		Model:	A03302	Test Number	2105052				
MPE Calc	culator			TX power added to the antenna ga					
		dBi = dB gain compared to a		p g-					
		S = power density in mW/cm							
		Tra	nsmitter Output power (dBm)	31.55					
			nsmitter Output power (mW)						
	Duty Cycle		Output power (W)			Antenna Gain (dBi)			
		Output Power corr	ected for Duty Cycle (Watts)	0.715	Ant	enna Gain (Numeric)	2.00		
Tx Freque	ency (MHz)	1621	Calcualtion power (Watts)	0.72	dBd + 2.17 = dBi	dBi to dBd	2.2		
						Antenna Gain (dBd)	0.83		
Cable Loss	e (dB)	0.0	Adjusted Power (dBm)	28.54		na minus cable (dBi)			
Cable Los.	is (ub)	0.0	rajustea i ower (abiii,	20.34	7 triter	internances cubic (CD)	5.00		
			Calculated ERP (mw)	865.586	EIRP = Po	o(dBM) + Gain (dB)			
			Calculated ERP (W)			adiated (EIRP) dBm			
			Calculated EIRP (mw)	1,426.626		ERP = EIRP - 2.17	dB		
D	Power density (EIRP S) mW/cm ² =	Calculated EIRP (W)	1.43	I	Radiated (ERP) dBm	29.373		
F	ower density (4 p r^2							
	r (cm) EIRP	(mW)							
L									
		Occupational Limit	ECC vc 1:- 1	requency radiation exposure limits	par 1 1310				
						-			
	5		Frequency (MHz)	Occupational Limit (mW/cm ²)	Public Limit (mW/cm²)				
	50		30-300	1	0.2				
		General Public Limit	300-1,500	f/300	f/1500				
	1	mW/cm ²	1,500-10,000	5	1				
	10	W/m ²							
		0							
	0.5	Occupational Limit	*C * C		PGG 102				
•	$0.6455f^{0.5}$			quency radiation exposure limits per	1				
	32.3		Frequency (MHz)	Occupational Limit (W/m ²)	Public Limit (W/m ²)				
		General Public Limit	100-6,000	$0.6455f^{0.5}$					
	$0.02619 f^{0.6834}$	W/m ²	6,000-15,000	50					
	4.1	W/m^2	48-300		1.291				
			300-6,000		$0.02619f^{0.6834}$				
			6,000-15,000	50	10				
f = Trans mit	Frequeeny (MHz)			f (MHz) =	1621	MHz		
P _T = Power Input to Antenna (mW)				P_{T} (mW) =	1,430.0130	mW			
Duty cycle ((percentage of ope	eration)			% =	50	%		
P _A = Adjust	ted Power due to I	Outy cycle or Cable Loss (mW)			$P_A(mW) =$	715.01	mW		
$G_N = Numeri$	ric Gain of the Ant	enna			GN (numeric) =	2.00	numeric		
S ₂₀ = Power Density of device at 20cm (mW/m ²)			$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	$S_{20} (mW/m^2) =$	0.28	mW/m ²			
S ₂₀ = Power	Density of device	e at 20cm (W/m ²)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	$S_{20} (W/m^2) =$	2.84	W/m ²		
S _L = Power Density Limit (W/m²)				$S_L (W/m^2)=$		W/m ²			
		Radiating Element for Compliance	(cm)	$R_C = \sqrt{(P_A G_N / 4\pi S_L)}$	R _C (cm) =			6.6	inches
S_C = Power Density of the device at the Compliance Distance R_C (W/m ²)				$S_C = (P_A G_N)/(4\pi R_C)^2$	$S_C(W/m^2) =$		W/m ²		
R ₂₀ = 20cm		(W/III)	S _C -(F _A G _N)/(4/tR _C)	R20=		cm	7.0	inches	
20 20CM					K20-	20		1.9	-RIKO
Summary:	Standalone MP	E Calculations and Summary							
Bane	d (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	$S_{L}(W/m^2)$	$S_{20} (W/m^2)$	R _C (cm)	S _C (W/m
	16-1626	50	1621	715	3	4.090	2.84	16.7	4.09
	d (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	SL (W/m2)	S20 (W/m2)	RC (cm)	SC (W/m
241	12-2462	100	2437	15.52	6.00	5.404	0.12	3.0	5.40
			s, User Manual must indicate a mini						
		Or in Meter	s for Complaince with Canad	a General Population Limits, a mini	mum seperation distance of	0.17	Meters		
		Simlutaneous MPE Calculation	nn .						
		Transmitter 1	Transmitter 2						
Tx Fred	queny (MHz)	1621	2437						
	(W/m ²)	2.84	0.12	1					
		4.090	5.404						
	(W/m²)								
Power Rat	tio (S _L / S ₂₀)	0.694	0.023						
	Sum of Power	Ratios at 20cm (Tx1 + Tx2)	0.717						
		rement = Σ of MPE Ratio ≤ 1							

Rogers Labs, Inc. 4405 West 259th Terrace Louisburg, KS 66053

Phone/Fax: (913) 837-3214

Revision 1

Garmin International, Inc.

