9. RADIO FREQUENCY EXPOSURE

9.1. Limit

According to §1.1310 and §2.1091 RF exposure is calculated.

Table: Limits for General Population/Uncontrolled Exposure

| Frequency Range | Power Density (S) | | |
|-----------------|------------------------|--|--|
| (MHz) | (mW/cm2) | | |
| 0.3–1.34 | *(100) | | |
| 1.34-30 | *(180/f ²) | | |
| 30–300 | 0.2 | | |
| 300-1500 | f/1500 | | |
| 1500-100,000 | 1.0 | | |

F = frequency in MHz

Maximum Permissible Exposure

The MPE was calculated at 20cm to show compliance with the power density limit.

 $S = PG/4\pi R^2$

S = Power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna.

Note:

- 1. Manufacturer declared that the maximum antenna gain for Wi-Fi is 5dBi(Max.)
- 2. Manufacturer declared that the nearest distance between human and the EUT is 20cm.
- 3. Only record worst case data.

^{* =} Plane-wave equivalent power density

| Test Mode | Channel | Frequency (MHz) | Power (dBm, AV) Ant 1 | Power Tune Up (dBm) | |
|---------------|--------------------|--------------------|-----------------------|---------------------------|--|
| | Low | 5745 | | , , | |
| 802.11a | Low | 5745 16.53 | | 17.0±1.0 | |
| | Middle | 5785 | 16.66 | 17.0 ± 1.0 | |
| | High | 5825 | 17.24 | 17.0±1.0 | |
| 802.11n(HT20) | Low | 5745 | 15.64 | 15.0±1.0 | |
| | 2.11n(HT20) Middle | | 15.90 | 15.0±1.0 | |
| | High | 5825 | 15.53 | 15.0±1.0 | |
| 802.11n(HT40) | Low | 5755 | 15.63 | 15.0±1.0 | |
| | High | 5795 | 15.23 | 15.0±1.0 | |

9.2 Test Results

| Test Mode | Channel | Max. Tune Up Power (dBm, Average) | Max. Tune Up Power (mW) | Antenna gain(numeric) | MPE (mW/cm²) | Limit (mW/cm²) |
|---------------|---------|-----------------------------------|-------------------------------|--------------------------|-----------------|-------------------|
| 802.11a | Low | 18.0 | 63.10 | 3.16 | 0.0397 | 1.0 |
| | Middle | 18.0 | 63.10 | 3.16 | 0.0397 | 1.0 |
| | High | 18.0 | 63.10 | 3.16 | 0.0397 | 1.0 |
| 802.11n(HT20) | Low | 16.0 | 39.81 | 3.16 | 0.0250 | 1.0 |
| | Middle | 16.0 | 39.81 | 3.16 | 0.0250 | 1.0 |
| | High | 16.0 | 39.81 | 3.16 | 0.0250 | 1.0 |
| 802.11n(HT40) | Low | 16.0 | 39.81 | 3.16 | 0.0250 | 1.0 |
| | High | 16.0 | 39.81 | 3.16 | 0.0250 | 1.0 |

Antenna Gain (typical): Wi-Fi: 5dBi, 3.16 (numeric)

Prediction distance: >=20cm

The power density level worst case at 20 cm is below the uncontrolled exposure limit.