Veto Shield/NMM Timing Tests

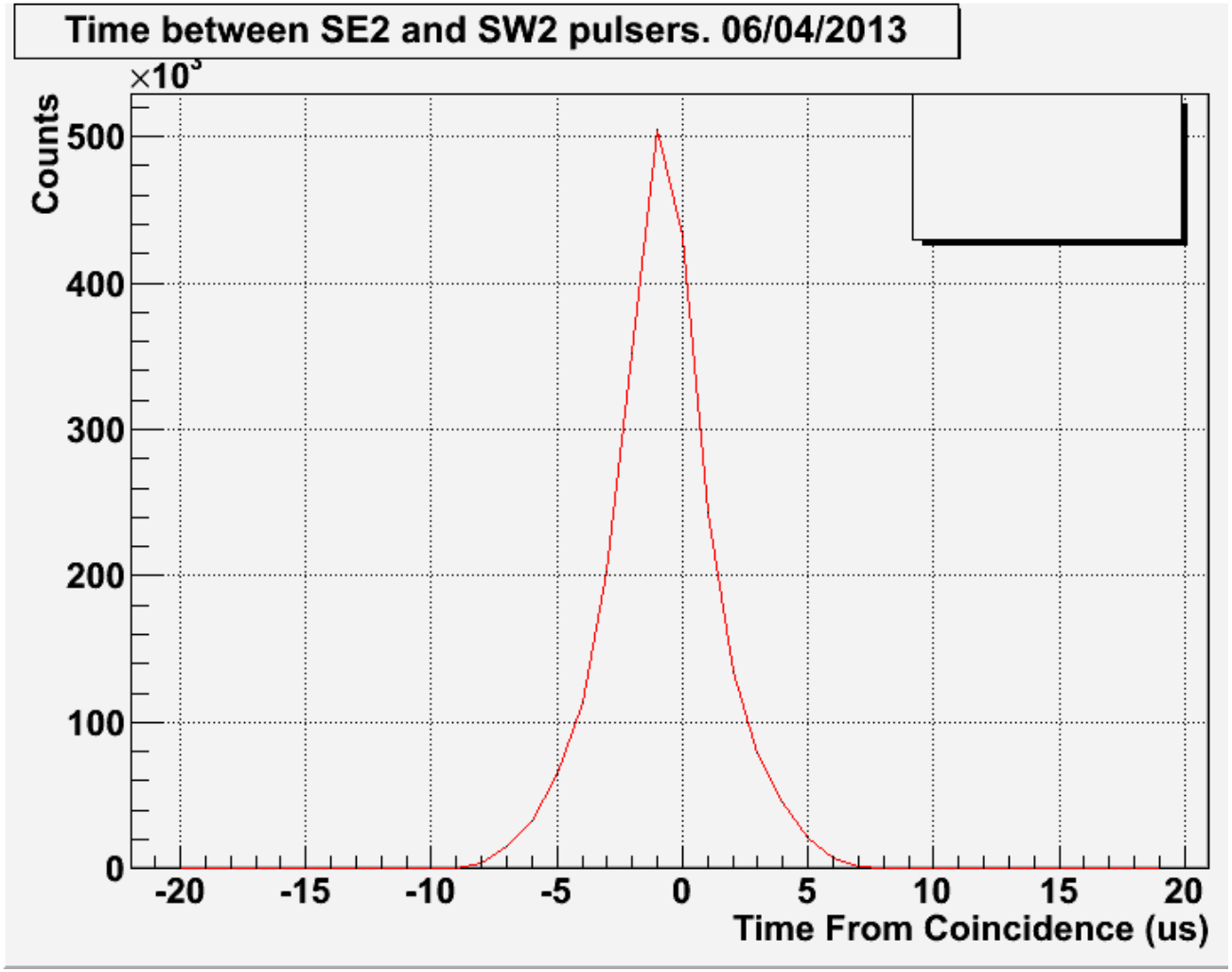
A.N. Villano

K. Koch

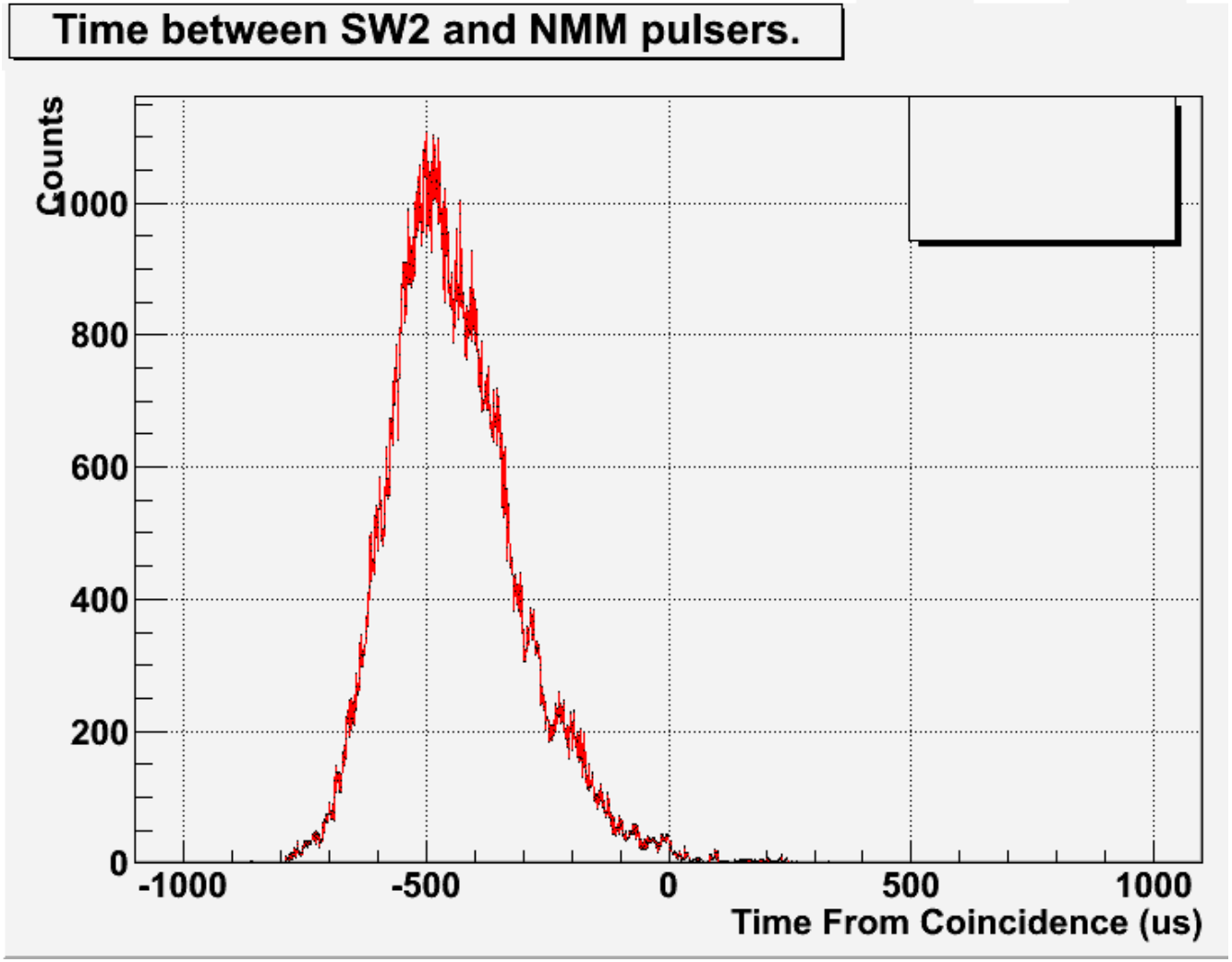
The Method

- Use a 40 Hz pulser to split off signals and excite explicitly two different timing stations
- If we plot the time difference of the closest signals, we should have a narrow Gaussian centered around zero
- The width is expected to be 1 – 4 us because the current GPS source is only rated to 4 us with the 1 kHz carrier we use

