Command *vs.* Reply Timings

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Contents

[1] `$Header: d:/Binder8/SerialProblems/RCS/CmndTime.tex,v 1.6 2010-04-22 10:15:35-07 Hamilton Exp Hamilton $`
[4] `tocdepth = 4`

1 Command Timings

During testing of the Downloader program the timing values used with the Esprit were observed to be longer than anticipitated. There are plots of the timings attached.

1. In the attached plots, the first few lines of the plot file are included. In the plot file there is a D Protocol command and following the command is the time that the unit under test took to start its reply.

2. Gnuplot was used to generate the plots. Gnuplot ignores all lines that start with a "hash" ("`#`") mark.

3. The reply times for the Spectra are much more consistant than the reply times for the Esprit.

4. The Esprit, Spectra III, Spectra II and Mini Spectra, will autobaud to the commands sent by the PTZ logic, the Spectra IV will not. However the Spectra IV will connect if started out at the correct baud rate.

5. Downloader versions 1.20, 1.3.1 and 1.3.2 gave about the same timing results on all systems. But note that the timing on the Esprit is radically different that the timing on the Spectras.

6. The Downloader sends many commands from its PTZ screen with about an 18 ms gap between them. This is the fastest that commands are normally sent out. (The GlassKeyboard sends commands out with about a 135 ms gap between commands when the pseudo-JoyStick is used.)

7. These plots were generated from data captures with `RespTime.bat`.

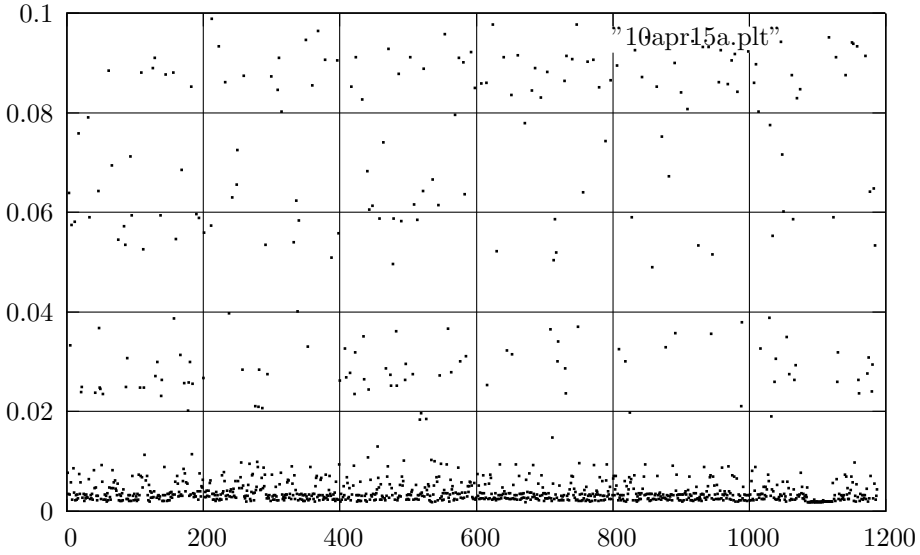
   `RespTime` calls the following routines to do its work: `bldteq`, `copy`, `dlt2te`, `dumpdce`, `dumpdte`, `enbl`, `firstdce`, `fixdq`, `gnuplot`, `lastdte`, `makeplot`, `msq` and `qsort`.

   `RespTime` generates and uses `plotime.gp` with Gnuplot.

