

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 ²)	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^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1 mW/cm^2 . 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 ²)
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/cm²).

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 ²)
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/cm²).

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 ²)
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/cm²).

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/cm2)
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/cm2).

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/cm2)
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/cm2).

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/cm2)
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/cm2).

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/cm2)
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/cm2).

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/cm2)
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/cm2).

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/cm2)
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/cm2).

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/cm2)
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/cm2).