MPSCS Informational Update: Fire Pagers

Unication and the MPSCS have been working with agencies to optimize 800 pager performance.

This bulletin reviews testing of antennas, a new firmware release, and programming strategies to reduce out of range times.

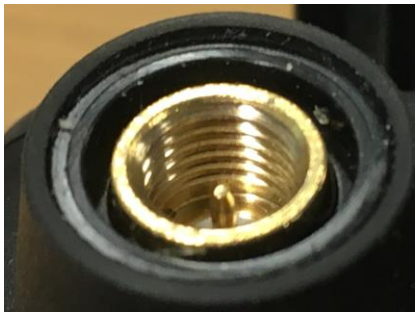
Antenna and Signal Checks

If a pager user is experiencing out-of-range notifications in areas previously known to be covered by the network, it is appropriate to compare the performance of the pager in question to other known good pagers.

The easiest way to do this is to bring the pagers to a common location and place them on a table with about 12 inches of space between them. Keep the pagers away from computers or networking equipment. The pagers that are receiving the same site (information on the bottom line of the display) should all have similar signal levels. The Information > Diagnostics screen has a RSSI (dBm) display. The signal number will either be stronger than "> - 100" or weaker displaying actual numbers. Any pagers showing a 15-point difference or more should be examined.

- Try exchanging antennas between the suspect pager and a known good pager. If the lower signal (larger number) follows the antenna, the antenna should be replaced. If the lower signal follows the pager, contact your dealer.

If the pager has been used with another manufacturer's antenna, check the antenna port in the pager to verify that the center pin has not been pushed down into the pager. Normally the center pin comes up to ¾ the height of the threaded connector. Unication is testing alternate antennas, but currently there are no recommendations.



Normal connector shown.

If pagers work outside of a building but go out of range inside the building, compare the diagnostics screen signal level outside the building from to the signal level inside the building. If the signal level number is 24 dBm or more below the signal recorded outside the building, the building is blocking 99.6% or more of the signal. This can be remediated by installing a window that does not use signal blocking metal coated glass or by installing a Bi-Directional Amplifier. Contact your dealer for assistance. Page two in the link below provides additional evaluation information:

https://www.michigan.gov/documents/lara/lara_bcc_spring12_385405_7.pdf

Firmware Release V1.10

Unication has released a new firmware version that is performing very well in all Michigan testing. Improvements have been made to audio decoding and battery life. **This upgrade is recommended for Michigan users**.

The upgrade is available at: http://autoup.unicationusa.com/

Follow the video instructions. Please, be sure to download the Pager Programming Software (PPS) and backup and save your pager's file before attempting the firmware upgrade.

