

	<u>Date(s) of Evaluation</u> July 28-Aug 31, 2015	<u>Test Report Serial No.</u> 072815IPH-1327-S	<u>Test Report Revision No.</u> Rev. 1.1	 
	<u>Test Report Issue Date</u> September 3, 2015	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Pop/Uncontrolled	

## DECLARATION OF COMPLIANCE

### SAR RF EXPOSURE EVALUATION - FCC / IC Original Filing

TEST LAB INFORMATION	Name	Celltech Labs Inc.					
	Address	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada					
TEST LAB ACCREDITATION	Type	ISO / IEC 17025	Accreditation	A2LA Test Lab Certificate No. 2470.01			
APPLICANT INFORMATION	Name	Garmin International Inc					
	Address	1200 East 151 St, Olathe, KS, 66062, USA					
STANDARDS APPLIED	FCC	47 CFR §2.1093	IC	Health Canada Safety Code 6			
PROCEDURES APPLIED	FCC	KDB 447498 D01v05r02, KDB 865664 D01v01r03		IC	RSS 102 Issue 5		
		KDB 865664 D02v01r01, KDB 248227D01v02r01		IEEE	IEEE 1528 - 2013		
PROCEDURES APPLIED	FCC	Digital Transmission System (DTS) - 47 CFR §15 Subpart C					
	IC	Low Power License Exempt Radiocommunication Device (RSS-210 Issue 8)					
DEVICE DESCRIPTION	Portable Extremity-Worn Digital Transceiver						
APPLICATION TYPE	Original Filing						
DATE(S) OF EVALUATION	July 29-August 31, 2015			SAMPLES RECEIVED	July 28, 2015		
Device(s) Evaluated							
FCC ID	IC Certification	Device Model	Device Part Number	Device Type	Band	Operating Frequency	Rated Output Power
IPH-02758	1792A-02758	A02758	n/a	System	802.11 BLE/ANT	2412-2462MHz 2400-2485MHz	15dBm(32mW) 4dBm (2.5mW)
Accessories Tested	n/a			Duty Cycle	Exposure Category		
Maximum SAR Level Evaluated FCC	This Device Meets the Standalone SAR Test Exclusion Requirements			n/a	General Population/Uncontrolled		
Maximum SAR Level Evaluated IC	This Device Meets the Standalone SAR Test Exclusion Requirements						
FCC / IC Spatial Peak SAR Limit	Extremity	4.0	W/kg	10g			
Statement of Compliance							
Celltech Labs Inc. declares under its sole responsibility that this device has demonstrated compliance with the Specific Absorption Rate (SAR) RF exposure limits specified in FCC 47 CFR §2.1093 and Health Canada Safety Code 6 for the Occupational/Controlled Exposure environment. The device was tested in accordance with the measurement procedures specified in FCC KDB 865664 D01v01r03, Industry Canada RSS-102 Issue 5 and IEEE Standard 1528-2013.							
The results and statements contained in this report pertain only to the device(s) indicated.							
I attest to the accuracy of data. All measurements 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.							
Test Report Approved By:		Art Voss	Senior Engineer	1-Sep-15	Celltech Labs Inc		

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Applicant:	Garmin International Inc	Original Filing	
DUT Type:	A02758 Portable Digital Transceiver		
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<b>TABLE OF CONTENTS</b>	
<b>1.0 DOCUMENT CONTROL</b>	<b>3</b>
<b>2.0 INTRODUCTION</b>	<b>4</b>
<b>3.0 ANALYSIS</b>	<b>4</b>

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## 1.0 DOCUMENT CONTROL

REVISION HISTORY			
REVISION NO.	DESCRIPTION	IMPLEMENTED BY	RELEASE DATE
1.0	1st Release	Art Voss	September 3, 2015
1.1	2 <sup>nd</sup> Release – Correction to front page	Art Voss	September 4, 2015

TEST REPORT SIGN-OFF			
DEVICE TESTED BY	REPORT PREPARED BY	QA REVIEW BY	REPORT APPROVED BY
Art Voss/Jasmeet Gill	Art Voss	Art Voss	Art Voss

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## 2.0 INTRODUCTION

This measurement report demonstrates that the Garmin International Inc A02758 Extremity-Worn Digital Transceiver complies with the SAR (Specific Absorption Rate) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6 for the Occupational / Controlled Exposure environment. The measurement procedures were in accordance of KDB 447498; KDB 865664; IC RSS-102 Issue 5 and IEEE Standard 1528-2013.

## 3.0 ANALYSIS

The A02758 Extremity-Worn Digital Transceiver is an intermittent transmission, low duty cycle device operating in the 802.11b, g, n/BLE/ANT 2.4GHz bands. The 802.11 modes transmit at 15dBm (32mW), the BLE/ANT mode transmits at 4dBm (2.5mW). Simultaneous transmission of the two modes does not occur. Biometric data is collected from sensors as well as global positioning data during a given period of user activity and is stored in the device's memory. At the end of this activity, the device will turn on the WiFi IC and search (ping) for a known WiFi router. If it fails, the IC will be turned off and another attempt will occur in 5 minutes. The device makes up to 12 attempts before giving up a pending upload. Each search takes approximately 300 milliseconds. A typical upload file size is 100kB and takes approximately 2.5 seconds to upload. Once the upload occurs, the memory is cleared and no further transmissions occur until another activity is commenced. The user can initiate the upload in the event a known WiFi router is not located. Due to battery capacity, the device is incapable of operating in excess of 24 hours at maximum configuration. Periodic software updates may occur every two to three months which involves some handshake between the router lasting approximately 0.5 seconds. Using the source-based transmit interval from above of 5 minutes, two 300ms pings and a conservative 10 second upload, the source-based duty cycle equates to:

$$( 2 \times (0.3s) + 10s ) / 300s = 3.5\%$$

Adjusting the worst case transmit power of 32mW:

$$P_{ADJ} = 3.5\% \times 32mW = 1.13mW$$

FCC - Exclusion Threshold per 447498 Appendix A @ 2450 MHz @ 5mm = 25mW [Extremity = 10mW X 2.5]

IC - Exclusion Threshold per RSS-102 2.5.1 Table 1 @ 2450 MHz @ 5mm = 10mW [Extremity = 4mW X 2.5]

Applying the requirements of KDB 447498 4.3.1 for Standalone SAR Test Exclusion using Extremity Limits:

$$[(P \text{ (mW)} / (d \text{ (mm)})] \times \sqrt{f \text{ (GHz)}} \leq 7.5$$

Where  $P = 1.13mW$ ,  $d = 5mm$  and  $f = 2.462GHz$

$$[1.13mW/5mm] \times \sqrt{2.462} = 1.77 \leq 7.5$$

This device meets the requirements for Standalone SAR Test Exclusion.

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