# HOT PLUGGING ON ULTRA 3 BUSES

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**FIGURE 1** - LVD HOT PLUG ON 8 METER MULTI DROP CABLE
(NOMINAL 45 CM SPACING; TWISTED FLAT CABLE)
Left side is fast frame (multi trigger)display; right side expansion of worst pulse.
Chan 1 is signal on bus at adjacent load; Chan 2 is signal on plugged load.
1ghz differential probes ;Bus is biased, signals quiesced,

**FIGURE 2** - HOT PLUG same conditions as above.

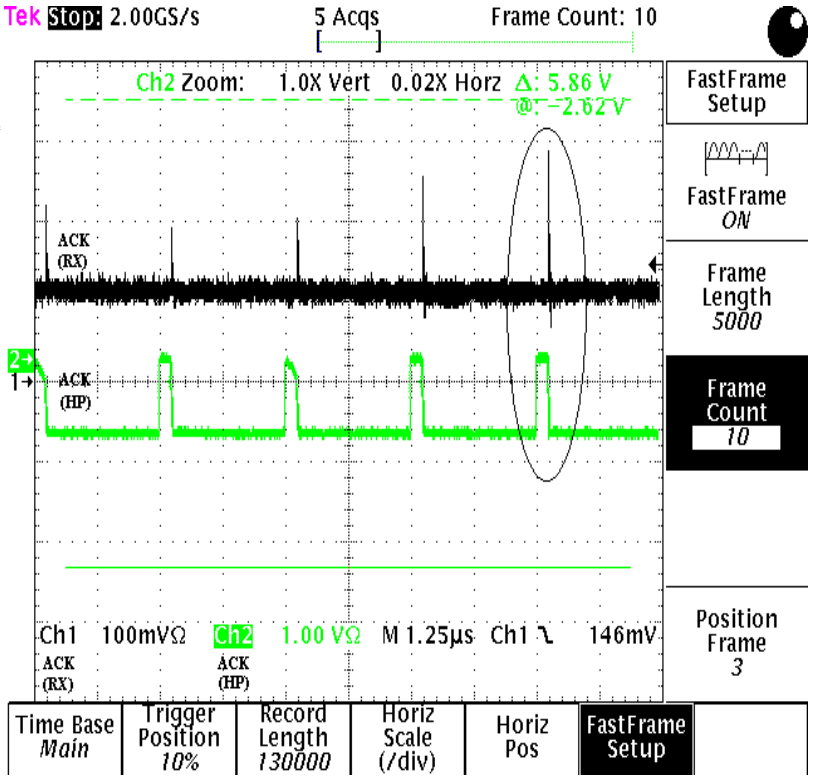
**FIGURE 3** - PHOTOGRAPH OF CABLING FOR MULTI DROP TESTS ABOVE.

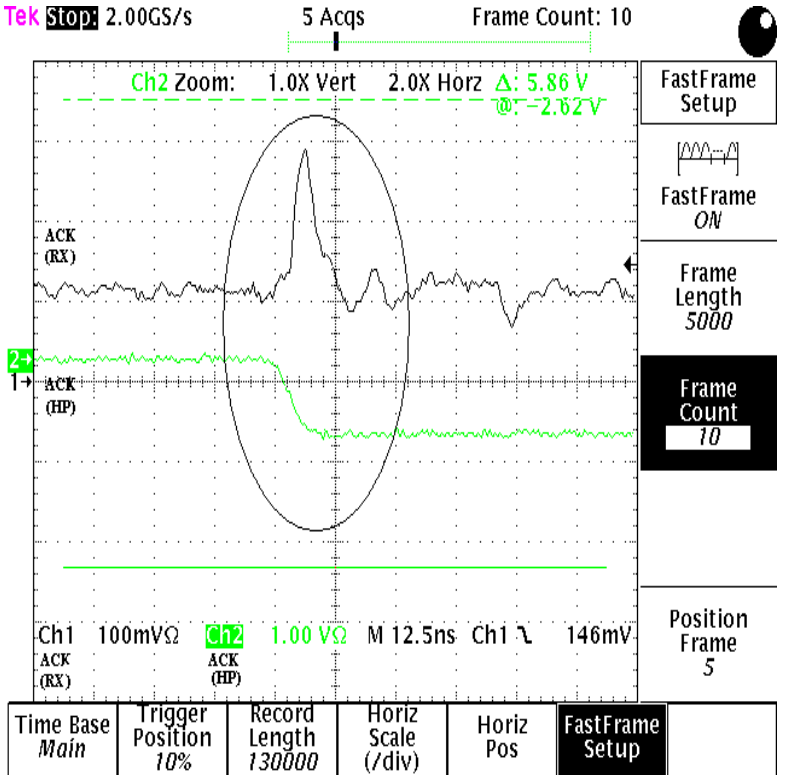
**FIGURE 4** - PHOTOGRAPH OF 4 DROP BACKPLANE SET UP (NO DATA YET)

