RF Exposure Report

Project Number: 4066022
Report Number: 4066022EMC02 **Revision Level:** 0
Client: Numerex Corp

Equipment Under Test: Omnilink Electronic Monitoring Device
Model: OM410
FCC ID: TWVOM410

Requirement: KDB 447498 D01 General RF Exposure Guidance v06

Report issued on: 2 December 2016
Test Result: Compliant

Reviewed by: _____
Jeremy Pickens, Senior EMC Engineer

Remarks:
This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

TABLE OF CONTENTS

1 References

1) FCC CFR Part 1 (1.1307 & 1.1310), Part 2 (2.1091)
2) RSS-102: Issue4
3) ICNIRP Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz)
4) Council Recommendation 1999/519/EC of 12 July 1999 on the limitations of exposure of general public to electromagnetic fields
5) Council Recommendation 2004/40/EC of 29 April 2004 on the limitations of exposure of workers to electromagnetic fields
6) AS/NZS 2772.1 Radiofrequency fields, Part 1: Maximum exposure limits - 3 kHz to 300 GHz

1.1 *Modifications Required for Compliance*

None

2 General Information

2.1 *Client Information*

Name:	Numerex Corp
Address:	1095 Windward Ridge, Suite 160
City, State, Zip, Country:	Alpharetta, GA 30005, USA

2.2 *General Information of EUT*

Product:	Omnilink Electronic Monitoring Device		
Model:	OM410		
Band:	CDMA 850	CDMA 1900	802.15.4 MiWi
Frequency (MHz):	824-849	1850-1910	2400-2483.5
Maximum EIRP:	24.7 dBm	24.7 dBm	0 dBm
Duty Cycle:	Less than 1%		
Antenna gain:	Less than 1 dBi		

3 SAR Exemption

3.1 *Exposure calculations CDMA 850*

Stand Alone SAR Test Exclusion (<50mm)
According to KDB 447498 D01 General RF Exposure Guidance v06

Frequency, GHz	Min Separation distance to Body mm	Min Separation distance to Extremity mm	Max Conducted Power, dBm	Duty Cycle %	External cable loss, dB	Calculated Max Power, mW EIPR	1g head / body	10g Extremity
0.835	5.0	5.0	24.70	1%	0.00	5	0.91	0.91

SAR DOES NOT apply for head / body worn operating conditions
SAR DOES NOT apply for extremety operating conditions

a) 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:
[(*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 GH
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

3.2 *Exposure calculations CDMA 1900*

Stand Alone SAR Test Exclusion (<50mm)
According to KDB 447498 D01 General RF Exposure Guidance v06

Frequency, GHz	Min Separation distance to Body mm	Min Separation distance to Extremity mm	Max Conducted Power, dBm	Duty Cycle %	External cable loss, dB	Calculated Max Power, mW EIPR	1g head / body	10g Extremity
1.950	5.0	5.0	24.70	1%	0.00	5	1.40	1.40

SAR DOES NOT apply for head / body worn operating conditions
SAR DOES NOT apply for extremety operating conditions

a) 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:
[(*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 GH
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

3.3 *Exposure calculations 802.15.4 MiWi Transmission*

Stand Alone SAR Test Exclusion (<50mm)
According to KDB 447498 D01 General RF Exposure Guidance v06

Frequency, GHz	Min Separation distance to Body mm	Min Separation distance to Extremity mm	Max Conducted Power, dBm	Duty Cycle %	External cable loss, dB	Calculated Max Power, mW EIPR	1g head / body	10g Extremity
2.450	5.0	5.0	0.00	1%	0.00	-20	-6.26	-6.26

SAR DOES NOT apply for head / body worn operating conditions
SAR DOES NOT apply for extremety operating conditions

a) 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:
[(*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 GH
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

4 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	2 December 2016