

Esprit Motion Timing

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¹\$Header: d:/Binder2/AllCmds/RCS/MvTest.tex,v 1.1 2009-02-12 10:40:51-08 Hamilton Exp Hamilton \$

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0.1 4.5° incrementing motion commands, with an Esprit

In this test small moves of usually 4.5° are made and the position is then read out. A typical section of the repeating commands are:

```
:print("Move to 4.5 degrees")
:set_pan_position(4.5)
:delay(1000)
:query_pan_position()
:delay(1000)
```

4.5° moves were selected because the Esprit under test had 80 presets and $360/80 = 4.5$. Some of the steps were changed by adding +.1 to get over problems in the automated analysis software that do not work well when a SYNC flag (0xFF) is found in the data portion or checksum of a command/reply. The five changed values were at 45.00, 121.50, 198.00, 274.5 and 351.00°.

The test script for this test step is: `mvtest2a.txt`

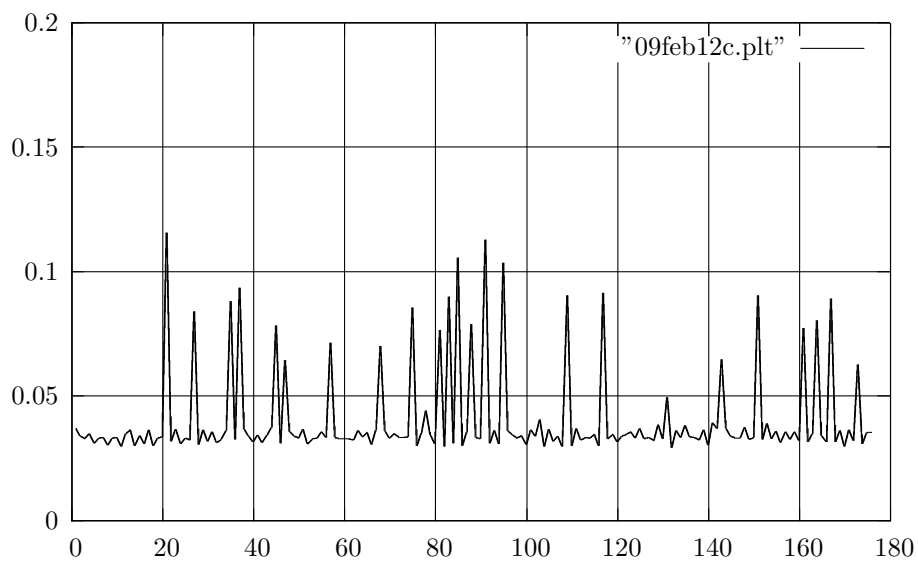


Figure 1: Plotted motion reply times from an Esprit ES31CBW24

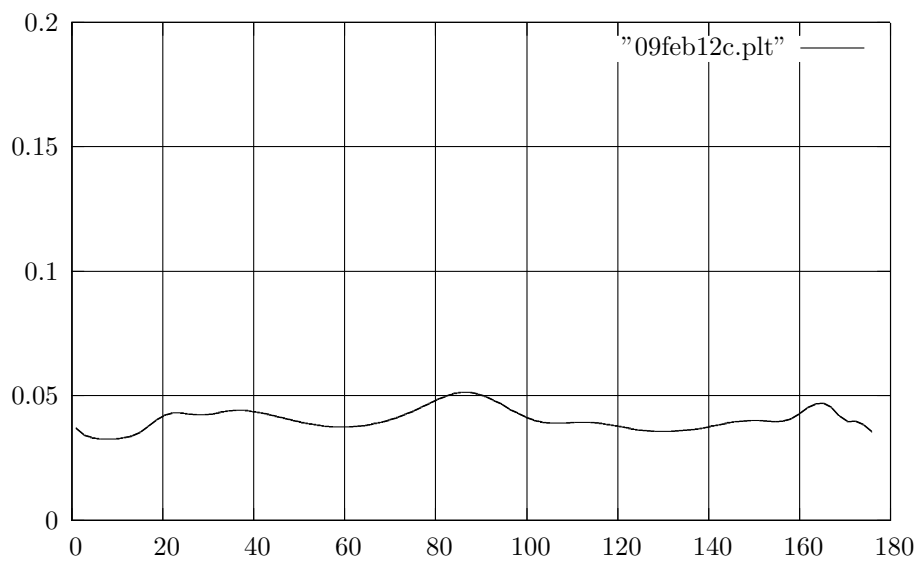


Figure 2: Plotted and smoothed motion reply times from an Esprit ES31CBW24

```

# $Header: d:/Binder2/AllCmds/RCS/09feb12c.plt,v 1.1
2009-02-12 09:29:12-08 Hamilton Exp Hamilton $
# FTS capture buffer (2/12/2009 9:31:32 AM)
# Event 1 (2/12/2009 9:26:47.985208 AM) through
# Event 2,275 (2/12/2009 9:31:04.752217 AM)
1 0.036932 # ff 01 00 00 00 00 01
2 0.033961 # ff 01 00 45 00 00 46
3 0.033024 # ff 01 01 45 00 00 47
4 0.034975 # ff 01 02 45 00 00 48
5 0.031147 # ff 01 03 45 00 00 49
6 0.033140 # ff 01 04 45 00 00 4a
7 0.033412 # ff 01 05 45 00 00 4b
8 0.030418 # ff 01 00 73 00 00 74
9 0.033047 # ff 01 02 73 00 00 76
10 0.033503 # ff 01 00 6f 00 00 70
11 0.029922 # ff 01 00 0f 00 00 10
12 0.035028 # ff 01 00 4b 00 00 4c
13 0.036486 # ff 01 00 51 00 00 52
14 0.030053 # ff 01 00 07 00 21 29
15 0.034273 # ff 01 00 51 00 00 52
16 0.030836 # ff 01 00 07 00 21 29
17 0.036382 # ff 01 00 51 00 00 52
18 0.029975 # ff 01 00 4b 01 c2 0f
19 0.033100 # ff 01 00 51 00 00 52
20 0.033649 # ff 01 00 4b 03 84 d3
21 0.115575 # ff 01 00 51 00 00 52
22 0.031983 # ff 01 00 4b 05 46 97
23 0.036803 # ff 01 00 51 00 00 52
24 0.030913 # ff 01 00 4b 07 08 5b
25 0.033201 # ff 01 00 51 00 00 52
26 0.032449 # ff 01 00 4b 08 ca 1e
27 0.084067 # ff 01 00 51 00 00 52
28 0.030472 # ff 01 00 4b 0a 8c e2
29 0.036512 # ff 01 00 51 00 00 52
30 0.031850 # ff 01 00 4b 0c 4e a6
31 0.035836 # ff 01 00 51 00 00 52
32 0.031432 # ff 01 00 4b 0e 10 6a
33 0.032604 # ff 01 00 51 00 00 52
34 0.036330 # ff 01 00 4b 0f d2 2d
35 0.088206 # ff 01 00 51 00 00 52
36 0.032737 # ff 01 00 4b 11 9e fb
37 0.093496 # ff 01 00 51 00 00 52
38 0.036746 # ff 01 00 4b 13 56 b5
39 0.033902 # ff 01 00 51 00 00 52
40 0.031721 # ff 01 00 4b 15 18 79
41 0.034533 # ff 01 00 51 00 00 52
42 0.031384 # ff 01 00 4b 16 da 3c
43 0.034560 # ff 01 00 51 00 00 52
44 0.037633 # ff 01 00 4b 18 9c 00
45 0.078309 # ff 01 00 51 00 00 52
46 0.031096 # ff 01 00 4b 1a 5e c4
47 0.064507 # ff 01 00 51 00 00 52
48 0.035834 # ff 01 00 4b 1c 20 88
49 0.033933 # ff 01 00 51 00 00 52
50 0.033101 # ff 01 00 4b 1d e2 4b
51 0.036740 # ff 01 00 51 00 00 52
52 0.030913 # ff 01 00 4b 1f a4 0f
53 0.032865 # ff 01 00 51 00 00 52
54 0.033154 # ff 01 00 4b 21 66 d3
55 0.035680 # ff 01 00 51 00 00 52
56 0.033415 # ff 01 00 4b 23 28 97
57 0.071382 # ff 01 00 51 00 00 52
58 0.033362 # ff 01 00 4b 24 ea 5a
59 0.033021 # ff 01 00 51 00 00 52
60 0.032840 # ff 01 00 4b 26 ac 1e
61 0.032866 # ff 01 00 51 00 00 52
62 0.032371 # ff 01 00 4b 28 6e e2
63 0.036120 # ff 01 00 51 00 00 52
64 0.033621 # ff 01 00 4b 2a 30 a6
65 0.035454 # ff 01 00 51 00 00 52
66 0.030625 # ff 01 00 4b 2b f2 69
67 0.036433 # ff 01 00 51 00 00 52
68 0.070212 # ff 01 00 4b 2d b4 2d
69 0.035991 # ff 01 00 51 00 00 52
70 0.033255 # ff 01 00 4b 2f 80 fb
71 0.035002 # ff 01 00 51 00 00 52
72 0.033360 # ff 01 00 4b 31 38 b5
73 0.033362 # ff 01 00 51 00 00 52
74 0.033752 # ff 01 00 4b 32 fa 78
75 0.085595 # ff 01 00 51 00 00 52
76 0.030053 # ff 01 00 4b 34 bc 3c
77 0.035265 # ff 01 00 51 00 00 52
78 0.044128 # ff 01 00 4b 36 7e 00
79 0.034351 # ff 01 00 51 00 00 52
80 0.030913 # ff 01 00 4b 38 40 c4
81 0.076697 # ff 01 00 51 00 00 52
82 0.029819 # ff 01 00 4b 3a 02 88
83 0.090029 # ff 01 00 51 00 00 52
84 0.031095 # ff 01 00 4b 3b c4 4b
85 0.105654 # ff 01 00 51 00 00 52
86 0.030070 # ff 01 00 4b 3d 86 0f
87 0.035786 # ff 01 00 51 00 00 52
88 0.078987 # ff 01 00 4b 3f 48 d3
89 0.033308 # ff 01 00 51 00 00 52
90 0.032788 # ff 01 00 4b 41 0a 97
91 0.112924 # ff 01 00 51 00 00 52
92 0.031172 # ff 01 00 4b 42 cc 5a
93 0.036200 # ff 01 00 51 00 00 52
94 0.030968 # ff 01 00 4b 44 8e 1e
95 0.103595 # ff 01 00 51 00 00 52
96 0.035913 # ff 01 00 4b 46 50 e2
97 0.034352 # ff 01 00 51 00 00 52
98 0.033127 # ff 01 00 4b 48 12 a6
99 0.034248 # ff 01 00 51 00 00 52
100 0.030628 # ff 01 00 4b 49 d4 69
101 0.036487 # ff 01 00 51 00 00 52
102 0.033830 # ff 01 00 4b 4b 96 2d
103 0.040521 # ff 01 00 51 00 00 52
104 0.029948 # ff 01 00 4b 4d 62 fb
105 0.036692 # ff 01 00 51 00 00 52
106 0.031824 # ff 01 00 4b 4f 1a b5
107 0.033830 # ff 01 00 51 00 00 52
108 0.029715 # ff 01 00 4b 50 dc 78
109 0.090598 # ff 01 00 51 00 00 52
110 0.030157 # ff 01 00 4b 52 9e 3c
111 0.037060 # ff 01 00 51 00 00 52
112 0.032502 # ff 01 00 4b 54 60 00
113 0.033414 # ff 01 00 51 00 00 52
114 0.033073 # ff 01 00 4b 56 22 c4
115 0.034688 # ff 01 00 51 00 00 52
116 0.030028 # ff 01 00 4b 57 e4 87
117 0.091503 # ff 01 00 51 00 00 52
118 0.032817 # ff 01 00 4b 59 a6 4b
119 0.034611 # ff 01 00 51 00 00 52
120 0.031566 # ff 01 00 4b 5b 68 0f
121 0.034037 # ff 01 00 51 00 00 52
122 0.034715 # ff 01 00 4b 5d 2a d3
123 0.035678 # ff 01 00 51 00 00 52
124 0.033074 # ff 01 00 4b 5e ec 96
125 0.036901 # ff 01 00 51 00 00 52
126 0.032979 # ff 01 00 4b 60 ae 5a
127 0.033334 # ff 01 00 51 00 00 52
128 0.032163 # ff 01 00 4b 62 70 1e
129 0.038621 # ff 01 00 51 00 00 52
130 0.032839 # ff 01 00 4b 64 32 e2
131 0.049661 # ff 01 00 51 00 00 52
132 0.029393 # ff 01 00 4b 65 f4 a5
133 0.036201 # ff 01 00 51 00 00 52
134 0.033308 # ff 01 00 4b 67 b6 69
135 0.038232 # ff 01 00 51 00 00 52
136 0.033724 # ff 01 00 4b 69 78 2d
137 0.033359 # ff 01 00 51 00 00 52
138 0.032294 # ff 01 00 4b 6b 44 fb
139 0.036617 # ff 01 00 51 00 00 52