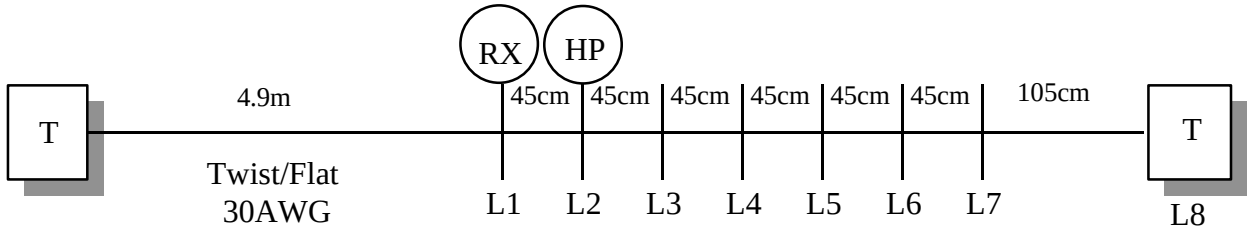
**FIGURE 5** - EQUIVALENT CIRCUIT USED FOR LOSSY DIFFERENTIAL CABLE SIMULATION FOR HOT PLUG TRANSIENT RESPONSE.

**FIGURE 6** - SIMULATED TRANSIENT RESPONSE FOR SINGLE EVENT
Top trace: Response of adjacent (- Ack) line to transient on (+Ack) line.
2nd trace: Response of hot plugged line (+Ack) to simulated Hot plug load
3rd trace: Differential response (simple sum) of top two traces.

**FIGURE 7** - HARDWARE SIMULATION OF HOT PLUG-LIKE TRANSIENT INJECTED INTO +ACK LINE.
(This bench simulation set up described in previous SPI presentation showing pulse effect on eye closure- see doct.....xxxxxxx)

