Farpointe Data, Inc.
RF Exposure Exhibit

SCOPE OF WORK
EMC TESTING – CONEKT® Reader, Model Tested: CSR-6.2, CSR-6.4

REPORT NUMBER
104274811MPK-001A

ISSUE DATE
May 20, 2020

REVISED DATE
July 29, 2020

PAGES
10

DOCUMENT CONTROL NUMBER
Non-Specific Radio Report Shell Rev. December 2017 MPK

RF Exposure Exhibit
(mobile devices)

Report Number: 104274811MPK-001A
Project Number: G104274811

Original Report Issue Date: May 20, 2020
Revision Report Issue Date: July 29, 2020

Product Designation: CONEKT® Reader
Model Tested: CSR-6.2, CSR-6.4

FCC ID: T8I-CONEKT2
IC: 6504A-CONEKT2

to

47CFR 2.1091
RSS-102 Issue 5

for

Farpointe Data, Inc.

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Report No. 104274811MPK-001A	
Equipment Under Test:	CONEKT® Reader
Trade Name:	Farpointe Data, Inc.
Model(s) Tested:	CSR-6.2, CSR-6.4
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Applicable Regulation:	47CFR 2.1091 RSS-102 Issue 5

TABLE OF CONTENTS

1.0 RF Exposure Summary

Test	Reference FCC	Reference Industry Canada	Result
Radio frequency Radiation Exposure Evaluation	47 CFR§2.1091	RSS-102 Issue 5	Complies

2.0 RF Exposure Limits

In this document, we evaluate the RF Exposure to human body due the intentional transmission from the transmitter (EUT). The limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 and RSS-102 are followed.

2.1 FCC Limits

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
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 - 1500	…	…	F/300	6
1500 - 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 - 1500	…	…	F/1500	30
1500 - 100,000	…	…	1.0	30

F = Frequency in MHz

* = plane wave equivalent density

2.2 Industry Canada Limits

According to RSS-102, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6.

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003-10	83	90	-	Instantaneous*
0.1-10	-	0.73/ ƒ	-	6**
1.1-10	87/ $ƒ^{0.5}$	-	-	6**
10-20	27.46	0.0728	-2	6
20-48	58.07/ $ƒ^{0.25}$	0.1540/ $ƒ^{0.25}$	8.944/ ƒ0.5	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 $ƒ^{0.3417}$	0.008335 $ƒ^{0.3417}$	0.02619 $ƒ^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ $ƒ^{1.2}$
150000-300000	0.158 $ƒ^{0.5}$	4.21 x 10-4 $ƒ^{0.5}$	6.67 x 10^{-5} ƒ	616000/$ƒ^{1.2}$

Note: ƒ is frequency in MHz.
* Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

3.0 Test Results (Mobile Configuration)

3.1 Classification

Radio is installed inside a mobile host device. The antenna of the product, under normal use condition, is at least 20 cm away from the body of the user and accessible to the end user. Warning statement to the user for keeping at least 20 cm or more separation distance with the antenna should be included in user's manual.

3.2 EIRP calculations

The CONEKT® Reader, Model: CSR-6.2, CSR-6.4 consists of two radios: 13.56 MHz RFID and Bluetooth. For RF exposure compliance refer reports # 104274811MPK-001, 104274811MPK-002, 104274811MPK-005 & 104274811MPK-006.

3.3 Maximum RF Power

CONEKT® Reader, Model: CSR-6.2:

Frequency Range (MHz)	Peak FS @10m (dBµV/m)	Note
13.56	78.04	FS measurement was taken from Report # 104274811MPK-005

Frequency Range (MHz)	RF Output (dBm)	Antenna Gain[1] (dBi)	Note
2402-2480	1.74	2.1	Conducted power measurements were taken from 104274811MPK-001, page 17

[1]As declared by the manufacturer.

CONEKT® Reader, Model: CSR-6.4:

Frequency Range (MHz)	Peak FS @10m (dBµV/m)	Note
13.56	77.27	FS measurement was taken from Report # 104274811MPK-006

Frequency Range (MHz)	RF Output (dBm)	Antenna Gain[1] (dBi)	Note
2402-2480	1.74	2.1	Conducted power measurements were taken from 104274811MPK-002, page 17

[1]As declared by the manufacturer.

3.4 RF Exposure Calculation

3.4.1 RF Exposure calculation for RFID, CONEKT® Reader, Model: CSR-6.2:

Frequency Range (MHz)	Peak FS @10m (dBµV/m)	Peak FS @20 cm* (dBµV/m)	Peak FS @20 cm (V/m)	RSS Limit (V/m)	FCC Limit (V/m)	Results
13.56	78.04	146.00	19.95	27.46	60.77	Complies

* Distance Correction Factor was used.

3.4.2 RF Exposure calculation for Bluetooth, CONEKT® Reader, Model: CSR-6.2:

Calculations for this report are based on highest power measured for each band.

Frequency Range (MHz)	EIRP (dBm)	EIRP (mW)	Power Density (mW/cm^2) @20 cm	FCC Limit (mW/cm^2)	Results
2402-2480	3.84	2.421	0.000482	1	Complies

Note: Antenna gains below 0 are considered as 0dBi.

Frequency Range (MHz)	EIRP (dBm)	EIRP (mW)	Power Density (W/m^2) @20 cm	RSS Limit (W/m^2)	Results
2402-2480	3.84	2.421	0.00482	5.47	Complies

Note: Antenna gains below 0 are considered as 0dBi.

3.4.3 RF Exposure calculation for RFID, CONEKT® Reader, Model: CSR-6.4:

Frequency Range (MHz)	Peak FS @10m (dBµV/m)	Peak FS @20 cm* (dBµV/m)	Peak FS @20 cm (V/m)	RSS Limit (V/m)	FCC Limit (V/m)	Results
13.56	77.27	145.22	18.24	27.46	60.77	Complies

* Distance Correction Factor was used.

3.4.4 RF Exposure calculation for Bluetooth, CONEKT® Reader, Model: CSR-6.4:

Calculations for this report are based on highest power measured for each band.

Frequency Range (MHz)	EIRP (dBm)	EIRP (mW)	Power Density (mW/cm^2) @20 cm	FCC Limit (mW/cm^2)	Results
2402-2480	3.84	2.421	0.000482	1	Complies

Note: Antenna gains below 0 are considered as 0dBi.

Frequency Range (MHz)	EIRP (dBm)	EIRP (mW)	Power Density (W/m^2) @20 cm	RSS Limit (W/m^2)	Results
2402-2480	3.84	2.421	0.00482	5.47	Complies

Note: Antenna gains below 0 are considered as 0dBi.

Appendix A: Power Density Calculation

The Power Density can be calculated using the formula

$$S = EIRP/ 4\pi D^2$$

Where: S is Power Density in mW/cm^2
D is the distance from the antenna in cm.

4.0 Document History

Revision/ Job Number	Writer Initials	Reviewers Initials	Date	Change
1.0/ G104274811	AC	KV	May 20, 2020	Original document
2.0/ G104274811	AC	KV	July 29, 2020	Updated RF exposure calculations in section 3.4