

RF Exposure Compliance Report

Report No.: M2504018-3v2

TESTED FOR:

REDARC ELECTRONICS PTY LTD
23 Brodie Rd, Lonsdale, SA 5160, Australia

Contact: Simon Gallasch

Email: sgallasch@redarc.com.au

Tel: +61 8 8322 4848

ISSUED BY:

EMC Technologies Pty. Ltd.
176 Harrick Road, Keilor Park, VIC, 3042, Australia.

Web: www.emctech.com.au

Tel: +61 3 9365 1000

Product Name: RedVision Display

Model: DISP4300

FCC ID: 2BAH6-DISP4300

Assessment Date(s): 19 June 2025

Issue Date: 29 July 2025

Specification(s): **447498 D01 General RF Exposure Guidance v06**
RF exposure procedures and equipment authorization policies for mobile and portable devices.

47 CFR § 2.1091
Radiofrequency radiation exposure evaluation: mobile devices (Transmitter is more than 20 cm from human body).

Based on an assessment of the documentation provided, performed measurements and the declared separation distance from the human body under normal use, the RedVision Display, model: DISP4300 complies with the RF exposure requirements of the standard/s listed above.

Assessment Engineer(s):



Ashish Nath

Authorized Signatory:



Razin Ahmed
Test Engineer



NATA Accreditation No. 5292

Accredited for compliance with ISO/IEC 17025.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

This report shall not be reproduced except in full.

Revision History

Version	Issue Date	Reason / Comments
1	26 June 2025	Initial issue
2	29 July 2025	Page 1, Customer Details are updated

General Remarks

EMC Technologies Pty Ltd reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. EMC Technologies Pty Ltd shall have no liability for any deductions, inferences or generalisations drawn by the client or others from EMC Technologies Pty Ltd issued reports. This report shall not be used to claim, constitute or imply product endorsement by EMC Technologies Pty Ltd.

EMC Technologies Pty. Ltd. is an independently owned Australian company that is NATA accredited to ISO 17025 for both testing and calibration and ISO 17020 for Inspection. – **Accreditation Number 5292.**

Content

1	Project Overview.....	4
1.1	Test Facility.....	4
1.2	Standards Applied	4
1.3	Measurement Uncertainty	4
2	Device Details	5
2.1	Host Device Details	5
2.2	Radio Transmitter Details	5
2.3	Reference Document.....	5
3	Evaluation of Radio Exposure Assessment	6
3.1	FCC Requirement.....	6
3.2	Calculation	7

1 Project Overview

1.1 Test Facility

Inspections were performed at the following location:

- ☒ Melbourne Laboratory 176 Harrick Road, Keilor Park, Vic 3042
- ☐ Sydney Laboratory Unit 3/87 Station Road, Seven Hills, NSW 2147

EMC Technologies Pty. Ltd. is an independently owned Australian company that is NATA accredited to ISO 17025 for both testing and calibration and ISO 17020 for Inspection. – **Accreditation Number 5292.**

Country	Assessment Body	Lab Code / Member No.
Australia	NATA	Accreditation Number: 5292
Europe	European Union	Notified Body Number: 0819
USA	FCC	Designation Number: AU0001/AU0002
Canada	ISED Canada	CAB Identifier Number: AU0001/AU0002
Japan	VCCI	Company Number: 785
Taiwan	BSMI	Lab Code SL2-IN-E-5001R

1.2 Standards Applied

Unless otherwise noted, only the cited edition applies.

KDB 447498 D01 General RF Exposure Guidance v06

RF exposure procedures and equipment authorization policies for mobile and portable devices

47 CFR § 2.1091

Radiofrequency radiation exposure evaluation: mobile devices (Transmitter is more than 20 cm from human body)

*Latest version of the standard applied.

1.3 Measurement Uncertainty

EMC Technologies has evaluated the tools and methods used to perform Radiated Electromagnetic Field predictions. The estimated measurement uncertainties shown within this report are as follows:

EMC Testing	Range	Value
Broadband Radiated Electromagnetic Fields	9 kHz to 45.5 GHz	±3.0 dB
Electromagnetic Modelling	30 MHz to 100 GHz	±2.8 dB

The above expanded uncertainties are based on standard uncertainties multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

2 Device Details

2.1 Host Device Details

(Information supplied by the customer)

Product Name:	RedVision Display
Model:	DISP4300
Manufacturer:	REDARC Technologies Pty Ltd
Sample No / Identification::	S01957
HW Version:	RCU1-10
Description:	The DISP4300 can be used as a replacement or secondary display for TVMS Rogue and TVMS Prime. The display uses a modern, user-friendly interface and features an easy-to-understand menu. The robust display has been built and tested to withstand tough and varied environmental conditions and allows you to control multiple on-board devices as well as have visibility of water tank levels and battery power when paired with a REDARC Manager battery management system. In-built Bluetooth Low Energy (BLE) provides a connection from your RedVision system to the RedVision app on a compatible mobile device.

2.2 Radio Transmitter Details

(Information supplied by the customer)

Transmitter #1 - BLE	
Radio Chip Manufacturer:	Nordic Semiconductor
Module:	nRF52833
Operating Frequency:	2400 – 2483.5 MHz
Maximum RF Output Power:	5.75 dBm
Antenna Type:	PCB Inverted F antenna
Maximum Antenna Gain:	1.1 dBi
Distance from human body in normal use:	Greater than 20cm

2.3 Reference Document

No.	Document Title	Issue No.
1	Radio Test Report No: M2504018-1 (FCC PART 15, SUBPART C, SECTION 15.247, ISED RSS-247, Issue 3, SECTION 5.0)	Initial issue

3 Evaluation of Radio Exposure Assessment

This assessment does not include accumulated RF fields from nearby sites/antennas or possible radio signal reflections or attenuation due to buildings or the general environment.

Antenna Parameters and power settings were supplied by the customer.

The following assumptions applied:

- A 100% duty cycle is assumed.
- The aperture of the radiating element assumed to be a point source in free space and far field conditions.

3.1 FCC Requirement

3.1.1 Applicable Limit

Limits for maximum permissible exposure (MPE), §1.1310				
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	* 100	6
3.0-30	1842/f	4.89/f	* 900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* 100	30
1.34-30	824/f	2.19/f	* 180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

3.2 Calculation

The following formula was used to calculate the power density at 20 cm:

$$S = \frac{P * G}{4\pi R^2}$$

$$S = \frac{EIRP}{4\pi R^2}$$

Where

(S): Power density (W/m²)

(P): Output power at antenna terminal (W)

(G): Gain (ratio)

(R): Minimum separation distance (20 cm)

Technology	Frequency Band (MHz)	Power	Gain	Duty Cycle	EIRP	EIRP	Flux Density at 20 cm	Flux Density limit	Percentage of the GP limit
		<i>dBm</i>	<i>dBi</i>	%	<i>dBm</i>	<i>mW</i>	<i>mW/cm^2</i>	<i>mW/cm^2</i>	%
BLE	2400	5.75	1.1	100%	6.85	4.84172	0.00096	1	0.10%
Worst Case Percentage of the limit for transmission at 20 cm									0.10%

-- END OF REPORT --