

## RF Exposure / SAR Statement

**No. : 30KE0222-SH**

**Applicant** : FUKUDA DENSHI CO.,LTD.  
**Type of Equipment** : Bidirectional Wireless Communications Module  
**Model No.** : HTC-702  
**FCC ID** : DV8HTC702

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FUKUDA DENSHI CO.,LTD. declares that Model : Bidirectional Wireless Communications Module complies with FCC radiation exposure requirement specified in the FCC Rules 2.1091. The "HTC-702" has 35.25 mW of EIRP by using the formula of electromagnetic field strength in free space. Therefore peak output power will be deemed 22.24 mW by subtracting Antenna gain.

$$\begin{aligned} E &= (30 \times P \times G)^{1/2} / d \\ P &= (E \times d)^2 / (30 \times G) \\ E &= 110.7 \text{ [dBuV/m]} \text{ (Maximum output power)} \\ E &= 10^{(110.7 / 20)} \times 10^{(-6)} = 0.3428 \text{ [V/m]} \\ (\text{Gain}) G &= 1 \text{ (Numerical Antenna gain)} \\ d &= 3 \text{ [m]} \\ P &= 35.25 \text{ [mW]} = 15.47 \text{ [dBm]} \\ \text{EUT Gain} &= 2 \text{ [dBi]} \\ \text{Antenna terminal power} &= 15.47 \text{ [dBm]} - 2 \text{ [dBi]} = 13.47 \text{ [dBm]} \\ &= 22.24 \text{ [mW]} \end{aligned}$$

This equipment is considered as a mobile device so that SAR testing is excluded. The Following calculation is the reference data for 20cm distance.

### RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided with the "HTC-702" as calculated from FCC OET Bulletin 65 Appendix A, Table (B) Limits for General Population / Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 0.93mW/cm<sup>2</sup> uncontrolled exposure limit. The Friis formula used was:

$$S = (P * G) / (4 * \pi * r^2)$$

Where

$$\begin{aligned} P &= 22.24 \text{ [mW]} \text{ (Maximum peak output power)} \\ G &= 1.58 \text{ Numerical Antenna gain; equal } 2.00 \text{ [dBi]} \\ r &= 20.0 \text{ [cm]} \end{aligned}$$

For: HTC-702

$$S = 0.00701 \text{ [mW/cm}^2 \text{]}$$

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