

IEEE C95.1

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47 C.F.R. Part 1, Subpart I, Section 1.1310

47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

Smart Touch Computer

Model: STC-1505

Trade Name: 

Issued for

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Revision History

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1. Limit

According to §15.247(i), 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 of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

2. EUT Specification

| | |
|-----------------------------------|---|
| Product Name | Smart Touch Computer |
| Model Number | STC-1505 |
| Identify Number | T150629D01 |
| Received Date | June 29, 2015 |
| Frequency band (Operating) | <input checked="" type="checkbox"/> Bluetooth 2.1 + EDR / 4.0: 2402 ~ 2480 MHz 802.11b/g/gn HT20: 2412MHz ~ 2462MHz 802.11gn HT40: 2422MHz ~ 2452MHz <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 Specification | Dipole Antennax 2 Antenna 1 / Chain 0, Antenna Gain : 1.91 dBi (Numeric gain: 1.55) Antenna 2 / Chain 1, Antenna Gain : 1.91 dBi (Numeric gain: 1.55) |

| | |
|-------------------------------------|--|
| Maximum Average output power | IEEE 802.11b Mode: 23.34 dBm (215.774 mW) IEEE 802.11g Mode: 26.08 dBm (405.509 mW) IEEE 802.11gn HT 20 Mode: 27.66 dBm (583.445 mW) IEEE 802.11gn HT 40 Mode: 25.13 dBm (325.837 mW) Bluetooth 2.1+EDR Mode : 4.85 dBm (3.055 mW) Bluetooth 4.0 Mode : 1.88 dBm (1.542 mW) |
| Evaluation applied | <input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A |

3. Test Results

No non-compliance noted.

Calculation

$$\text{Given } E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{377}$$

Where $E = \text{Field strength in Volts / meter}$

$P = \text{Power in Watts}$

$G = \text{Numeric antenna gain}$

$d = \text{Distance in meters}$

$S = \text{Power density in watts / meter}$

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where $d = \text{Distance in cm}$

$P = \text{Power in mW}$

$G = \text{Numeric antenna gain}$

$S = \text{Power density in mW / cm}^2$

4. Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where

$P =$ Power in mW

$G =$ Numeric antenna gain

$S =$ Power density in mW / cm²

IEEE 802.11b mode:

| Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / cm ² | Limit (mW/cm2) |
|-----------|---------|-------------|--------|---------------------------------------|----------------|
| 2437 | 215.774 | 1.55 | 20 | 0.0666 | 1 |

IEEE 802.11g mode:

| Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / cm ² | Limit (mW/cm2) |
|-----------|---------|-------------|--------|---------------------------------------|----------------|
| 2437 | 405.509 | 1.55 | 20 | 0.1251 | 1 |

IEEE 802.11gn HT20 mode:

| Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / cm ² | Limit (mW/cm2) |
|-----------|---------|-------------|--------|---------------------------------------|----------------|
| 2437 | 583.445 | 1.55 | 20 | 0.1800 | 1 |

IEEE 802.11gn HT40 mode:

| Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / cm ² | Limit (mW/cm2) |
|-----------|---------|-------------|--------|---------------------------------------|----------------|
| 2437 | 325.837 | 1.55 | 20 | 0.1005 | 1 |

Bluetooth 2.1 + EDR mode:

| Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / cm ² | Limit (mW/cm2) |
|-----------|--------|-------------|--------|---------------------------------------|----------------|
| 2402 | 3.055 | 1.55 | 20 | 0.0009 | 1 |

Bluetooth 4.0 mode:

| Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / cm ² | Limit (mW/cm2) |
|-----------|--------|-------------|--------|---------------------------------------|----------------|
| 2402 | 1.542 | 1.55 | 20 | 0.0005 | 1 |