

IEEE C95.1  
KDB 447498 D03  
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**  
**WIRELESS REFRIGERANT SCALE**  
**Model: WRSX**  
**Data Applies To: N/A**

Trade Name:



Issued to  
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Issued By  
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## Revision History

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|------|-------------------|---------------|-------------|------------|
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## 1. TEST RESULT CERTIFICATION

### We hereby certify that:

The equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirement of the applicable standards. The test record, data evaluation and Equipment under Test (EUT) configurations represented herein are true and accurate accounts of the measurement of the sample's RF characteristics under the conditions specified in this report.

| APPLICABLE STANDARDS  |                         |
|---|-------------------------|
| STANDARD  | TEST RESULT             |
| IEEE C95.1 2005<br>KDB 447498 D03<br>47 C.F.R. Part 1, Subpart I, Section 1.1310<br>47 C.F.R. Part 2, Subpart J, Section 2.1091 | No non-compliance noted |

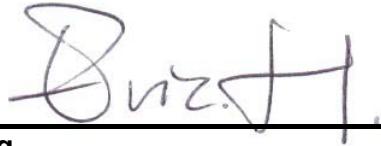
*Approved by:*



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Jeter Wu  
Assistant Manager

*Reviewed by:*



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Eric Huang  
Section Manager

## 2. 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.

## 3. EUT SPECIFICATION

|                                     |   |              |        |
|-------------------------------------|---|--------------|--------|
| <b>EUT</b>                          | WIRELESS REFRIGERANT SCALE  |              |        |
| <b>Model</b>                        | WRSX  |              |        |
| <b>Data Applies To</b>              | N/A   |              |        |
| <b>Brand</b>                        |    |              |        |
| <b>RF Module</b>                    | CHY2400M  | <b>Model</b> | CC2540 |
| <b>Frequency band (Operating)</b>   | <input type="checkbox"/> 802.11b/g/n HT20: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> 802.11n HT40: 2.422GHz ~ 2.452GHz<br><input type="checkbox"/> 802.11a/n HT20: 5.180GHz ~ 5.240GHz / 5.745 ~ 5.825GHz<br><input type="checkbox"/> 802.11n HT40: 5.190GHz ~ 5.230GHz / 5.755~ 5.795GHz<br><input type="checkbox"/> 802.11ac VHT80: 5.210GHz / 5.775GHz<br><input checked="" type="checkbox"/> Others |              |        |
| <b>Device category</b>              | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others  |              |        |
| <b>Exposure classification</b>      | <input type="checkbox"/> Occupational/Controlled exposure ( $S = 5\text{mW/cm}^2$ )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure ( $S=1\text{mW/cm}^2$ )   |              |        |
| <b>Antenna Specification</b>        | PCB Antenna / Gain: <span style="background-color: #e0e0ff; padding: 2px;">1.30 dBi</span> (Numeric gain: 1.35) worst   |              |        |
| <b>Maximum Average output power</b> | Bluetooth 4.0: <span style="background-color: #e0e0ff; padding: 2px;">1.30 dBm</span> (1.349 mW)  |              |        |
| <b>Evaluation applied</b>           | <input checked="" type="checkbox"/> MPE Evaluation*<br><input type="checkbox"/> SAR Evaluation<br><input type="checkbox"/> N/A  |              |        |

## 4. TEST RESULTS

No non-compliance noted.

### Calculation

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

Where  $E$  = Field strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power density in milliwatts / square centimeter

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

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

Changing to units of mW and cm, using:

$P$  (mW) =  $P$  (W) / 1000 and

$d$  (cm) =  $d$ (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  $d$  = Distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW /  $cm^2$

## 5. 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 /  $cm^2$

### Bluetooth 4.0 mode:

| Ch. | Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / $cm^2$ | Limit (mW/cm2) | Result |
|-----|-----------|--------|-------------|--------|------------------------------|----------------|--------|
| Low | 2402      | 1.349  | 1.35        | 20     | 0.0004                       | 1              | Pass   |