8. All units, except for those specified otherwise, had NTSC type cameras in them.

1.1 Esprit 4.04, 3.85 Command *vs.* Reply Timings with PAL

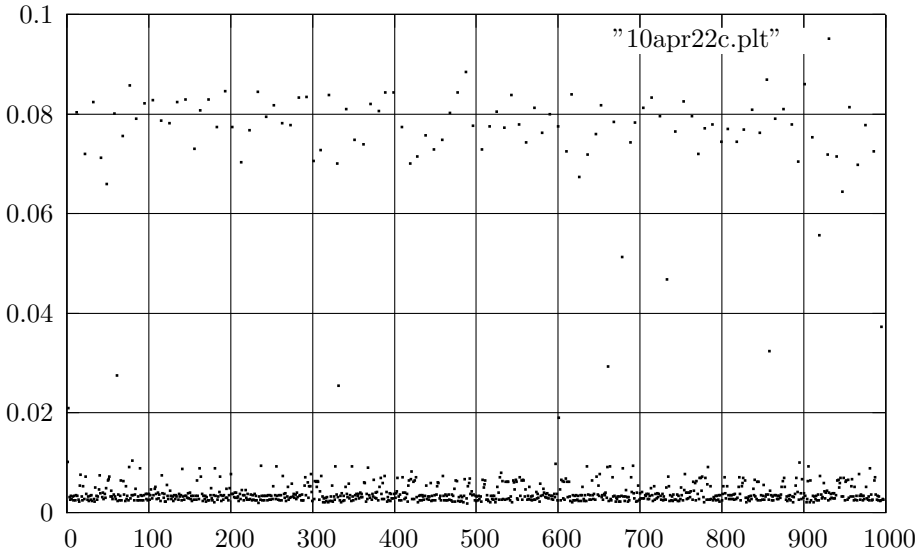
The D Protocol commands being sent were an assortment of pan/tilt commands at various speeds. The Esprit testing was done with rev 4.04 at 9600 baud. When an older version of the software (3.85) was used the timing was about the same. The Esprit has many more samples taken because I couldn't believe what I was seeing on the oscilloscope and I wanted to verify the slowness of the responses. This unit had a PAL type of camera inside it.




```
 1  # $Header: d:/Binder8/SerialProblems/RCS/10APR15a.dat,v 1.1 2010-04-19 12:49:15-07 Hamilton
Exp Hamilton $
 2  # Mon Apr 19 11:21:33 2010
 3  # ff 01 00 00 00 00 01
 4       0.007467
 5  # ff 01 00 02 2d 25 55
 6       0.003208
 7  # ff 01 00 02 2d 25 55
 8       0.063618
 9  # ff 01 00 02 35 25 5d
10       0.003055
11  # ff 01 00 00 00 00 01
12       0.032984
13  # ff 01 00 02 35 25 5d
14       0.005528
15  # ff 01 00 02 35 25 5d
16       0.057145
17  # ff 01 00 02 35 25 5d
18       0.002091
19  # ff 01 00 00 00 00 01
20       0.008398
21  # ff 01 00 02 25 25 4d
22       0.003473
```

1.2 Esprit 4.04, 3.80 Command *vs.* Reply Timings with NTSC

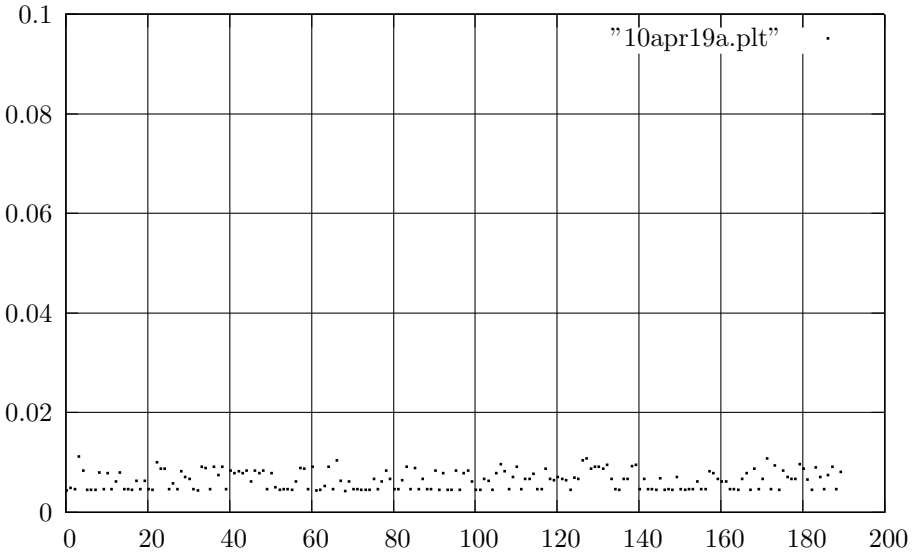
The D Protocol commands being sent were an assortment of pan/tilt commands at various speeds. The Esprit testing was done with rev 3.80 and 4.04 at 9600 baud with essentially identical results.




```
 1  # $Header$
 2  # Thu Apr 22 10:45:20 2010
 3  # ff 01 00 02 25 25 4d
 4       0.009848
 5  # ff 01 00 02 25 25 4d
 6       0.020700
 7  # ff 01 00 02 0c 25 34
 8       0.002884
 9  # ff 01 00 02 0c 25 34
10       0.002264
11  # ff 01 00 02 19 25 41
12       0.003112
13  # ff 01 00 02 19 25 41
14       0.002438
15  # ff 01 00 02 19 25 41
16       0.003013
17  # ff 01 00 02 19 25 41
18       0.002165
19  # ff 01 00 02 19 25 41
20       0.003123
21  # ff 01 00 02 19 25 41
22       0.002230
```

