

# Ampt, LLC

# RF Exposure Exhibit

**SCOPE OF WORK**

EMC TESTING – String Optimizer, Model: I36 – 31570050-XXXX

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## RF Exposure Exhibit (Mobile Devices)

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**Testing performed on the  
String Optimizer**  
**Model Tested: I36 – 31570050-XXXX**  
**FCC ID: X3R-I36**

**to**

**47CFR 2.1091**  
**RSS-102 Issue 6**

**for**

**Ampt, LLC**

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<b>Report No. 106144856MPK-020</b>	
<b>Equipment Under Test:</b>	String Optimizer
<b>Model Number:</b>	I36 – 31570050-XXXX
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<b>Applicable Regulation:</b>	47CFR 2.1091 RSS-102 Issue 6

**We attest to the accuracy of this report:**



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## 1.0 RF Exposure Summary

Test	Reference FCC	Reference Industry Canada	Result
Radio frequency Radiation Exposure Evaluation	47 CFR§2.1091	RSS-102 Issue 6	Complies

## 2.0 RF Exposure Limits

In this document, we evaluate the RF Exposure to human body due the intentional transmission from the transmitter (EUT). The limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 and RSS-102 are followed.

### 2.1 FCC Limits

According to FCC 1.1310 table 1: 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)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
<b>(A)Limits For Occupational / Control Exposures</b>				
0.3 – 3.0	614	1.63	*100	6
3.0 – 30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300 - 1500	...	...	F/300	6
1500 - 100,000	...	...	5	6
<b>(B)Limits For General Population / Uncontrolled Exposure</b>				
0.3 – 1.34	614	1.63	*100	30
1.34 – 30	824/f	2.19/f	*180/f <sup>2</sup>	30
30 – 300	27.5	0.073	0.2	30
300 - 1500	...	...	F/1500	30
1500 - 100,000	...	...	1.0	30

F = Frequency in MHz

\* = plane wave equivalent density

## 2.2 Industry Canada Limits

According to RSS-102, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6.

Table 7: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)				
Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m <sup>2</sup> )	Reference Period (minutes)
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$

Note: f is frequency in MHz.  
 \* Based on nerve stimulation (NS).  
 \*\* Based on specific absorption rate (SAR).

### 3.0 Test Results

#### 3.1 Classification

Radio is installed inside a mobile host device. The antenna of the product, under normal use condition, is at least 20 cm away from the body of the user and accessible to the end user. Warning statement to the user for keeping at least 20 cm or more separation distance with the antenna should be included in user's manual.

#### 3.2 EIRP calculations

The table in the String Optimizer, Model: I36 – 31570050-XXXX consists of one radio: 2.4GHz FHSS.

#### 3.3 Maximum RF Power

Specification of Radios on the I36 – 31570050-XXXX	
<b>Location</b>	Table
<b>Type</b>	FHSS
<b>Frequency Range</b>	2410 – 2474.5 MHz
<b>Rated RF Output Power</b>	3.57 dBm
<b>Internal Antenna Gain<sup>1</sup></b>	7.4 dBi

<sup>1</sup>As provided by the client. Intertek takes no responsibility for the accuracy of this information.

**3.4 RF Exposure Calculation****3.4.1 RF Exposure calculation for 2.4GHz range****FCC**

Radio	Frequency Range (MHz)	EIRP <sup>1</sup> (dBm)	EIRP <sup>1</sup> (mW)	Power Density (mW/cm <sup>2</sup> ) @20 cm	FCC Limit (mW/cm <sup>2</sup> )
FHSS	2410 – 2474.5	10.97	12.503	0.00249	1

**RSS**

Radio	Frequency Range (MHz)	EIRP <sup>1</sup> (dBm)	EIRP <sup>1</sup> (mW)	Power Density (W/m <sup>2</sup> ) @20 cm	RSS Limit (W/m <sup>2</sup> )
FHSS	2410 – 2474.5	10.97	12.503	0.02487	5.469

#### 4.0 Variant Models

The following variant models were not tested as part of this evaluation but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

31570050-xxxx, 31570051-xxxx, 31570052-xxxx, 31570053-xxxx, 31570054-xxxx, 31570055-xxxx, 31570056-xxxx, 31570057-xxxx, 31570058-xxxx, 31570059-xxxx

**5.0 Document History**

Revision/ Job Number	Writer Initials	Reviewers Initials	Date	Change
0 / G106144856	AM	AC	May 27, 2025	Original Document
1 / G106144856	AM <i>Ajai Muthu</i>	AC <i>Adam Cheng</i>	July 15, 2025	Updated antenna gain and RSS-102 Issue

### **Appendix A: Power Density Calculation**

The Power Density can be calculated using the formula

$$S = \text{EIRP} / 4\pi D^2$$

Where: S is Power Density in mW/cm<sup>2</sup>

D is the distance from the antenna in cm.

**END OF TEST REPORT**