```

```

140    0.030341 # ff 01 00 4b 6c fc b4
141    0.039226 # ff 01 00 51 00 00 52
142    0.037119 # ff 01 00 4b 6e be 78
143    0.064718 # ff 01 00 51 00 00 52
144    0.037078 # ff 01 00 4b 70 80 3c
145    0.034045 # ff 01 00 51 00 00 52
146    0.033125 # ff 01 00 4b 72 42 00
147    0.033257 # ff 01 00 51 00 00 52
148    0.037474 # ff 01 00 4b 74 04 c4
149    0.032528 # ff 01 00 51 00 00 52
150    0.033439 # ff 01 00 4b 75 c6 87
151    0.090593 # ff 01 00 51 00 00 52
152    0.032683 # ff 01 00 4b 77 88 4b
153    0.039117 # ff 01 00 51 00 00 52
154    0.032866 # ff 01 00 4b 79 4a 0f
155    0.035974 # ff 01 00 51 00 00 52
156    0.031277 # ff 01 00 4b 7b 0c d3
157    0.035756 # ff 01 00 51 00 00 52
158    0.032594 # ff 01 00 4b 7c ce 96
159    0.035625 # ff 01 00 51 00 00 52
160    0.032083 # ff 01 00 4b 7e 90 5a
161    0.077319 # ff 01 00 51 00 00 52
162    0.031668 # ff 01 00 4b 80 52 1e
163    0.034895 # ff 01 00 51 00 00 52
164    0.080473 # ff 01 00 4b 82 14 e2
165    0.034098 # ff 01 00 51 00 00 52
166    0.031667 # ff 01 00 4b 83 d6 a5
167    0.089172 # ff 01 00 51 00 00 52
168    0.031618 # ff 01 00 4b 85 98 69
169    0.036176 # ff 01 00 51 00 00 52
170    0.029924 # ff 01 00 4b 87 5a 2d
171    0.036460 # ff 01 00 51 00 00 52
172    0.032096 # ff 01 00 4b 89 26 fb
173    0.062764 # ff 01 00 51 00 00 52
174    0.030887 # ff 01 00 4b 8a de b4
175    0.035443 # ff 01 00 51 00 00 52
176    0.035419 # ff 01 00 51 00 00 52
# There were a total of    1043 DCE bytes transferred
# The first DCE byte came in at 0.036932 seconds from the
start of data collection
# The last DCE byte was at 256.767009 seconds from the start
of data collection
# There were a total of    1232 DTE bytes transferred
# The first DTE byte came in at 0.000000 seconds from the
start of data collection
# The last DTE byte was at 256.731509 seconds from the start
of data collection

```

0.2 4.5° incrementing motion/preset commands, with an Esprit

In this test small moves of usually 4.5° are made, the position is then read out, a preset is set and the position is again readout. A typical section of the repeating commands are:

```
:print("Move to 4.5 degrees")
:set_pan_position(4.5)
:delay(1000)
:query_pan_position()
:delay(1000)
:set_preset(1)
:delay(1000)
```

No additional commands needed to be incremented by .1°.