1.3 Spectra IV Command *vs.* Reply Timings

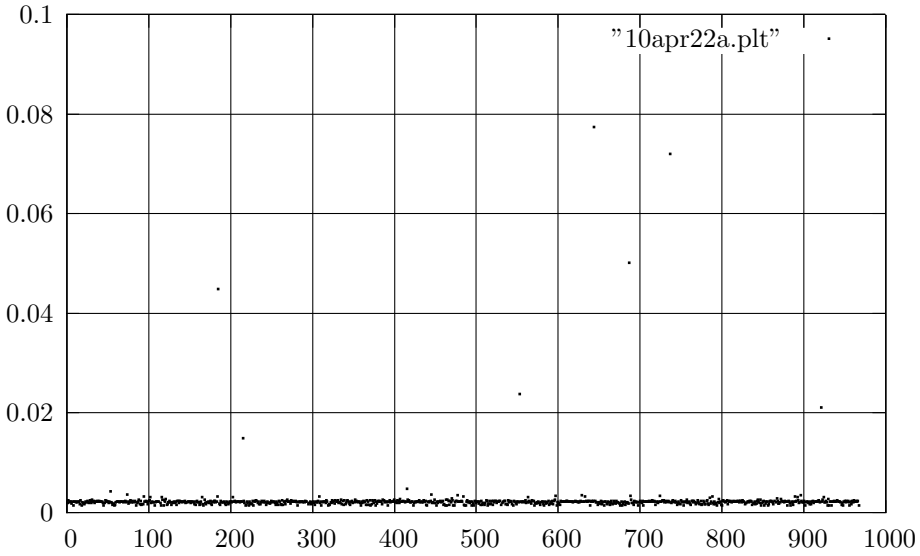
The D Protocol commands being sent were an assortment of pan/tilt commands at various speeds. The Spectra IV baud rate was 2400 baud. The software used on the Spectra IV is an "unreved" test version of the code.




```
 1  # $Header: d:/Binder8/SerialProblems/RCS/10APR19a.dat,v 1.1 2010-04-19 12:49:19-07 Hamilton
Exp Hamilton $
 2  # Mon Apr 19 11:21:41 2010
 3  # ff 01 00 00 00 00 01
 4       0.004098
 5  # ff 01 00 10 25 35 6b
 6       0.004673
 7  # ff 01 00 10 25 3a 70
 8       0.004306
 9  # ff 01 00 14 35 35 7f
10       0.010945
11  # ff 01 00 04 40 25 6a
12       0.008057
13  # ff 01 00 04 40 25 6a
14       0.004295
15  # ff 01 00 04 40 25 6a
16       0.004277
17  # ff 01 00 04 40 25 6a
18       0.004291
19  # ff 01 00 0c 2d 2d 67
20       0.007667
21  # ff 01 00 0c 2d 2d 67
22       0.004306
```

