

Maximum Permissible Exposure Evaluation

FCC ID: 2AZTZ-WT32A0KAGA

1. Client Information

Applicant	:	Kontech Electronics Co., Ltd.
Address	:	No.30, Langkou Industrial Park, Dalang Street, Longhua New District, Shenzhen, Guangdong, China
Manufacturer	:	Kontech Electronics Co., Ltd.
Address	:	No.30, Langkou Industrial Park, Dalang Street, Longhua New District, Shenzhen, Guangdong, China

2. General Description of EUT

EUT Name	:	WT32A0KAGA
Models No.	:	WT24A0KAGA, WT***##### (# stands for letters A-Z; * stands for numbers 0-9)
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is size and color.
Brand Name	:	SYLVOX, ZINVAX, MISTAAD, GOTHOT, VUESTATION, KONTECH
Product Description	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n (HT40):2422MHz~2452MHz
		Number of Channel: 802.11b/g/n(HT20):11 Channels 802.11n (HT40):7 Channels
Power Rating	:	DC 12V from adapter: Input: AC 100-240V 50/60Hz 1.5A Max Output: DC 12V6A
Software Version	:	N/A
Hardware Version	:	N/A
Connecting I/O Port(S)	:	Please refer to the User's Manual
Remark	:	the MPE report used the EUT (20210910-16_01-2#).

MPE Calculations for WIFI

1. Antenna Gain:

PCB Antenna:2dBi.

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. Antenna Information

WT32A0KAGA, WT24A0KAGA, WT**#*##### (# stands for letters A-Z; * stands for numbers 0-9)) can only use antennas certificated as follows provided by manufacturer

Internal Identification	Antenna type and antenna number	Operate frequency band	Maximum antenna gain
Antenna 1	PCB Antenna	2412 MHz – 2462 MHz	2dBi
Antenna 2	PCB Antenna	2412 MHz – 2462 MHz	2dBi

**5. RF Output Power
2.4G WiFi**

Test Mode	Channel	Frequency (MHz)	Measured Peak Output Power (dBm)		
			Antenna 1	Antenna 2	Sum
IEEE 802.11b	1	2412	9.84	9.10	/
	6	2437	9.79	8.90	/
	11	2462	9.79	8.76	/
IEEE 802.11g	1	2412	13.26	11.96	/
	6	2437	13.36	11.52	/
	11	2462	13.19	11.28	/
IEEE 802.11n HT20	1	2412	11.25	8.62	13.1
	6	2437	10.90	8.18	12.8
	11	2462	10.63	7.98	12.5
IEEE 802.11n HT40	3	2422	10.45	7.88	12.4
	6	2437	10.23	7.34	12.0
	9	2452	10.05	7.29	11.9

6. Manufacturing Tolerance

2.4GWLAN (Antenna 1)

IEEE 802.11b			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11g			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	11.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT40			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0

2.4GWLAN (Antenna 2)

IEEE 802.11b			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	9.0	9.0	9.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11g			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	12.0	12.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	9.0	8.0	8.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT40			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	8.0	7.0	7.0
Tolerance ±(dB)	1.0	1.0	1.0

7. Measurement Results

Antenna 1

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW					
IEEE 802.11b	11.00	12.589	2	1.0000	100%	0.0016	1.0000
IEEE 802.11g	14.00	25.119	2	1.0000	100%	0.0063	1.0000
IEEE 802.11n HT20	12.00	15.849	2	1.0000	100%	0.0040	1.0000
IEEE 802.11n HT40	11.00	12.589	2	1.0000	100%	0.0016	1.0000

Antenna 2

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW					
IEEE 802.11b	10.00	10.000	2	1.0000	100%	0.0025	1.0000
IEEE 802.11g	13.00	19.953	2	1.0000	100%	0.0100	1.0000
IEEE 802.11n HT20	10.00	10.000	2	1.0000	100%	0.0050	1.0000
IEEE 802.11n HT40	9.00	7.943	2	1.0000	100%	0.0025	1.0000

8. 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

9. Summary simultaneous transmission results

The sample supports 3 antennas for 2.4G WLAN. The 2.4G WLAN can transmit simultaneous. According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

Σ of MPE ratios \leq 1.0

Antenna 1 and Antenna 2 for 2.4GWLAN

Antenna 0 for BT

Modulation Type	MPE WIFI Ant 1 (mW/cm ²)	MPE WIFI Ant 2 (mW/cm ²)	Σ MPE ratios	Limit	Results
WIFI	0.0063	0.0100	0.0188	1.0	PASS

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.

10. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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