

## FCC RF Exposure

**FCC ID:** 2AYGT-AT20

**Applicant:** IRay Techonlogy Co.,Ltd

Exposure category: General population/uncontrolled environment

EUT Type: Production Unit

Device Type: AT20 Online Thermal Camera

Refer Standard: FCC Part 2.1091: Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)

### FCC MPE Limited:

| Limits for General Population/Uncontrolled Exposure |                               |                               |                        |                          |
|-----------------------------------------------------|-------------------------------|-------------------------------|------------------------|--------------------------|
| Frequency Range (MHz)                               | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm2) | Averaging Time (minutes) |
| 0.3-1.34                                            | 614                           | 1.63                          | *(100)                 | 30                       |
| 1.34-30                                             | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> ) | 30                       |
| 30-300                                              | 27.5                          | 0.073                         | 0.2                    | 30                       |
| 300-1500                                            | /                             | /                             | f/1500                 | 30                       |
| 1500-100,000                                        | /                             | /                             | 1.0                    | 30                       |

### Test Data

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

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, the power gain factor, is normally numeric gain.

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

### 2.4G WLAN Antenna Gain information

Antenna Gain: 2.5dBi

### Worst-Case mode Conducted Output Power Results for 2.4G WIFI

| Test mode | Channel | Frequency (MHz) | RF Power(dBm) |
|-----------|---------|-----------------|---------------|
| 802.11b   | 1       | 2412            | 17.63         |
|           | 6       | 2437            | 17.22         |
|           | 11      | 2462            | 16.35         |
| 802.11g   | 1       | 2412            | 14.68         |
|           | 6       | 2437            | 15.40         |
|           | 11      | 2462            | 14.78         |
| 802.11n20 | 1       | 2412            | 11.93         |
|           | 6       | 2437            | 11.59         |
|           | 11      | 2462            | 11.77         |
| 802.11n40 | 3       | 2422            | 12.18         |
|           | 6       | 2437            | 11.79         |
|           | 9       | 2452            | 11.15         |

### Manufacturing tolerance

| Test mode | Channel | Frequency (MHz) | Max. RF Power(dBm) | Tolerance $\pm$ (dB) |
|-----------|---------|-----------------|--------------------|----------------------|
| 802.11b   | 1       | 2412            | 17.63              | $17 \pm 1$           |
|           | 6       | 2437            | 17.22              | $17 \pm 1$           |
|           | 11      | 2462            | 16.35              | $17 \pm 1$           |
| 802.11g   | 1       | 2412            | 14.68              | $15 \pm 1$           |
|           | 6       | 2437            | 15.40              | $15 \pm 1$           |
|           | 11      | 2462            | 14.78              | $15 \pm 1$           |
| 802.11n20 | 1       | 2412            | 11.93              | $11 \pm 1$           |
|           | 6       | 2437            | 11.59              | $11 \pm 1$           |
|           | 11      | 2462            | 11.77              | $11 \pm 1$           |
| 802.11n40 | 3       | 2422            | 12.18              | $12 \pm 1$           |
|           | 6       | 2437            | 11.79              | $12 \pm 1$           |
|           | 9       | 2452            | 11.15              | $12 \pm 1$           |

### Calculation results (for 2.4G WIFI): pass

| Mode                | Frequency (MHz) | Maximum tune up power(dBm) | RF distance(cm) | Result (mW/cm2) | Limit (mW/cm2) |
|---------------------|-----------------|----------------------------|-----------------|-----------------|----------------|
| 802.11b             | 2412            | 18                         | 20              | 0.022           | 1.0            |
|                     | 2437            | 18                         | 20              | 0.022           |                |
|                     | 2462            | 18                         | 20              | 0.022           |                |
| Antenna Gain=2.5dBi |                 |                            |                 |                 |                |