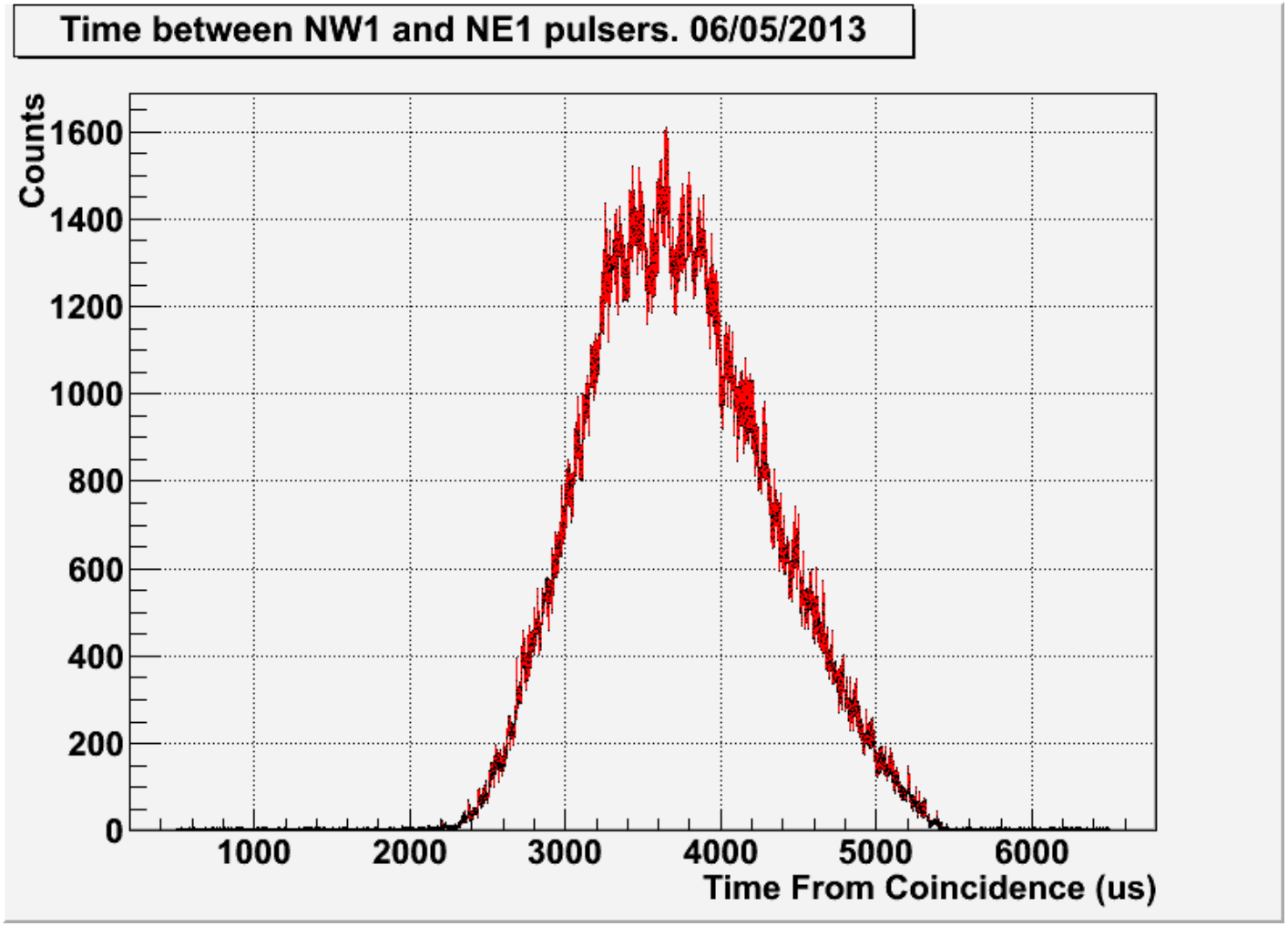
SE – SW timing: Good



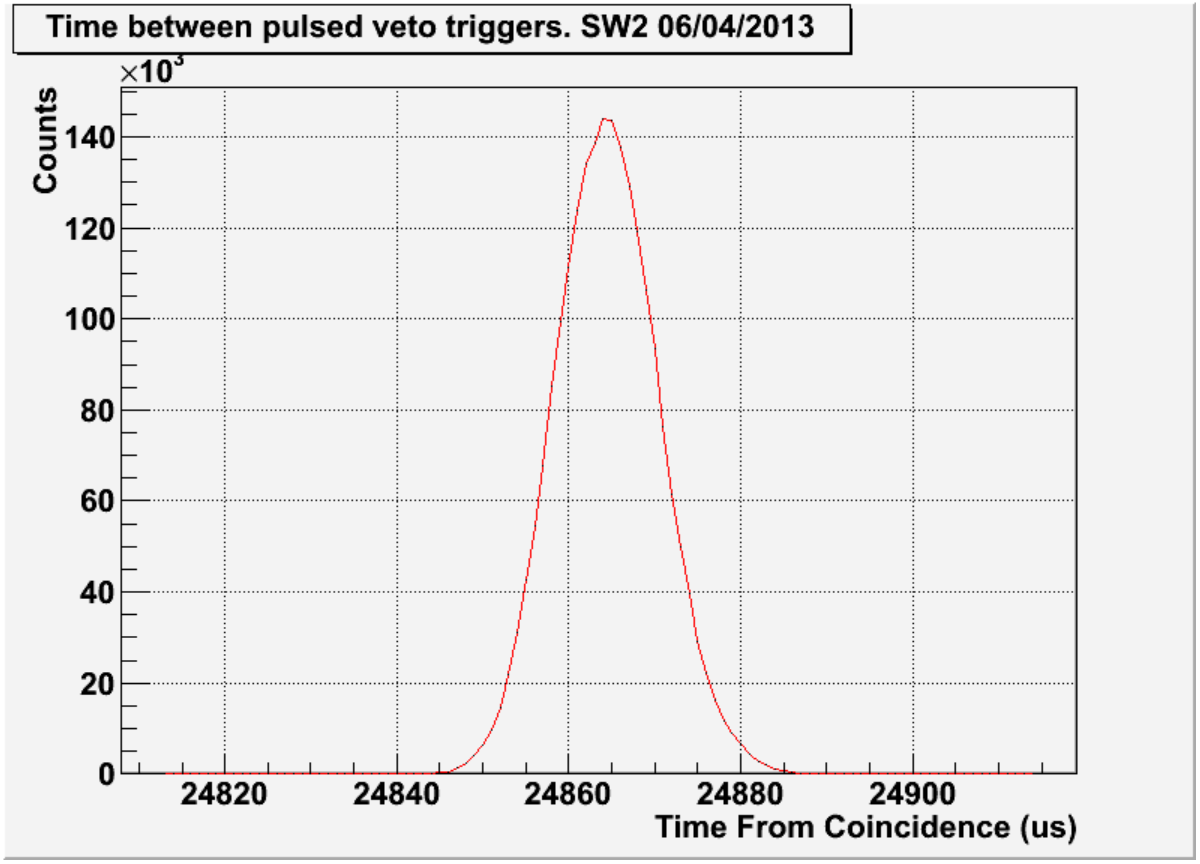
NMM-SW timing: Bad



NE-NW timing: Bad

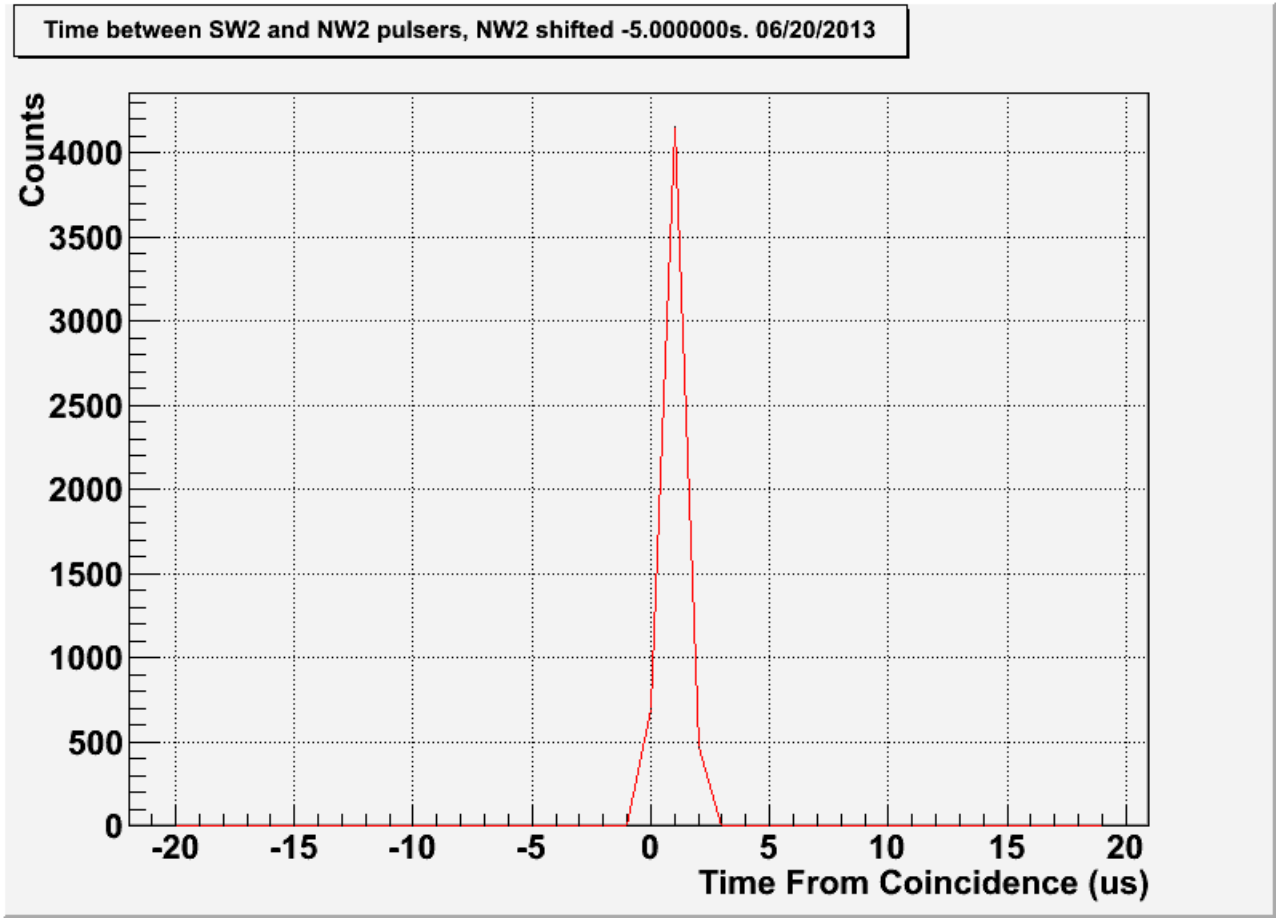


Check Single Station Width: Good



- 40 Hz pulser doesn't have perfect freq. stability
- This width is ~ 20 us FWHM
- ~ 0.1% freq stability, probably very good for standard pulser

Separated Pulse trains



- Find almost exactly 5s shift of times when looking at single triggers
- Corrected for this time, the time between spectrum is at left
- If you look at wrong global time you aggregate error from the pulser freq. stability