

Maximum Permissible Exposure

Equipment : WatchGuard® AP
Brand Name : WatchGuard®
Model No. : AP300
FCC ID : Q6G-AP300
Standard : ANSI/IEEE C95.1
Applicant : WatchGuard® Technologies, Inc.
505 Fifth Avenue South, Suite 500 Seattle Washington
98104 United States
Manufacturer : Senao Networks, Inc.
No. 500 & 528, Fusing 3rd Rd., Hwa-Ya Technical Park,
Kuei-Shan Dist., Taoyuan City, Taiwan, R.O.C.

The product sample received on Jun. 18, 2014 and completely tested on Oct. 12, 2015. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI/IEEE C95.1 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:


Kevin Liang / Assistant Manager



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Revision History

[illegible]

1 Human Exposure Assessment

1.1 Maximum Permissible Exposure

1.1.1 Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	F/300	6
1500-100,000	-	-	5	6
Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	F/1500	30
1500-100,000	-	-	1.0	30
Note 1: f = frequency in MHz ; *Plane-wave equivalent power density				
Note 2: For the applicable limit, see FCC 1.1310				

1.1.2 MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

E = Electric field (V/m)

G = EUT Antenna numeric gain (numeric)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

P = RF output power (W)

d = Separation distance between radiator and human body (m)

1.1.3 Result of Maximum Permissible Exposure

RF General Information 2400 MHz – 2483.5 MHz					
Frequency Range (MHz)	IEEE Std. 802.11 Protocol	Ch. Frequency (MHz)	Channel Number	Number of Transmit Chains (N _{TX})	RF Output Power (dBm)
2400-2483.5	b	2412-2462	1-11 [11]	3	24.10
2400-2483.5	g	2412-2462	1-11 [11]	3	22.08
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	3	21.97
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	3	20.47

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.

RF General Information 5150~5250MHz					
Frequency Range (MHz)	IEEE Std. 802.11 Protocol	Ch. Frequency (MHz)	Channel Number	Number of Transmit Chains (N _{TX})	RF Output Power (dBm)
5150-5250	a	5180-5240	36-48 [4]	3	24.52
5150-5250	n (HT20)	5180-5240	36-48 [4]	3	24.89
5150-5250	n (HT40)	5190-5230	38-46 [2]	3	26.09
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	3	24.97
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	3	26.01
5150-5250	ac (VHT80)	5210	42 [1]	3	21.61

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.

RF General Information 5725 MHz – 5850 MHz					
Frequency Range (MHz)	IEEE Std. 802.11 Protocol	Ch. Frequency (MHz)	Channel Number	Number of Transmit Chains (N _{TX})	RF Output Power (dBm)
5725-5850	a	5745-5825	149-165 [5]	3	25.98
5725-5850	n(HT20)	5745-5825	149-165 [5]	3	26.00
5725-5850	n(HT40)	5755-5795	151-159 [2]	3	26.17
5725-5850	ac(VHT20)	5745-5825	149-165 [5]	3	26.05
5725-5850	ac(VHT40)	5755-5795	151-159 [2]	3	26.09
5725-5850	ac(VHT80)	5775	155 [1]	3	19.18

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.

Worst Maximum RF Output Power Result								
Exposure Environment		General Population / Uncontrolled Exposure						
Separation Distance (cm)		22						
Condition		RF Output Power (dBm)						
Modulation Mode	N_{TX}	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	DG (dBi)	EIRP Power	PD (S) (mW/cm²)
11b	3	19.42	19.10	19.45	24.10	8.72	32.82	0.31476
n(HT40) 5725-5850	3	21.42	20.98	21.74	26.17	9.62	35.79	0.62397
Co-location Total								0.93873
Maximum Permissible Exposure Limit (mW/cm²)								1
Note 1: N _{TX} = Number of Transmit Chains								