

# 1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

## 1.1 General Information

### Client Information

Applicant: Dragonglass Technology (SHENZHEN) Co., Ltd.  
Address of applicant: Floor 4, No. 128, Potou Du West Road, Longxi community, Longgang street, Longgang District, Shenzhen, Guangdong

Applicant: Dragonglass Technology (SHENZHEN) Co., Ltd.  
Address of applicant: Floor 4, No. 128, Potou Du West Road, Longxi community, Longgang street, Longgang District, Shenzhen, Guangdong

### General Description of EUT:

Product Name: Repeater  
Brand Name: SUPALILOG  
Model No.: DG-625V11  
Adding Model(s): /  
Rated Voltage: AC120V/60Hz  
FCC ID: 2A7HYDG-625V11

Technical Characteristics of EUT:	
Wi-Fi(2.4GHz)	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 802.11b/g/n(HT20) 2422-2452MHz for 802.11n(HT40)
RF Output Power:	Antenna 0: 15.95dBm (Conducted) Antenna 1: 13.37dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Quantity of Channels:	11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	External Undetached Antenna
Antenna Gain:	2dBi
Wi-Fi(5GHz)	
Support Standards:	802.11a, 802.11n(HT20) , 802.11n-HT40, 802.11ac-VHT80
Frequency Range:	5150-5250MHz, 5725-5850MHz
RF Output Power:	5150-5250MHz: Antenna 0:14.21dBm (Conducted) Antenna 1:15.49dBm (Conducted) 5725-5850MHz: Antenna 0:14.67dBm (Conducted) Antenna 1:15.29dBm (Conducted)
Type of Modulation:	QPSK, 16QAM, 64QAM, 256QAM
Type of Antenna:	External Undetached Antenna
Antenna Gain:	2dBi

## 1.2 Standard Applicable

According to § 1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

### (a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

### (b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: \* = Plane-wave equivalents power density

## 1.3 MPE Calculation Method

$$S = (30 * P * G) / (377 * R^2)$$

S = power density (in appropriate units, e.g., mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

## 1.4 MPE Calculation Result

Wi-Fi(5GHz)

Maximum Tune-Up output power: 17.5(dBm)

Maximum peak output power at antenna input terminal: 56.23(mW)

Prediction distance: >20(cm)

Prediction frequency: 5240 (MHz)

Antenna gain: 2.0(dBi)

Directional gain (numeric gain): 1.58

The worst case is power density at prediction frequency at 20cm: 0.0177(mw/cm<sup>2</sup>)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm<sup>2</sup>)

Wi-Fi(2.4GHz)

Maximum Tune-Up output power: 16.5(dBm)

Maximum peak output power at antenna input terminal: 44.67(mW)

Prediction distance: >20(cm)

Prediction frequency: 2437 (MHz)

Antenna gain: 2.0(dBi)

Directional gain (numeric gain): 1.58

The worst case is power density at prediction frequency at 20cm: 0.0141(mw/cm<sup>2</sup>)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm<sup>2</sup>)

Mode for Simultaneous Multi-band Transmission

Wi-Fi(5GHz)+ Wi-Fi(2.4GHz)

The worst case is power density at prediction frequency at 20cm:  $0.0177+0.0141=0.0318(\text{mw/cm}^2)$

MPE limit for general population exposure at prediction frequency: 1 (mw/cm<sup>2</sup>)

Result: Pass