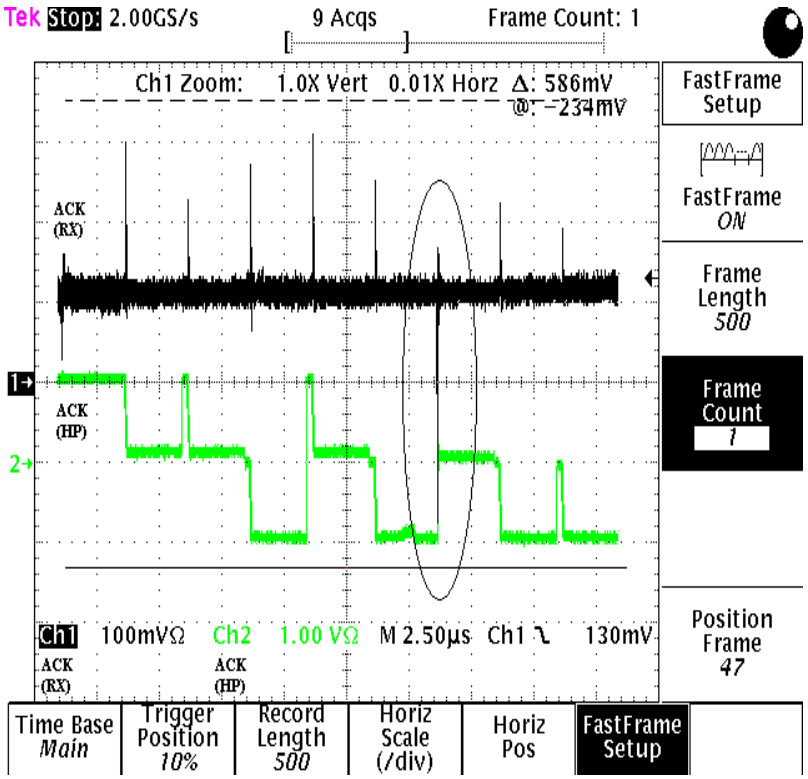


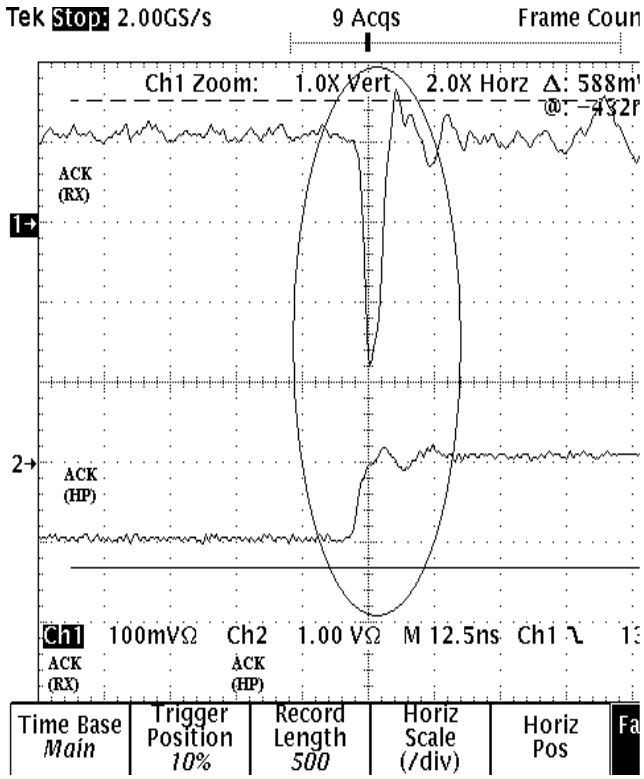



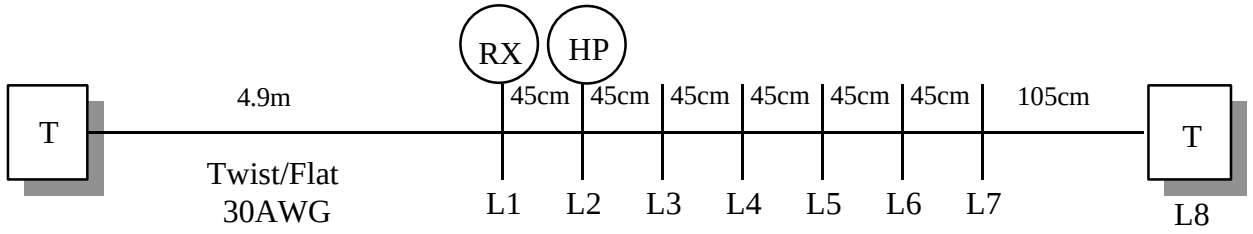




Note:
T = 100 Ω resistive termination

"Figure 1: LVD Hot Plug on 8 meter, Multi-Drop Cable"