The test script for this test step is: `mvtest2b.txt`

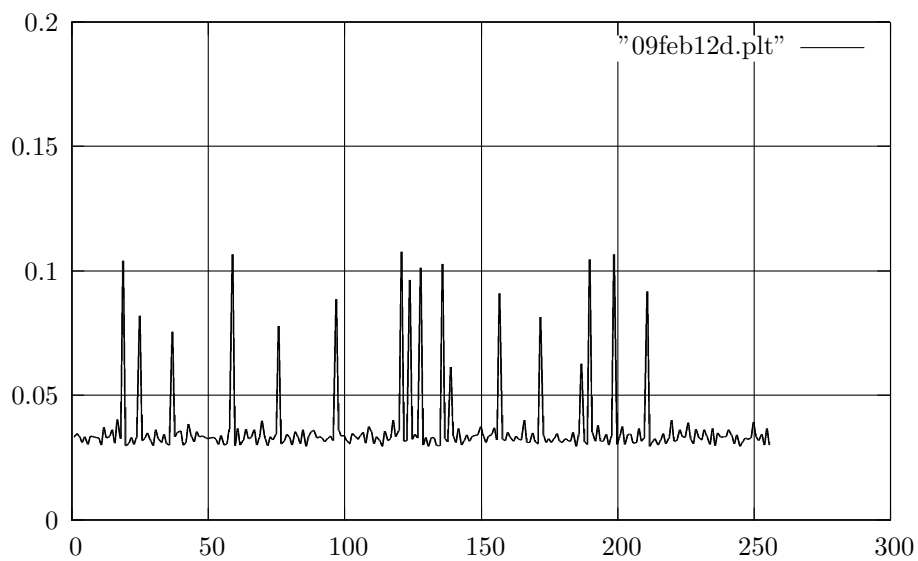


Figure 3: Plotted motion reply times/preset from an Esprit ES31CBW24

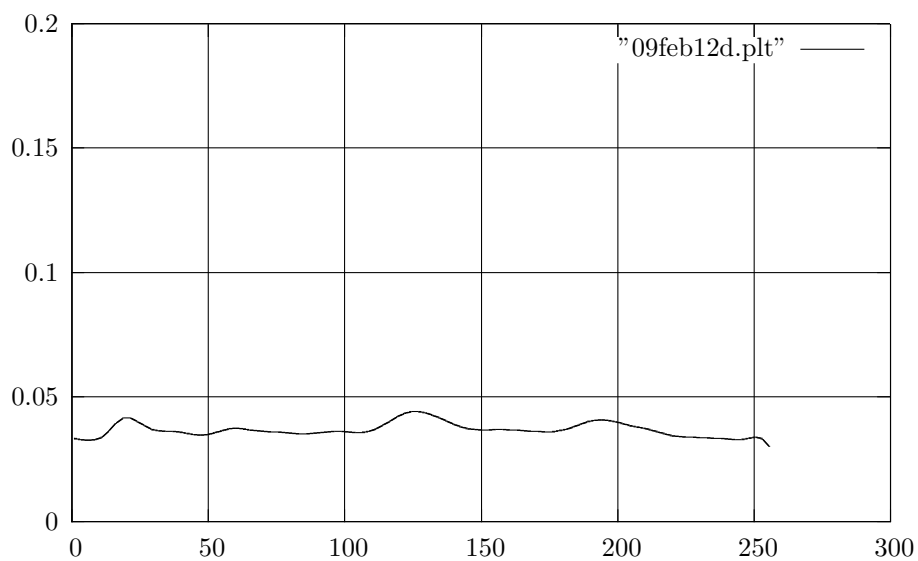


Figure 4: Plotted and smoothed motion/preset reply times from an Esprit ES31CBW24

```

# $Header: d:/Binder2/AllCmds/RCS/09feb12d.plt,v 1.1
2009-02-12 09:59:21-08 Hamilton Exp Hamilton $
# FTS capture buffer (2/12/2009 10:01:44 AM)
# Event 1 (2/12/2009 9:52:56.055616 AM) through
# Event 3,155 (2/12/2009 9:58:38.271760 AM)
1 0.033364 # ff 01 00 00 00 00 01
2 0.034666 # ff 01 00 45 00 00 46
3 0.033310 # ff 01 01 45 00 00 47
4 0.031124 # ff 01 02 45 00 00 48
5 0.033440 # ff 01 03 45 00 00 49
6 0.030344 # ff 01 04 45 00 00 4a
7 0.033571 # ff 01 05 45 00 00 4b
8 0.033468 # ff 01 00 73 00 00 74
9 0.033100 # ff 01 02 73 00 00 76
10 0.032840 # ff 01 00 6f 00 00 70
11 0.030133 # ff 01 00 0f 00 00 10
12 0.037323 # ff 01 00 4b 00 00 4c
13 0.032816 # ff 01 00 51 00 00 52
14 0.033626 # ff 01 00 07 00 21 29
15 0.036254 # ff 01 00 51 00 00 52
16 0.030914 # ff 01 00 07 00 21 29
17 0.040342 # ff 01 00 51 00 00 52
18 0.032635 # ff 01 00 4b 01 c2 0f
19 0.104067 # ff 01 00 51 00 00 52
20 0.029926 # ff 01 00 03 00 01 05
21 0.030838 # ff 01 00 4b 03 84 d3
22 0.033049 # ff 01 00 51 00 00 52
23 0.030394 # ff 01 00 03 00 02 06
24 0.033078 # ff 01 00 4b 05 46 97
25 0.081958 # ff 01 00 51 00 00 52
26 0.031838 # ff 01 00 03 00 03 07
27 0.032841 # ff 01 00 4b 07 08 5b
28 0.034848 # ff 01 00 51 00 00 52
29 0.031838 # ff 01 00 03 00 04 08
30 0.029925 # ff 01 00 4b 08 ca 1e
31 0.036202 # ff 01 00 51 00 00 52
32 0.032528 # ff 01 00 03 00 05 09
33 0.031019 # ff 01 00 4b 0a 8c e2
34 0.034535 # ff 01 00 51 00 00 52
35 0.030706 # ff 01 00 03 00 06 0a
36 0.030029 # ff 01 00 4b 0c 4e a6
37 0.075657 # ff 01 00 51 00 00 52
38 0.033319 # ff 01 00 03 00 07 0b
39 0.035239 # ff 01 00 4b 0e 10 6a
40 0.035758 # ff 01 00 51 00 00 52
41 0.029980 # ff 01 00 03 00 08 0c
42 0.030994 # ff 01 00 4b 0f d2 2d
43 0.038644 # ff 01 00 51 00 00 52
44 0.033363 # ff 01 00 03 00 09 0d
45 0.031382 # ff 01 00 4b 11 9e fb
46 0.035447 # ff 01 00 51 00 00 52
47 0.033364 # ff 01 00 03 00 0a 0e
48 0.033621 # ff 01 00 4b 13 56 b5
49 0.033181 # ff 01 00 51 00 00 52
50 0.032688 # ff 01 00 03 00 0b 0f
51 0.032896 # ff 01 00 4b 15 18 79
52 0.033110 # ff 01 00 51 00 00 52
53 0.032270 # ff 01 00 03 00 0c 10
54 0.030281 # ff 01 00 4b 16 da 3c
55 0.033849 # ff 01 00 51 00 00 52
56 0.029976 # ff 01 00 03 00 0d 11
57 0.030524 # ff 01 00 4b 18 9c 00
58 0.036385 # ff 01 00 51 00 00 52
59 0.106803 # ff 01 00 03 00 0e 12
60 0.029794 # ff 01 00 4b 1a 5e c4
61 0.036749 # ff 01 00 51 00 00 52
62 0.029951 # ff 01 00 03 00 0f 13
63 0.032190 # ff 01 00 4b 1c 20 88
64 0.036446 # ff 01 00 51 00 00 52
65 0.032699 # ff 01 00 03 00 10 14
66 0.033181 # ff 01 00 4b 1d e2 4b
67 0.036175 # ff 01 00 51 00 00 52
68 0.029951 # ff 01 00 03 00 11 15
69 0.033183 # ff 01 00 4b 1f a4 0f
70 0.039873 # ff 01 00 51 00 00 52
71 0.032711 # ff 01 00 03 00 12 16
72 0.029928 # ff 01 00 4b 21 66 d3
73 0.033415 # ff 01 00 51 00 00 52
74 0.032140 # ff 01 00 03 00 13 17
75 0.034378 # ff 01 00 4b 23 28 97
76 0.077919 # ff 01 00 51 00 00 52
77 0.030708 # ff 01 00 03 00 14 18
78 0.031879 # ff 01 00 4b 24 ea 5a
79 0.034482 # ff 01 00 51 00 00 52
80 0.033208 # ff 01 00 03 00 15 19
81 0.030120 # ff 01 00 4b 26 ac 1e
82 0.035359 # ff 01 00 51 00 00 52
83 0.033337 # ff 01 00 03 00 16 1a
84 0.030500 # ff 01 00 4b 28 6e e2
85 0.036331 # ff 01 00 51 00 00 52
86 0.029639 # ff 01 00 03 00 17 1b
87 0.033727 # ff 01 00 4b 2a 30 a6
88 0.035500 # ff 01 00 51 00 00 52
89 0.035951 # ff 01 00 03 00 18 1c
90 0.032947 # ff 01 00 4b 2b f2 69
91 0.033521 # ff 01 00 51 00 00 52
92 0.033026 # ff 01 00 03 00 19 1d
93 0.031384 # ff 01 00 4b 2d b4 2d
94 0.032967 # ff 01 00 51 00 00 52
95 0.033583 # ff 01 00 03 00 1a 1e
96 0.031982 # ff 01 00 4b 2f 80 fb
97 0.088807 # ff 01 00 51 00 00 52
98 0.036020 # ff 01 00 03 00 1b 1f
99 0.033780 # ff 01 00 4b 31 38 b5
100 0.033935 # ff 01 00 51 00 00 52
101 0.031594 # ff 01 00 03 00 1c 20
102 0.030655 # ff 01 00 4b 32 fa 78
103 0.034612 # ff 01 00 51 00 00 52
104 0.033571 # ff 01 00 03 00 1d 21
105 0.032296 # ff 01 00 4b 34 bc 3c
106 0.033936 # ff 01 00 51 00 00 52
107 0.035317 # ff 01 00 03 00 1e 22
108 0.030854 # ff 01 00 4b 36 7e 00
109 0.037506 # ff 01 00 51 00 00 52
110 0.035577 # ff 01 00 03 00 1f 23
111 0.030681 # ff 01 00 4b 38 40 c4
112 0.033389 # ff 01 00 51 00 00 52
113 0.031801 # ff 01 00 03 00 20 24
114 0.029611 # ff 01 00 4b 3a 02 88
115 0.035749 # ff 01 00 51 00 00 52
116 0.031982 # ff 01 00 03 00 23 27
117 0.032897 # ff 01 00 4b 3b c4 4b
118 0.039975 # ff 01 00 51 00 00 52
119 0.033441 # ff 01 00 03 00 24 28
120 0.035862 # ff 01 00 4b 3d 86 0f
121 0.107818 # ff 01 00 51 00 00 52
122 0.031721 # ff 01 00 03 00 25 29
123 0.031905 # ff 01 00 4b 3f 48 d3
124 0.096514 # ff 01 00 51 00 00 52
125 0.032323 # ff 01 00 03 00 26 2a
126 0.034326 # ff 01 00 4b 41 0a 97
127 0.033026 # ff 01 00 51 00 00 52
128 0.101262 # ff 01 00 03 00 27 2b
129 0.030187 # ff 01 00 4b 42 cc 5a
130 0.033284 # ff 01 00 51 00 00 52
131 0.029660 # ff 01 00 03 00 28 2c
132 0.033077 # ff 01 00 4b 44 8e 1e
133 0.032867 # ff 01 00 51 00 00 52
134 0.029821 # ff 01 00 03 00 29 2d
135 0.029821 # ff 01 00 4b 46 50 e2
136 0.102740 # ff 01 00 51 00 00 52
137 0.032743 # ff 01 00 03 00 2a 2e
138 0.031357 # ff 01 00 4b 48 12 a6
139 0.061435 # ff 01 00 51 00 00 52

