

APPENDIX M

BEAP EQUIPMENT TESTING

Local and CCU Silent Test

Several silent tests were performed in July. The start/stop function was tested from the speaker station, CCU front face and through the computer software. Each test was successful. The CCU and monitor accurately displayed the silent test function. The speakers produce a very low growling sound that last for several seconds. This allows for testing of the equipment without disturbing anyone and indicates that everything is operating correctly.

Stop/Start Function

The speaker station was easily and accurately activated and disengaged by using the buttons on the panel in the speaker cabinet. There is no public address function from the speaker station.

Control Station Performance

Central Control Unit

The Central Control Unit is made up of computerized components that interface with a VHF radio. The siren station activities are chosen by scrolling and selecting actions from a keypad controlled menu on the front of the unit. These actions are communicated to a radio located at the siren station. The CCU is also connected to a PC that provides for controlling the system by selecting various actions in a windows based environment.

Pre-test. In the time leading up to the first test there were a number of difficulties to get sorted out with the Central Control Unit. The main issue was inconsistent polling between the CCU and the speaker station. In the end it came down to replacing a computer board with an earlier version (ver 3 versus ver 5). Once this was done, successful polling was immediate. All controlling functions of the CCU worked properly.

Another technical issue occurred following the first test. Although the computer was still able to control the speaker station, it became impossible to activate the speaker station directly from the CCU. The selection keypad was locked up and was remedied by replacing the controlling board for this feature.

Location of CCU

The Central Control Unit was easily accessible through its location at Assiniboine Community College.

Stop/Start Function

The system can be started and stopped through the computer program. Functions include Alert, Alert Test, Growl Test, All Clear, Public Address, and Silent Test. Once the activation button is release the Activate Window appears. The user chooses a “total activation” or may select certain stations if more than one is in place. The user may cancel the request or press send to release the activation. Within 5 seconds the siren is activated.

The system can be controlled manually through the CCU front face keypad. It has the same functions as the software. The user then decides to proceed with the activation or to cancel it by pressing another button.

In all instances above, the activation can be cancelled very easily and quickly. The system responds quickly to all inputs. The only delay is approximately 15 seconds when changing from alarm to public address modes but this did not pose any problem.

Self-diagnostics

The CCU through the software program is able to perform a series of self-diagnostic tests that indicate potential problems. This is done by polling the speaker station(s) to determine their status. Possible conditions include:

- Normal
- Abnormal:
 - could have failure of 24 Volt DC problems
 - could have failure of battery charger
 - could have problem with speaker station synchronization
 - could have a door open signal
 - could have normal standby position of the speaker station
 - could have communication link failure
 - could have over-current problem
 - could have low voltage on batteries and station shut down
 - could have thermal shutdown
- Out of Service
 - means all statuses are not right
- Success
 - means from the activation menu the speaker station is able to be activated
- Failure
 - means from the activation menu that the status is not right.

Computer

The computer was a Pentium II 400 MHz, 10 Gig hard drive, 128 MB RAM, 3.5 floppy drive. It functioned well. The computer interfaces with the CCU to control the speaker station operation. This includes start/stop function of the tones and self-diagnostics of the system. These all worked as expected.

Monitor

The monitor was a 15 inch VGA monitor. This worked adequately considering that there was only one speaker station involved in this testing and therefore one location plotted on the map. With more locations plotted a larger screen would make it easier to view the entire map at once and to instantly assess the status of various speaker stations.

Display of Systems Activation

The monitor, through the software, displays the activation status. Once a requested activation has been released by the user, the Activate window appears and shifts the map to the right. This displays the type, address, location the activation was sent from, and

the elapsed time of the activation. On the Map window a white circle appears around the siren station location to indicate the most recent activation. It will then turn yellow to show that it is not yet verified. Once it receives the signal and is activated it turns green. If it does not verify it will turn red and you know that speaker station is not activated. When the activation has ended the speaker station is again polled to determine its status. The map will again change colour to indicate success or failure in the activation.

The CCU also displays the activation status with a light and on the front face display. Without the map it is somewhat more difficult to determine the activation status. This would be especially true when several speaker stations are in place.

Software

The software was custom designed using an electronic map supplied by the City of Brandon. The software was very easy to load and use. Adding additional speaker stations is a simple process.

Radio Link Performance

The VHS frequency in use for the testing was the Brandon Regional Health Centre's Security system frequency. The siren system did not interfere in any way with the BRHC base station or any of the radio transmissions made the BRHC Security. The radio in the CCU and in the speaker station communicated effectively. The public address announcements made from the CCU were clearly received and broadcast at the speaker station and by the Tone Alert Receiver.

Tone Alert Receiver

The Tone Alert Receiver was tested during each of the three siren tests. A schedule for testing at other locations was developed and testing was completed in late summer and fall. The tone alert receiver is able to broadcast the public address announcements made over the siren system. It does not play the siren tones. The Tone Alert Receiver was confusing to understand and operate. It is difficult to see if the tone monitor button has been pressed in or not. The position of this button determines if the device will receive and play the public address announcement made through the siren system.

Local and CCU Status Reporting Capability

The local speaker station has no easy display of its current status. Technicians can recognize and read distinct light patterns on the motherboard as indicative of equipment status.

Both the monitor, through the software, and the front face of the CCU, display the status of the equipment. Both are easy to utilize and understand. The software uses a Dialog-box to provide a status report for the speaker station including identifying number, number of speakers, amps, and strobes, type of speaker, location, last activity, and operating status. This information is easy to access and edit. A System Status report can be generated that lists speaker station(s) in numerical order. Other reports include a history of radio activity in the Communications report, and an Alarm Summary report.

Encoder

The system was able to interface all components. The data transmitted by radio was correctly interpreted by the equipment receiving and in turn this activated or deactivated a function at the speaker station. The CCU was able to request and receive data to and from the speaker station. Once the system was fine tuned the various devices communicated each and every time. A Communication report can be generated through the software that provided the history of radio communication.

Tone Alert Remote

The TAR was able to interface with all components. It functioned properly on two tests and was inadvertently turned off during the June 20 test. Since this device can so easily be deactivated it is likely to be subject to inadvertent tampering by the compulsive button pushers of this world.