

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: 2ASOM-PERI

EUT Specification

| | |
|-----------------------------------|---|
| EUT | Plevo smart suitcase |
| Frequency band (Operating) | <input checked="" type="checkbox"/> GSM: 850/1900 <input type="checkbox"/> WCDMA: UMTS FDD Band II, UMTS FDD Band V <input checked="" type="checkbox"/> Others (BLE) <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz |
| Device category | <input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____ |
| Exposure classification | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²) |
| Antenna diversity | <input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity |
| Max. output power | 30.45dBm (1.1092W) |
| Antenna gain (Max) | GPRS 850: 1.02dBi GPRS 1900: 2.33dBi BLE: 1.05dBi WiFi: 3.86dBi |
| Evaluation applied | <input checked="" type="checkbox"/> MPE Evaluation <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 ²) | Average Time |
|--|------------------------------|------------------------------|------------------------------------|--------------|
| (A) Limits for Occupational/Control Exposures | | | | |
| 300-1500 | -- | -- | F/300 | 6 |
| 1500-100000 | -- | -- | 5 | 6 |
| (B) Limits for General Population/Uncontrol Exposures | | | | |
| 300-1500 | -- | -- | F/1500 | 6 |
| 1500-100000 | -- | -- | 1 | 30 |

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

Where

P_d = Power density in mW/cm^2

P_{out} = output power to antenna in Mw

G = gain of antenna in linear scale

π = 3.1416

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

P_d the limit of MPE, $1mW/cm^2$. 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 | Power density at 20cm (mW/cm^2) | Power density Limits (mW/cm^2) |
|----------------|-------------------------|----------------------|-------------------------|--------------------------|--------------|-------------------------------------|------------------------------------|
| GPRS850 | 824.2 | 30.21 | 31.0 ± 1 | 32 | 1.02 | 0.3988 | 0.55 |
| | 836.6 | 30.37 | 31.0 ± 1 | 32 | 1.02 | 0.3988 | 0.56 |
| | 848.8 | 30.45 | 31.0 ± 1 | 32 | 1.02 | 0.3988 | 0.57 |
| GPRS 1900 | 1850.2 | 29.38 | 30 ± 1 | 31 | 2.33 | 0.4283 | 1 |
| | 1880.0 | 30.28 | 30 ± 1 | 31 | 2.33 | 0.4283 | 1 |
| | 1909.8 | 29.86 | 30 ± 1 | 31 | 2.33 | 0.4283 | 1 |
| BLE | 2402 | -6.931 | -6.931 ± 1 | -5.931 | 1.05 | 0.0001 | 1 |
| | 2440 | -8.082 | -8.082 ± 1 | -7.082 | 1.05 | 0.0000 | 1 |
| | 2480 | -8.821 | -8.821 ± 1 | -7.821 | 1.05 | 0.0000 | 1 |
| 802.11b | 2412 | 12.65 | 12.65 ± 1 | 13.65 | 3.86 | 0.0112 | 1 |
| | 2437 | 11.60 | 11.60 ± 1 | 12.60 | 3.86 | 0.0088 | 1 |
| | 2462 | 11.17 | 11.17 ± 1 | 12.17 | 3.86 | 0.0080 | 1 |
| 802.11g | 2412 | 12.97 | 12.97 ± 1 | 13.97 | 3.86 | 0.0121 | 1 |
| | 2437 | 11.09 | 11.09 ± 1 | 12.09 | 3.86 | 0.0078 | 1 |
| | 2462 | 11.10 | 11.10 ± 1 | 12.10 | 3.86 | 0.0078 | 1 |
| 802.11n (HT20) | 2412 | 12.10 | 12.10 ± 1 | 13.10 | 3.86 | 0.0099 | 1 |
| | 2437 | 10.51 | 10.51 ± 1 | 11.51 | 3.86 | 0.0069 | 1 |
| | 2462 | 10.11 | 10.11 ± 1 | 11.11 | 3.86 | 0.0062 | 1 |

Conclusion: No SAR is required.

The location of GPRS Antenna

More than 20cm away from the Antenna

