

Fire Dispatch Radio System Component – Backgrounder

Tower Radio Ltd. supplied and installed the Fire Dispatch Radio System. Its innovations on overcoming back up satellite communication issues earned them the Technology Provider of the Year Award at the 2009 Northern Business and Technology Awards in Prince George.

The 911 system was designed and built with full redundancy in the event of loss of power or telephone lines. The primary means of communicating between Fire Operations Communications Centre (FOCC) in Prince George and the various fire halls located in each community are via telephone lines. The secondary means of communication is via satellite back up. Both primary and secondary systems communicate with the FOCC on their touch screen consoles allowing the dispatcher to maintain both audible contact as well as a visual contact with the fire hall they were dispatching.

The primary communication system was relatively simple to install and has been used many times throughout 911 systems around the world. The secondary system had several shortfalls that were all addressed by the technical staff at Tower Radio:

- As a dispatch service, the FOCC required a confirmation that a fire hall was paged to respond to an incident. This confirmation was sent from the fire halls back to Prince George via a device called a paging transponder. Under the normal Public Service Telephone Network (PSTN) an A, B, C, or D code would be emitted from the paging transponder and would be recognized by the touch screens in Prince George as an acknowledgement that a hall had been dispatched. Unfortunately this code cannot be sent over a satellite system and would not give the FOCC the confirmation they required. Tower Radio investigated the problem and had the software rewritten and installed in the paging transponders to allow for different codes to be sent out and received via satellite. This function now works with the dispatch console at the FOCC.
- The satellite technology originally planned had major technical issues and was no longer an option as a reliable service provider for this 911 emergency system. Tower Radio technicians tested several other satellite providers as reliable options to work with the FOCC and their console requirements. Nothing worked in conjunction with their existing console and the challenge was to find a satellite interface that would meet all the demands of the FOCC while still providing reliable backup communications. The difficulty was primarily due to satellite delays and the inability to send and receive dial tone over the satellite. Tower Radio had the software rewritten, tested, and installed in all the satellite interface units. In doing so, this enabled the backup satellite communications to regenerate the dial tone and dialogue with the FOCC dispatch console.
- A telephone interface is an integral part of the 911 system as it acts as the interface between the radio communications used by the fire departments and the telephone communications used by the FOCC dispatchers. This interface was not able to work properly with the satellite backup system due to delays from the satellite. In order to make this work, technicians from Tower Radio found a solution with a voice recorder board and interfaced it with the telephone interconnect. This procedure compensated for the delay in the satellite system to work with the FOCC dispatch console, the end result allows for the dispatchers in Prince George to communicate via satellite to the fire departments using their radio communications.
- The final issue that was a concern with the 911 system was in the event that a telephone interconnect would accidentally lock up, virtually disabling communications between Prince George and the dispatched fire hall. If this took place, a person would need to go to the fire hall and turn off and on the power to this unit, basically as a reset. Tower Radio has developed a solution by using the secondary interconnect to restart the primary interconnect and vice versa. The result is a highly probable chance that the interconnects would never need to be physically reset in the unlikely event that one should lock up.