

Maximum Permissible Exposure

Equipment : Mini PC
Brand Name : **BIOSTAR**
Model No. : RACING XXXX , IDEQ XXXX (X=A-Z ,a-z,0-9 or BLANK)
FCC ID : I27IZ83APBSR01000
Standard : IEEE C95.1
Applicant / Manufacturer : Biostar Microtech Int'l Corp
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The product sample received on Apr. 31, 2016 and completely tested on Sep. 29, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 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:

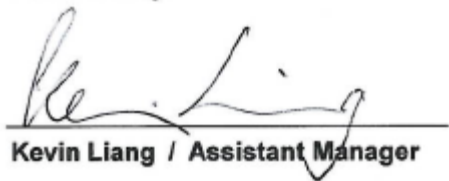

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Revision History

[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

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

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)

1.1.3 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]	1	13.32
2400-2483.5	g	2412-2462	1-11 [11]	1	12.73
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	12.44
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	1	11.82
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}	RF Output Power	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
b	1	13.32	2.29	15.61	0.00724
Maximum Permissible Exposure Limit (mW/cm ²)					1
Note 1: N _{TX} = Number of Transmit Chains					

1.1.4 Result of Maximum Permissible Exposure (Bluetooth)

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	BR/EDR	2402-2480	0-78 [79]	1	4.37
2400-2483.5	LE	2402-2480	0-39 [40]	1	1.65
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	RF Output Power	Antenna Gain (dBi)	EIRP Power	PD (S) (mW/cm ²)
BR/EDR	4.37	2.29	6.66	0.00092
LE	1.65	2.29	3.94	0.00049
Maximum Permissible Exposure Limit (mW/cm ²)				1

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]	1	15.86
5150-5250	n (HT20)	5180-5240	36-48 [4]	1	15.57
5150-5250	n (HT40)	5190-5230	38-46 [2]	1	14.34
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	1	15.59
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	1	14.40
5150-5250	ac (VHT80)	5210	42 [1]	1	7.48
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}	RF Output Power	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
a	1	15.86	3.91	19.77	0.01887
Maximum Permissible Exposure Limit (mW/cm ²)					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]	1	15.84
5250-5350	n (HT20)	5260-5320	52-64 [4]	1	15.78
5250-5350	n (HT40)	5270-5310	54-62 [2]	1	14.96
5250-5350	ac (VHT20)	5260-5320	52-64 [4]	1	15.82
5250-5350	ac (VHT40)	5270-5310	54-62 [2]	1	15.00
5250-5350	ac (VHT80)	5290	58 [1]	1	9.08
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}	RF Output Power	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
a	1	15.84	4.72	20.56	0.02263
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]	1	14.29
5470-5725	n (HT20)	5500-5700	100-140 [8]	1	14.13
5470-5725	n (HT40)	5510-5670	102-134 [3]	1	13.34
5470-5725	ac (VHT20)	5500-5700	100-140 [8]	1	14.01
5470-5725	ac (VHT40)	5510-5670	102-134 [3]	1	13.37
5470-5725	ac (VHT80)	5530	106 [1]	1	9.77
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}	RF Output Power	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
a	1	14.29	5.37	19.66	0.01840
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) Co-location
5725-5850	a	5745-5825	149-165 [5]	1	14.90
5725-5850	n (HT20)	5745-5825	149-165 [5]	1	14.53
5725-5850	n (HT40)	5755-5795	151-159 [2]	1	13.72
5725-5850	ac (VHT20)	5745-5825	149-165 [5]	1	14.56
5725-5850	ac (VHT40)	5755-5795	151-159 [2]	1	13.81
5725-5850	ac (VHT80)	5775	155 [1]	1	13.35
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}	RF Output Power	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
a	1	14.90	5.65	20.55	0.02258
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}	RF Output Power (dBm)	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)	Limit (mW/cm ²)	Ratio
BR/EDR (Bluetooth)	1	4.37	2.29	6.66	0.00092	1	0.00092
a (5.3GHz)	1	15.84	4.72	20.56	0.02263	1	0.02263
Co-location Total							0.0236
Maximum Permissible Exposure Limit							1
Note 1: NTX = Number of Transmit Chains. Note.2: Both of the WLAN and Bluetooth can transmit simultaneously, the formula of calculated the MPE is: $CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$ CPD = Calculation power density LPD = Limit of power density Note 3: Refer to KDB 865664 D02 RF Exposure Reporting v01r02 for MPE Calculation Colocation.							