

A Quick Look at a simple  
Shunt Cable Comp  
for the CMD OUT Line  
implemented on the (TRT) Barrel  
PP for the Final Input and Output  
Cables

Mitch Newcomer

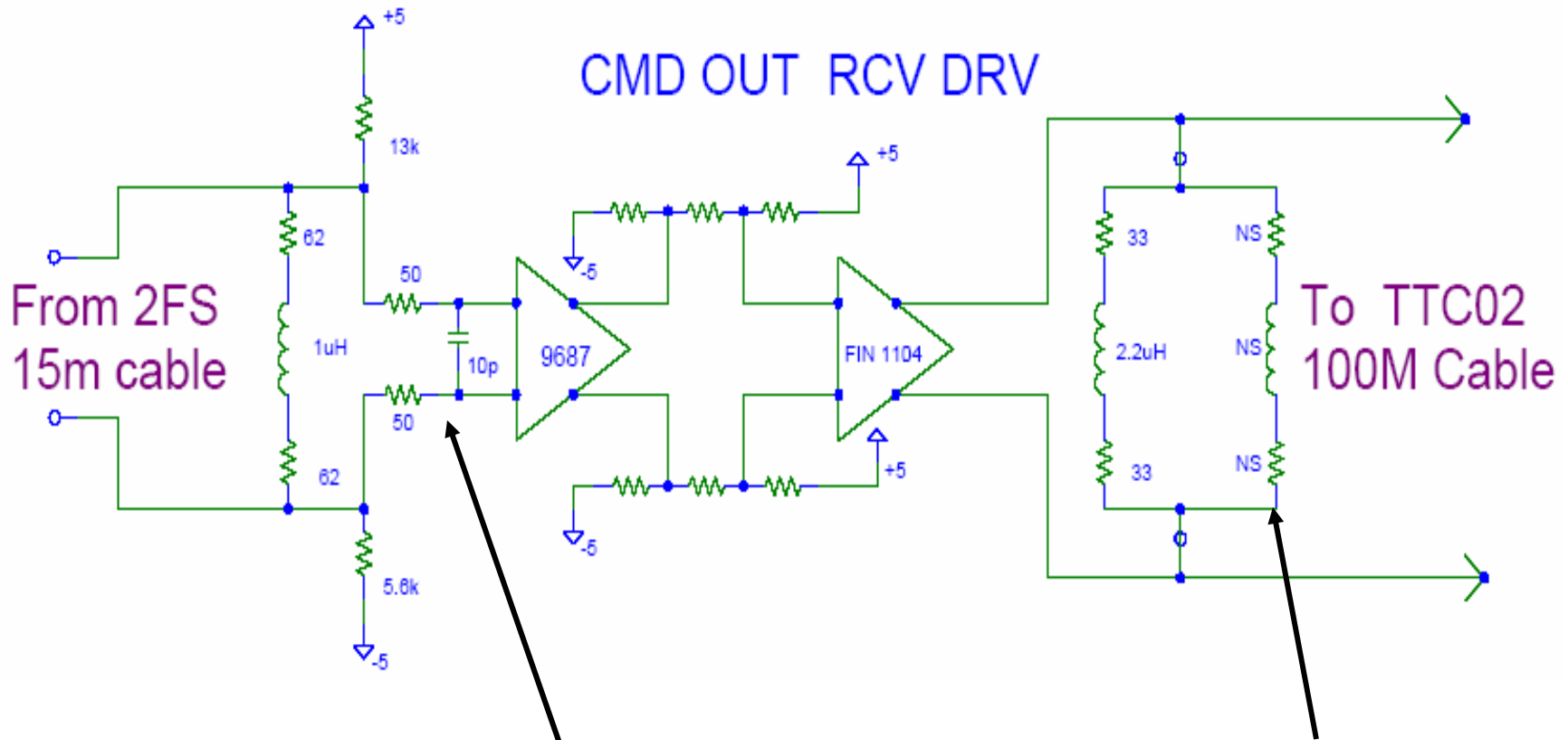
March 8, 2005

# Tests on TTC PP at Penn

## CMD OUT RCVR/Drive chain

- Tests Summarized here are using 15m mini twin-ax as PP input connected to an AR2BS and “Newly chosen 100m cable to the TTC02.
- Threshold R / W comparison sequence works with 100% success rate for all values of threshold.
- No extra triggers are observed on CMD Out comparator output either “in time” with control signals or “out of time” when a 50 ohm series and 10pF shunt filter are used at the comparator input.
- DAC Read/Write Sequences are used for Scope Studies.

