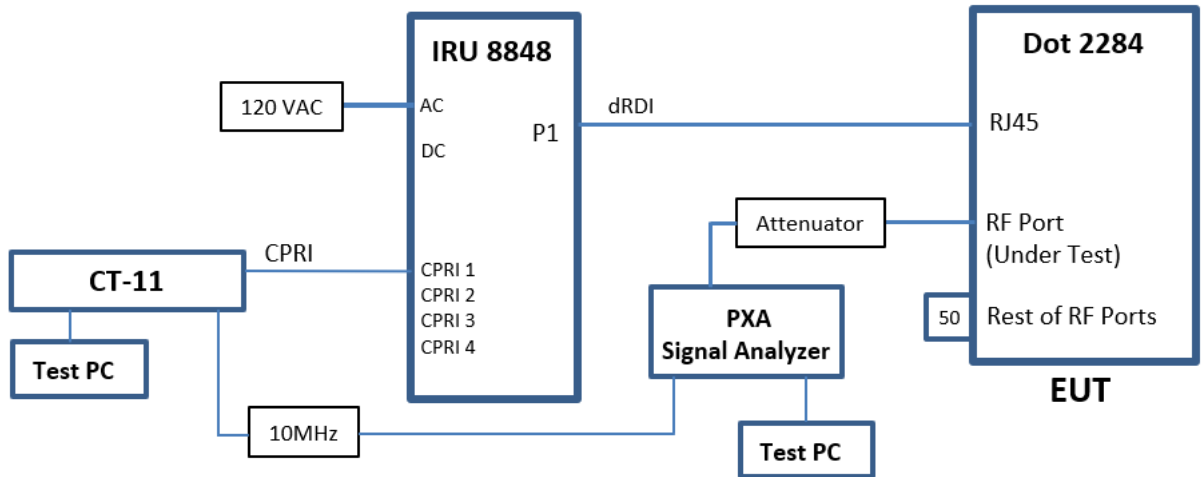
The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.





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 1 new modulation channel bandwidth: NR 35 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



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

2.1.1 Specification Reference

FCC CFR 47 Part 24, Clause 24.232
 Industry Canada RSS-133, Clause 6.4
 FCC CFR 47 Part 2, Clause 2.1046

2.1.2 Date of Test and Modification State

18-Sept-2023 - 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 24.3 - 25.0°C
 Relative Humidity 31.3 - 31.7%

2.1.5 Test Method

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

2.1.6 Test Results

Configuration A

Maximum Output Power 23.00 dBm / Port

Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power				
			Channel Position B				
PAR (dB)			Average Power				
	dBm	EIRP (dBm)	dBm/MHz	EIRP dBm/MHz			
1.30							
Antenna Port							
A	NR: QPSK	35.0 MHz	-	22.59	23.89	8.69	9.99
B	NR: QPSK	35.0 MHz	8.25	22.73	24.03	8.69	9.99
Total			-	25.67	26.97	11.70	13.0



Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power					
			Channel Position M					
Antenna Port			PAR (dB)	Average Power				
	dBm	EIRP (dBm)		dBm/MHz	EIRP dBm/MHz			
1.30								
A	NR: QPSK	35.0 MHz	-	22.62	23.92	8.59	9.89	
B	NR: QPSK	35.0 MHz	8.28	22.70	24.00	8.59	9.89	
Total			-	25.67	26.97	11.60	12.90	

