

## RF Exposure Evaluation Report

**Client:** Garmin International  
1200 E 151st Street  
Olathe Kansas 66062 USA

**Model:** A04540

**FCC ID:** IPH-04540  
**IC:** 1792A-04540

**Test Report No.:** RFE20221213-20B

**ISED CAB Identifier:** US0177

**Approved By:**



**Fox Lane,**  
**EMC Test Engineer**

**Date:** February 28, 2023

**Total Pages:** 6

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## Revision Page

Rev. No.	Date	Description
Original	21 February 2023	Prepared by – FLane
A	21 February 2023	Signed - FL
B	28 February 2023	Title Change - FL

**Regulatory Requirements:**

FCC Part 1.1310, 2.1091, 2.1093  
KDB 447498 D01  
RSS-102, Issue 5

**Summary:**

The EUT's EIRP and conducted output power were used to evaluate for exemption from routine SAR testing.

**EUT:**

FCC ID:	IPH-04540
IC:	1792A-04540
MPE Lab	Nebraska Center for Excellence in Electronics
MPE Labs FCC Cab Designation:	US1060
MPE Labs ISED Cab Designation:	US0177
Conducted Power:	5.532 dBm / 0.003574 W
Antenna gain:	2.596 dBi / 1.818 numeric
EIRP:	8.128 dBm EIRP / 0.00650 W
EIRP + 10% tune-up tolerance:	8.54 dBm / 0.00715 W

$EIRP \text{ (mW)} = \text{Conducted power (mW)} \times \text{antenna gain (numeric)}$

Antenna gain was measured by lab by comparing radiated sample to conducted sample

**Calculations:**

Parameters:

Test separation > 50 mm

max. EIRP of channel, including tune-up tolerance, mW = 7.15 mW

f(GHz) = 2.480 GHz (highest frequency of range chosen for worst-case)

EIRP + 10% tolerance was used as it is higher than the conducted value.

**KDB 447498 D01, Section 4.3.1(a):**

For 100 MHz to 6 GHz and *test separation distances*  $\leq 50$  mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}] \leq 3.0$  for 1-g SAR, and  $\leq 7.5$  for 10-g extremity SAR,<sup>30</sup> where

- $f_{\text{(GHz)}}$  is the RF channel transmit frequency in GHz

Limit / numeric threshold = 7.5 for extremity SAR

$[7 / 5] \times \text{SQRT}(2.480) = 2.20 \leq 7.5$  **EXEMPT**

EIRP + power tolerance was rounded up to the nearest mW as instructed in the KDB

## RSS 102, Issue 5, Section 2.5.1

### 2.5.1 Exemption Limits for Routine Evaluation — SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 50 mm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.  $f(\text{MHz}) = 2402 \text{ MHz}$  (lowest limit frequency within range)

**Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance<sup>4,5</sup>**

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 55 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Exemption limit = 308.5 mW (extrapolated to 2480 MHz @ 50mm)  
 EIRP with 10% tolerance = 7.15 mW  
 Conducted power with 10% tolerance = 3.93 mW  
 2.4GHz radio Limit passing % =  $2.4\text{GHz}\% = 2.32\%$   
 24GHz radio limit passing % = Radar% = 5.1%  
 Total Limit % =  $2.4\text{GHz}\% + \text{Radar}\% = 2.32 + 5.1 < 100\%$ , therefore exempt  
 Both EIRP and conducted power with tolerance are **EXEMPT**

**Result:**

The EUT was found to be exempt from routine SAR testing and **COMPLIANT** with RF exposure requirements.

**REPORT END**