



Pulsar Tests at the A0PI

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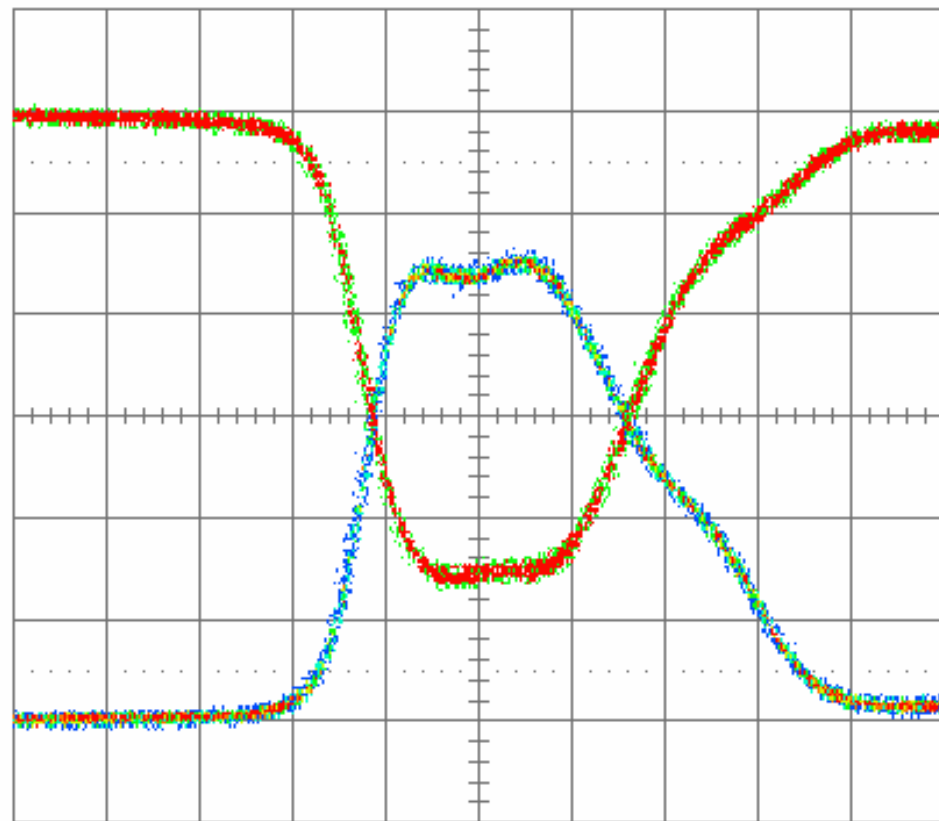


- Replacement pulser
- Characteristics similar to 1st version
 - Trailing tail somewhat longer
- Stability
 - Treat full vertical sampling width as +/- 3 σ band
 - Suggests ~0.74% amplitude stability
 - Specification is 0.5-0.7%

