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## **Certification Exhibit**

**FCC ID: YKD-25STW4100-029**

**FCC Rule Part: 15.247**

**TÜV SÜD Project Number: 72126853**

Manufacturer: L-3 Communications CyTerra Corporation  
Model: HF-A11-SMT-0

## **RF Exposure**

**General Information:**

Applicant: L-3 Communications CyTerra Corporation  
 Environment: General Population/Uncontrolled Exposure  
 Exposure Conditions: Portable

The EUT contains a 3.5 GHz step frequency continuous wave (SFCW) radio and 2.4 GHz 802.11g WLAN radio; both of which can operate simultaneously.

***SFCW Radio – FCC ID: YKD-25STW4100-019***

Minimum Test Separation Distance: 22 mm  
 Highest Operating Frequency: 3500 MHz  
 Antenna Type: Cavity Backed Spiral  
 Antenna Gain: 1 dBi  
 Maximum Transmitter Conducted Power (Rated): 15 dBm, 31.6 mW  
 Maximum Transmitter EIRP: 16 dBm, 39.81 mW

***WLAN Radio – FCC ID: YKD-25STW4100-029***

Minimum Test Separation Distance: 47 mm  
 Highest Operating Frequency: 2462 MHz  
 Antenna Type: Flexible PCB Antenna  
 Antenna Gain: 4 dBi  
 Maximum Transmitter Conducted Power (average): 15.17 dBm, 32.9 mW  
 Maximum Transmitter EIRP: 19.17 dBm, 82.6 mW

**Justification for SAR Test Exclusion:****Standalone SAR Test Exclusion:**

Per KDB 447498 D01 General RF Exposure Guidance v05r02, the standalone 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot \sqrt{f(\text{GHz})} \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR

For 100 MHz to 6 GHz and test separation distances  $> 50$  mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following

- 1)  $\{[\text{Power allowed at numeric threshold for 50 mm}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$  mW, for 100 MHz to 1500 MHz
- 2)  $\{[\text{Power allowed at numeric threshold for 50 mm}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$  mW, for  $> 1500$  MHz and  $\leq 6$  GHz

***SFCW Radio – FCC ID: YKD-25STW4100-019***

$= (31.6 / 22) \cdot (\sqrt{3.5}) = 2.7$

**2.7 < 7.5**

***WLAN Radio – FCC ID: YKD-25STW4100-029***

$= (32.9 / 47) \cdot (\sqrt{2.462}) = 1.1$

**1.1 < 7.5**

Standalone SAR test exclusion is applied.

Simultaneous Transmission SAR Test Exclusion:

When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration.

When the standalone SAR test exclusion is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to determine simultaneous transmission SAR test exclusion:

*(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)* · [ $\sqrt{f(\text{GHz})/x}$ ] W/kg for test separation distances  $\leq 50$  mm;

where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.

SFCW Radio – FCC ID: YKD-25STW4100-019

$$= (31.6 \text{ mW} / 22 \text{ mm}) \cdot [(\sqrt{3.5 \text{ GHz}}) / 18.5] = 0.15 \text{ W/kg}$$

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$$= (32.9 \text{ mW} / 47 \text{ mm}) \cdot [(\sqrt{2.462 \text{ GHz}}) / 18.5] = 0.06 \text{ W/kg}$$

**Sum of 10-g Estimated SAR = 0.21 W/kg < 4 W/kg**

Simultaneous transmission SAR test exclusion is applied.

## YKD-25STW4100-029 Wi-Fi Module SAR Exclusion Justification

### Background Information

The YKD-25STW4100-029 Wi-Fi module (High-Flying HF-A11-SMT-0) utilized in the L-3 CyTerra RANGE-R2D LINK sensor provides a remote command and control interface to the base YKD-25STW4100-019 RANGE-R2D through-wall radar. When the Wi-Fi interface is used, the RANGE-R2D LINK sensor attaches to its provided monopod or other support with personnel operating the sensor remotely, up to 100 meters from the sensor. Operators activate the Wi-Fi radio by selecting a menu item using the RANGE-R2D LINK local display and buttons before placing the sensor at the desired location.

### Minimum Separation Distance

As shown in Figure 1 below, the shortest straight-line path to the operators hand is approximately 47 mm diagonally through the metalized housing from the nearest corner of the Wi-Fi antenna. Figure 2 illustrates the minimum distance to the sensor radar transmit antenna, 22 mm.

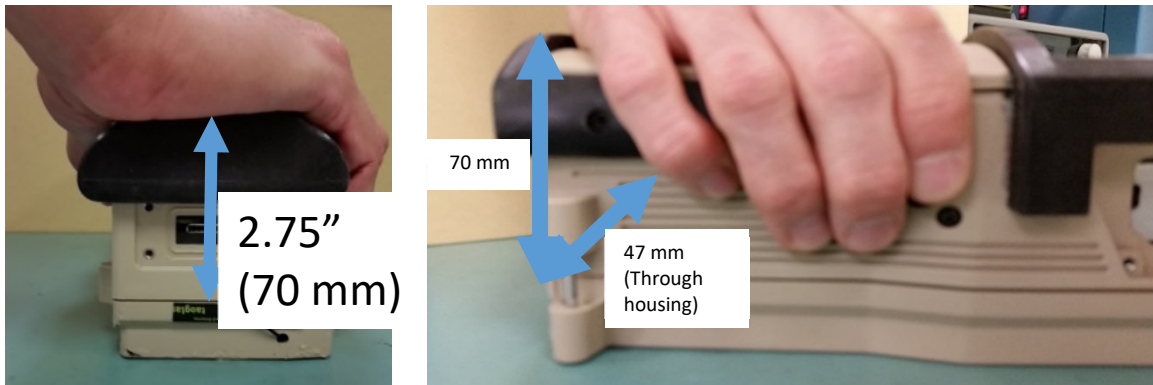


Figure 1: Read and side views of manual operating position showing minimum distance from Wi-Fi antenna

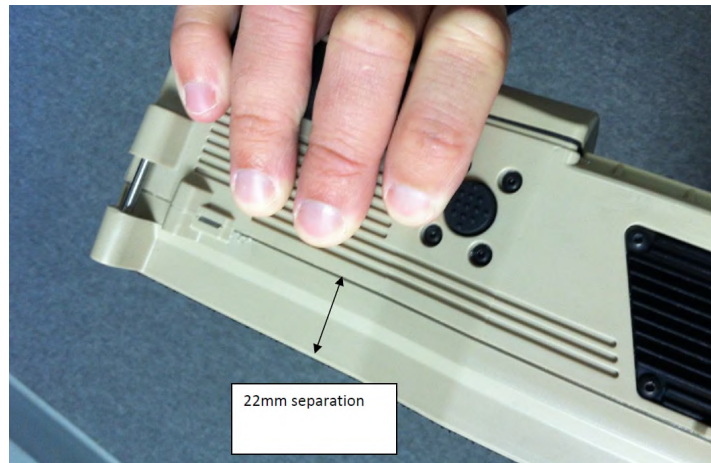


Figure 2: Operator hand position showing minimum distance to radar transmit antenna