

RF Exposure Evaluation declaration

Product Name	SpectraGuard® Access Point / Sensor
Model No.	SS-300-AT-C-60
FCC ID	TOR-SS300AT60

Applicant	AirTight Networks, Inc.
Address	339 N. Bernardo Avenue, Suite #200, Mountain View, California, USA

Date of Receipt	Oct. 11, 2012
Date of Declaration	Oct. 29, 2012
Report No.	12A193R-RFUSP28V01

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/cm²

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/cm². 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	68.7068	0.027273
6	2437.00	100.6932	0.039970
11	2462.00	53.7032	0.021317

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)
1	2412.00	11.3240	0.004495
6	2437.00	164.0590	0.065122
11	2462.00	13.1220	0.005209

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	56.3638	0.035459
157	5785.00	283.7919	0.178538
165	5825.00	206.5380	0.129936

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/cm ²)
01	2412.00	11.1686	0.004433
06	2437.00	163.6817	0.064973
11	2462.00	12.7057	0.005043

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/cm ²)
01	2422.00	5.5976	0.002222
04	2437.00	162.5549	0.064525
07	2452.00	9.3111	0.003696

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/cm ²)
149	5745.00	68.0769	0.042828
157	5785.00	297.8516	0.187383
165	5825.00	184.9269	0.116340

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/cm ²)
151	5755.00	54.8277	0.034493
159	5795.00	200.9093	0.126395

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)
36	5180.00	41.4954	0.026105
44	5220.00	42.0727	0.026469
48	5240.00	46.2381	0.029089

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/cm ²)
36	5180.00	43.5512	0.027399
44	5220.00	44.1570	0.027780
48	5240.00	43.5512	0.027399

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/cm ²)
38	5190.00	44.4631	0.027972
46	5230.00	47.5335	0.029904

Power density in column 4 is much lower than the limit (1 mW/cm²).