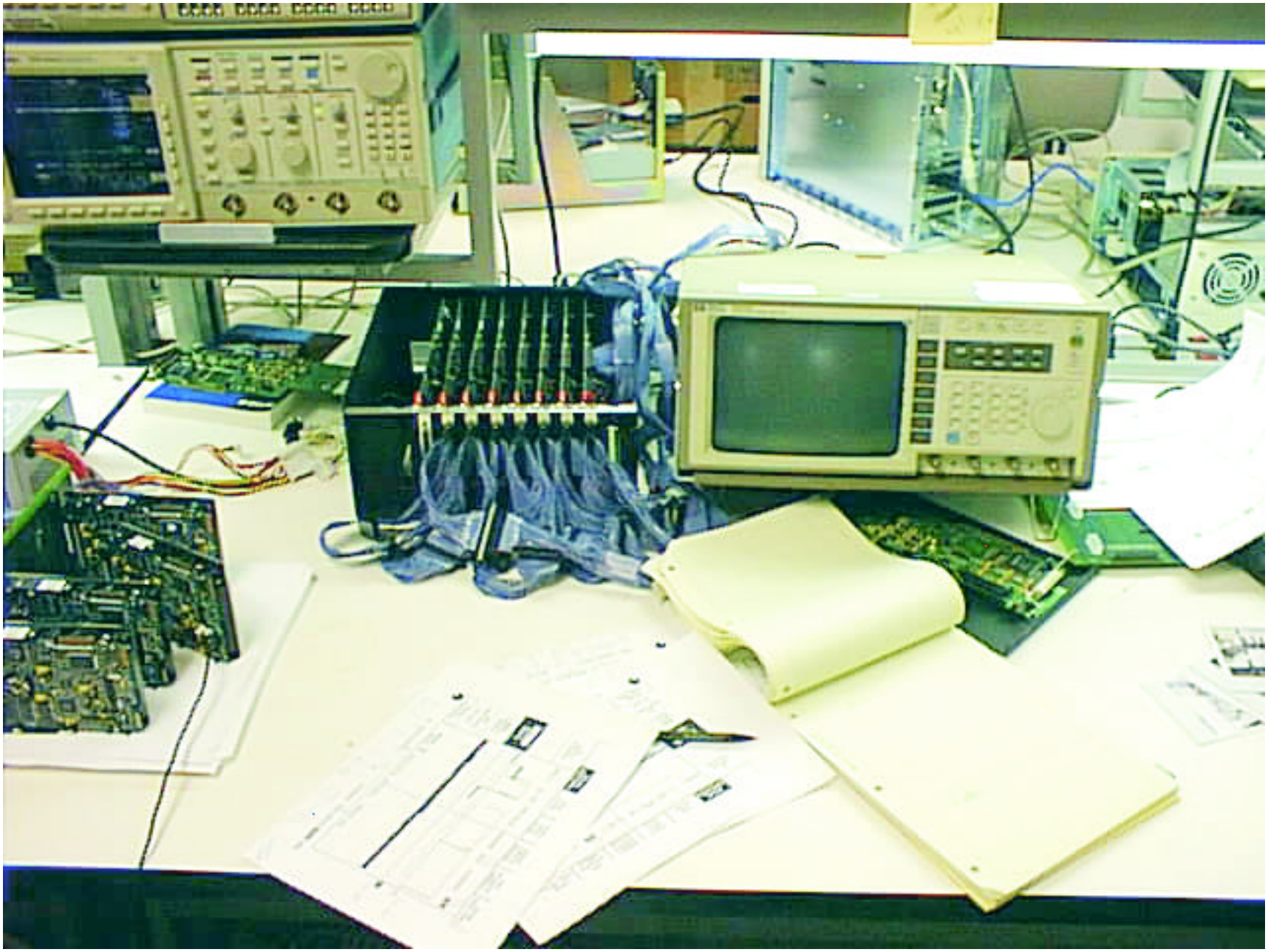



Note:
T = 100 Ω resistive termination

"Figure 2: Hot Plug on 8 meter, Multi-Drop Cable"