1.4 Spectra III Command *vs.* Reply Timings

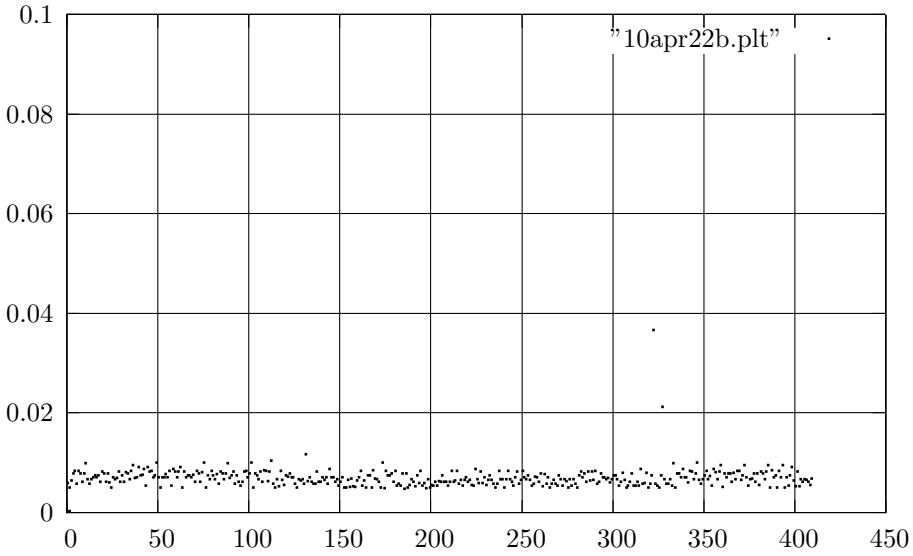
The D Protocol commands being sent were an assortment of pan/tilt commands at various speeds. The Spectra III baud rate was 9600 baud. The software used on the Spectra III is rev 1.31.




```
 1  # $Header: d:/Binder8/SerialProblems/RCS/10APR22a.dat,v 1.1 2010-04-22 10:17:49-07 Hamilton
Exp Hamilton $
 2  # Thu Apr 22 10:09:55 2010
 3  # ff 01 00 02 0c 25 34
 4       0.001637
 5  # ff 01 00 02 0c 25 34
 6       0.002207
 7  # ff 01 00 02 0c 25 34
 8       0.001838
 9  # ff 01 00 02 0c 25 34
10       0.001948
11  # ff 01 00 08 25 2d 5b
12       0.001934
13  # ff 01 00 08 25 2d 5b
14       0.001539
15  # ff 01 00 08 25 2d 5b
16       0.001932
17  # ff 01 00 08 25 2d 5b
18       0.001219
19  # ff 01 00 08 25 2d 5b
20       0.001943
21  # ff 01 00 04 25 25 4f
22       0.001942
```

1.5 Spectra II Command *vs.* Reply Timings

The D Protocol commands being sent were an assortment of pan/tilt commands at various speeds. The Spectra II baud rate was 2400 baud. The software used on the Spectra II is rev 3.31.




```
 1  # $Header: d:/Binder8/SerialProblems/RCS/10APR22b.dat,v 1.1 2010-04-22 10:17:53-07 Hamilton
Exp Hamilton $
 2  # Thu Apr 22 10:10:05 2010
 3  # ff 01 00 00 00 00 01
 4       0.005710
 5  # ff 01 00 00 00 00 01
 6       0.004721
 7  # ff 01 00 10 25 25 5b
 8       0.006130
 9  # ff 01 00 02 0c 25 34
10       0.007602
11  # ff 01 00 02 19 25 41
12       0.008056
13  # ff 01 00 02 35 25 5d
14       0.005529
15  # ff 01 00 02 35 25 5d
16       0.008055
17  # ff 01 00 02 35 25 5d
18       0.007586
19  # ff 01 00 02 2d 25 55
20       0.005945
21  # ff 01 00 12 2d 2d 6d
22       0.007639
```

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