# Patch Panel CMD OUT Readout Chain as (finally) Tested

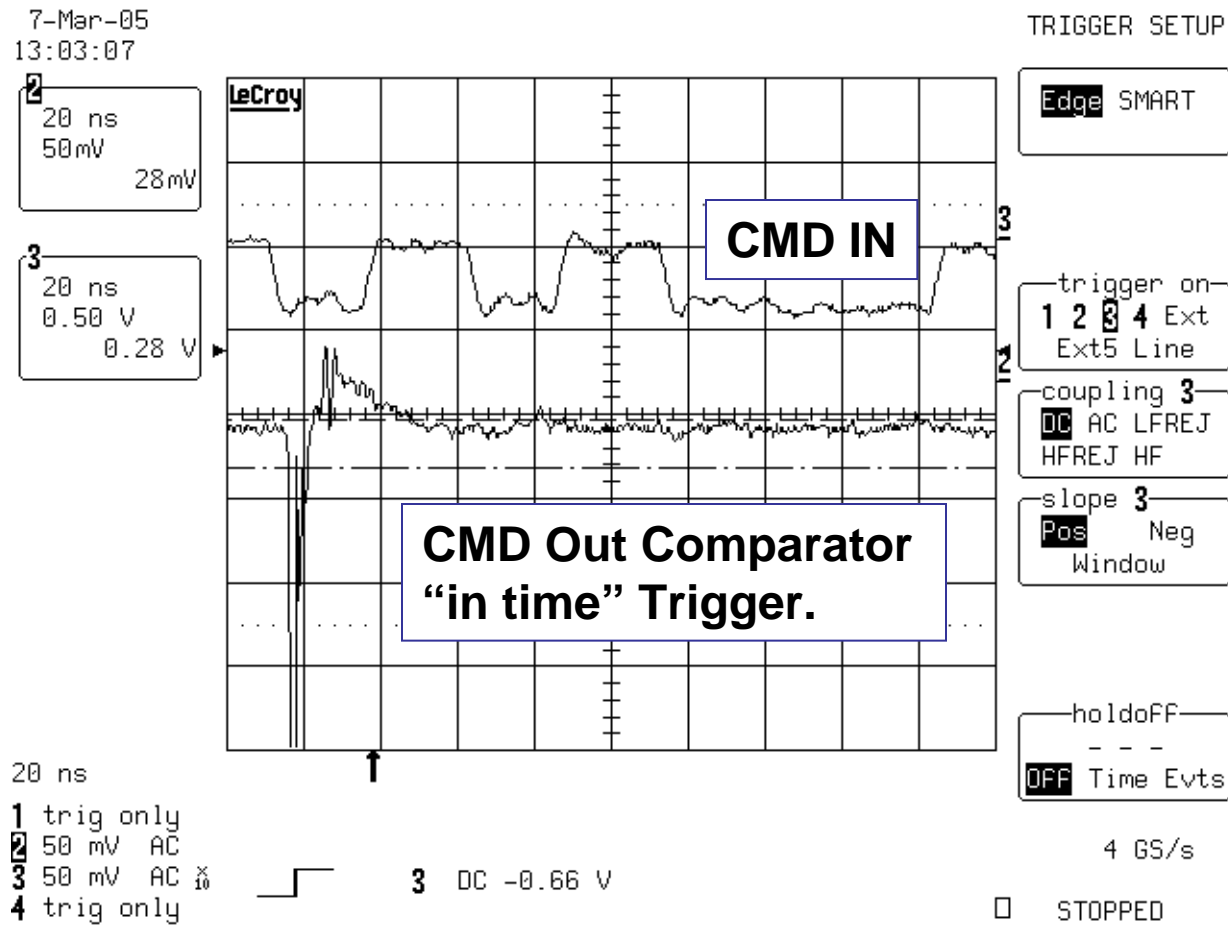


Comparator input Filter

This leg was not used, but is here to suggest a possible stuffing option.

