

AATCOMM TCRS for the FDNY Field Communications Unit

Tactical Communications Recording, Playback and Transcription while in the Field



Mission: To install an AATCOMM TCRS-8 battalion recording system in the FCU, with modifications as requested. Changes from the standard battalion system include:

- Provide custom programming to three of seven Motorola XTL-5000 UHF radio receivers.
- Provide an interface to an externally mounted Motorola 800 MHz XTL to occupy the logical slot ordinarily reserved for UHF Receiver 8 in the system.
- Provide a suitable mounting platform for the three new antennae added to the rooftop "antenna farm" on the rig.
- Install the appropriate Courier application on a laptop interfaced to the in-vehicle LAN such that in-vehicle rapid recording playback could occur while the vehicle is deployed.

To enable the above goals to be met; a TCRS mounting system suitable for the vehicle was designed and built; an antenna platform fabricated; a switch panel provided and modifications to the TCRS system, including the design and build of a custom interface to the 800 MHz. radio was completed.

The following picture study captures the essence of the work:



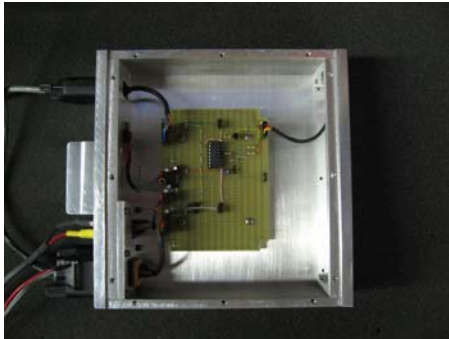
To begin, a rugged slide-out shelf mounting system was designed and fabricated. The TCRS-8 Main Electronics Unit was fitted to this assembly as shown on the following page.

The M.E.U. is shock-mounted and the shelf is bolted and pinned in place and is therefore all but immune to vibration.

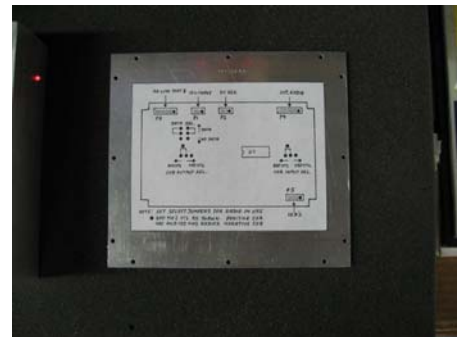
The photograph at the right shows the TCRS Main Electronic Unit installed aboard the FCU vehicle with the assembly seen in servicing position. Visible in the foreground is a cooling fan and one end of the recorder module at the bottom. Above is a wireless Ethernet bridge with Logic Control module behind, seven Motorola XTL-5000 UHF radios and a custom interface for the 800 MHz Motorola XTL-5000 trunking radio. Below, observe the package "buttoned up:"



The original TCRS-8 Main Electronics Unit includes provision for eight (8) Motorola XTL-5000 UHF radios. For the FCU, in the space formally occupied by the eighth radio, a custom interface was provided to the externally mounted 800MHz. trunking radio:



With a "one-off" design, a device like the Universal XTL-5000 radio interface must be custom engineered and hand-wired as seen to the left.



The finished product, housed in an enclosure that allows the interface chassis to slip into the slot reserved for a Motorola XTL-5000 appears below:



To the TCRS Main Electronics frame, new interface looks like a Motorola radio.

For the RF or radio portion of the system to function properly, three antennae were required to be added to the vehicle. The **Field Comm Unit** is “packed” with various radio communications systems as may be gleaned from following photographs. The roof or overhead of the vehicle contains over 20 antennae, most of which are used for transmitting as needed, depending upon the nature of the deployment. The AATCOMM TCRS recording system makes use of a system of radio transceivers programmed as receive-only devices. The best location available for the new receive antennae would be as far away from transmitting antennae as possible. In the case of the FCU, this area would be the rear-most portion of the vehicle. Problem: two air conditioning units are located where AAT would desire to install the antennae. The solution?



The antenna mounting platform projects vertically lower than the escape or vent hatch seen towards the front of the vehicle; height was calculated to make certain the new mounting structure did not become the tallest element of the vehicle system. Where does this all lead? A view of the Operator's position appears below:



While the vehicle is deployed, rear-most portion of the FDNY central command radio interagency radio channels. The TCRS-8 recording system signals from up to eight radio 800 MHz. public safety not all channels are used of the receivers scan simultaneous use, allowing provide coverage to many system captures Unit ID and used to immediately critical nature during FCU also provides transcription or outside the vehicle when transferred wirelessly to a



the operator is seated in the vehicle and has access to channels as well as and local, tactical fire ground tactical communications simultaneously receives channels in the 470 MHz and frequency bands. Because locally at one time, a number channels that are not in the eight radio system to more channels. The TCRS Mayday signaling and can be playback conversations of a deployment. The system capability while in the vehicle recorded communications is companion system.