Maximum Permissible Exposure Evaluation

FCC ID: 2A8TU-S16PRO

1. Client Information

Applicant	:	Shenzhen Forever Young Technology Co., Ltd
Address	:	2/F, No.B2 Bldg, Fu Yuan Industrial Park, Fu Yong Town, Bao'an District, Shenzhen, China
Manufacturer	:	Shenzhen Forever Young Technology Co., Ltd
Address	:	2/F, No.B2 Bldg, Fu Yuan Industrial Park, Fu Yong Town, Bao'an District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Smart AC Controller	
Models No.	:	S16Pro, S09Pro, S19PRO, S20PRO	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, The only difference is model name.	
Sample ID	:	RW-C-202205-0291-4-1#&RW-C-202205-0291-4-2#	
Product Description	:	Operation Frequency:	Bluetooth 4.2(BLE): 2402MHz~2480MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Power Rating	:	USB Input: DC 5V/1A	
Software Version	:	V3.35.5	
Hardware Version	:	V1.1.80	
Remark	:	The adapter and antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.	

1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Tel: +86 75526509301 Fax: +86 75526509195

Method Of Measurement for FCC

1. Max. Antenna Gain:

Antenna	Brand	Model Name	Type	Bluetooth Gain(dBi)
Bluetooth&2.4G WIFI	N/A	N/A	PCB	2.21

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

Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1.Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.
This means that:

∑ of MPE ratios ≤ 1.0

4. Test Result:

Bluetooth MPE Result								
Mode	N_{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
GFSK	1	2402	2.58	2±1	3	2.21	20	0.0006
		2440	3.60	3±1	4	2.21	20	0.0008
		2480	2.91	2±1	3	2.21	20	0.0006
Note: N_{TX}= Number of Transmit Antennas RF Output power specifies that Maximum Conducted Peak Output Power.								

2.4G WiFi MPE Result								
Mode	N_{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
802.11b	1	2412	16.17	16±1	17	2.21	20	0.0165
		2437	16.31	16±1	17	2.21	20	0.0165
		2462	16.36	16±1	17	2.21	20	0.0165
802.11g	1	2412	17.01	17±1	18	2.21	20	0.0208
		2437	17.10	17±1	18	2.21	20	0.0208
		2462	17.11	17±1	18	2.21	20	0.0208
802.11n20	1	2412	16.78	16±1	17	2.21	20	0.0165
		2437	17.04	17±1	18	2.21	20	0.0208
		2462	17.05	17±1	18	2.21	20	0.0208
802.11n40	1	2422	17.55	17±1	18	2.21	20	0.0208
	1	2437	17.71	17±1	18	2.21	20	0.0208
	1	2452	17.43	17±1	18	2.21	20	0.0208
Note: N_{TX}= Number of Transmit Antennas 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:2402~2480MHz & 2412~2462MHz
MPE limit S: $1mW/ cm^2$
The MPE is calculated as ***$0.0208mW / cm^2 < limit\ 1mW / cm^2$***.

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.

-----END OF REPORT-----