```

140	0.033700 # ff 01 00 03 00 2b 2f	212	0.029665 # ff 01 00 03 00 43 47
141	0.031202 # ff 01 00 0b 49 d4 69	213	0.031332 # ff 01 00 0b 74 04 c4
142	0.036666 # ff 01 00 51 00 00 52	214	0.032632 # ff 01 00 51 00 00 52
143	0.030024 # ff 01 00 03 00 2c 30	215	0.030055 # ff 01 00 03 00 44 48
144	0.031930 # ff 01 00 0b 4b 96 2d	216	0.032036 # ff 01 00 0b 75 c6 87
145	0.034132 # ff 01 00 51 00 00 52	217	0.034615 # ff 01 00 51 00 00 52
146	0.031567 # ff 01 00 03 00 2d 31	218	0.030500 # ff 01 00 03 00 45 49
147	0.033728 # ff 01 00 0b 4d 62 fb	219	0.033009 # ff 01 00 0b 77 88 4b
148	0.033884 # ff 01 00 51 00 00 52	220	0.040003 # ff 01 00 51 00 00 52
149	0.034197 # ff 01 00 03 00 2e 32	221	0.031646 # ff 01 00 03 00 46 4a
150	0.037413 # ff 01 00 0b 4f 1a b5	222	0.031853 # ff 01 00 0b 79 4a 0f
151	0.033623 # ff 01 00 51 00 00 52	223	0.036202 # ff 01 00 51 00 00 52
152	0.031045 # ff 01 00 03 00 2f 33	224	0.033443 # ff 01 00 03 00 47 4b
153	0.033649 # ff 01 00 0b 50 dc 78	225	0.033155 # ff 01 00 0b 7b 0c d3
154	0.034537 # ff 01 00 51 00 00 52	226	0.039065 # ff 01 00 51 00 00 52
155	0.037034 # ff 01 00 03 00 30 34	227	0.032321 # ff 01 00 03 00 48 4c
156	0.032165 # ff 01 00 0b 52 9e 3c	228	0.030593 # ff 01 00 0b 7c ce 96
157	0.091127 # ff 01 00 51 00 00 52	229	0.036566 # ff 01 00 51 00 00 52
158	0.032427 # ff 01 00 03 00 31 35	230	0.032982 # ff 01 00 03 00 49 4d
159	0.031750 # ff 01 00 0b 54 60 00	231	0.032195 # ff 01 00 0b 7e 90 5a
160	0.035133 # ff 01 00 51 00 00 52	232	0.036359 # ff 01 00 51 00 00 52
161	0.033075 # ff 01 00 03 00 32 36	233	0.033596 # ff 01 00 03 00 4a 4e
162	0.031695 # ff 01 00 0b 56 22 c4	234	0.030265 # ff 01 00 0b 80 52 1e
163	0.033729 # ff 01 00 51 00 00 52	235	0.036799 # ff 01 00 51 00 00 52
164	0.032504 # ff 01 00 03 00 33 37	236	0.029810 # ff 01 00 03 00 4b 4f
165	0.032125 # ff 01 00 0b 57 e4 87	237	0.035057 # ff 01 00 0b 82 14 e2
166	0.040054 # ff 01 00 51 00 00 52	238	0.033127 # ff 01 00 51 00 00 52
167	0.031203 # ff 01 00 03 00 34 38	239	0.033440 # ff 01 00 03 00 4c 50
168	0.031178 # ff 01 00 0b 59 a6 4b	240	0.033312 # ff 01 00 0b 83 d6 a5
169	0.035006 # ff 01 00 51 00 00 52	241	0.036252 # ff 01 00 51 00 00 52
170	0.031281 # ff 01 00 03 00 35 39	242	0.033911 # ff 01 00 03 00 4d 51
171	0.030551 # ff 01 00 0b 5b 68 0f	243	0.030548 # ff 01 00 0b 85 98 69
172	0.081517 # ff 01 00 51 00 00 52	244	0.034302 # ff 01 00 51 00 00 52
173	0.033911 # ff 01 00 03 00 36 3a	245	0.029663 # ff 01 00 03 00 4e 52
174	0.031088 # ff 01 00 0b 5d 2a d3	246	0.031435 # ff 01 00 0b 87 5a 2d
175	0.032557 # ff 01 00 51 00 00 52	247	0.033024 # ff 01 00 51 00 00 52
176	0.030995 # ff 01 00 03 00 37 3b	248	0.032401 # ff 01 00 03 00 4f 53
177	0.032867 # ff 01 00 0b 5e ec 96	249	0.033000 # ff 01 00 0b 89 26 fb
178	0.034744 # ff 01 00 51 00 00 52	250	0.039379 # ff 01 00 51 00 00 52
179	0.031565 # ff 01 00 03 00 38 3c	251	0.033387 # ff 01 00 03 00 50 54
180	0.031124 # ff 01 00 0b 60 ae 5a	252	0.031984 # ff 01 00 0b 8a de b4
181	0.032623 # ff 01 00 51 00 00 52	253	0.034328 # ff 01 00 51 00 00 52
182	0.031853 # ff 01 00 03 00 39 3d	254	0.030159 # ff 01 00 03 00 51 55
183	0.031603 # ff 01 00 0b 62 70 1e	255	0.036723 # ff 01 00 51 00 00 52
184	0.035239 # ff 01 00 51 00 00 52	256	0.030185 # ff 01 00 03 00 52 56
185	0.029484 # ff 01 00 03 00 3a 3e		# There were a total of 1363 DCE bytes transferred
186	0.034508 # ff 01 00 0b 64 32 e2		# The first DCE byte came in at 0.033364 seconds from the
187	0.062817 # ff 01 00 51 00 00 52		start of data collection
188	0.031384 # ff 01 00 03 00 3b 3f		# The last DCE byte was at 342.216144 seconds from the start
189	0.030447 # ff 01 00 0b 65 f4 a5		of data collection
190	0.104702 # ff 01 00 51 00 00 52		# There were a total of 1792 DTE bytes transferred
191	0.035316 # ff 01 00 03 00 3c 40		# The first DTE byte came in at 0.000000 seconds from the
192	0.031513 # ff 01 00 0b 67 b6 69		start of data collection
193	0.037939 # ff 01 00 51 00 00 52		# The last DTE byte was at 342.198374 seconds from the start
194	0.031696 # ff 01 00 03 00 3d 41		of data collection
195	0.031746 # ff 01 00 0b 69 78 2d		
196	0.034509 # ff 01 00 51 00 00 52		
197	0.030057 # ff 01 00 03 00 3e 42		
198	0.033726 # ff 01 00 0b 6b 44 fb		
199	0.106645 # ff 01 00 51 00 00 52		
200	0.030265 # ff 01 00 03 00 3f 43		
201	0.033654 # ff 01 00 0b 6c fc b4		
202	0.037555 # ff 01 00 51 00 00 52		
203	0.030240 # ff 01 00 03 00 40 44		
204	0.034379 # ff 01 00 0b 6e be 78		
205	0.034477 # ff 01 00 51 00 00 52		
206	0.030916 # ff 01 00 03 00 41 45		
207	0.030994 # ff 01 00 0b 70 80 3c		
208	0.036832 # ff 01 00 51 00 00 52		
209	0.031644 # ff 01 00 03 00 42 46		
210	0.032893 # ff 01 00 0b 72 42 00		
211	0.091647 # ff 01 00 51 00 00 52		

0.3 4.5° incrementing motion/preset commands, with an Esprit

In this test all presets are cleared and then small moves of usually 4.5° are made, the position is then read out, a preset is set and the position is again readout. A typical section of the repeating commands are:

```
:clear_preset(1)
:delay(1000)
```

and

```
:print("Move to 4.5 degrees")
:set_pan_position(4.5)
:delay(1000)
:query_pan_position()
:delay(1000)
:set_preset(1)
:delay(1000)
```

No additional commands needed to be incremented by .1°.

