

1. RF Exposure Requirements

1.1 General Information

Client Information

Applicant: Shenzhen Scyrox Electronic Limited
Address of applicant: Building 301, Lushi Industrial Building, Zone 28, Dalang Community, Xin'an Street, Bao'an District, Shenzhen China
Manufacturer: Shenzhen Scyrox Electronic Limited
Address of manufacturer: Building 301, Lushi Industrial Building, Zone 28, Dalang Community, Xin'an Street, Bao'an District, Shenzhen China

General Description of EUT:

Product Name: Gaming mouse
Trade Name: SCYROX
Model No.: V6
Adding Model(s): /
Rated Voltage: Battery DC3.7V
Battery Capacity: 250mAh
Power Adapter Model: /
FCC ID: 2BK7D-V6
Equipment Type: Portable device

Technical Characteristics of EUT:

Frequency Range: 2403-2480MHz
Max. Field Strength: 94.79dBuV/m
Modulation: GFSK
Quantity of Channels: 16
Channel Separation: /
Antenna Type: PCB Antenna
Antenna Gain: 0.95dBi

Channel List:

| channel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------|------|------|------|------|------|------|------|------|
| (MHz) | 2403 | 2472 | 2466 | 2458 | 2450 | 2462 | 2442 | 2468 |
| channel | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| (MHz) | 2424 | 2474 | 2446 | 2464 | 2480 | 2444 | 2470 | 2452 |

1.2 RF Exposure Exemption

According to §1.1307(b)(3) and KDB 447498 D04 Interim General RF Exposure Guidance v01, 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.

Option A: FCC Rule Part 1.1307 (b)(3)(i)(A): The available maximum time-averaged power is no more than 1mW, regardless of separation distance.

Option B: FCC Rule Part 1.1307 (b)(3)(i)(B): The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

Option C: FCC Rule Part 1.1307 (b)(3)(i)(C): The minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters.

| Single RF Sources Subject to Routine Environmental Evaluation | |
|---|-----------------------|
| RF Source frequency (MHz) | Threshold ERP (watts) |
| 0.3-1.34 | $1,920 R^2$ |
| 1.34-30 | $3,450 R^2/f^2$ |
| 30-300 | $3.83 R^2$ |
| 300-1,500 | $0.0128 R^2 f$ |
| 1,500-100,000 | $19.2R^2$ |

For Multiple RF sources: FCC Rule Part 1.1307(b)(3)(ii):

(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required).

(B) In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

1.3 Calculated Result

| Radio Access Technology | Prediction Frequency | Max. Field Strength | Antenna Gain | Output Power | Tune-Up Power | ERP |
|-------------------------|----------------------|---------------------|--------------|--------------|---------------|-------|
| | (MHz) | (dBuV/m) | (dBi) | (dBm) | (dBm) | (dBm) |
| SRD | 2403 | 94.79 | 0.95 | -1.42 | -1.00 | -2.20 |

| Frequency (MHz) | Option | Min. Distance | Max. Power | | Exposure Limit | Ratio | Result |
|-----------------|--------|---------------|------------|------|----------------|-------|-----------|
| | | (cm) | (dBm) | (mW) | (mW) | | Pass/Fail |
| 2403 | B | 0.5 | -1.00 | 0.79 | 2.787 | 0.29 | Pass |

Note: 1. $EIRP = E-104.8+20\log D$; Output Power = $EIRP - \text{Antenna Gain}$;

$ERP = EIRP - 2.15\text{dB}$

2. Option A, B and C refers as clause 1.2.

3. For option B, Max (time-averaged power, effective radiated power (ERP)) converts to Max. Power.

For option C, ERP converts to Max. Power;

4. For option B, P_{th} (mW) converts to Exposure Limit (mW); For option C, ERP (W) converts to Exposure Limit (mW).

5. Ratio = Tune-Up ERP (mW) / Exposure Limit (mW)

Mode for Simultaneous Multi-band Transmission:

| Radio Access Technology | Ratio 1 | Ratio 2 | Ratio 3 | Simultaneous Ratio | Limit | Result |
|-------------------------|---------|---------|---------|--------------------|-------|--------|
| | / | / | / | | | / |
| | | | | | | |

Result: Pass