Model: AA3851 Test: 210505a

Test to: CFR47 15C, RSS-210 File: AA3851 A03302 RFExp

SN's: 3367328349 / 3367328315

FCC ID: IPH-A3851 IC: 1792A-A3851 Date: March 24, 2022

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		AA3851	Test Number:					
MPE Calculator	RF Exposure uses EIRP for calculation. EIRP is based on		TX power added to the antenna ga	in in dBi.				
	dBi = dB gain compared to a							
	S = power density in mW/cr							
) 15.52) 0.0155					
Duty Cycle					Antenna Gain (dBi)			
	Output Power cor	rected for Duty Cycle (Watts)	0.016	Ant	enna Gain (Numeric)	3.98		
Tx Frequency (MHz)	2437	Calcualtion power (Watts)	0.02	dBd + 2.17 = dBi	dBi to dBd	2.2		
Cable Loss (dB)	0.0	Adjusted Power (dBm)	11.91	Anton	Antenna Gain (dBd) ana minus cable (dBi)	3.83 6.00		
able Loss (db)	0.0	Adjusted Power (dbiii)	11.91	Aniei	ma minus cable (dbi)	6.00		
		Calculated ERP (mw)	37.407	FIDD - D	o(dBM) + Gain (dB)			
		Calculated ERP (W)		Radiated (EIRP) dBm				
		Calculated EIRP (mw)		1,	ERP = EIRP - 2.17			
	EIRP	Calculated EIRP (W)		1	Radiated (ERP) dBm			
Power density (S)		Culculated Lind (11)	0.002		uldaned (Erd) dElli	15.7.10		
	4 p r^2							
r (cm) EIRP (r	nW)							
I (CIII) EIRP (I	1111)							
	Occupational Limit	FCC radio f	requency radiation exposure limits p	per 1.1310				
5		Frequency (MHz)	Occupational Limit (mW/cm²)	Public Limit (mW/cm ²)				
50		30-300	1	0.2				
50	General Public Limit	300-1,500	f/300	f/1500				
1		1,500-10,000	5	1/1300				
1	mW/cm ²	1,300-10,000	3	1				
10	W/m ²							
	Occurational Limit							
Occupational Limit 0.6455 f ^{0.5} W/m ²		IC radio fra	quency radiation exposure limits per	- DSS 102				
				_				
39.7		Frequency (MHz)	Occupational Limit (W/m²)	Public Limit (W/m²)				
	General Public Limit	100-6,000	$0.6455 f^{0.5}$					
$0.02619f^{0.6834}$	W/m ²	6,000-15,000	50					
5.4	W/m ²	48-300		1.291				
		300-6,000		$0.02619f^{0.6834}$				
		6,000-15,000	50	10				
		.,						
= Transmit Frequecny (MHz	2)			f (MHz) =	2437	MHz		
P _T = Power Input to Antenna (mW)				$P_{T}(mW) =$		mW		
outy cycle (percentage of ope				% =				
	Duty cycle or Cable Loss (mW)			$P_A(mW) =$				
Numeric Gain of the Ant				GN (numeric) =		numeric		
S_{20} = Power Density of device at $20 \text{cm} (\text{mW/m}^2)$			$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	$S_{20} (mW/m^2) =$		mW/m ²		
			$S_{20} = (P_A G_N)/(4\pi R_{20})^2$ $S_{20} = (P_A G_N)/(4\pi R_{20})^2$	$S_{20} (MW/M) =$ $S_{20} (W/m^2) =$		W/m ²		
S_{20} = Power Density of device at $20 \text{cm} (\text{W/m}^2)$			320-(FAUN)/(47/R20)			W/m W/m ²		
S _L = Power Density Limit (W/m ²) R _C = Minimum distance to the Radiating Element for Compliance (cm)			p/	$S_L (W/m^2) =$. ,
			$R_C = \sqrt{(P_A G_N / 4\pi S_L)}$	R _C (cm) =		cm	1.2	inches
C = Power Density of the dev	vice at the Compliance Distance R	C (W/m ²)	$S_C = (P_A G_N)/(4\pi R_C)^2$	$S_C(W/m^2) =$		W/m ²		
$t_{20} = 20$ cm				R20=	20	cm	7.9	inches
0	VE C 1 1 2 2 2 2							
	E Calculations and Summary				2	2		
Band (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	$S_L (W/m^2)$	S ₂₀ (W/m ²)	R _C (cm)	S _C (W/n
2412-2462	100	2437	15.52	6	5.404	0.12	3.0	5.40

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Revision 1

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FCC ID: IPH-A3851 IC: 1792A-A3851 Date: March 24, 2022

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