The test script for this test step is: `mvtest2c.txt`

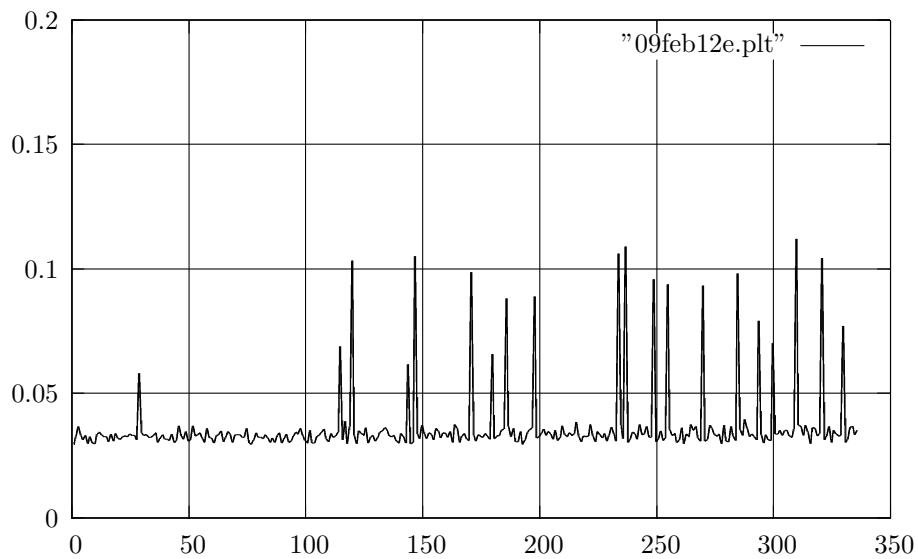


Figure 5: Plotted motion reply times/preset from an Esprit ES31CBW24

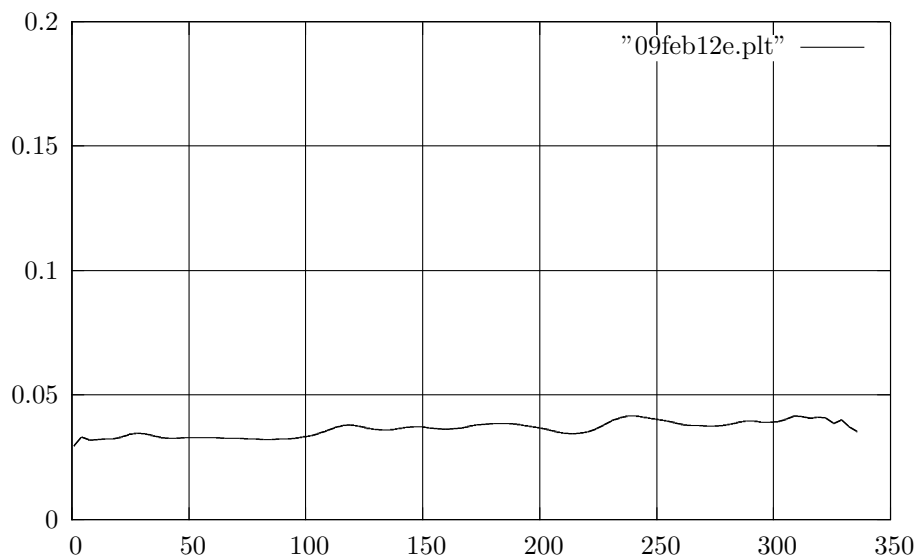


Figure 6: Plotted and smoothed motion/preset reply times from an Esprit ES31CBW24

```

# $Header: d:/Binder2/AllCmds/RCS/09feb12e.plt,v 1.1
2009-02-12 10:28:30-08 Hamilton Exp Hamilton $
# FTS capture buffer (2/12/2009 10:26:30 AM)
# Event 1 (2/12/2009 10:16:26.446549 AM) through
# Event 4,035 (2/12/2009 10:23:34.628362 AM)
1 0.029674 # ff 01 00 00 00 00 01
2 0.032738 # ff 01 00 45 00 00 46
3 0.036845 # ff 01 01 45 00 00 47
4 0.033283 # ff 01 02 45 00 00 48
5 0.031280 # ff 01 03 45 00 00 49
6 0.033153 # ff 01 04 45 00 00 4a
7 0.029694 # ff 01 05 45 00 00 4b
8 0.032670 # ff 01 00 73 00 00 74
9 0.030002 # ff 01 02 73 00 00 76
10 0.029898 # ff 01 00 6f 00 00 70
11 0.033623 # ff 01 00 0f 00 00 10
12 0.034351 # ff 01 00 4b 00 00 4c
13 0.033127 # ff 01 00 51 00 00 52
14 0.032663 # ff 01 00 07 00 21 29
15 0.032737 # ff 01 00 51 00 00 52
16 0.030573 # ff 01 00 07 00 21 29
17 0.033598 # ff 01 00 51 00 00 52
18 0.030756 # ff 01 00 05 00 01 07
19 0.033806 # ff 01 00 05 00 02 08
20 0.031865 # ff 01 00 05 00 03 09
21 0.031616 # ff 01 00 05 00 04 0a
22 0.032764 # ff 01 00 05 00 05 0b
23 0.033024 # ff 01 00 05 00 06 0c
24 0.032525 # ff 01 00 05 00 07 0d
25 0.033593 # ff 01 00 05 00 08 0e
26 0.033205 # ff 01 00 05 00 09 0f
27 0.033181 # ff 01 00 05 00 0a 10
28 0.031487 # ff 01 00 05 00 0b 11
29 0.057972 # ff 01 00 05 00 0c 12
30 0.034247 # ff 01 00 05 00 0d 13
31 0.033102 # ff 01 00 05 00 0e 14
32 0.033490 # ff 01 00 05 00 0f 15
33 0.032400 # ff 01 00 05 00 10 16
34 0.032311 # ff 01 00 05 00 11 17
35 0.033284 # ff 01 00 05 00 12 18
36 0.034090 # ff 01 00 05 00 13 19
37 0.030289 # ff 01 00 05 00 14 1a
38 0.032217 # ff 01 00 05 00 15 1b
39 0.033381 # ff 01 00 05 00 16 1c
40 0.031722 # ff 01 00 05 00 17 1d
41 0.031616 # ff 01 00 05 00 18 1e
42 0.030989 # ff 01 00 05 00 19 1f
43 0.033648 # ff 01 00 05 00 1a 20
44 0.030312 # ff 01 00 05 00 1b 21
45 0.030992 # ff 01 00 05 00 1c 22
46 0.036956 # ff 01 00 05 00 1d 23
47 0.032970 # ff 01 00 05 00 1e 24
48 0.031719 # ff 01 00 05 00 1f 25
49 0.034620 # ff 01 00 05 00 20 26
50 0.030810 # ff 01 00 05 00 23 29
51 0.031484 # ff 01 00 05 00 24 2a
52 0.037058 # ff 01 00 05 00 25 2b
53 0.032986 # ff 01 00 05 00 26 2c
54 0.033336 # ff 01 00 05 00 27 2d
55 0.034117 # ff 01 00 05 00 28 2e
56 0.031939 # ff 01 00 05 00 29 2f
57 0.030373 # ff 01 00 05 00 2a 30
58 0.036019 # ff 01 00 05 00 2b 31
59 0.032199 # ff 01 00 05 00 2c 32
60 0.032050 # ff 01 00 05 00 2d 33
61 0.030132 # ff 01 00 05 00 2e 34
62 0.033049 # ff 01 00 05 00 2f 35
63 0.033442 # ff 01 00 05 00 30 36
64 0.035064 # ff 01 00 05 00 31 37
65 0.030575 # ff 01 00 05 00 32 38
66 0.032267 # ff 01 00 05 00 33 39
67 0.034828 # ff 01 00 05 00 34 3a
68 0.033647 # ff 01 00 05 00 35 3b
69 0.030314 # ff 01 00 05 00 36 3c
70 0.033363 # ff 01 00 05 00 37 3d
71 0.033361 # ff 01 00 05 00 38 3e
72 0.033334 # ff 01 00 05 00 39 3f
73 0.032453 # ff 01 00 05 00 3a 40
74 0.032452 # ff 01 00 05 00 3b 41
75 0.036015 # ff 01 00 05 00 3c 42
76 0.030002 # ff 01 00 05 00 3d 43
77 0.029551 # ff 01 00 05 00 3e 44
78 0.031487 # ff 01 00 05 00 3f 45
79 0.034223 # ff 01 00 05 00 40 46
80 0.032321 # ff 01 00 05 00 41 47
81 0.032267 # ff 01 00 05 00 42 48
82 0.031798 # ff 01 00 05 00 43 49
83 0.033390 # ff 01 00 05 00 44 4a
84 0.032060 # ff 01 00 05 00 45 4b
85 0.030416 # ff 01 00 05 00 46 4c
86 0.032035 # ff 01 00 05 00 47 4d
87 0.030367 # ff 01 00 05 00 48 4e
88 0.033101 # ff 01 00 05 00 49 4f
89 0.034194 # ff 01 00 05 00 4a 50
90 0.030131 # ff 01 00 05 00 4b 51
91 0.032149 # ff 01 00 05 00 4c 52
92 0.033595 # ff 01 00 05 00 4d 53
93 0.030313 # ff 01 00 05 00 4e 54
94 0.031223 # ff 01 00 05 00 4f 55
95 0.032814 # ff 01 00 05 00 50 56
96 0.034522 # ff 01 00 05 00 51 57
97 0.033725 # ff 01 00 05 00 52 58
98 0.035991 # ff 01 00 4b 01 c2 0f
99 0.032943 # ff 01 00 51 00 00 52
100 0.031016 # ff 01 00 03 00 01 05
101 0.030158 # ff 01 00 4b 03 84 d3
102 0.035161 # ff 01 00 51 00 00 52
103 0.030053 # ff 01 00 03 00 02 06
104 0.030029 # ff 01 00 4b 05 46 97
105 0.032895 # ff 01 00 51 00 00 52
106 0.033099 # ff 01 00 03 00 03 07
107 0.034482 # ff 01 00 4b 07 08 5b
108 0.035640 # ff 01 00 51 00 00 52
109 0.031850 # ff 01 00 03 00 04 08
110 0.030495 # ff 01 00 4b 08 ca 1e
111 0.034012 # ff 01 00 51 00 00 52
112 0.032417 # ff 01 00 03 00 05 09
113 0.033024 # ff 01 00 4b 0a 8c e2
114 0.034325 # ff 01 00 51 00 00 52
115 0.068857 # ff 01 00 03 00 06 0a
116 0.031460 # ff 01 00 4b 0c 4e a6
117 0.038856 # ff 01 00 51 00 00 52
118 0.029914 # ff 01 00 03 00 07 0b
119 0.036709 # ff 01 00 4b 0e 10 6a
120 0.103261 # ff 01 00 51 00 00 52
121 0.033146 # ff 01 00 03 00 08 0c
122 0.029873 # ff 01 00 4b 0f d2 2d
123 0.035055 # ff 01 00 51 00 00 52
124 0.033831 # ff 01 00 03 00 09 0d
125 0.033180 # ff 01 00 4b 11 9e fb
126 0.036254 # ff 01 00 51 00 00 52
127 0.030159 # ff 01 00 03 00 0a 0e
128 0.032553 # ff 01 00 4b 13 56 b5
129 0.033049 # ff 01 00 51 00 00 52
130 0.030835 # ff 01 00 03 00 0b 0f
131 0.032320 # ff 01 00 4b 15 18 79
132 0.034359 # ff 01 00 51 00 00 52
133 0.034976 # ff 01 00 03 00 0c 10
134 0.036226 # ff 01 00 4b 16 da 3c
135 0.035447 # ff 01 00 51 00 00 52
136 0.033023 # ff 01 00 03 00 0d 11
137 0.032526 # ff 01 00 4b 18 9c 00
138 0.033101 # ff 01 00 51 00 00 52
139 0.030941 # ff 01 00 03 00 0e 12

