

# RF Exposure Evaluation declaration

Product Name : SpectraGuard® Access Point / Sensor

Model No. : SS-300AT-C-60

FCC ID : TOR-SS300ATC60

Applicant : AirTight Networks, Inc.

Address : 339 N. Bernardo Avenue, Suite #200, Mountain View, California, USA

Date of Receipt : Jul. 03, 2013

Date of Declaration : Aug. 20, 2013

Report No. : 137146R-RFUSP28V01-A

The declaration results relate only to the samples calculated.

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## 1. RF Exposure Evaluation

### 1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment 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)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

### 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product : SpectraGuard® Access Point / Sensor  
Test Item : RF Exposure Evaluation  
Test Site : No.3 OATS

#### 2TX (Dipole Antenna)

##### 802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (3dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	73.9605	0.029358
6	2437.00	107.6465	0.042730
11	2462.00	56.2341	0.022322

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

##### 802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (3dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
01	2412.00	11.6145	0.004610
06	2437.00	171.0015	0.067878
11	2462.00	13.5519	0.005379

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

##### 802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (5dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
149	5745.00	59.5662	0.037474
157	5785.00	301.9952	0.189990
165	5825.00	217.7710	0.137003

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

### 802.11n-20MHz\_14.4Mbps - 2.4G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (3dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
01	2412.00	11.6145	0.004610
06	2437.00	175.3881	0.069619
11	2462.00	13.8357	0.005492

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

### 802.11n-40MHz\_30Mbps - 2.4G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (3dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
01	2422.00	5.9566	0.002364
04	2437.00	172.9816	0.068664
07	2452.00	9.7499	0.003870

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

### 802.11n-20MHz\_14.4Mbps - 5G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (5dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
149	5745.00	72.1107	0.045366
157	5785.00	316.9567	0.199402
165	5825.00	197.2423	0.124088

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

### 802.11n-40MHz\_30Mbps - 5G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (5dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
151	5755.00	57.6766	0.036285
159	5795.00	208.4491	0.131139

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

**802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (5dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180.00	18.8365	0.011850
44	5220.00	20.6063	0.012964
48	5240.00	18.0717	0.011369

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

**802.11n-20MHz\_14.4Mbps**
**Output Power Into Antenna & RF Exposure Evaluation Distance (5dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180.00	25.9418	0.016320
44	5220.00	24.1546	0.015196
48	5240.00	22.6464	0.014247

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

**802.11n-40MHz\_30Mbps**
**Output Power Into Antenna & RF Exposure Evaluation Distance (5dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
38	5190.00	28.7078	0.018061
46	5230.00	26.2422	0.016509

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).