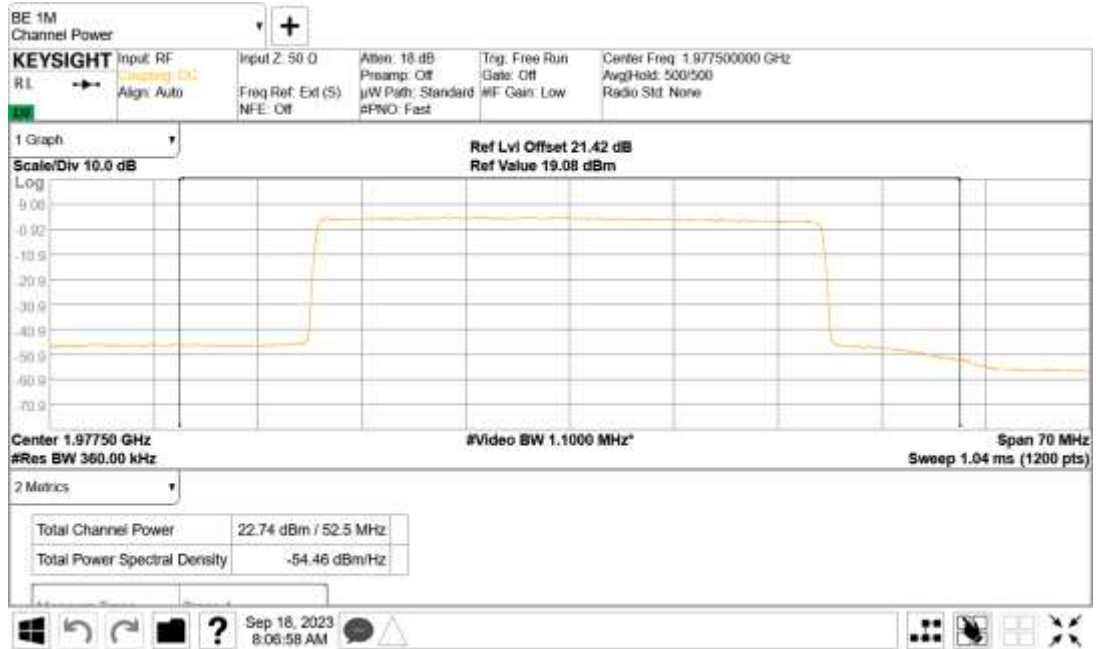
Antenna Gain (dBi)	Modulation	Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power				
			Channel Position T				
Antenna Port			PAR (dB)	Average Power			
	dBm	EIRP (dBm)		dBm/MHz	EIRP dBm/MHz		
1.30							
A	NR: QPSK	35.0 MHz	-	22.62	23.92	9.02	10.32
B	NR: QPSK	35.0 MHz	8.28	22.74	24.04	9.02	10.32
Total			-	25.69	26.99	12.03	13.33

Remarks

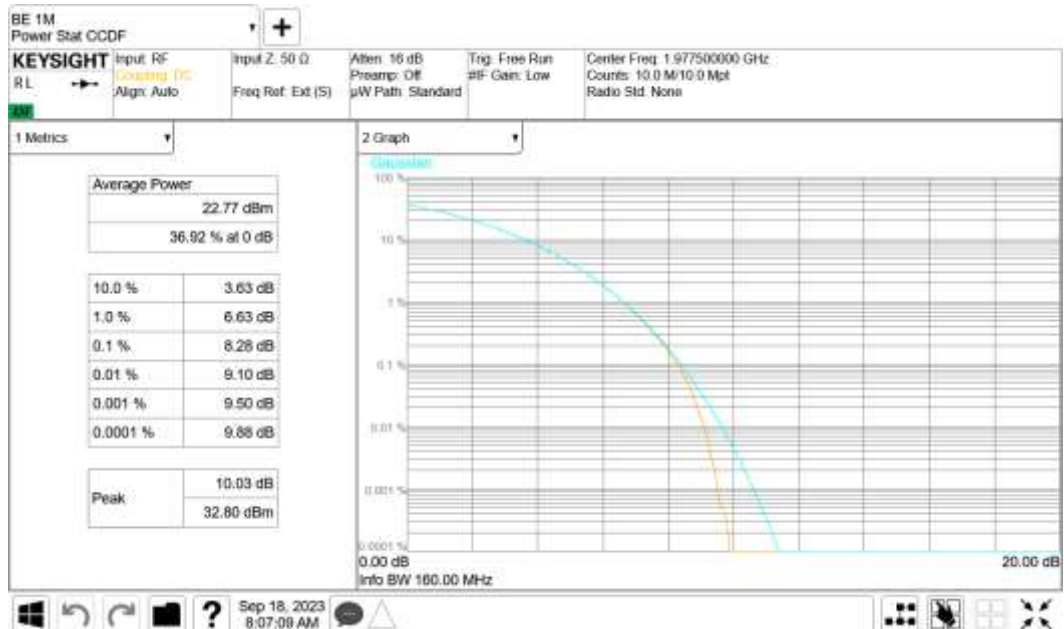
1. Transmitter performance has been presented for top, mid, bottom channels across all antenna ports as represented in the following tables.
2. Typical performance and measurement plot data has been presented for reference.
3. All plot data is on file and available upon request.



Antenna Port B Carrier Power - Modulation NR: QPSK - Carrier Bandwidth 35.0 MHz - Channel Position T



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





Antenna Port B PSD - Modulation NR: QPSK - Carrier Bandwidth 35.0 MHz - Channel Position
T



Limit	
Peak Power	$\leq 1640 \text{ W/MHz}$ or $\leq +62.15 \text{ dBm / MHz}$
Peak to Average Ratio	13 dB



2.2 OCCUPIED BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 24, Clause 24.238 (b)
ISED RSS-GEN, Clause 6.7
FCC CFR 47 Part 2, Clause 2.1049

2.2.2 Date of Test and Modification State

18-Sept-2023 - 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	25.0°C
Relative Humidity	31.7%

2.2.5 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).



