



Maximum Permissible Exposure Evaluation

FCC ID: 2A233-AM01

1. Client Information

Applicant	:	Shenzhen Konk Technology Co., Ltd
Address	:	Room 215, Building 22, Maker Town, No. 4109, Liuxian Avenue, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, China
Manufacturer	:	Shenzhen Konk Technology Co., Ltd
Address	:	Room 215, Building 22, Maker Town, No. 4109, Liuxian Avenue, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Retro Mini PC
Models No.	:	AYANEO Retro Mini PC
Model Different	:	----
Brand Name	:	AYANEO
Sample ID	:	HC-C-202310-0170-01-01-1# & HC-C-202310-0170-01-01-2#
Product Description	:	Operation Frequency: U-NII-1: 5180MHz~5240MHz U-NII-3: 5745MHz~5825MHz 802.11b/g/n(HT20)/ax(HE20): 2412MHz~2462MHz 802.11n(HT40)/ax(HE40): 2422MHz~2452MHz Bluetooth 5.2(BR+EDR): 2402MHz~2480MHz Bluetooth 5.2(BLE): 2402MHz~2480MHz
Power Rating	:	Adapter (Model: J652-1206000IX) Input: 100-240V~ 50/60Hz, 1.7A Output: 12.0V~6.0A, 72.0W
Software Version	:	----
Hardware Version	:	----
Remark	:	The antenna gain provided by the manufacturer, the verified for the RF conduction test provided by TOBY test lab.

Method of Measurement for FCC

1. Max. Antenna Gain:

Band	Antenna Type	Antenna Gain(dBi)	
		Antenna 1	Antenna 2
Bluetooth	FPC	3.55	/
2.4G Wi-Fi	FPC	3.55	2.66
U-NII-1		1.24	1.91
U-NII-3		3.60	2.70

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:

$$\sum \text{ of MPE ratios } \leq 1.0$$



4. Test Result:

Worst MPE Result							
Test Mode	Antenna	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	Max. ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
Bluetooth	/	4.661	5±1	6	3.55	20	0.0018
2.4G b	Ant1	16.585	17±1	18	3.55	20	0.0284
	Ant2	15.868	16±1	17	2.66	20	0.0184
2.4G g	Ant1	13.789	14±1	15	3.55	20	0.0142
	Ant2	13.814	14±1	15	2.66	20	0.0116
2.4G n20	Ant1	13.69	14±1	15	3.55	20	0.0142
	Ant2	13.404	13±1	14	2.66	20	0.0092
2.4G n40	Ant1	14.406	14±1	15	3.55	20	0.0142
	Ant2	14.045	14±1	15	2.66	20	0.0116
2.4G ax20	Ant1	14.077	14±1	15	3.55	20	0.0142
	Ant2	13.55	14±1	15	2.66	20	0.0116
2.4G ax40	Ant1	11.919	12±1	13	3.55	20	0.0090
	Ant2	12.228	12±1	13	2.66	20	0.0073
5G a	Ant1	17.22	17±1	18	3.60	20	0.0288
	Ant2	17.12	17±1	18	1.91	20	0.0195
5G n20	Ant1	17.14	17±1	18	3.60	20	0.0288
	Ant2	16.99	17±1	18	1.91	20	0.0195
5G n40	Ant1	17.57	18±1	19	3.60	20	0.0362
	Ant2	17.27	17±1	18	1.91	20	0.0195
5G ac20	Ant1	17.17	17±1	18	3.60	20	0.0288
	Ant2	17.04	17±1	18	1.91	20	0.0195
5G ac40	Ant1	17.59	18±1	19	3.60	20	0.0362
	Ant2	17.29	17±1	18	1.91	20	0.0195
5G ac80	Ant1	14.55	15±1	16	3.60	20	0.0181
	Ant2	14.49	14±1	15	1.91	20	0.0098
5G ax20	Ant1	15.93	16±1	17	3.60	20	0.0228
	Ant2	15.55	16±1	17	1.91	20	0.0155
5G ax40	Ant1	14.05	14±1	15	3.60	20	0.0144
	Ant2	13.79	14±1	15	1.91	20	0.0098
5G ax80	Ant1	14	14±1	15	3.60	20	0.0144
	Ant2	13.74	14±1	15	2.70	20	0.0117

Note: The antenna gain used max. antenna gain



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&5180~5240MHz&5745~5825MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.0362\text{mW} / \text{cm}^2 < \text{limit } 1\text{mW} / \text{cm}^2$.

6. Summary simultaneous transmission information

Modulation Type	Work Frequency Band	Transmit Antenna		MIMO
		Antenna 1	Antenna 2	
Bluetooth	2.4GHz	Yes	/	/
Bluetooth LE	2.4GHz	Yes	/	/
IEEE 802.11a	U-NII-1/U-NII-3	Yes	Yes	No
IEEE 802.11b	2.4GHz	Yes	Yes	No
IEEE 802.11g	2.4GHz	Yes	Yes	No
IEEE 802.11n HT20	2.4GHz	Yes	Yes	Yes
IEEE 802.11n HT40	2.4GHz	Yes	Yes	Yes
IEEE 802.11n HT20	U-NII-1/U-NII-3	Yes	Yes	Yes
IEEE 802.11n HT40	U-NII-1/U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT20	U-NII-1/U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT40	U-NII-1/U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT80	U-NII-1/U-NII-3	Yes	Yes	Yes

7. Summary simultaneous transmission results

(Bluetooth/2.4G WIFI/5G WIFI) Ant.1 + (2.4G WIFI/5G WIFI) Ant.2 support Synchronization transmit the

$$\sum \text{MPE ratios} = 0.0362 + 0.0195 = 0.0557 < 1$$

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 THE REPORT-----