Programming to Improve Out-Of-Range Recovery Times

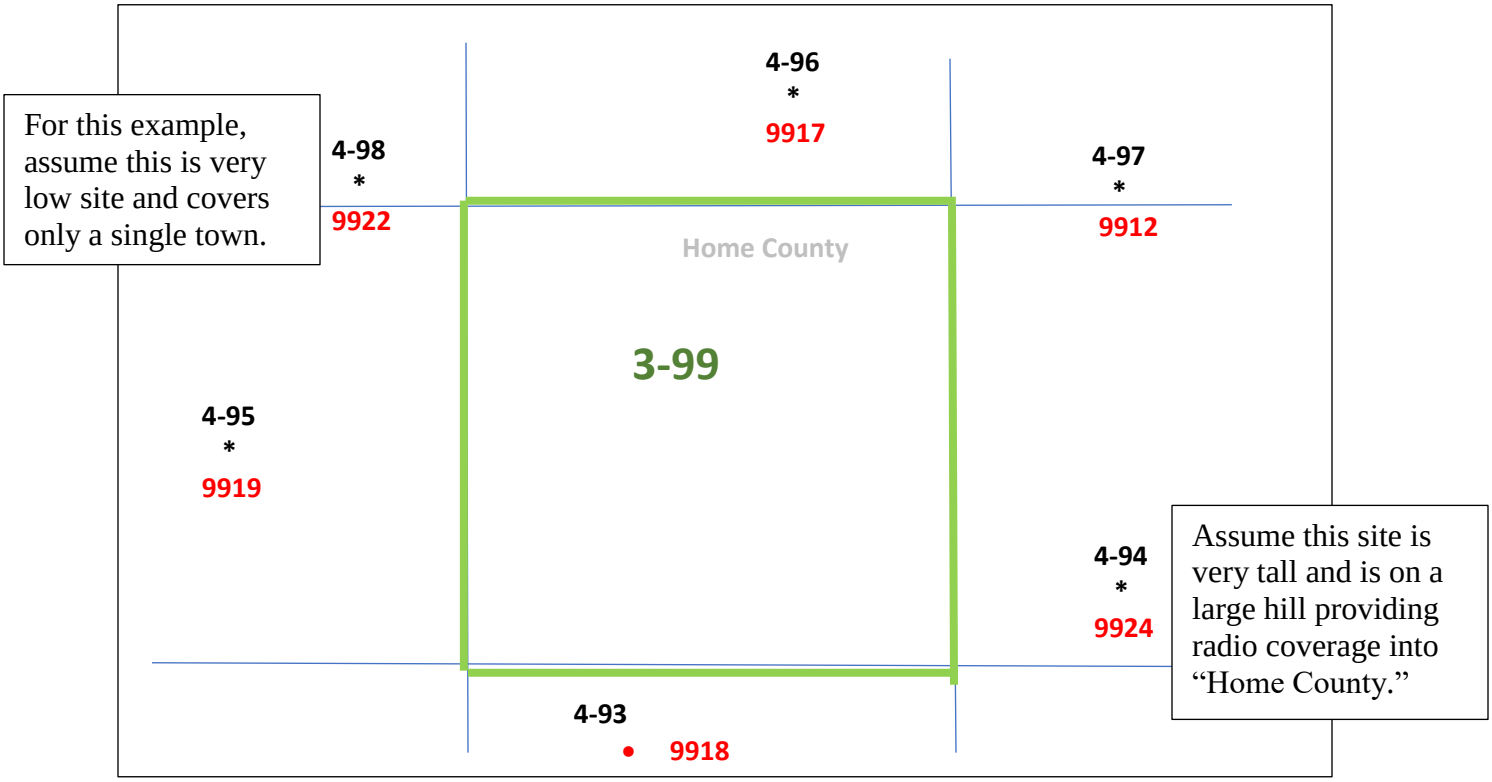
It has been determined that entering control channel frequency list multiple times in the PPS Menu Item #2 > P25 Trunking System Setting – Control CH List improves the ability of the pager to reacquire the system after a signal fade or weak signal in encountered.

Looking at a map of sites enter the control frequencies in the order that helps the pager find the system most quickly. Enter the control channel frequency of the site most likely to be found first by all pagers. In a simulcast county this would be the simulcast system control channel. In a non-simulcast area this would be the site mostly likely to be received by all pagers. Then the second, third, etc.

Looking at the example map for "Home County" the county simulcast system would be the site all pagers are most likely to find first. Site 9924 is the next site. From there use a star pattern (like when tightening tire lug nuts) and select the site opposite the second site, 9922. Then 9918 and then 9917 and so on.

MPSCS Informational Update: Fire Pagers

The following is a programming example.



