ELEMENT WASHINGTON DC LLC
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. 410.290.6652 / Fax 410.290.6654
http://www.element.com

RF EXPOSURE EVALUATION
Maximum Permissible Exposure (MPE)

Applicant Name:
Wilson Electronics
3301 E. Deseret Dr.
St. George, UT 84790
United States

Date of Testing:
3/24/2025 – 4/21/2025
Test Report Issue Date:
4/23/2025
Test Site/Location:
Element lab., Columbia, MD, USA
Test Report Serial No.:
1M2503210033-04.UPO

FCC ID:	**UPO308-0007-1**
APPLICANT:	**Wilson Electronics**

EUT Type:	Optical Radio Unit
FCC Classification:	Category A and B Citizens Broadband Radio Service Devices (CBSD)
FCC Rule Part:	FCC Part 1 (§1.1310) and Part 2 (§2.1091)
Test Procedure(s):	KDB 447498 D01 v06

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC KDB 447498 D01. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

RJ Ortanez
Executive Vice President

ACCREDITED
CERT #2041.01

TABLE OF CONTENTS

1.0 RF EXPOSURE EVALUATION – MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Introduction

This document is prepared to show compliance with the RF Exposure requirements as required in §1.1310 of the FCC Rules and Regulations and RSS-102 of Industry Canada.

The limit for Maximum Permissible Exposure (MPE), specified in FCC §1.1310, is listed in Table 1-1. According to FCC §1.1310 and RSS-102: 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).

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 (f = frequency)				
30-300	61.4	0.163	1.0	6
300-1500	…	…	f/300	6
1500-100,000	…	…	5.0	6
(B) Limits For General Population / Uncontrolled Exposure (f = frequency)				
30-300	27.5	0.073	0.2	30
300-1500	…	…	f/1500	30
1500-100,000	…	…	1.0	30

Table 1-1. Limits for Maximum Permissible Exposure (MPE)

1.2 EUT Description

The **Wilson Electronics Optical Radio Unit FCC ID: UPO308-0007-2** is a Citizens Broadband Radio Services (CBRS) radio which will be employed as part of a distributed antenna system (DAS). An associated CBRS device produces an RF signal which is converted to an optical signal and sent to the UPO-308-0007-2 units making up the DAS. The UPO308-0007-2 converts the optical signal back to an RF signal to create a wireless network.

1.3 Procedure

The procedure used to determine the RF power density was based upon a calculation for determining compliance with the MPE requirements.

The power generated by each transmitter used in this product was initially measured by a power meter or spectrum analyzer and the powers were recorded. Through use of the Friis transmission formula and knowledge of the maximum antenna gain to be used, the power density level is calculated at a distance of 20cm.

Friis Transmission Formula

Friis transmission formula: $P_d = (P_{out}*G) / (4\pi r^2)$

Where,

P_d = Power Density (mW/cm^2)
P_{out} = output power to antenna (mW)
G = gain of antenna in linear scale
π = 3.1416
r = distance between observation point and center of the radiator (cm)

Calculated MPE

The power density limit for General Population/Uncontrolled Exposure at each frequency is determined based on the information in Table 1-1.

There is no co-location between the electric fields of any two transmitters therefore following power densities are calculated for each individual transmitter by frequency at 20cm spacing:

Frequency	3625	MHz
FCC Limit	1.000	mW/cm^2
Distance	20	cm
Max Power	22.00	dBm
Power	158.49	mW
Time-Averaged EIRP	22.00	dBm
Time-Averaged EIRP	158.49	mW
FCC Power Density	0.032	mW/cm^2
Max Antenna Gain	0.00	dBi
Minimum Distance	3.55	cm

Table 1-2. Calculated MPE Data for CBRS Band

2.0 CONCLUSION

The device meets the mobile RF exposure limit at a 20cm separation distance as specified in §2.1091 of the FCC Rules and Regulations and Health Canada Safety Code 6. An appropriate RF exposure compliance statement will be placed in the user's manual.