

## FCC RF Exposure

EUT Description:CabiSmart

Model No.: YF-P-CA-06,YF-P-CA-01,YF-P-CA-02,YF-P-CA-03,YF-P-CA-04,YF-P-CA-05,YF-P-CA-07,YF-P-CA-08,  
YF-P-CA-09,LPS-BS-9,LPS-BS-12,LPS-BS-18,LPS-BS-24, LPS-BS-36,LPS-BS-72

FCC ID:2BBD7-YF-P-CA-06

Equipment type: mobile equipment

### 1. Limits

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)

#### Limits for Maximum Permissible Exposure (MPE)

| Frequency range<br>(MHz)                                | Electric field<br>strength<br>(V/m) | Magnetic field strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(minutes) |
|---------------------------------------------------------|-------------------------------------|----------------------------------|----------------------------------------|-----------------------------|
| (A) Limits for Occupational/Controlled Exposures        |                                     |                                  |                                        |                             |
| 0.3–3.0                                                 | 614                                 | 1.63                             | *(100)                                 | 6                           |
| 3.0–30                                                  | 1842/f                              | 4.89/f                           | *(900/f <sup>2</sup> )                 | 6                           |
| 30–300                                                  | 61.4                                | 0.163                            | 1.0                                    | 6                           |
| 300–1500                                                |                                     |                                  | f/300                                  | 6                           |
| 1500–100,000                                            |                                     |                                  | 5                                      | 6                           |
| (B) Limits for General Population/Uncontrolled Exposure |                                     |                                  |                                        |                             |
| 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                          |

F = frequency in MHz

Formula:  $Pd = (P_{out} * G) / (4 * \pi * r^2)$

Where :

Pd = power density in mW/cm<sup>2</sup>,

Pout = output power to antenna in mW;

G = gain of antenna in linear scale,

$\pi = 3.14$ ;

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

### 2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

### 3. Test Result of RF Exposure Evaluation

#### WIFI

|                | Output power<br>(dBm/ mW) | Antenna<br>Gain(dBi) | Power Density<br>at R=20cm<br>(mW/cm <sup>2</sup> ) | Limit<br>(mW/cm <sup>2</sup> ) | Result |
|----------------|---------------------------|----------------------|-----------------------------------------------------|--------------------------------|--------|
| 802.11b        | 8.44/6.9823               | 1.22                 | 0.00184                                             | 1.0                            | Pass   |
| 802.11g        | 7.43/5.5335               | 1.22                 | 0.00146                                             | 1.0                            | Pass   |
| 802.11n(20MHz) | 6.68/4.6559               | 1.22                 | 0.00123                                             | 1.0                            | Pass   |
| 802.11n(40MHz) | 7.34/5.4200               | 1.22                 | 0.00143                                             | 1.0                            | Pass   |

BT:

$$EIRP = E_{Meas} + 20 \log(d_{meas}) - 104.7$$

EIRP is the equivalent isotropically radiated power,

E<sub>Meas</sub> in dBm is the field strength of the emission at the measurement distance, in dB u V/m

d<sub>meas</sub> is the measurement distance, in m

| Field<br>strength(dBuV/m) | EIRP(dBm) | Max<br>tune-up(mW) | Antenna<br>Gain(dBi) | Power<br>Density<br>at R=20cm<br>(mW/cm <sup>2</sup> ) | Limit<br>(mW/cm <sup>2</sup> ) | Result |
|---------------------------|-----------|--------------------|----------------------|--------------------------------------------------------|--------------------------------|--------|
| 93.61                     | -1.5476   | 0.7002             | 1.22                 | 0.00018                                                | 1.0                            | Pass   |
| 93.52                     | -1.6376   | 0.6859             | 1.22                 | 0.00018                                                | 1.0                            | Pass   |
| 91.82                     | -3.3376   | 0.4637             | 1.22                 | 0.00012                                                | 1.0                            | Pass   |

Conclusion: the RF exposure analysis concludes that the product is compliant with the FCC RF exposure requirements in mobile exposure condition.