Site Alias	P25 Site	CC Freq
Home County	**3-99 /63 hex**	**853.3375**
		852.550
9922	**4-98 /62 hex**	**853.8875**
		853.275
9917	**4-96 /60 hex**	**853.975**
		853.725
9912	**4-97 /61 hex**	**853.925**
		853.425
9919	**4-95 /5F hex**	**853.9375**
		853.600
9918	**4-93 /5D hex**	**853.900**
		853.6125
9924	**4-94 /5E hex**	**853.800**
		853.5125

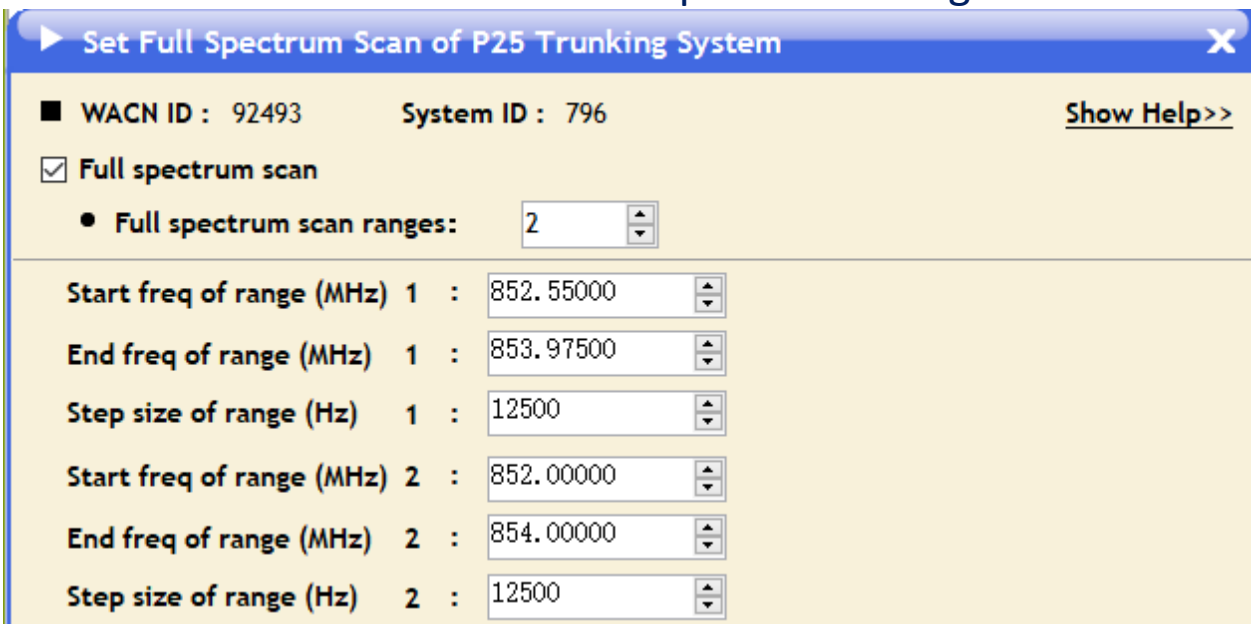
MPSCS Informational Update: Fire Pagers

In the site alias table supplied by the MPSCS, the first control channel frequency (in bold) listed for the site is the primary frequency. The next is the alternate / backup control channel. Enter all Primary control channels and then enter the alternates in this same site order. You may use the Windows cut and paste feature to speed up the entry process.

No.	RX Frequency (MHz)	Note
1	853.33750	Home County
2	853.80000	9924 Primary
3	853.88750	9922 Primary
4	853.90000	9918 Primary
5	853.97500	9917 Primary
6	853.93750	9919 Primary
7	853.92500	9912 Primary
8	852.55000	Home County
9	853.51250	9924 Secondary
10	853.27500	9922 Secondary
11	853.61250	9918 Secondary
12	853.72500	9917 Secondary
13	853.60000	9919 Secondary
14	853.42500	9912 Secondary

Now repeat this entire list three or four times. Test this in your area. In some areas repeating the list four times works better than three.

Next set the Full Spectrum Scan parameters for two scan ranges. Number 1 use the lowest frequency in your control channel list as the start frequency and the highest as the end frequency. For range 2 use 852.000 to 854.000. The step size for both ranges is 12500.



Using this process will help the pager re-find the system more quickly and reduce out of range times.

Contact the MPSCS Radio Programming Unit at MPSCS-RPU@Michigan.gov or (517) 333-2720 if you have additional questions.

####