Volunteer Comm Package 2014

Product Data Sheet; December 2014

Goal Description

County Fire and the City of Cupertino recognize that a significant disaster will require the services of qualified volunteers to augment the staff of Public Safety responders. The goal of this project is to enhance the response effectiveness of Cupertino volunteers when interacting with city residents during a disaster while maintaining a limited operational presence at Santa Clara County Fire Stations.

Objectives

- Deploy an integrated communications package consisting of:
  - Voice receive and transmit capability on 2m and 440MHz (70cm) ham radio bands
  - Packet receive and transmit capability on 220MHz ham radio band
  - Voice receive and transmit capability on public safety bands used by SCC Fire Department (transmit restricted to SCC Fire Department personnel or authorized staff)
- Grid powered, with option to fall back to battery operation
- Portability of the radio equipment for use at alternative locations, e.g. when the fire station is inaccessible

Design Criteria

- Use Commercial off the Shelf equipment similar to what is currently used by SCC Fire Department and ARES, for ease of operation and improved familiarity for the radio operator.
- Antennas are permanently mounted on the Fire Station roofs, tower, or other suitable locations.
- Handle light to medium message traffic; hand microphones
- While not designed as net control station (no headsets, hand or foot switches), could be used as an alternate NCS station.
- Standardize on Anderson power pole for power interoperability with other ARES/RACES equipment.

System Overview

- The Comm Packages will be built using 6U Gator Boxes outfitted with the designated radio equipment. Each package will be stored at the hosting Fire Station.
- See associated drawing for equipment placement.

Equipment included

- Kenwood TM-V71A dual band, Dual Band 144/430MHz, 50W, for ham radio voice
- Alinco DR-235, 220 MHz, 25W, for ham radio packet
- Powerwerx DB-750X dual band, 136-174MHz and 400-490MHz, 50W VHF, 40W UHF, for public safety bands
- Kantronix KPC-3+ TNC
- Powerwerx SS-30DV 30 A power supply
- Powerwerx PWRgate PG40S backup power switching and battery charging system
- Powerwerx RIGrunner RR-4005 5 port, 40A dist panel
- Anderson power pole
- Antennas, Comet CX-333 triband
- Coax cable, customized to installation requirements
- Laptop, Printer <details pending>
- Enclosure: Gator G-PROR-6U19-6U
- Power Conditioner: Furman M-8Lx
- Shelves: Middle Atlantic Products UTR1
- Drawer: Raxxess SDR-2

Equipment not included

- Batteries
- Headsets, hand or foot switch
- Portable antennas, antenna masts and antenna cables (for use at alternative locations)

Installation, Commissioning, Maintenance

- All electronics to be mounted in ruggedized equipment container.
- SCC Fire Department and Cupertino ARES will jointly determine the best location for radio equipment and antennas in the three Cupertino fire stations.
- Cupertino ARES to assemble electronics, install cable terminations and commission the system.
- SCC Fire Department will coordinate installation of antenna mounting brackets and cables with internal facility management.
- SCC Fire Department is responsible for maintenance and repair of system installed at Cupertino fire stations.

Reference

- Volunteer Comm Package 2014, Project Data Sheet