```

140	0.030051 # ff 01 00 4b 1a 5e c4	212	0.032683 # ff 01 00 4b 44 8e 1e
141	0.033960 # ff 01 00 51 00 00 52	213	0.034065 # ff 01 00 51 00 00 52
142	0.032735 # ff 01 00 03 00 0f 13	214	0.033283 # ff 01 00 03 00 29 2d
143	0.030026 # ff 01 00 4b 1c 20 88	215	0.033826 # ff 01 00 4b 46 50 e2
144	0.061688 # ff 01 00 51 00 00 52	216	0.038647 # ff 01 00 51 00 00 52
145	0.029922 # ff 01 00 03 00 10 14	217	0.032557 # ff 01 00 03 00 2a 2e
146	0.030314 # ff 01 00 4b 1d e2 4b	218	0.030566 # ff 01 00 4b 48 12 a6
147	0.105187 # ff 01 00 51 00 00 52	219	0.032868 # ff 01 00 51 00 00 52
148	0.033648 # ff 01 00 03 00 11 15	220	0.032737 # ff 01 00 03 00 2b 2f
149	0.031824 # ff 01 00 4b 1f a4 0f	221	0.032839 # ff 01 00 4b 49 d4 69
150	0.037216 # ff 01 00 51 00 00 52	222	0.037475 # ff 01 00 51 00 00 52
151	0.033619 # ff 01 00 03 00 12 16	223	0.032786 # ff 01 00 03 00 2c 30
152	0.031806 # ff 01 00 4b 21 66 d3	224	0.030574 # ff 01 00 4b 4d 62 fb
153	0.034273 # ff 01 00 51 00 00 52	225	0.034688 # ff 01 00 51 00 00 52
154	0.033463 # ff 01 00 03 00 13 17	226	0.033438 # ff 01 00 03 00 2d 31
155	0.031459 # ff 01 00 4b 23 28 97	227	0.032033 # ff 01 00 4b 4f 1a b5
156	0.036072 # ff 01 00 51 00 00 52	228	0.033855 # ff 01 00 51 00 00 52
157	0.034662 # ff 01 00 03 00 14 18	229	0.030914 # ff 01 00 03 00 2e 32
158	0.032215 # ff 01 00 4b 24 ea 5a	230	0.033128 # ff 01 00 4b 4f 1a b5
159	0.034069 # ff 01 00 51 00 00 52	231	0.036538 # ff 01 00 51 00 00 52
160	0.033823 # ff 01 00 03 00 15 19	232	0.033675 # ff 01 00 03 00 2f 33
161	0.032373 # ff 01 00 4b 26 ac 1e	233	0.030861 # ff 01 00 4b 50 dc 78
162	0.034612 # ff 01 00 51 00 00 52	234	0.106042 # ff 01 00 51 00 00 52
163	0.030444 # ff 01 00 03 00 16 1a	235	0.037189 # ff 01 00 03 00 30 34
164	0.037581 # ff 01 00 4b 28 6e e2	236	0.031852 # ff 01 00 4b 52 9e 3c
165	0.035937 # ff 01 00 51 00 00 52	237	0.108886 # ff 01 00 51 00 00 52
166	0.030237 # ff 01 00 03 00 17 1b	238	0.030262 # ff 01 00 03 00 31 35
167	0.032943 # ff 01 00 4b 2a 30 a6	239	0.031539 # ff 01 00 4b 54 60 00
168	0.033959 # ff 01 00 51 00 00 52	240	0.034435 # ff 01 00 51 00 00 52
169	0.031511 # ff 01 00 03 00 18 1c	241	0.033595 # ff 01 00 03 00 32 36
170	0.031081 # ff 01 00 4b 2b f2 69	242	0.031642 # ff 01 00 4b 56 22 c4
171	0.098699 # ff 01 00 51 00 00 52	243	0.037475 # ff 01 00 51 00 00 52
172	0.033205 # ff 01 00 03 00 19 1d	244	0.033466 # ff 01 00 03 00 33 37
173	0.030887 # ff 01 00 4b 2d b4 2d	245	0.033674 # ff 01 00 4b 57 e4 87
174	0.033518 # ff 01 00 51 00 00 52	246	0.036849 # ff 01 00 51 00 00 52
175	0.032687 # ff 01 00 03 00 1a 1e	247	0.032323 # ff 01 00 03 00 34 38
176	0.032423 # ff 01 00 4b 2f 80 fb	248	0.032398 # ff 01 00 4b 59 a6 4b
177	0.034012 # ff 01 00 51 00 00 52	249	0.095775 # ff 01 00 51 00 00 52
178	0.032926 # ff 01 00 03 00 1b 1f	250	0.030627 # ff 01 00 03 00 35 39
179	0.031512 # ff 01 00 4b 31 38 b5	251	0.031539 # ff 01 00 4b 5b 68 0f
180	0.065682 # ff 01 00 51 00 00 52	252	0.034949 # ff 01 00 51 00 00 52
181	0.031982 # ff 01 00 03 00 1c 20	253	0.031122 # ff 01 00 03 00 36 3a
182	0.032944 # ff 01 00 4b 32 fa 78	254	0.032230 # ff 01 00 4b 5d 2a d3
183	0.033048 # ff 01 00 51 00 00 52	255	0.093884 # ff 01 00 51 00 00 52
184	0.035289 # ff 01 00 03 00 1d 21	256	0.035427 # ff 01 00 03 00 37 3b
185	0.035652 # ff 01 00 4b 34 bc 3c	257	0.033230 # ff 01 00 4b 5e ec 96
186	0.088127 # ff 01 00 51 00 00 52	258	0.033847 # ff 01 00 51 00 00 52
187	0.036668 # ff 01 00 03 00 1e 22	259	0.030354 # ff 01 00 03 00 38 3c
188	0.032607 # ff 01 00 4b 36 7e 00	260	0.031304 # ff 01 00 4b 60 ae 5a
189	0.036077 # ff 01 00 51 00 00 52	261	0.036330 # ff 01 00 51 00 00 52
190	0.030524 # ff 01 00 03 00 1f 23	262	0.029948 # ff 01 00 03 00 39 3d
191	0.030548 # ff 01 00 4b 38 40 c4	263	0.033727 # ff 01 00 4b 62 70 1e
192	0.034740 # ff 01 00 51 00 00 52	264	0.032551 # ff 01 00 51 00 00 52
193	0.029590 # ff 01 00 03 00 20 24	265	0.037501 # ff 01 00 03 00 3a 3e
194	0.031433 # ff 01 00 4b 3a 02 88	266	0.035336 # ff 01 00 4b 64 32 e2
195	0.034327 # ff 01 00 51 00 00 52	267	0.036667 # ff 01 00 51 00 00 52
196	0.035602 # ff 01 00 03 00 23 27	268	0.032113 # ff 01 00 03 00 3b 3f
197	0.036317 # ff 01 00 4b 3b c4 4b	269	0.030781 # ff 01 00 4b 65 f4 a5
198	0.088962 # ff 01 00 51 00 00 52	270	0.093310 # ff 01 00 51 00 00 52
199	0.032243 # ff 01 00 03 00 24 28	271	0.030732 # ff 01 00 03 00 3c 40
200	0.032580 # ff 01 00 4b 3d 86 0f	272	0.031694 # ff 01 00 4b 67 b6 69
201	0.034165 # ff 01 00 51 00 00 52	273	0.037267 # ff 01 00 51 00 00 52
202	0.035757 # ff 01 00 03 00 25 29	274	0.035862 # ff 01 00 03 00 3d 41
203	0.033256 # ff 01 00 4b 3f 48 d3	275	0.033542 # ff 01 00 4b 69 78 2d
204	0.034612 # ff 01 00 51 00 00 52	276	0.032814 # ff 01 00 51 00 00 52
205	0.033614 # ff 01 00 03 00 26 2a	277	0.033569 # ff 01 00 03 00 3e 42
206	0.031539 # ff 01 00 4b 41 0a 97	278	0.029923 # ff 01 00 4b 6b 44 fb
207	0.035316 # ff 01 00 51 00 00 52	279	0.037241 # ff 01 00 51 00 00 52
208	0.031171 # ff 01 00 03 00 27 2b	280	0.030730 # ff 01 00 03 00 3f 43
209	0.032475 # ff 01 00 4b 42 cc 5a	281	0.030661 # ff 01 00 4b 6c fc b4
210	0.036929 # ff 01 00 51 00 00 52	282	0.036825 # ff 01 00 51 00 00 52
211	0.033334 # ff 01 00 03 00 28 2c	283	0.032787 # ff 01 00 03 00 40 44

```

284 0.031046 # ff 01 00 4b 6e be 78
285 0.098156 # ff 01 00 51 00 00 52
286 0.035599 # ff 01 00 03 00 41 45
287 0.033179 # ff 01 00 4b 70 80 3c
288 0.039666 # ff 01 00 51 00 00 52
289 0.035914 # ff 01 00 03 00 42 46
290 0.032556 # ff 01 00 4b 72 42 00
291 0.033595 # ff 01 00 51 00 00 52
292 0.032657 # ff 01 00 03 00 43 47
293 0.031242 # ff 01 00 4b 74 04 c4
294 0.079299 # ff 01 00 51 00 00 52
295 0.033510 # ff 01 00 03 00 44 48
296 0.030029 # ff 01 00 4b 75 c6 87
297 0.033492 # ff 01 00 51 00 00 52
298 0.031330 # ff 01 00 03 00 45 49
299 0.031122 # ff 01 00 4b 77 88 4b
300 0.070132 # ff 01 00 51 00 00 52
301 0.033804 # ff 01 00 03 00 46 4a
302 0.033725 # ff 01 00 4b 79 4a 0f
303 0.035245 # ff 01 00 51 00 00 52
304 0.033204 # ff 01 00 03 00 47 4b
305 0.035273 # ff 01 00 4b 7b 0c d3
306 0.035314 # ff 01 00 51 00 00 52
307 0.033020 # ff 01 00 03 00 48 4c
308 0.032366 # ff 01 00 4b 7c ce 96
309 0.035755 # ff 01 00 51 00 00 52
310 0.112115 # ff 01 00 03 00 49 4d
311 0.037293 # ff 01 00 4b 7e 90 5a
312 0.036668 # ff 01 00 51 00 00 52
313 0.033126 # ff 01 00 03 00 4a 4e
314 0.037189 # ff 01 00 4b 80 52 1e
315 0.034365 # ff 01 00 51 00 00 52
316 0.029861 # ff 01 00 03 00 4b 4f
317 0.036225 # ff 01 00 4b 82 14 e2
318 0.035965 # ff 01 00 51 00 00 52
319 0.033014 # ff 01 00 03 00 4c 50
320 0.033852 # ff 01 00 4b 83 d6 a5
321 0.104404 # ff 01 00 51 00 00 52
322 0.031488 # ff 01 00 03 00 4d 51
323 0.033022 # ff 01 00 4b 85 98 69
324 0.036877 # ff 01 00 51 00 00 52
325 0.030446 # ff 01 00 03 00 4e 52
326 0.035341 # ff 01 00 4b 87 5a 2d
327 0.033634 # ff 01 00 51 00 00 52
328 0.032970 # ff 01 00 03 00 4f 53
329 0.033204 # ff 01 00 4b 89 26 fb
330 0.077164 # ff 01 00 51 00 00 52
331 0.030340 # ff 01 00 03 00 50 54
332 0.031618 # ff 01 00 4b 8a de b4
333 0.036615 # ff 01 00 51 00 00 52
334 0.036663 # ff 01 00 03 00 51 55
335 0.033509 # ff 01 00 51 00 00 52
336 0.035106 # ff 01 00 03 00 52 56
# There were a total of 1683 DCE bytes transferred
# The first DCE byte came in at 0.029674 seconds from the
start of data collection
# The last DCE byte was at 428.181813 seconds from the start
of data collection
# There were a total of 2352 DTE bytes transferred
# The first DTE byte came in at 0.000000 seconds from the
start of data collection
# The last DTE byte was at 428.159125 seconds from the start
of data collection

