

RF EXPOSURE EVALUATION

EUT Specification

| | |
|-----------------------------------|--|
| EUT | Smart Console |
| Model Number | iSS50 |
| FCC ID | EMOISS50 |
| Frequency band (Operating) | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN:5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input type="checkbox"/> Others |
| 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 |
| Antenna gain (Max) | 5.12dBi |
| Max. output power | 802.11b: 14.54dBm 802.11g: 12.20dBm 802.11n(HT20): 11.12dBm 802.11n(HT40): 10.05dBm |
| Input Rating | AC 120V, 60Hz, USB DC5V |
| Evaluation applied | <input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation |

Applicable Standard:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J. Section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m Normally can be maintained between the user and the device.

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 | | | | |
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | (900/f)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | F/300 | 6 |
| 1500-100000 | -- | -- | 5 | 6 |
| (B) Limits for General Population/Uncontrol Exposures | | | | |
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | F/1500 | 30 |
| 1500-100000 | -- | -- | 1 | 30 |

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

Where P_d = Power density in mW/cm², 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/cm². 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

Max power Result:

| Operation Mode | Channel Number | Channel Frequency (MHz) | Measurement Level (dBm) | Limit (dBm) | Verdict |
|----------------|----------------|-------------------------|-------------------------|-------------|---------|
| 802.11b | 1 | 2412 | 13.20 | 30 | PASS |
| | 6 | 2437 | 13.32 | 30 | PASS |
| | 11 | 2462 | 14.54 | 30 | PASS |
| 802.11g | 1 | 2412 | 11.56 | 30 | PASS |
| | 6 | 2437 | 12.06 | 30 | PASS |
| | 11 | 2462 | 12.20 | 30 | PASS |
| 802.11n (HT20) | 1 | 2412 | 10.25 | 30 | PASS |
| | 6 | 2437 | 11.03 | 30 | PASS |
| | 11 | 2462 | 11.12 | 30 | PASS |
| 802.11n (HT40) | 1 | 2422 | 9.25 | 30 | PASS |
| | 6 | 2437 | 9.65 | 30 | PASS |
| | 11 | 2452 | 10.05 | 30 | PASS |

| Operating Mode | Test Channel | Tune up tolerance (dBm) | Max tune up conducted power(dBm) | Output Peak power (mW) | Ant. Gain (dBi) | Ant. Gain (numeric) | Power density at 20cm (mW/cm ²) | Power density Limits (mW/cm ²) |
|----------------|--------------|-------------------------|----------------------------------|------------------------|-----------------|---------------------|---|--|
| 802.11b | 1 | 13±1 | 14 | 25.12 | 5.12 | 3.25 | 0.162417 | 1 |
| | 6 | 13±1 | 14 | 25.12 | 5.12 | 3.25 | 0.162417 | 1 |
| | 11 | 14±1 | 15 | 31.62 | 5.12 | 3.25 | 0.204444 | 1 |
| 802.11g | 1 | 11±1 | 12 | 15.85 | 5.12 | 3.25 | 0.102481 | 1 |
| | 6 | 12±1 | 13 | 19.95 | 5.12 | 3.25 | 0.128990 | 1 |
| | 11 | 12±1 | 13 | 19.95 | 5.12 | 3.25 | 0.128990 | 1 |
| 802.11n (HT20) | 1 | 10±1 | 11 | 12.59 | 5.12 | 3.25 | 0.081403 | 1 |
| | 6 | 11±1 | 12 | 15.85 | 5.12 | 3.25 | 0.102481 | 1 |
| | 11 | 11±1 | 12 | 15.85 | 5.12 | 3.25 | 0.102481 | 1 |
| 802.11n (HT40) | 1 | 9±1 | 10 | 10.00 | 5.12 | 3.25 | 0.064657 | 1 |
| | 6 | 9±1 | 10 | 10.00 | 5.12 | 3.25 | 0.064657 | 1 |
| | 11 | 10±1 | 11 | 12.59 | 5.12 | 3.25 | 0.081403 | 1 |