SAR EXCLUSION REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013
RSS-102 Issue 5

For

myCordella Handheld Patient Reader

FCC ID: 2AR87ETXCPAS01 (Near-field)
Contains FCC ID: QOQBT121 (Bluetooth)

Model Name: 100102-01 Rev 7

Report Number: R15017195-S1V3
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Prepared for

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ACCREDITED
CERT #0751.06

Revision History

Rev.	Date	Revisions	Revised By
V1	12/6/2023	Initial Issue	--
V2	12/6/2023	Updated EUT name to myCordella Handheld Patient Reader.	Richard Jankovics
V3	12/14/2023	Added Bluetooth FCC ID, Cover page and §1 Added estimate values, §1 Added Bluetooth and simultaneous transmission, §4.2 and §4.3	Sarah Kuhaneck

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1. Attestation of Test Results

Applicant Name	Endotronix Inc	
FCC ID	2AR87ETXCPAS01 (Near-field)	
Contains FCC ID	QOQBT121 (Bluetooth)	
Model Name	100102-01 Rev 7	
Applicable Standards	Published RF exposure KDB procedures IEEE Std 1528-2013	
Exposure Category	SAR Limits (W/kg) Peak spatial-average (1g of tissue)	
General Population / Uncontrolled Exposure	1.6	
RF Exposure Conditions	Equipment Class - Highest Reported SAR (W/kg)	
	DXX	DSS
Standalone	**0.163**	**0.157**
Simultaneous Tx	**0.320**	**0.320**
Date	12/14/2023	
Test Results	Compliant	

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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Approved & Released By:	Prepared By:
	
Richard Jankovics Staff Engineer UL LLC	Sarah Kuhaneck Engineer Project Associate UL LLC

2. Test Specification, Methods and Procedures

All calculations were made in accordance with FCC KDB 447498 D01 v06.

3. Device Under Test (DUT) Information

3.1. DUT Description

The myCordella Handheld Patient Reader (Reader) is a handheld device that uses a proprietary near-field magnetically coupled communication for reading pulmonary artery pressure from an implanted sensor. The device to user separation distance was assumed to be 0 mm as this is the most conservative condition.

3.2. Wireless Technologies and Maximum Output Power

Wireless Technology	Frequency Band	Maximum Output Power
		mW
Near-field	13 MHz	52.0

4. FCC Standalone SAR Test Exclusion Considerations

4.1. Low-Frequency Transmitter

Per FCC KDB 447498 D01 General RF Exposure Guidance v06, §4.3.1:

a) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)]·[√f(GHz)] ≤ 3.0, for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

b) For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following (also illustrated in Appendix B):

1) {[Power allowed at *numeric threshold* for 50 mm in step a)] + [(test separation distance – 50 mm)·($f_{(MHz)}$/150)]} mW, for 100 MHz to 1500 MHz
2) {[Power allowed at *numeric threshold* for 50 mm in step a)] + [(test separation distance – 50 mm)·10]} mW, for > 1500 MHz and ≤ 6 GHz

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):

1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by [1 + log(100/f(MHz))]
2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by ½

SAR Exemption Calculations

RF Air Interface	Frequency (GHz)	Max Output Power (mW)	distance (cm)	P_{th} (mW) (1g)
Near-field	0.0139	52	0.0	**440**

Notes:
The calculated Power threshold (P_{th}) is 440 mW. The conducted power (52 mW) is ≤ Pth therefore SAR is not required.

4.2. Bluetooth

Tx Interface	Frequency (MHz)	Output Power		Minimum Separation Distance (mm)	Calculated Threshold Value
		dBm	mW		
Bluetooth	2480	11.8	15	20	1.2 -EXEMPT-

Note(s):
According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

4.3. Simultaneous Transmission

RF Exposure Condition	Item	Capable Transmit Configurations
Standalone	1	Low-Frequency + BT

4.3.1. Simultaneous transmission SAR test exclusion considerations

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

4.3.2. Estimated SAR for Simultaneous Transmission SAR Analysis

Considerations for SAR estimation

1. When standalone SAR test exclusion applies, standalone SAR must also be estimated to determine simultaneous transmission SAR test exclusion.
2. Dedicated Host Approach criteria for SAR test exclusion is likewise applied to SAR estimation, with certain distinctions between test exclusion and SAR estimation:
   - When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied for SAR estimation; this is the same between test exclusion and SAR estimation calculations.
   - When the separation distance from the antenna to an adjacent edge is > 5 mm but ≤ 50 mm, the actual antenna-to-edge separation distance is applied for SAR estimation.
   - When the minimum test separation distance is > 50 mm, the estimated SAR value is 0.4 W/kg
3. Please refer to Estimated SAR Tables to see which test positions are inherently compliant as they consist of only estimated SAR values for all applicable transmitters and consequently will always have sum of SAR values < 1.2 W/kg. Simultaneous transmission SAR analysis was therefore not performed for these test positions.

Estimated SAR for Low-Frequency Transmitter

Tx Interface	Frequency (MHz)	Output Power (mW)	Minimum Separation Distance (mm)	Estimated 1-g SAR Value (W/kg)
Near-field	13.9	52	5	0.163

Estimated SAR for Bluetooth

Tx Interface	Frequency (MHz)	Output Power		Minimum Separation Distance (mm)	Estimated 1-g SAR Value (W/kg)
		dBm	mW		
Bluetooth	2480	11.8	15	20	0.157

4.3.3. Sum of SAR

RF Exposure Conditions	Standalone SAR (W/kg)		Σ 1-g SAR (W/kg)
	1	2	1 + 2
	Near-field	Bluetooth	
Standalone	**0.163**	**0.157**	**0.320**

END OF REPORT