```


0.4 4.5° preset calls commands, with an Esprit

In this test all presets are called. It is assumed that the test script `mvtest2b.txt` has been run previously and that the presets have not been cleared out by running test script `mvtest2c.txt`.

```
:go_to_preset(1))  
:delay(1000)  
:query_pan_position()  
:delay(1000)
```

No additional commands needed to be incremented by .1°.

The test script for this test step is: `mvtest2d.txt`

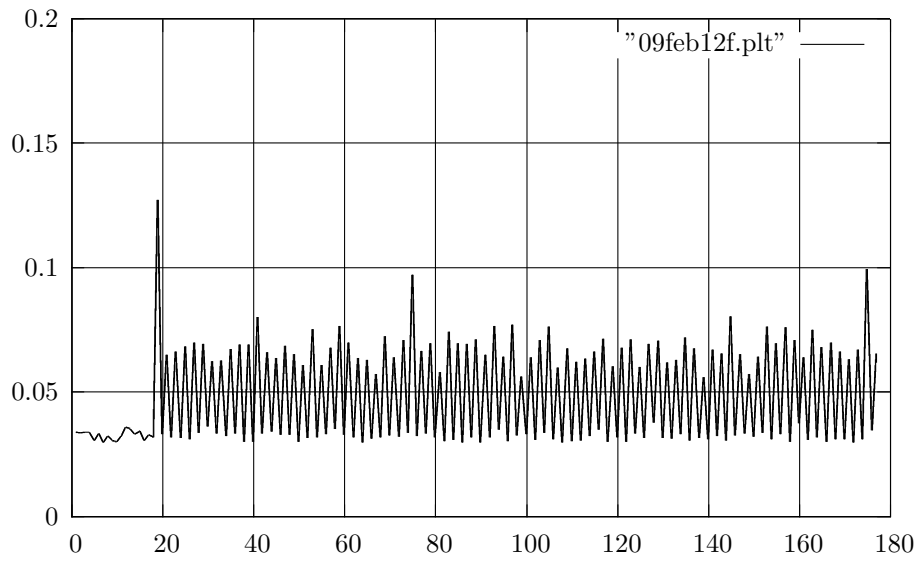


Figure 7: Plotted preset move reply times from an Esprit ES31CBW24

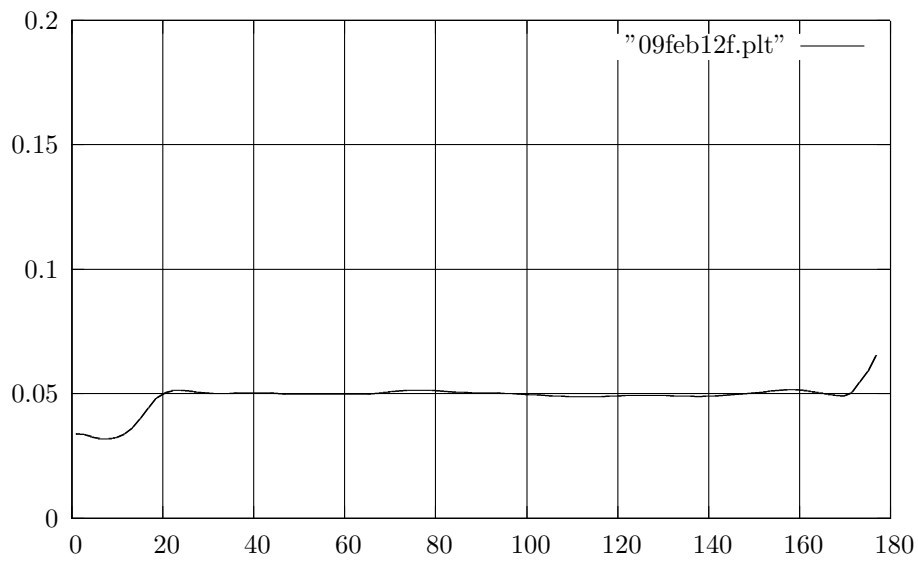


Figure 8: Plotted and smoothed preset move reply times from an Esprit ES31CBW24

```

# $Header: d:/Binder2/AllCmds/RCS/09feb12f.plt,v 1.1
2009-02-12 10:37:17-08 Hamilton Exp Hamilton $
# FTS capture buffer (2/12/2009 10:40:08 AM)
# Event 1 (2/12/2009 10:34:30.942219 AM) through
# Event 2,286 (2/12/2009 10:38:49.251701 AM)
1 0.033821 # ff 01 00 00 00 00 01
2 0.033701 # ff 01 00 45 00 00 46
3 0.034042 # ff 01 01 45 00 00 47
4 0.033936 # ff 01 02 45 00 00 48
5 0.030499 # ff 01 03 45 00 00 49
6 0.033311 # ff 01 04 45 00 00 4a
7 0.029899 # ff 01 05 45 00 00 4b
8 0.032296 # ff 01 00 73 00 00 74
9 0.030601 # ff 01 02 73 00 00 76
10 0.030028 # ff 01 00 6f 00 00 70
11 0.032400 # ff 01 00 0f 00 00 10
12 0.036100 # ff 01 00 4b 00 00 4c
13 0.035187 # ff 01 00 51 00 00 52
14 0.033207 # ff 01 00 07 00 21 29
15 0.034485 # ff 01 00 51 00 00 52
16 0.030516 # ff 01 00 07 00 21 29
17 0.032999 # ff 01 00 51 00 00 52
18 0.031983 # ff 01 00 07 00 01 09
19 0.127352 # ff 01 00 51 00 00 52
20 0.033183 # ff 01 00 07 00 02 0a
21 0.064979 # ff 01 00 51 00 00 52
22 0.031930 # ff 01 00 07 00 03 0b
23 0.066270 # ff 01 00 51 00 00 52
24 0.031538 # ff 01 00 07 00 04 0c
25 0.068260 # ff 01 00 51 00 00 52
26 0.031030 # ff 01 00 07 00 05 0d
27 0.069931 # ff 01 00 51 00 00 52
28 0.033570 # ff 01 00 07 00 06 0e
29 0.069378 # ff 01 00 51 00 00 52
30 0.036124 # ff 01 00 07 00 07 0f
31 0.062530 # ff 01 00 51 00 00 52
32 0.033392 # ff 01 00 07 00 08 10
33 0.062685 # ff 01 00 51 00 00 52
34 0.032474 # ff 01 00 07 00 09 11
35 0.067454 # ff 01 00 51 00 00 52
36 0.033377 # ff 01 00 07 00 0a 12
37 0.069181 # ff 01 00 51 00 00 52
38 0.030134 # ff 01 00 07 00 0b 13
39 0.069092 # ff 01 00 51 00 00 52
40 0.029952 # ff 01 00 07 00 0c 14
41 0.080188 # ff 01 00 51 00 00 52
42 0.033547 # ff 01 00 07 00 0d 15
43 0.066047 # ff 01 00 51 00 00 52
44 0.034154 # ff 01 00 07 00 0e 16
45 0.063807 # ff 01 00 51 00 00 52
46 0.033025 # ff 01 00 07 00 0f 17
47 0.068729 # ff 01 00 51 00 00 52
48 0.032870 # ff 01 00 07 00 10 18
49 0.065192 # ff 01 00 51 00 00 52
50 0.029953 # ff 01 00 07 00 11 19
51 0.060896 # ff 01 00 51 00 00 52
52 0.031530 # ff 01 00 07 00 12 1a
53 0.075290 # ff 01 00 51 00 00 52
54 0.031983 # ff 01 00 07 00 13 1b
55 0.060812 # ff 01 00 51 00 00 52
56 0.033052 # ff 01 00 07 00 14 1c
57 0.067946 # ff 01 00 51 00 00 52
58 0.035236 # ff 01 00 07 00 15 1d
59 0.076646 # ff 01 00 51 00 00 52
60 0.032946 # ff 01 00 07 00 16 1e
61 0.069927 # ff 01 00 51 00 00 52
62 0.031980 # ff 01 00 07 00 17 1f
63 0.063679 # ff 01 00 51 00 00 52
64 0.029899 # ff 01 00 07 00 18 20
65 0.062895 # ff 01 00 51 00 00 52
66 0.031412 # ff 01 00 07 00 19 21
67 0.057375 # ff 01 00 51 00 00 52
68 0.031956 # ff 01 00 07 00 1a 22
69 0.072618 # ff 01 00 51 00 00 52
70 0.032765 # ff 01 00 07 00 1b 23
71 0.063938 # ff 01 00 51 00 00 52
72 0.032190 # ff 01 00 07 00 1c 24
73 0.071044 # ff 01 00 51 00 00 52
74 0.033571 # ff 01 00 07 00 1d 25
75 0.097089 # ff 01 00 51 00 00 52
76 0.032453 # ff 01 00 07 00 1e 26
77 0.066685 # ff 01 00 51 00 00 52
78 0.033466 # ff 01 00 07 00 1f 27
79 0.069686 # ff 01 00 51 00 00 52
80 0.031983 # ff 01 00 07 00 20 28
81 0.058132 # ff 01 00 51 00 00 52
82 0.030420 # ff 01 00 07 00 23 2b
83 0.074417 # ff 01 00 51 00 00 52
84 0.030811 # ff 01 00 07 00 24 2c