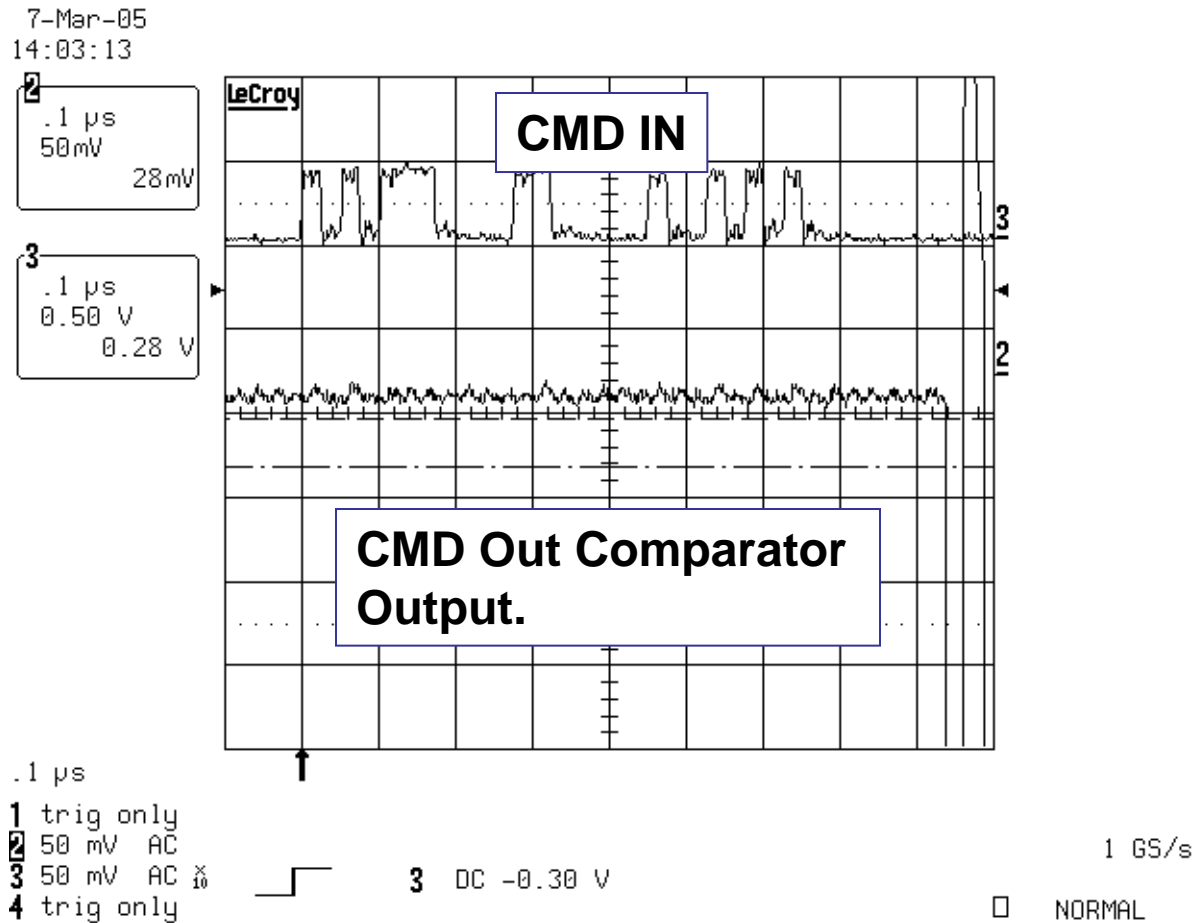
# CMD Out "In time" noise

Before adding 50ohm/10pF Filter



# Noise on CMD Out eliminated

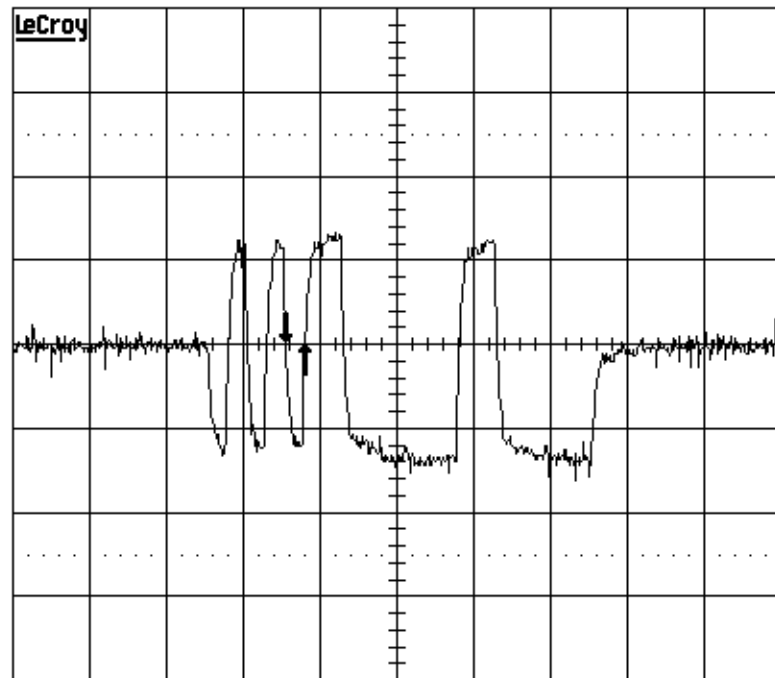
After adding 50ohm/10pF Filter



# CMD OUT at Input to PP 3 component Cable Comp

7-Mar-05  
18:20:07

2  
.1  $\mu$ s  
100mV  
-0.9mV



.1  $\mu$ s

← 0.55  $\mu$ s

