Maximum Permissible Exposure Evaluation

FCC ID: 2AL8K-H5

1. Client Information

Applicant	:	NZS Inc. DBA Clary Icon
Addres	:	8168 Miramar Road, San Diego CA 92126, United States
Manufacturer	:	Shenzhen Konka E-display Co.,Ltd
Address	:	22A,KONKA Building,South Technology Road No.12th,High-tech Industrial Park,Nanshan,Shenzhen China

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, China
Tel: +86 75526509301 Fax: +86 75526509195

2. General Description of EUT

EUT Name	:	KK Intelligent Hub/ Interactive Touch Screen	
Models No.	:	H5 OneScreen	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz U-NII-1: 5180MHz~5240MHz U-NII-3: 5745MHz~5825MHz BLE:2402MHz-2480MHz
		Antenna Gain:	5dBi Reverse SMA Antenna MIMO mode for 802.11n/ac, Directional gain= GANT + 10 log(NANT) dBi =8.01dBi for U-NII-1/U-NII-3.
Power Supply	:	Input: AC 100-240, 50/60Hz Output: DC 12V	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

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MPE Calculations for WIFI

1. Antenna Gain:

Reverse SMA Antenna: 5.0dBi.

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:

2.4G WIFI

Mode	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) Numeric [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
802.11b	15.65	16±1	17	3.162	20	0.031531
802.11g	12.81	13±1	14	3.162	20	0.015803
802.11n (HT20)	12.59	13±1	14	3.162	20	0.015803
802.11n (HT40)	12.57	13±1	14	3.162	20	0.015803

BLE

Mode	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) Numeric [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
GFSK	0.099	0±1	1	3.162	20	0.000792

5G WIFI ANT 0 & ANT 1:

Mode	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) Numeric [G]	Distance (cm) [R]	Power Density (mW/cm^2) [S]
802.11a	16.69	16±1	17	3.162	20	0.031531
802.11ac(VHT20)	18.97	18±1	19	6.324	20	0.099939
802.11ac(VHT40)	18.86	18±1	19	6.324	20	0.099939
802.11n(HT20)	18.70	18±1	19	6.324	20	0.099939
802.11n(HT40)	18.11	18±1	19	6.324	20	0.099939

.**Note**: Antenna 0 gain: 5dBi, Antenna 1 gain: 5dBi, For MIMO mode for Directional gain= GANT + 10 log(NANT) dBi =8.01dbi

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

Power density Limits (mW/cm2) 2.4G WIFI	Power density Limits (mW/cm2) 2.4G BLE	Power density Limits (mW/cm2) 5G WIFI	Calculate Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
0.031531	0.000792	0.099939	0.132262	1.0

For 802.11b/g/n:2412~2462 MHz
For BLE: 2402MHz~2480MHz
For U-NII-1: 5180MHz~5240MHz
For U-NII-3: 5745MHz~5825MHz

MPE limit S: 1mW/ cm^2
The MPE is calculated as ***0.132262mW / 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.

Note

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

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