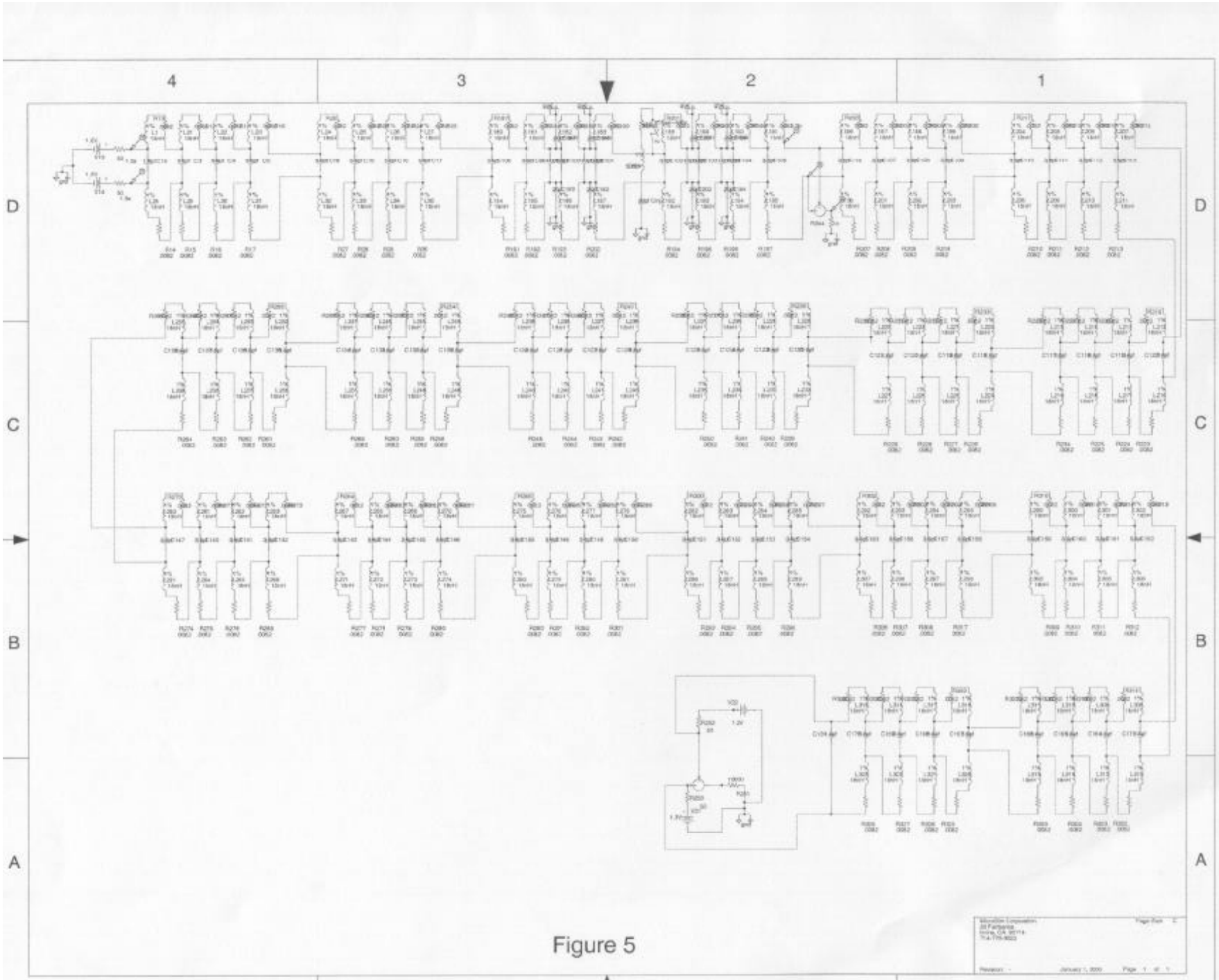
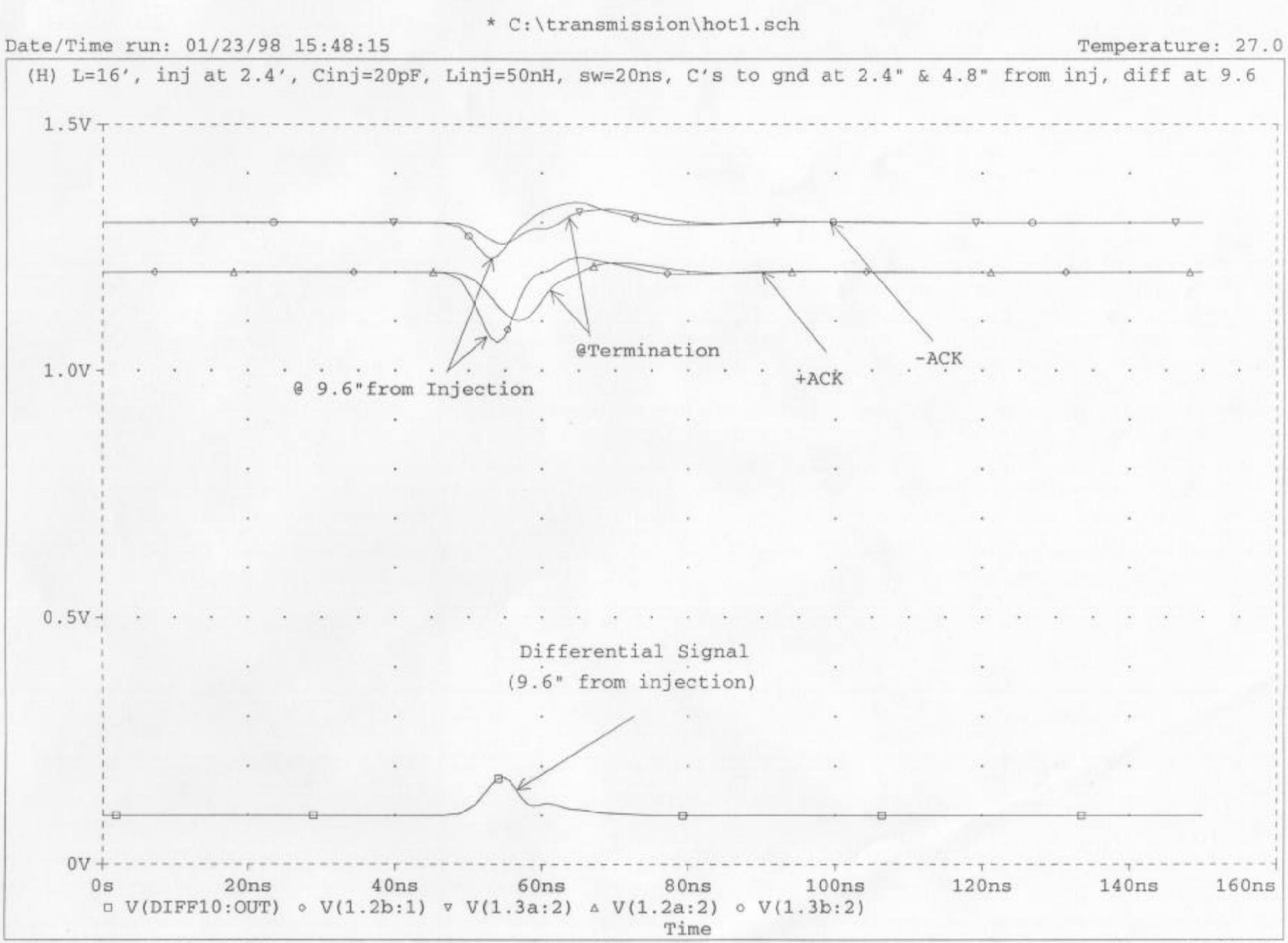
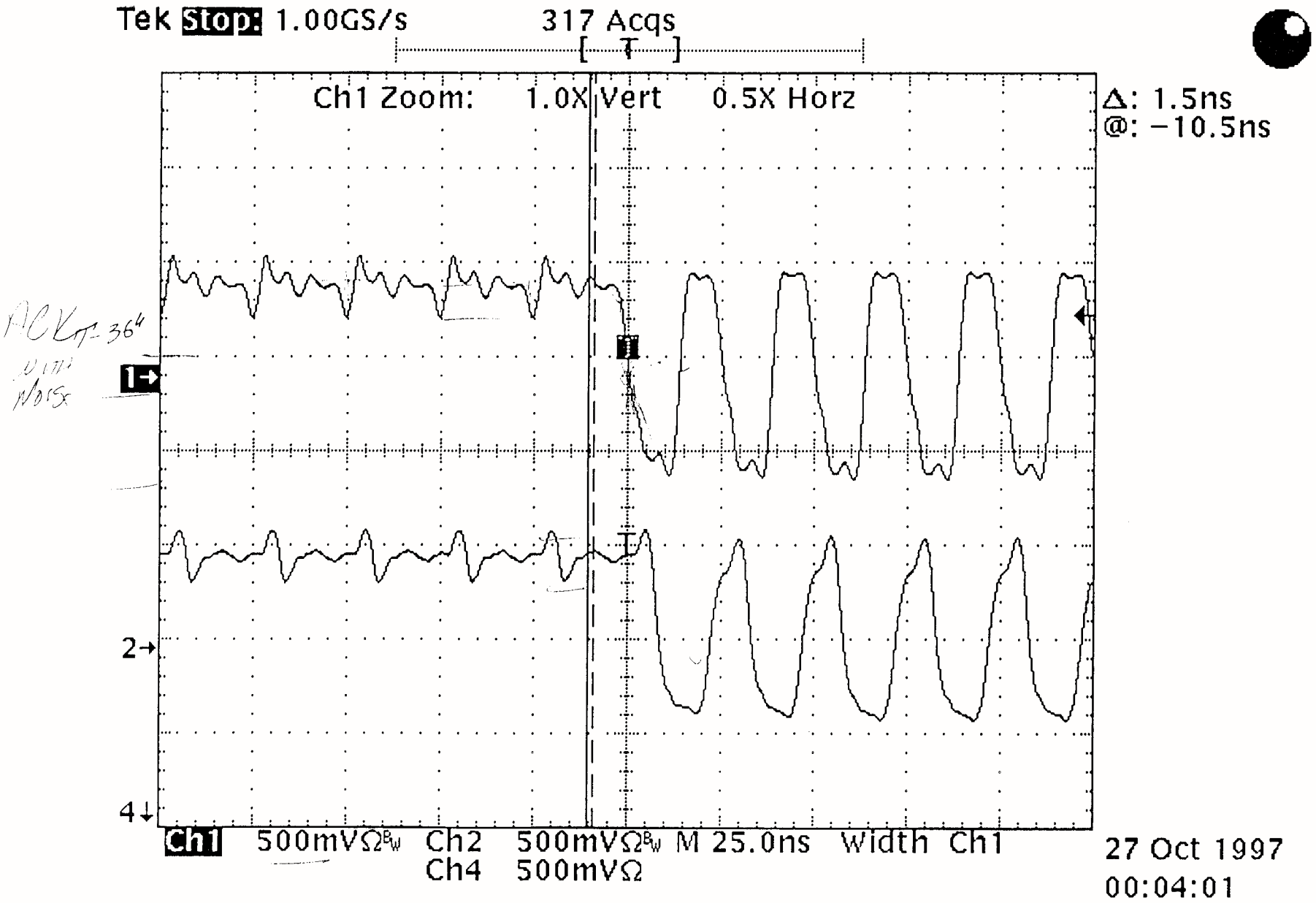



Figure 5


* C:\transmission\hot1.sch
Date/Time run: 01/23/98 15:48:15
Temperature: 27.0
(H) L=16', inj at 2.4', Cinj=20pF, Linj=50nH, sw=20ns, C's to gnd at 2.4" & 4.8" from inj, diff at 9.6
1.5V
1.0V
0.5V
0V
@ 9.6"from Injection
@Termination
+ACK
-ACK
Differential Signal
(9.6" from injection)
0s
20ns
40ns
60ns
80ns
100ns
120ns
140ns
160ns
V(DIFF10:OUT) V(1.2b:1) V(1.3a:2) V(1.2a:2) V(1.3b:2)
Time
Date: January 23, 1998
Figure 6
Time: 20:11:04


Tek Stop: 1.00GS/s
317 Acqs
Ch1 Zoom: 1.0X Vert 0.5X Horz
Δ: 1.5ns
@: −10.5ns
ACK=364
with
Horiz
1→
2→
4↓
Ch1 500mVΩBW Ch2 500mVΩBW M 25.0ns Width Ch1
Ch4 500mVΩ
27 Oct 1997
00:04:01