

RF Exposure Report

Project Number: 4451806

Report Number: 4451806EMC04

Revision Level: 0

Client: 3Si Security Systems Inc.

Equipment Under Test: Wireless Tracking Device

Model Number: AT170503US

FCC ID: Q6KAT170503A

Applicable Standards: 47 C.F.R. §§ 2.1091 and 2.1093; FCC KDB 447498

FCC OET Bulletin 65 Supplement

Remarks: This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1 General Information

1.1 Client Information

Name: 3Si Security Systems Inc.
Address: 2055 N Brown Rd, Ste 225
City, State, Zip, Country: Lawrenceville, GA 30043, USA

1.2 Test Laboratory

Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA
Type of lab: Testing Laboratory
Certificate Number: 3212.01

1.3 General Information of EUT

Type of Product: Wireless Tracking Device
Model Number: AT170503US
Prototype ID: P1-18 (BLE and Beacon), P2-01 (WLAN)

Frequency Ranges: 2412-2462MHz (WLAN), 2402 – 2480MHz (BLE)
Data Modes (2.4GHz): 802.11b, 802.11g, 802.11n (HT20/HT40), Bluetooth LE
Beacon Transmit Frequency: 216.475 MHz

Antenna: PCB Trace, -1.9dBi Gain (2.4GHz)
Discrete component resonant circuit, -42.3dBi Gain (Beacon)

Rated Voltage: 3.7Vdc Battery
Test Voltage: 3.7Vdc Battery

Sample Received Date: 30 April 2019
Dates of testing: 1 May 2019

1.4 Operating Modes and Conditions

For this assessment, the EUT's maximum measured conducted power and ERP/EIRP were considered.

2 RF Exposure

2.1 Test Result

Test Description	Product Specific Standard	Test Result
RF Exposure	FCC Part 1.1310	Compliant

2.2 Test Method

Using the maximum measured conducted power and ERP/EIRP with provided antenna gains, the power density was calculated.

2.3 Single transmission RF Exposure Levels

Band of Operation		Conducted Power	Antenna Gain	Cable Loss	Average EIRP		Distance (R)	Power Density EIRP _{avg} /(4πR ²)	FCC	% of Limit	Verdict
Type	MHz	dBm			dBm	mW	cm	mW/cm ²	mW/cm ²		
WLAN 2.4	2400-2483.5	23.3	-1.9	0.0	21.4	138	20	0.027	1.00	3%	Pass
Bluetooth LE	2400-2483.5	18.8	-1.9	0.0	16.9	49	20	0.010	1.00	1%	Pass
Beacon	216.475	17.9	-42.3	0.0	-24.4	0	20	0.000	0.20	0%	Pass

*Note: Conducted power for BLE and Beacon signal were calculated from the measured ERP and manufacturer's declared antenna gain value.

2.4 Simultaneous transmission RF Exposure Levels

	WLAN 2.4	Bluetooth LE	Beacon
WLAN 2.4		NA	3%
Bluetooth LE	NA		1%
Beacon	3%	1%	

Expressed as a percentage of the limit. Color is only used to identify worst-case. Due to shared antenna port with RF switch, simultaneous transmission for WLAN and BLE is not possible.

$$10^{\frac{P_{dBm} + G_{Antenna}}{10}} * \frac{1 W}{1000 mW} * \frac{1}{4\pi r^2} = P_{density} W/m^2$$