Maximum Permissible Exposure Evaluation

FCC ID: 2AGK5VMX4S

1. Client Information

Applicant	:	Simple Control
Address	:	21580 Stevens Creek Blvd., Suite 106, Cupertino, California, 95014, USA
Manufacturer	:	Shenzhen Vipstech Co.,Ltd
Address	:	4th Floor, Lvkai Building, Liuxian 3rd Road, Bao'an71th, Bao'an 71th Dist, Shenzhen, Guangdong, China

2. General Description of EUT

EUT Name	:	Simple Hub	
Models No.	:	VM64S, VM24S, VM44S, VM54S	
Model Difference	:	All models are identical in the same PCB layout, interior structure and electrical circuits, the only difference is model name for commercial purpose.	
Product Description	:	Operation Frequency: 802.11b/g/n(H20): 2412MHz~2462MHz 802.11n(H40): 2422MHz~2452MHz	
		Number of Channel:	802.11b/g/n(HT20):11channels 802.11n(HT40): 7 channels
		Output Power:	802.11b: 18.03dBm 802.11g: 14.22dBm 802.11n (HT20): 14.74dBm 802.11n (HT40): 13.25dBm
		Antenna Gain:	2 dBi Embedded Antenna
		Modulation Type:	802.11b:DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM,64QAM)
Power Supply	:	DC power supplied by Switching Adapter.	
Power Rating	:	Switching Adapter: Input:100~240V, 50/60Hz 0.35A Max Output:5V, 2000mA	

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Connecting I/O Port(S)	:	Please refer to the User's Manual
Note: More detail information about Equipment, please refer to User's manual, more information about the RF, please refer to test report.		

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MPE Calculations for WIFI

1. Antenna Gain:

Embedded Antenna: 2 dBi.

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S=(PG)/4\Pi r^2$

Where

S: power density

P: power input to the antenna

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

4. Test Result:

Worst Maximum MPE Result							
Mode	N_{TX}	Frequency (MHz)	Power (dBm) [P]	ANT Gain (dBi) [G]	Turn-up Power Tolerance (dB)	Distance (cm) [R]	Power Density (Mw/ cm^2) [S]
2.4G							
802.11b	1	2437	18.03	2	±1	20	0.025219
802.11g	1	2437	14.22	2	±1	20	0.010489
802.11n (HT20)	1	2437	14.74	2	±1	20	0.011823
802.11n (HT40)	1	2437	13.25	2	±1	20	0.008389

Note:

(1) N_{TX}= Number of Transmit Antennas

(2) RF Output power specifies that Maximum Conducted Peak Output Power.

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/cm^2)
300-1,500	F/1500
1,500-100,000	1.0

For 802.11b/g/n(2412~2462 MHz)
MPE limit S: 1 mW/cm^2
The MPE is calculated as **0.025219 mW** / cm^2 < limit 1 mW/cm^2. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.