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RF Exposure Evaluation Report

Client:	**Garmin International, Inc.**
Address:	**1200 E. 151st Street** **Olathe, Kansas, 66062, USA**
Model:	**A05007**
Test Report No.:	**RFE20240212-00-M1 Rev: B**
Approved By:	**Fox Lane,** **EMC Test Engineer**
Date:	**January 16, 2025**
Total Pages:	**7**

Revision Page

Rev. No.	Date	Description
Original	13 January 2025	Issued by FLane Prepared by FLane
A	15 January 2025	Removed ISED sections – FL
B	16 January 2025	Updated to match tune up tolerance Updated table to include Duty Cycle calculations – FL

1 Regulatory Requirements:

FCC Part 1.1310, 2.1091, 2.1093
KDB 447498 D01

Summary:
The purpose of this report is to evaluate the EUT's transmitter for exemption from routine SAR testing.

EUT:

Model:	**A05007**
FCC ID:	**IPH-05007**
MPE Lab	Nebraska Center for Excellence in Electronics
MPE Labs FCC Cab Designation:	US1060
MPE Labs ISED Cab Designation:	US0177

2 FCC

FCC Limits, Part 1.1310

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

VHF Time Average						
Freq.	Peak Tune up Power	Peak Tune up Power	Duty Cycle	Duty Cycle Correction	Time Averaged Output power	Time Averaged Output power
MHz	dBm	mW	%	dB	dBm	mW
151.82	33	2000	3	-15.229	17.771	59.858
151.94	33	2000	3	-15.229	17.771	59.858
154.6	33	2000	3	-15.229	17.771	59.858

Time averaged output power = Peak Tune up power (dBm) + Duty Cycle correction
Duty Cycle correction = 10*log((Duty Cycle)/100)

FCC Power Density Calculations, VHF								
Freq.	Time Averaged Output Power	Antenna Gain	Time Averaged EIRP	Time Averaged EIRP +10% for Tolerance	Power Density	Limit at specified distance	% of limit	Result
MHz	mW	numerical	mW	mW	mW/cm^2	mW/cm^2	%	
151.82	59.858	0.66	39.39	NA	0.008	0.20	3.918	PASS
151.94	59.858	0.66	39.39	NA	0.008	0.20	3.918	PASS
154.60	59.858	0.66	39.39	NA	0.008	0.20	3.918	PASS

FCC Power Density Calculations, 2.4GHz								
Freq.	Time Averaged EIRP	Antenna Gain	Average Power EIRP	Average Power EIRP +10% for Tolerance	Power Density(S)	Limit at specified distance	% of limit	Result
MHz	mW	numerical	mW	mW	mW/cm^2	mW/cm^2	%	
2402	9.590	2.40	23.05	25.36	0.005	1.00	0.505	PASS
2440	8.430	2.40	20.27	22.29	0.004	1.00	0.443	PASS
2480	5.980	2.40	14.38	15.81	0.003	1.00	0.315	PASS

Distance (d)	20	cm

S = (P x G)/(4 x π x d^2) – used to calculate exposure at "d" cm

EIRP = P x G, measured as field strength

d = √(S/(P x G) x 4 X π) – used to calculate minimum distance to meet limits

S = power density (mW/cm^2)

P = transmitter conducted power (in mW)

G = antenna numeric gain (Numerical)

d = distance to radiation center (cm)

Note:

The user's manual will stipulate that a 20cm distance from the user is to be maintained.
EIRP values in mW were multiplied by 1.1 to account for a 10% tolerance.

Total % = 3.918 + 0.505 = 4.423%, this shows compliance with respective standards.

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

REPORT END