

## RF EXPOSURE EVALUATION

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)

FCC ID: 2ACSVHF-LPT120A

### EUT Specification

| EUT                               | SPORT DVR                                                                                                                                                                                                                      |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frequency band (Operating)</b> | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz<br><input type="checkbox"/> Others  |
| <b>Device category</b>            | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others ____                                                                  |
| <b>Exposure classification</b>    | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )                                  |
| <b>Antenna diversity</b>          | <input checked="" type="checkbox"/> Single antenna<br><input type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity |
| <b>Max. output power</b>          | 16.45dBm (0.0442W)                                                                                                                                                                                                             |
| <b>Antenna gain (Max)</b>         | 1.5 dBi                                                                                                                                                                                                                        |
| <b>Evaluation applied</b>         | <input checked="" type="checkbox"/> MPE Evaluation<br><input type="checkbox"/> 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 <sup>2</sup> ) | Average Time |
|--------------------------------------------------------------|------------------------------|------------------------------|------------------------------------|--------------|
| <b>(A) Limits for Occupational/Control Exposures</b>         |                              |                              |                                    |              |
| 300-1500                                                     | --                           | --                           | F/300                              | 6            |
| 1500-100000                                                  | --                           | --                           | 5                                  | 6            |
| <b>(B) Limits for General Population/Uncontrol Exposures</b> |                              |                              |                                    |              |
| 300-1500                                                     | --                           | --                           | F/1500                             | 6            |
| 1500-100000                                                  | --                           | --                           | 1                                  | 30           |

## Friis transmission formula: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. 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

| Operating Mode | Channel Frequency (MHz) | Measured Power (dBm) | Tune up tolerance (dBm) | Max. Tune up Power (dBm) | Antenna Gain (dBi) | Power density at 20cm (mW/ cm <sup>2</sup> ) | Power density Limits (mW/cm <sup>2</sup> ) |
|----------------|-------------------------|----------------------|-------------------------|--------------------------|--------------------|----------------------------------------------|--------------------------------------------|
| 802.11b        | 2412                    | 15.89                | 15.89±1                 | 16.89                    | 1.5                | 0.0137                                       | 1                                          |
|                | 2437                    | 16.45                | 16.45±1                 | 17.45                    | 1.5                | 0.0156                                       | 1                                          |
|                | 2462                    | 15.20                | 15.20±1                 | 16.20                    | 1.5                | 0.0117                                       | 1                                          |
| 802.11g        | 2412                    | 13.98                | 13.98±1                 | 14.98                    | 1.5                | 0.0088                                       | 1                                          |
|                | 2437                    | 13.15                | 13.15±1                 | 14.15                    | 1.5                | 0.0073                                       | 1                                          |
|                | 2462                    | 13.79                | 13.79±1                 | 14.79                    | 1.5                | 0.0085                                       | 1                                          |
| 802.11n (HT20) | 2412                    | 12.60                | 12.60±1                 | 13.60                    | 1.5                | 0.0064                                       | 1                                          |
|                | 2437                    | 12.09                | 12.09±1                 | 13.09                    | 1.5                | 0.0057                                       | 1                                          |
|                | 2462                    | 12.98                | 12.98±1                 | 13.98                    | 1.5                | 0.0070                                       | 1                                          |