

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

3TX (PIFA Antenna)

802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.14dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	280.5434	0.144787
6	2437.00	271.0192	0.139872
11	2462.00	276.6942	0.142801

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 (4.14dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	86.8960	0.044847
6	2437.00	410.2041	0.211705
11	2462.00	77.2681	0.039878

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 (5.72dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
149	5745.00	108.8930	0.080859
157	5785.00	167.1091	0.124088
165	5825.00	179.0606	0.132963

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

802.11n-20MHz_21.7Mbps - 2.4G Band

Output Power Into Antenna & RF Exposure Evaluation Distance (4.14dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2412.00	88.1049	0.045471
06	2437.00	420.7266	0.217135
11	2462.00	74.6449	0.038524

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

802.11n-40MHz_45Mbps - 2.4G Band

Output Power Into Antenna & RF Exposure Evaluation Distance (4.14dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2422.00	61.9441	0.031969
04	2437.00	410.2041	0.211705
07	2452.00	61.9441	0.031969

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

802.11n-20MHz_21.7Mbps - 5G Band

Output Power Into Antenna & RF Exposure Evaluation Distance (5.72dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
149	5745.00	107.1519	0.079567
157	5785.00	168.2674	0.124948
165	5825.00	179.8871	0.133577

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

802.11n-40MHz_45Mbps - 5G Band

Output Power Into Antenna & RF Exposure Evaluation Distance (5.72dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
151	5755.00	84.5279	0.062767
159	5795.00	169.8244	0.126104

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 (3.87dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
36	5180.00	42.2669	0.020499
44	5220.00	44.2588	0.021465
48	5240.00	44.4631	0.021564

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

802.11n-20MHz_21.7Mbps
Output Power Into Antenna & RF Exposure Evaluation Distance (3.87Bi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
36	5180.00	40.7380	0.019757
44	5220.00	42.4620	0.020594
48	5240.00	42.7563	0.020736

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

802.11n-40MHz_45Mbps
Output Power Into Antenna & RF Exposure Evaluation Distance (3.87dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
38	5190.00	44.6684	0.021664
46	5230.00	45.9198	0.022271

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