2.2.6 Test Results

Configuration A

Maximum Output Power 23.00 dBm / Port

Modulation	Carrier Bandwidth	Result (MHz)
		Channel Bandwidth
NR: QPSK	NR: 35.0 MHz	99% Occupied Bandwidth 33.509

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 B - Modulation NR: QPSK - NR Carrier Bandwidth NR: 35.0 MHz - Channel Position T





2.3 BAND EDGE

2.3.1 Specification Reference

FCC CFR 47 Part 24, Clause 24.238 (b)
Industry Canada RSS-133, Clause 6.5
FCC CFR 47 Part 2, Clause 2.1051

2.3.2 Date of Test and Modification State

18-Sept-2023 - 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 24.3°C
Relative Humidity 31.3%

2.3.5 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 $10 * \text{Log}(N)$, where N is equal to the number of MIMO antenna ports.

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

2.3.6 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: 35.0 MHz	1,947.5	1,977.5

Remarks

1. Band edge data was captured from the transmit port with maximum measured power.
2. Worst case band edge data presented.



Antenna B - Modulation NR: QPSK - Carrier Bandwidth NR: 35.0 MHz - Channel Position B



Antenna B - Modulation NR: QPSK - Carrier Bandwidth NR: 35.0 MHz - Channel Position T





2.4 TRANSMITTER SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 24, Clause 24.238 (a)
ISED RSS-GEN, Clause 6.13
Industry Canada RSS-133, Clause 6.5
FCC CFR 47 Part 2, Clause 2.1051

2.4.2 Date of Test and Modification State

18-Sept-2023 - Modification State 0

2.4.3 Test Equipment Used

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

2.4.4 Environmental Conditions

Ambient Temperature	24.3°C
Relative Humidity	31.3%

2.4.5 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 $10 * \text{Log}(N)$, where N is equal to the number of MIMO antenna ports.

