

	TEST REPORT	Doc. no. : FPSS-xxx
HIFI - IST		Issue : 1
		Date : 5 June 2009
		Category :
		Page : 1 of 9

Title **CoP - Chopper Performance Test**

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Date : 5 June 2009

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Date :

Authorised by :

Date :

Distribution


Document Change Record

Issue	Date	Changed Section	Description of Change
1.0	6 june 2009	All	New document

	<h1>TEST REPORT</h1>	Doc. no. : FPSS-xxx Issue : 1 Date : 5 June 2009 Category : Page : 3 of 9
<h2>HIFI - IST</h2>		


Table of contents

- 1 TEST SUMMARY 4
- 2 TEST SETUP 5
 - 2.1 Personnel 5
 - 2.2 Equipment under Test 5
 - 2.3 Test Set-up 5
 - 2.4 Software and Reference Data 5
- 3 TEST RESULTS 6

	TEST REPORT	Doc. no. : FPSS-xxx
HIFI - IST		Issue : 1
		Date : 5 June 2009
		Category :
		Page : 4 of 9

1 TEST SUMMARY

In the following report you will find the results of the Chopper Performance Test during the CoP phase performed on May 25th 2009 (nominal only).. The test was executed without problems and confirms that the chopper mechanism is fully functional and operating within spec. No change to the loop gain parameters is necessary.

	<h1>TEST REPORT</h1>	Doc. no. : FPSS-xxx
<h2>HIFI - IST</h2>		Issue : 1
		Date : 5 June 2009
		Category :
		Page : 5 of 9

2 TEST SETUP

2.1 Personnel

Test Engineer: W.M. Laauwen

2.2 Equipment under Test

HIFI FM focal plane chopper @ He2; CoP phase

2.3 Test Set-up

Chopper under test is on board Herschel in a space environment (zero gravity). Warm units were on for 24 hours. L1 and L2 below nominal temperature

2.4 Software and Reference Data

CUS 16.107
OBS 6.1.1
MIB 2147/11.11 (hifi/aspi)

Reference: 2415941030 IST_FM_5_PROP @ ICCDB1.SRON.RUG.NL

Data is extracted in HCSS (User release 1.03RC1) via dedicated scripts. Further analysis against reference data is done in mathcad.

3 TEST RESULTS

During the test the data was propagated to a live, timebased only database called hifi_moc_ops_1 @ iccdb1.sron.rug.nl and via HCS to the operational database hifi_icc_ops_1 @ iccdb1.sron.rug.nl. The chopper performance test can be found under ObsID 50.

The performance test measures the settling time of the chopper for a variety of different steps. In table 1 the resulting times are listed next to a TBTV reference dataset. The difference between the two is minimal and falls within the 3msec sampling resolution of the underlying housekeeping data.

Step Nr	Settling time (ms)	
	CoP	TBTV reference
1	33	33
2	36	36
3	42	45
4	72	72
5	48	51
6	36	36
7	36	36

Table 1; Chopper Settling times

In figures 1-7 the step response curves are given. All data suggests no change in chopper performance after launch. The chopper can be used normally without even adjusting the loop gain parameters.