$\Delta t$  25.5 ns  $\frac{1}{\Delta t}$  39.2 MHz

1 trig only  
2 .1 V AC  
3 50 mV AC  $\frac{1}{\Delta t}$   
4 trig only



3 DC -0.82 V

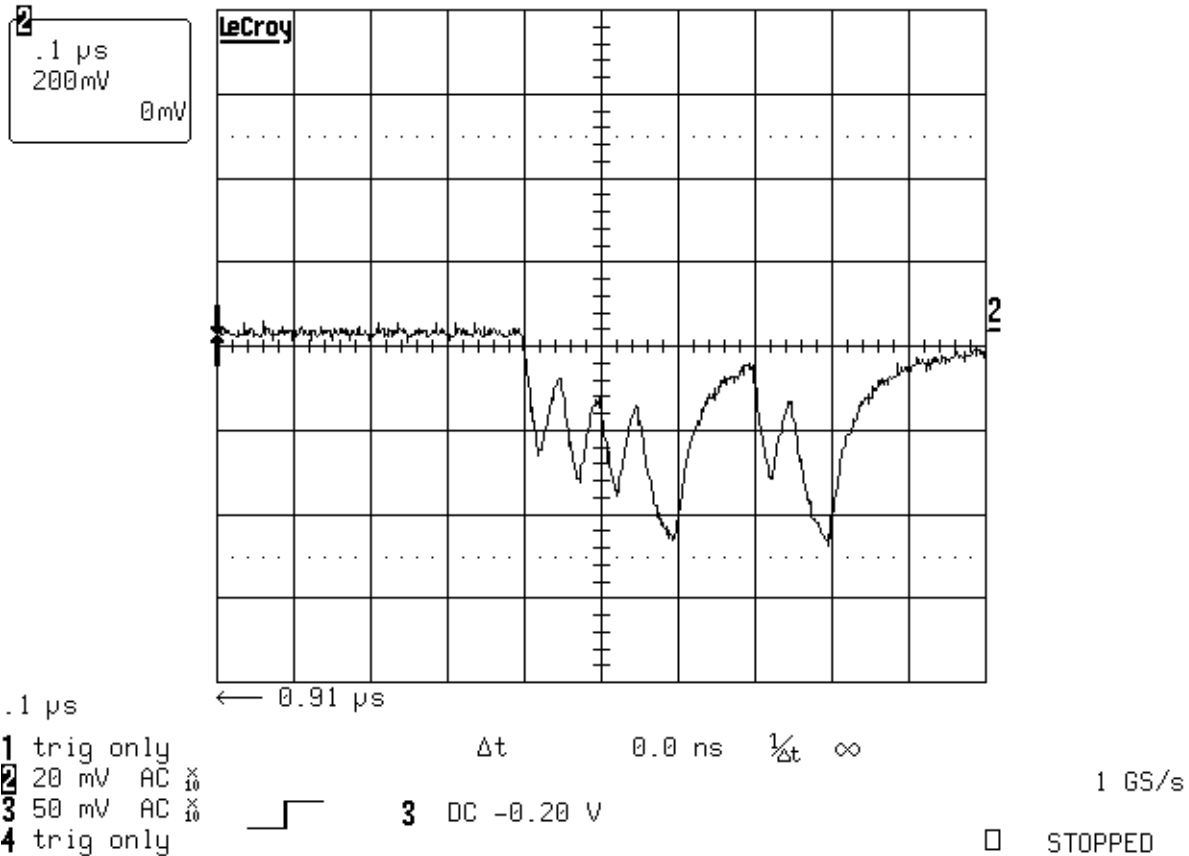
1 GS/s

□ STOPPED

# CMD OUT at Input to TTC02

## Before Implementing Precomp on PP

7-Mar-05  
15:32:23

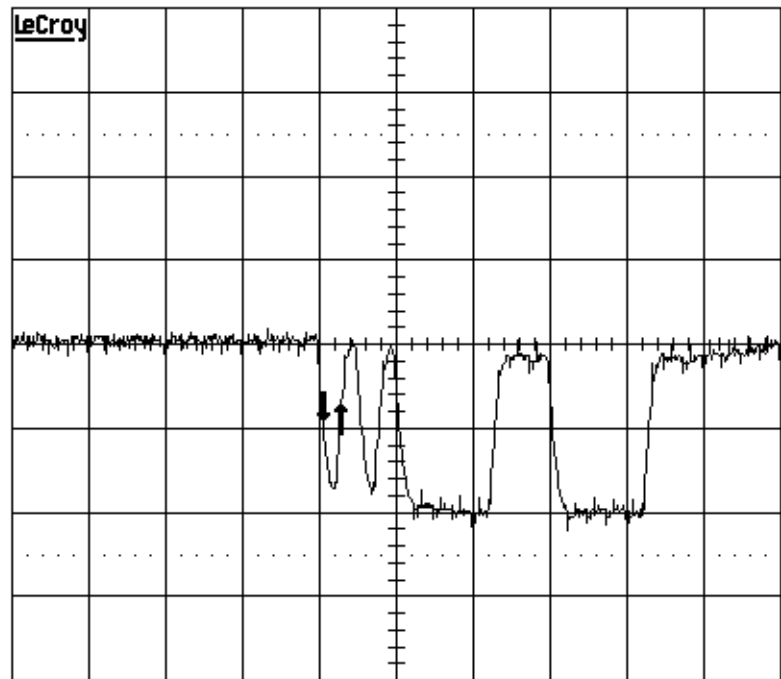


# CMD OUT at Input to TTC02 AFTER Implementing 3 component Precomp

Preliminary Optimization (fourth attempt at component choice)

7-Mar-05  
17:23:46

2  
.1  $\mu$ s  
100mV  
21.1mV



.1  $\mu$ s

← 0.91  $\mu$ s

$\Delta t$  24.5 ns  $\frac{1}{\Delta t}$  40.8 MHz

1 GS/s

1 trig only

2 .1 V AC

3 50 mV AC  $\times 10$

4 trig only

3 DC -0.20 V

STOPPED