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

2.4.6 Test Results

Configuration A

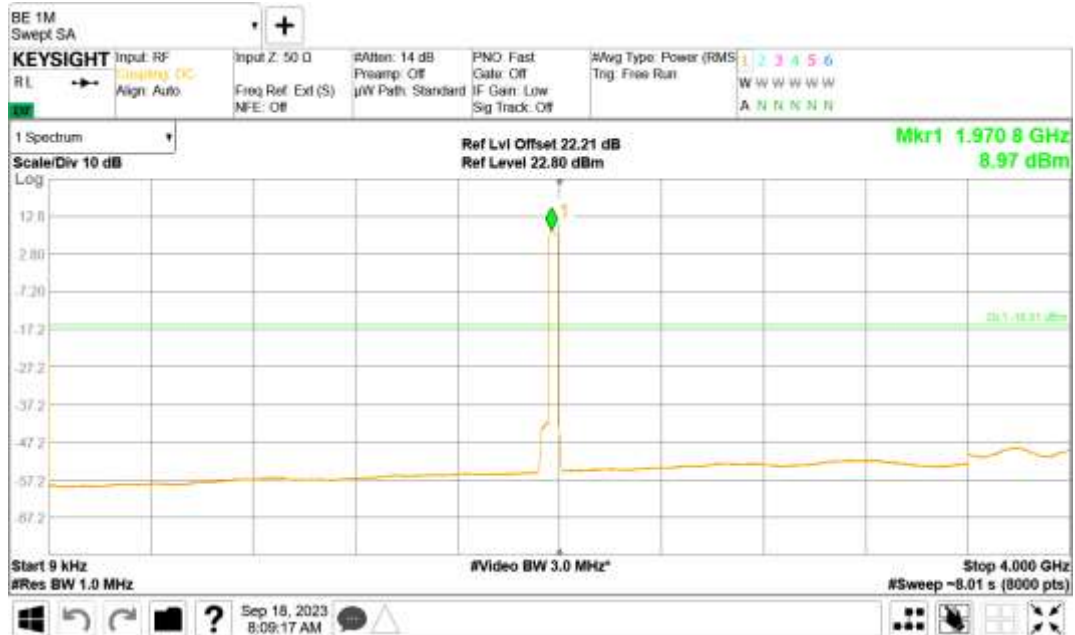
Maximum Output Power 23.00 dBm / Port

Remarks

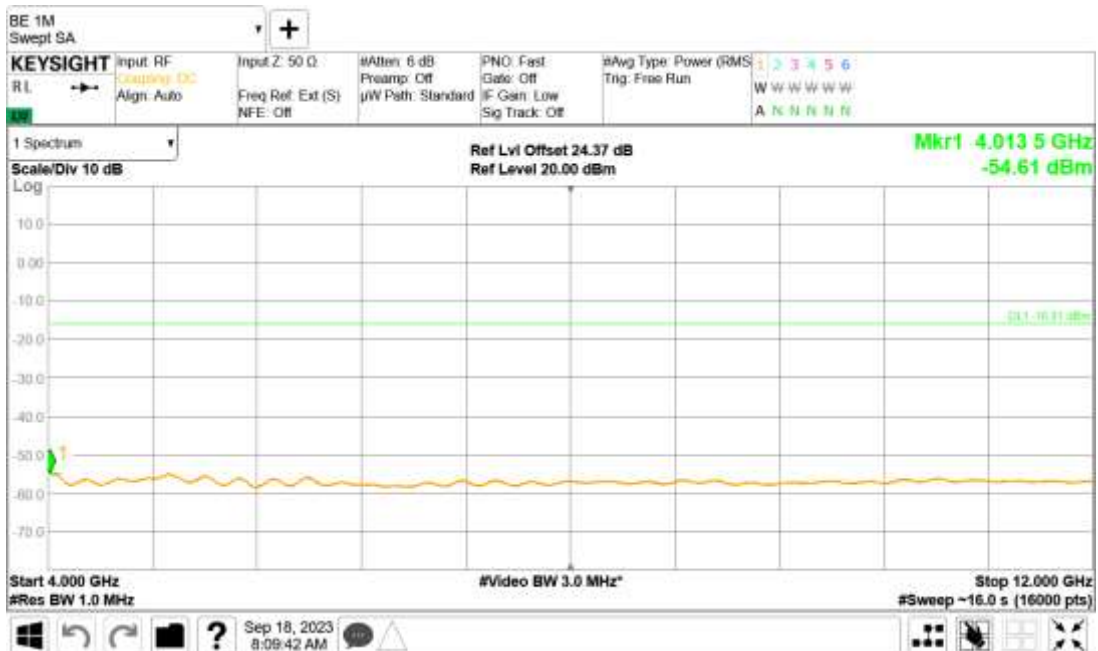
1. Transceiver spurious emissions have been searched for all channel bandwidths and antenna ports.
2. Representative spurious emissions worst case performance has been presented.
3. Plot data performance for all channel positions are on file and available on request.



Antenna B - Modulation NR: QPSK - Carrier Bandwidth 35.0 MHz - Channel Position T - Band 1
- Range 0.009 to 4000 MHz



Antenna B - Modulation NR: QPSK - Carrier Bandwidth 35.0 MHz - Channel Position T - Band 2
- Range 4000 to 12000 MHz





Antenna B - Modulation NR: QPSK - Carrier Bandwidth 35.0 MHz - Channel Position T - Band 3
- Range 12000 to 19950 MHz



Limit	-16dBm
-------	--------



SECTION 3

TEST EQUIPMENT USED



3.1 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	30-Mar-2024
Thermometer / Refrigeration	Control Company	14-648-233 11705863	230126941	24	22-Feb-2025
PSU	Xantrex	XKW60-50	E00109862	-	O/P Mon
Attenuator (20dB)	Mini-Circuits	BW-K10-2W44+	-	-	O/P Mon
Climate Chamber	Burnsco	RTC-37P-3-3	-07-07	-	O/P Mon

O/P Mon – Output Monitored with Calibrated Equipment



3.2 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	± 0.7 dB	
Conducted Emissions	30 MHz to 20 GHz Amplitude	± 2.1 dB	
Frequency Stability	30 MHz to 2 GHz	± 5.0 Hz	
Occupied Bandwidth	Up to 20 MHz Bandwidth	5 MHz Bandwidth	± 11547 Hz
		10 MHz Bandwidth	± 23094 Hz
		15 MHz Bandwidth	± 34641 Hz
		20 MHz Bandwidth	± 46188 Hz
Band Edge	30 MHz to 20 GHz Amplitude	±0.8 dB	
Radiated Spurious Emissions	30 MHz to 1 GHz	± 5.2 dB	
	1 GHz to 40GHz	± 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



4.1 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
Dot 2284 B25B66 (EUT)	KRY 901 468/2	R2C	TD3W081148
CT11	LPC 102 494/1	R2A	T01G495060
IRU 8848	KRC 161 889/1	R1C	TD3F076678
Software Version:			
	CXP2030045/28	R18A668	