

Maximum Permissible Exposure

Equipment : RV340W Dual WAN Wireless-AC VPN Router
Brand Name : CISCO
Model No. : RV340W
FCC ID : VUI-RV340W
Standard : ANSI/IEEE C95.1
Applicant : PEGATRON CORPORATION
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TAIPEI CITY 112 Taiwan
Manufacturer : MAINTEK COMPUTER (SUZHOU) CO., LTD
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The product sample received on Jun. 06, 2016 and completely tested on Jun. 29, 2016. 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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1 Human Exposure Assessment

1.1 Maximum Permissible Exposure

1.1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b:DSSS(DBPSK, DQPSK, CCK) 802.11g/n:OFDM(BPSK, QPSK, 16QAM,64QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a:OFDM(BPSK, QPSK, 16QAM,64QAM) 802.11ac:OFDM(BPSK, QPSK, 16QAM,64QAM, 256QAM)

1.1.2 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				



1.1.3 MPE Calculation Method

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)



1.1.4 Result of Maximum Permissible Exposure (2.4G)

RF General Information					
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	23.21
2400-2483.5	g	2412-2462	1-11 [11]	3	22.96
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	3	22.90
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	3	19.92

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)		20						
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/cm ²)
b	3	18.57	18.06	18.66	23.21	3.28	26.49	0.0887
Maximum Permissible Exposure Limit (mW/cm ²)								1

Note 1: N_{TX} = Number of Transmit Chains



1.1.5 Result of Maximum Permissible Exposure (5.2G)

RF General Information					
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]	4	23.79
5150-5250	ac (VHT20) (Beamforming)	5180-5240	36-48 [4]	4	24.05
5150-5250	ac (VHT40) (Beamforming)	5190-5230	38-46 [2]	4	22.08
5150-5250	ac (VHT80) (Beamforming)	5210	48 [1]	4	17.59

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)		20							
Condition		RF Output Power (dBm)							
Modulation Mode	N _{TX}	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Sum Chain	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
ac (VHT20) (Beamforming)	4	18.32	17.97	17.82	17.98	24.05	10.34	34.39	0.5468
Maximum Permissible Exposure Limit (mW/cm²)									1

Note 1: N_{TX} = Number of Transmit Chains



1.1.6 Result of Maximum Permissible Exposure (5.3G)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11 Protocol	Ch. Frequency (MHz)	Channel Number	Number of Transmit Chains (N _{TX})	RF Output Power (dBm)
5250-5350	a	5260-5320	52-64 [4]	4	16.97
5250-5350	ac (VHT20) (Beamforming)	5260-5320	52-64 [4]	4	17.28
5250-5350	ac (VHT40) (Beamforming)	5270-5310	54-62 [2]	4	18.94
5250-5350	ac (VHT80) (Beamforming)	5290	58 [1]	4	15.54

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)		20							
Condition		RF Output Power (dBm)							
Modulation Mode	N _{TX}	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Sum Chain	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
ac (VHT40) (Beamforming)	4	13.27	12.65	12.42	13.28	18.94	10.73	29.67	0.1844
Maximum Permissible Exposure Limit (mW/cm ²)									1

Note 1: N_{TX} = Number of Transmit Chains



1.1.7 Result of Maximum Permissible Exposure (5.6G)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11 Protocol	Ch. Frequency (MHz)	Channel Number	Number of Transmit Chains (N _{TX})	RF Output Power (dBm)
5470-5725	a	5500-5700	100-140 [8]	4	17.33
5470-5725	ac (VHT20) (Beamforming)	5500-5700	100-140 [8]	4	17.57
5470-5725	ac (VHT40) (Beamforming)	5510-5670	102-134 [3]	4	19.17
5470-5725	ac (VHT80) (Beamforming)	5530	106 [1]	4	14.47

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)		20							
Condition		RF Output Power (dBm)							
Modulation Mode	N _{TX}	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Sum Chain	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
ac (VHT40) (Beamforming)	4	14.04	12.79	12.70	12.93	19.17	10.76	29.93	0.1958
Maximum Permissible Exposure Limit (mW/cm ²)									1

Note 1: N_{TX} = Number of Transmit Chains



1.1.8 Result of Maximum Permissible Exposure (5.8G)

RF General Information					
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]	4	24.07
5725-5850	ac (VHT20) (Beamforming)	5745-5825	149-165 [5]	4	23.73
5725-5850	ac (VHT40) (Beamforming)	5755-5795	151-159 [2]	4	19.99
5725-5850	ac (VHT80) (Beamforming)	5775	155 [1]	4	14.16

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)		20							
Condition		RF Output Power (dBm)							
Modulation Mode	N _{TX}	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Sum Chain	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
ac (VHT20) (Beamforming)	4	18.14	17.43	17.41	17.83	23.73	11.26	34.99	0.6278
Maximum Permissible Exposure Limit (mW/cm ²)									1

Note 1: N_{TX} = Number of Transmit Chains



1.1.9 Result of Maximum Permissible Exposure (Co-location)

Worst Maximum RF Output Power Result							
Exposure Environment		General Population / Uncontrolled Exposure					
Separation Distance (cm)		20					
Condition		RF Output Power (dBm)					
Modulation Mode	N _{TX}	Sum Chain RF Output Power (dBm)	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)	Limit (mW/cm ²)	Ratio
b	4	23.21	3.28	26.49	0.0887	1	0.0887
ac (VHT20) (Beamforming)	4	23.73	11.26	34.99	0.6278	1	0.6278
Co-location Total							0.7165
Maximum Permissible Exposure Limit							1
<p>Note 1: N_{TX} = Number of Transmit Chains.</p> <p>Note.2: Both of the WLAN 2.4GHz Band and WLAN 5GHz Band can transmit simultaneously, the formula of calculated the MPE is:</p> <p style="padding-left: 40px;">$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$</p> <p style="padding-left: 40px;">CPD = Calculation power density</p> <p style="padding-left: 40px;">LPD = Limit of power density</p> <p>Note 3: For the measurement, see KDB 865664 D02 RF Exposure Reporting v01r02.</p>							