



**Maximum Permissible Exposure (MPE) Report**

**FCC ID:** 2ANJI-1SRV0C8

**Model:** SR2  
**Product Marketing Name:** Unikey Smart Reader 2

**APPLICANT:** Unikey Technologies  
111 W. Jefferson St.  
Orlando, FL 32801


**TEST SITE(S):** National Technical Systems - Plano  
1701 E Plano Pkwy #150  
Plano, TX 75074

**REPORT DATE:** October 21<sup>st</sup>, 2017

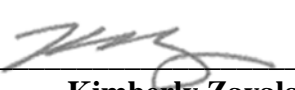
**FINAL TEST DATES:** July 17<sup>th</sup> – July 19<sup>th</sup>, 2017

**TOTAL NUMBER OF PAGES:** 6


**Prepared By:**

  
\_\_\_\_\_  
**Armando Del Angel**  
EMI Supervisor

**Approved By:**

  
\_\_\_\_\_  
**Kimberly Zavala**  
Quality Assurance Manager

**Reviewed By:**

  
\_\_\_\_\_  
**Jeffrey Viel**  
General Manager

This report and the information contained herein represent the results of testing test articles identified and selected by the client performed to specifications and/or procedures selected by the client. National Technical Systems (NTS) makes no representations, expressed or implied, that such testing is adequate (or inadequate) to demonstrate efficiency, performance, reliability, or any other characteristic of the articles being tested, or similar products. This report should not be relied upon as an endorsement or certification by NTS of the equipment tested, nor does it represent any statement whatsoever as to its merchantability or fitness of the test article, or similar products, for a particular purpose. This report shall not be reproduced except in full.

**REVISION HISTORY**

Rev#	Date	Comments	Modified By
1	October 21 <sup>st</sup> 2017	1 <sup>st</sup> Revision	Armando Del Angel

## **SCOPE**

Watchguard Video product Base Station Model MIC-WRL-CHG-410, is evaluated in accordance with the following guidelines

- OET Guide 65
- ANSI C95.1 for the US and
- Health Canada Safety Code 6
- RSS 102 for Canada.

## **OBJECTIVE**

To demonstrate compliance with United States and Canada RF Exposure requirements for Mobile Equipment (devices used >20cm from the body), where Maximum Permissible Exposure (MPE) Calculations apply.

## **STATEMENT OF COMPLIANCE**

This device demonstrates compliance under the operating conditions specified in this document. Under normal operating conditions, the antenna is designed to be installed in accordance with the manufacturer's instructions in such a manner to maintain the minimum separation distance. The MPE calculations shown in this report demonstrate compliance to the provisions of US and Canadian requirements.

As can be seen from the MPE results, this device passes the specified limits at a distance of 20cm at the maximum output power under normal operating conditions.

**United States MPE Limits in accordance with 1.1310:**

*Occupational / Controlled Exposure*

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1	6
300-1500	---	---	f/300	6
1500-100,000	---	---	5	6

*General Population / Uncontrolled Exposure*

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	---	---	f/1500	30
1500-100,000	---	---	1	30

Canadian MPE Limits in accordance with RSS-102:

*Occupational / Controlled Exposure:*

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m <sup>2</sup> )	Reference Period (minutes)
0.003-10 <sup>23</sup>	170	180	-	Instantaneous*
1-10	-	1.6/ <i>f</i>	-	6**
1.29-10	193/ <i>f</i> <sup>0.5</sup>	-	-	6**
10-20	61.4	0.163	10	6
20-48	129.8/ <i>f</i> <sup>0.25</sup>	0.3444/ <i>f</i> <sup>0.25</sup>	44.72/ <i>f</i> <sup>0.5</sup>	6
48-100	49.33	0.1309	6.455	6
100-6000	15.60 <i>f</i> <sup>0.25</sup>	0.04138 <i>f</i> <sup>0.25</sup>	0.6455 <i>f</i> <sup>0.5</sup>	6
6000-15000	137	0.364	50	6
15000-150000	137	0.364	50	616000/ <i>f</i> <sup>1.2</sup>
150000-300000	0.354 <i>f</i> <sup>0.5</sup>	9.40 x 10 <sup>-4</sup> <i>f</i> <sup>0.5</sup>	3.33 x 10 <sup>-4</sup> <i>f</i>	616000/ <i>f</i> <sup>1.2</sup>
<p><b>Note:</b> <i>f</i> is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).</p>				

*General Population / Uncontrolled Exposure*

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m <sup>2</sup> )	Reference Period (minutes)
0.003-10 <sup>21</sup>	83	90	-	Instantaneous*
0.1-10	-	0.73/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> <sup>0.5</sup>	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ <i>f</i> <sup>0.25</sup>	0.1540/ <i>f</i> <sup>0.25</sup>	8.944/ <i>f</i> <sup>0.5</sup>	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> <sup>0.3417</sup>	0.008335 <i>f</i> <sup>0.3417</sup>	0.02619 <i>f</i> <sup>0.6834</sup>	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> <sup>1.2</sup>
150000-300000	0.158 <i>f</i> <sup>0.5</sup>	4.21 x 10 <sup>-4</sup> <i>f</i> <sup>0.5</sup>	6.67 x 10 <sup>-5</sup> <i>f</i>	616000/ <i>f</i> <sup>1.2</sup>
<p><b>Note:</b> <i>f</i> is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).</p>				

**MPE Calculations:**

***Limit used:***

	Occupational / Controlled Exposure
X	General Population / Uncontrolled Exposure

$$PowerDensity(mW / cm^2) = \frac{EIRP}{4\pi d^2}$$

Given: **EIRP** in *mW* and **d** in *cm*

EIRP (mW)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density (W/m <sup>2</sup> )	Limit (W/m <sup>2</sup> )
1.303	20	0.0002592	0.6	0.002592	2.74