22-May-06
16:22:32

2
1 ns
1.00 V
-744 swps

1
1 ns
1.00 V
-744 swps

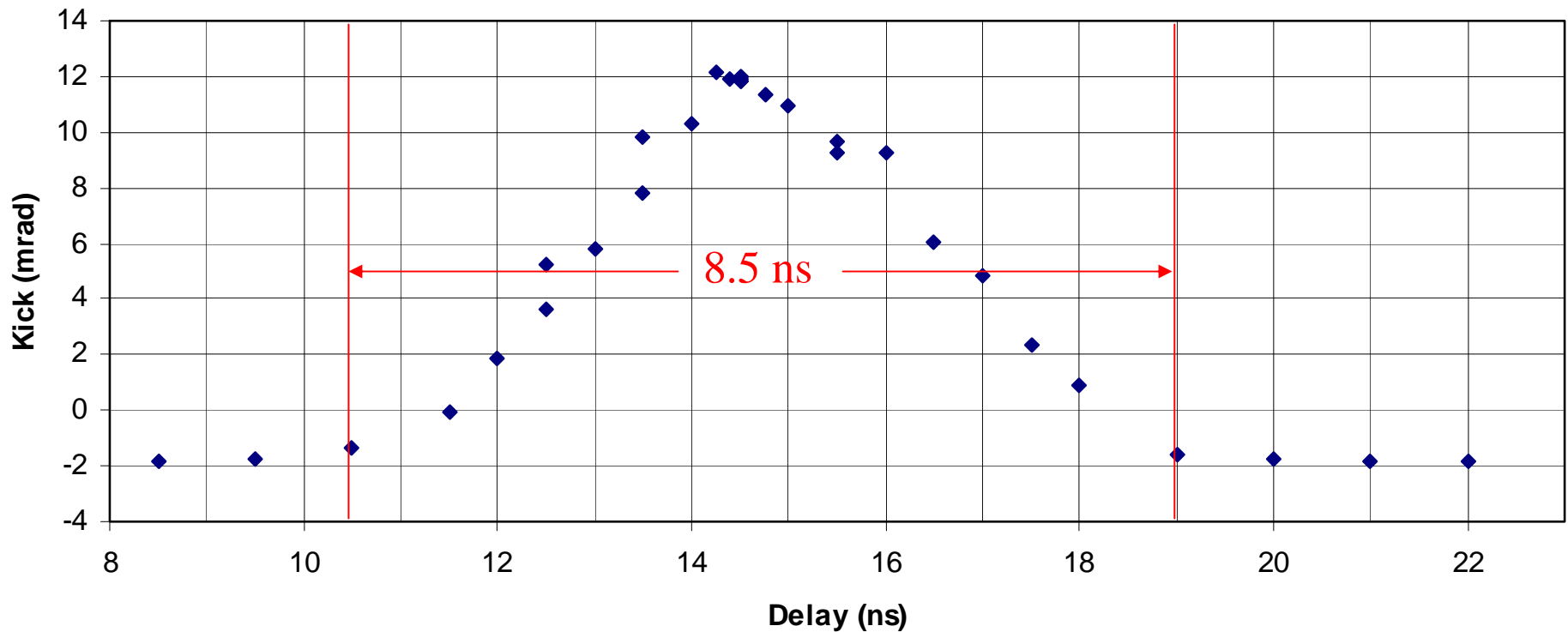


1 ns



- Full width: ~ 8.5 ns

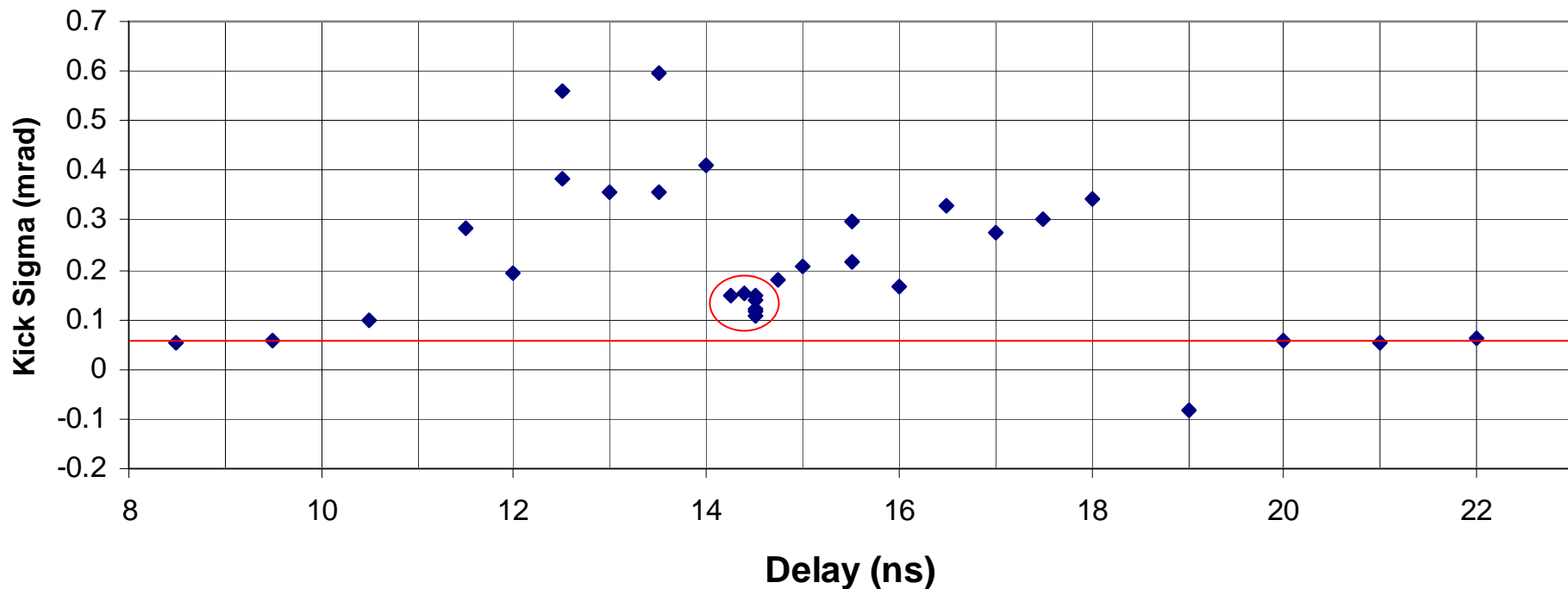
Beam Scan (Points not all sampled contiguously)
Full width ~ 8.5 ns with ~ 2 ns stripline





- Ideally want to verify stability at 0.1% level
- Observe a few times this with straight through tracks at A0
- Top of peak observations have about 2.5-3 times the baseline
 - Timing Stability
 - Pulser stability (potentially consistent with scope measurements)

Kick Stability (Points not all sampled contiguously)
Baseline Stability Sensitivity: 0.36%





• Pulse Width

- Full width ~ 8.5 ns
- Note that A0 kicker is ~ 2 ns long
- With a 1 ns kicker, full width around 6.5 ns
 - Specification is 6.2 ns
 - Very close to requirements!

• Pulse Stability

- Appears to be near pulser specification
- With shorter kicker, lack of flat-top becomes more significant and will place tight requirements on timing stability and pulser output reproduceability



- Things to Look At/Improvements/Wish List
 - Still potentially sensitive to machine stability issues
 - For stability measurements (at the 0.1% level) would like better resolution
 - BPM (striplines?, electronics?)
 - BPM spacing
 - For higher voltage pulsers
 - Corrector magnet needs to be mounted around kicker vacuum chamber to avoid scraping on limited aperture
 - Also minimizes energy corrections in measurement and downstream BPM systematics
 - Some additional attention to the DAQ
 - DAQ software needs to be able to scan
 - Review of low level operations (eg, BPM control)
 - Need to further validate timing stability for pulser triggering