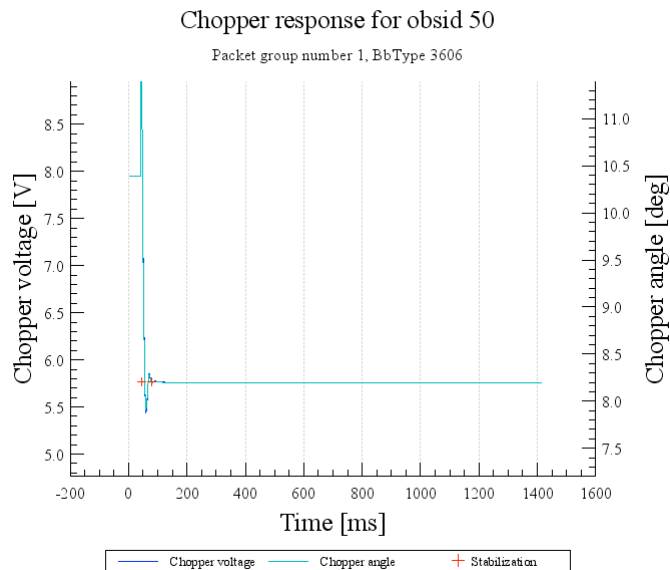


Figure 1; Step 1

Chopper response for obsid 50

Packet group number 2, BbType 3606

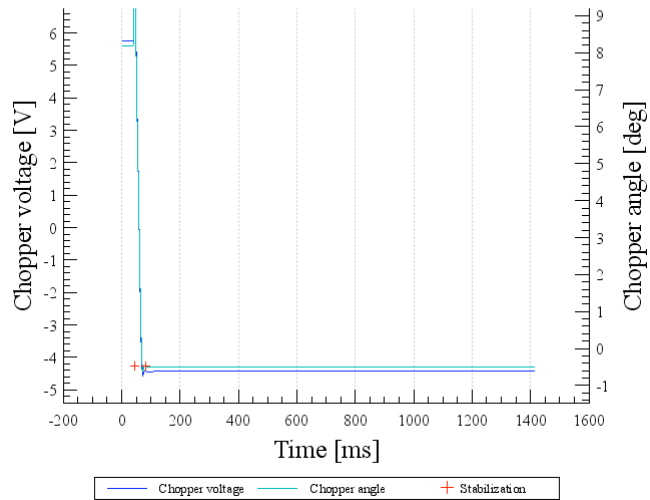


Figure 2; Step 2

Chopper response for obsid 50

Packet group number 3, BbType 3606

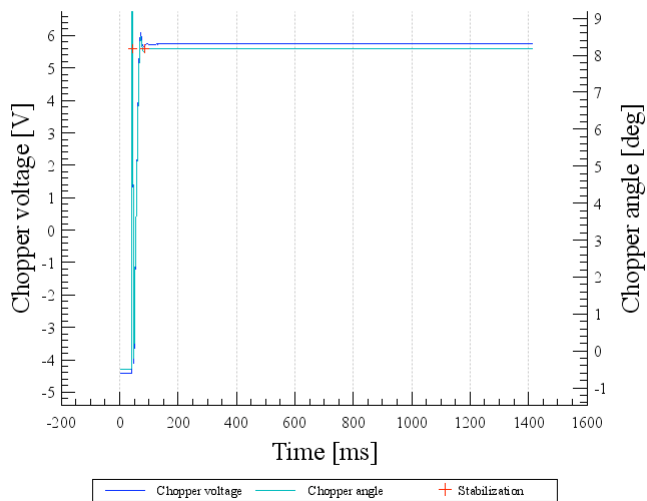


Figure 3; Step3

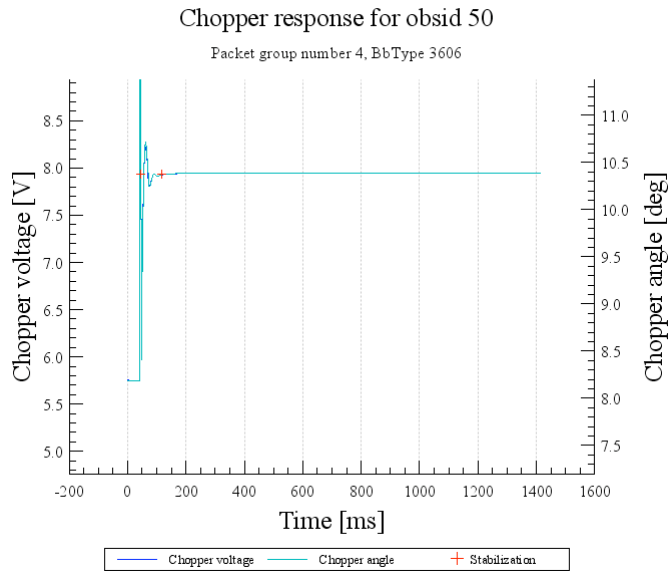


