CTC Laboratories, Inc.

1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China
Tel: +86-755-27521059 Fax: +86-755-27521011 http://www.sz-ctc.org.cn

Maximum Permissible Exposure Evaluation

FCC ID: 2AVQ6-HY0025

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

EUT Specification

Product Name:	Smart home hub
Trade Mark:	Homey Pro
Model/Type reference:	HY0025
Listed Model(s):	/
Frequency band (Operating)	BT: 2.402GHz ~ 2.480GHz 2.4G WiFi: 2.412GHz ~ 2.462GHz 5G WiFi: 5.150GHz ~ 5.350GHz, 5.470GHz ~ 5.850GHz Zigbee: 2.405GHz ~ 2.480GHz Z-Wave LR: 912MHz, 920MHz Z-Wave: 908.42MHz, 916MHz
Device category	☐Portable (<5mm separation) ☐Mobile (>20cm separation) ☒Fixed (>20cm separation) ☐Others ___
Exposure classification	☐Occupational/Controlled exposure (S=5mW/cm2) ☒General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	☐Single antenna ☒Multiple antenna ☐Tx diversity ☐Rx diversity ☐Tx/Rx diversity
Antenna gain (Max)	BT / 2.4G WiFi: 3.5dBi 5G WiFi: 2.5dBi Zigbee: 1dBi Z-Wave LR / Z-Wave: 2dBi
Evaluation applied	☒MPE Evaluation ☐SAR Evaluation

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm^2)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

Friis transmission formula: Pd=(Pout*G)\(4*pi*R^2)
Where
Pd= Power density in mW/cm^2
Pout= output power to antenna in mW
G= gain of antenna in linear scale
Pi= 3.1416
R= distance between observation point and center of the radiator in cm
Pd the limit of MPE $1mW/cm^2$. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Zigbee - Worst case						
Type	Frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
OQPSK	2480	6.76	7.00	1	0.00126	1

Z-Wave LR - Worst case						
Type	Frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
OQPSK	912	0.20	0.50	2	0.00035	0.6

Z-Wave - Worst case						
Type	Frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
FSK/GFSK	908.42	-0.16	0.00	2	0.00032	0.6

BT - Worst case						
Type	Frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
GFSK	2440	4.71	5.00	3.5	0.00141	1

2.4G WiFi - Worst case						
Type	Frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
802.11 g	2437	15.37	15.50	3.5	0.01580	1

5G WiFi - Worst case						
Type	Frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
802.11 n(HT40)	5670	18.22	18.50	2.5	0.02505	1

Zigbee, Z-Wave, BT, WiFi can transmit simultaneously.

Type	Frequency (MHz)	Power density at 20cm (mW/cm^2)	Total Power density at 20cm	Power density Limit
Zigbee	2480	0.00126	0.02830	1
Z-Wave LR	912	0.00035		
BT	2440	0.00141		
WiFi	5670	0.02505		

Note:

1. Calculate by Worst-case mode
2. Max. Tune Up Power by Manufacturer's Declaration, and Max. Tune Up Power is used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

**********THE END**********