

Maximum Permissible Exposure Evaluation

FCC ID: 2AGZE-NXST22

1. Client Information

Applicant : Nexersys Corporation
Address : 1021 East 7th Street, Suite 100, Austin, TX 78702, United States
Manufacturer : Nexersys Corporation
Address : 1021 East 7th Street, Suite 100, Austin, TX 78702, United States

2. General Description of EUT

EUT Name	:	Nexersys Console	
Models No.	:	NXST22, NXST19, WF1851T, WF2151T, NXST-XX(The XX is client number from 01 to 50)	
Model Difference	:	They are identical in circuitry design, PCB layout, electrical components used, internal wiring and functions, only different on color.	
Product Description	:	Operation Frequency: WIFI 802.11b/g/n(H20): 2412MHz~2462MHz 802.11n(H40): 2422MHz~2452MHz BLE: 2402MHz~2480MHz	
		Number of Channel:	Bluetooth 4.0 (BLE): 40 channels WIFI: 802.11b/g/n(HT20):11channels 802.11n(HT40): 7 channels
		Output Power:	Bluetooth 4.0 (BLE): 1.008 dBm WIFI: 802.11b: 18.60dBm 802.11g: 16.68dBm 802.11n (HT20): 15.84dBm 802.11n (HT40): 12.84dBm
		Antenna Gain:	3.12 dBi Embedded Antenna
		Modulation Type:	BLE: GFSK 802.11b:DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM,64QAM)
Power Supply	:	DC power supplied by AC/DC Adapter.	

TB-RF-075-1.0

Power Rating	:	AC/DC Adapter: Input:100~240V, 50/60Hz , 2A Output:12V, 3.0A
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.		

MPE Calculations for WIFI

1. Antenna Gain:

FPC Antenna: 3.12 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	18.60	3.12	±1	20	0.03721714
802.11g	1	2412	16.68	3.12	±1	20	0.02391900
802.11n (HT20)	1	2437	15.84	3.12	±1	20	0.01971256
802.11n (HT40)	1	2452	12.84	3.12	±1	20	0.00987968
BLE	1	2480	1.008	3.12	±1	20	0.00064795
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) and Bluetooth 4.0(BLE)

MPE limit S: 1 mW/ cm²

The MPE is calculated as $0.03721714 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$. 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.