85 0.069719 # ff 01 00 51 00 00 52
86 0.029924 # ff 01 00 07 00 25 2d
87 0.069298 # ff 01 00 51 00 00 52
88 0.031880 # ff 01 00 07 00 26 2e
89 0.071308 # ff 01 00 51 00 00 52
90 0.029900 # ff 01 00 07 00 27 2f
91 0.065110 # ff 01 00 51 00 00 52
92 0.031853 # ff 01 00 07 00 28 30
93 0.076647 # ff 01 00 51 00 00 52
94 0.035079 # ff 01 00 07 00 29 31
95 0.064380 # ff 01 00 51 00 00 52
96 0.030264 # ff 01 00 07 00 2a 32
97 0.077193 # ff 01 00 51 00 00 52
98 0.032607 # ff 01 00 07 00 2b 33
99 0.056179 # ff 01 00 51 00 00 52
100 0.033233 # ff 01 00 07 00 2c 34
101 0.064043 # ff 01 00 51 00 00 52
102 0.030890 # ff 01 00 07 00 2d 35
103 0.070917 # ff 01 00 51 00 00 52
104 0.033753 # ff 01 00 07 00 2e 36
105 0.076334 # ff 01 00 51 00 00 52
106 0.031015 # ff 01 00 07 00 2f 37
107 0.059771 # ff 01 00 51 00 00 52
108 0.029846 # ff 01 00 07 00 30 38
109 0.067521 # ff 01 00 51 00 00 52
110 0.030291 # ff 01 00 07 00 31 39
111 0.062334 # ff 01 00 51 00 00 52
112 0.030708 # ff 01 00 07 00 32 3a
113 0.063521 # ff 01 00 51 00 00 52
114 0.032269 # ff 01 00 07 00 33 3b
115 0.066439 # ff 01 00 51 00 00 52
116 0.035003 # ff 01 00 07 00 34 3c
117 0.071435 # ff 01 00 51 00 00 52
118 0.030194 # ff 01 00 07 00 35 3d
119 0.060291 # ff 01 00 51 00 00 52
120 0.031919 # ff 01 00 07 00 36 3e
121 0.067844 # ff 01 00 51 00 00 52
122 0.030136 # ff 01 00 07 00 37 3f
123 0.071306 # ff 01 00 51 00 00 52
124 0.033312 # ff 01 00 07 00 38 40
125 0.060160 # ff 01 00 51 00 00 52
126 0.031516 # ff 01 00 07 00 39 41
127 0.069487 # ff 01 00 51 00 00 52
128 0.037765 # ff 01 00 07 00 3a 42
129 0.070762 # ff 01 00 51 00 00 52
130 0.031592 # ff 01 00 07 00 3b 43
131 0.061958 # ff 01 00 51 00 00 52
132 0.031334 # ff 01 00 07 00 3c 44
133 0.063077 # ff 01 00 51 00 00 52
134 0.033058 # ff 01 00 07 00 3d 45
135 0.071890 # ff 01 00 51 00 00 52
136 0.030628 # ff 01 00 07 00 3e 46
137 0.067610 # ff 01 00 51 00 00 52
138 0.031515 # ff 01 00 07 00 3f 47
139 0.056019 # ff 01 00 51 00 00 52

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140 0.031096 # ff 01 00 07 00 40 48
141 0.067036 # ff 01 00 51 00 00 52
142 0.032451 # ff 01 00 07 00 41 49
143 0.065529 # ff 01 00 51 00 00 52
144 0.030634 # ff 01 00 07 00 42 4a
145 0.080370 # ff 01 00 51 00 00 52
146 0.032763 # ff 01 00 07 00 43 4b
147 0.065422 # ff 01 00 51 00 00 52
148 0.033518 # ff 01 00 07 00 44 4c
149 0.057372 # ff 01 00 51 00 00 52
150 0.032060 # ff 01 00 07 00 45 4d
151 0.064328 # ff 01 00 51 00 00 52
152 0.033597 # ff 01 00 07 00 46 4e
153 0.076299 # ff 01 00 51 00 00 52
154 0.031070 # ff 01 00 07 00 47 4f
155 0.069614 # ff 01 00 51 00 00 52
156 0.033259 # ff 01 00 07 00 48 50
157 0.076021 # ff 01 00 51 00 00 52
158 0.030185 # ff 01 00 07 00 49 51
159 0.071072 # ff 01 00 51 00 00 52
160 0.037502 # ff 01 00 07 00 4a 52
161 0.064119 # ff 01 00 51 00 00 52
162 0.030787 # ff 01 00 07 00 4b 53
163 0.075082 # ff 01 00 51 00 00 52
164 0.031750 # ff 01 00 07 00 4c 54
165 0.068087 # ff 01 00 51 00 00 52
166 0.029952 # ff 01 00 07 00 4d 55
167 0.069903 # ff 01 00 51 00 00 52
168 0.031177 # ff 01 00 07 00 4e 56
169 0.066227 # ff 01 00 51 00 00 52
170 0.031045 # ff 01 00 07 00 4f 57
171 0.063262 # ff 01 00 51 00 00 52
172 0.029873 # ff 01 00 07 00 50 58
173 0.067141 # ff 01 00 51 00 00 52
174 0.031009 # ff 01 00 07 00 51 59
175 0.099516 # ff 01 00 51 00 00 52
176 0.034587 # ff 01 00 07 00 52 5a
177 0.065605 # ff 01 00 51 00 00 52
# There were a total of 1047 DCE bytes transferred
# The first DCE byte came in at 0.033821 seconds from the
start of data collection
# The last DCE byte was at 258.309482 seconds from the start
of data collection
# There were a total of 1239 DTE bytes transferred
# The first DTE byte came in at 0.000000 seconds from the
start of data collection
# The last DTE byte was at 258.243795 seconds from the start
of data collection

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