MPE Report
FCC ID: 2ATFO-B10WT

Product:	Wireless Receiver Box
Trade Mark:	N/A
Model No.:	B10WT
Family Model:	VHD-B10WT
Report No.:	S23112800705002
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Prepared for

ValueHD Corporation

2-3/F, No. 2, Honghui Industrial Park, Xin'an Street, Bao'an District, Shenzhen, China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street Bao'an District, Shenzhen 518126 P.R. China
Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090
Website:http://www.ntek.org.cn

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Maximum Permissible Exposure (MPE)

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

E (V/m) = $\frac{\sqrt{30*P*G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

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

The formula can be changed to

$Pd = \frac{30*P*G}{377*D^2}$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

Measurement Result

5G WIFI:

Operation Frequency:
WIFI 802.11a//n(HT20): 5180-5240MHz; 5745-5825MHz;
WIFI 802.11n(HT40): 5190-5230MHz; 5755-5795MHz
Power density limited: 1mW/cm
Antenna Type: 5.2G: Antenna 1:Integral Antenna , Antenna 2: Integral Antenna
5.8G: Antenna 1:Integral Antenna , Antenna 2: Integral Antenna
Antenna gain: 5.2G: Antenna 1: 5.57dBi ; Antenna 2: 5.57dBi
5.8G: Antenna 1: 5.58dBi ; Antenna 2: 5.58dBi
R=20cm
mW=10^(dBm/10)
antenna gain Numeric=10^(dBi/10)

WLAN5.2G SISO MODE

Antenna	Tune-up limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm^2)	MPE Limit (mW/cm^2)	Conclusion
Ant 1	13.32	5.57	18.89	77.45	20	0.0154	1	Pass
Ant 2	13.96	5.57	19.53	89.74	20	0.0179	1	

WLAN5.8G SISO MODE

Antenna	Tune-up limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm2)	MPE Limit (mW/cm2)	Conclusion
Ant 1	13.29	5.58	18.87	77.09	20	0.0153	1	Pass
Ant 2	13.04	5.58	18.62	72.78	20	0.0145	1	

SIMULTANEOUS TRANSMISSIONS

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE. To comply with the MPE, the fraction of the MPE in terms of E^2, H^2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity. In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^{n} \frac{S_i}{MPE_i} \leq 1$$

WLAN5.2G MIMO MODE

Antenna	Tune-up limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm^2)	MPE Limit (mW/cm^2)	Calculation result	Conclusion
Ant 1	11.41	5.57	16.98	49.89	20	0.0099	1	0.021	Pass
Ant 2	12.01	5.57	17.58	57.28	20	0.0114	1		

WLAN5.8G MIMO MODE

Antenna	Tune-up limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm2)	MPE Limit (mW/cm2)	Calculation result	Conclusion
Ant 1	11.29	5.58	16.87	48.64	20	0.0097	1	0.020	Pass
Ant 2	11.39	5.58	16.97	49.77	20	0.0099	1		

This product does not support the requirements under multiple sources.

Conclusion:

The conclusion for MIMO mode should be 0.021＜1 for Max Power Density, Compliance the

Signature:
Date: 2024-03-27

NAME AND TITLE (Please print or type): alex li/Manager

COMPANY (Please print or type): Shenzhen NTEK Testing Technology Co., Ltd./ 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street Bao'an District, Shenzhen P.R. China.