Figure 4; Step 4

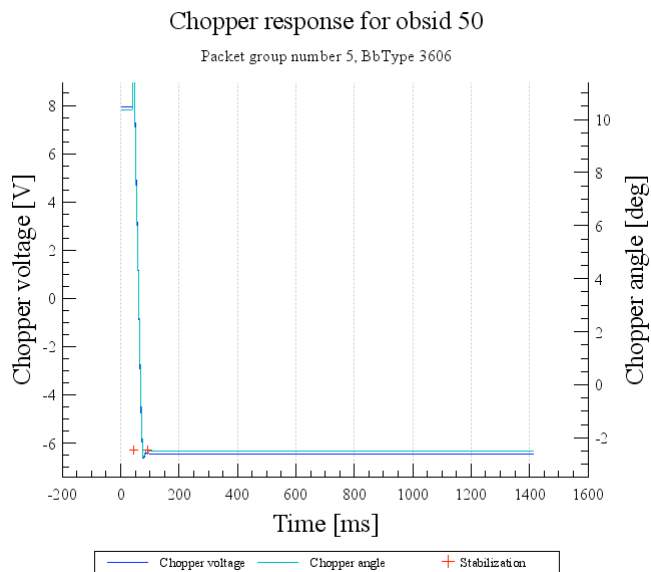


Figure 5; Step 5

Chopper response for obsid 50

Packet group number 6, BbType 3606

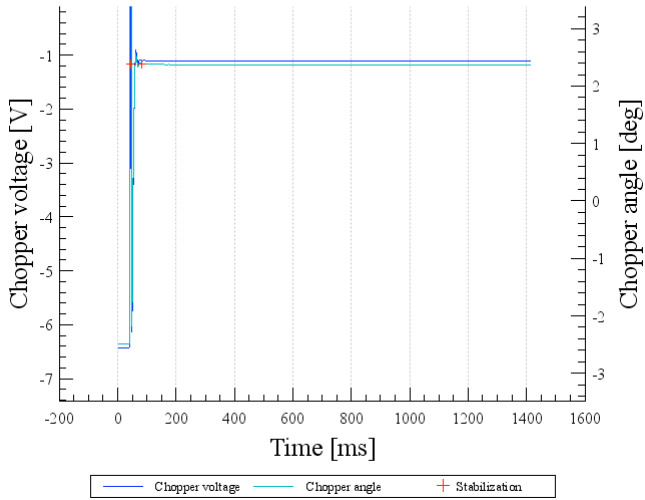


Figure 6; Step 6

Chopper response for obsid 50

Packet group number 7, BbType 3606

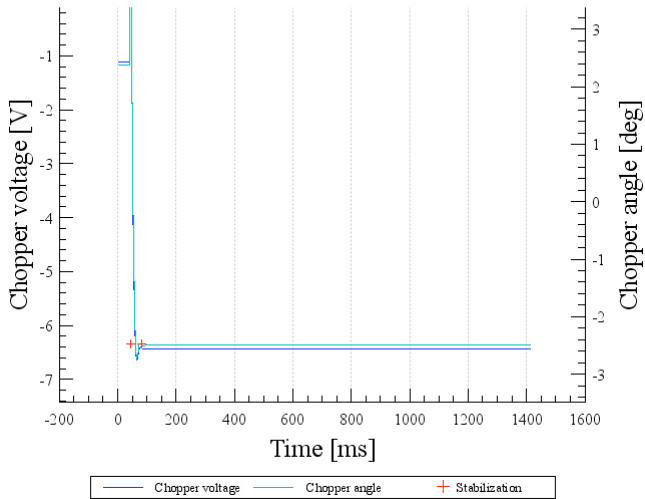


Figure 7; Step7