Control

Stepping motor
and
Displacement sensor
and
Actuators

Dan Chen
2013/12/03 Cryo-payload meeting

Test of actuator for initial alignment in cryogenic temperature

82	1.5.1	Stepping motor (ICRR)	134日	13/11/18 (月) 14/03/31 (月)		8%	8%	Chen Dan
83	1.5.1.1	Candidate list	27日	13/12/05 (木) 13/12/31 (火)		50%	50%	Sekiguchi Takanori,Takahashi R.,Chen Dan
84	1.5.1.2	Procurement of candidates	78日	13/11/29 (金) 14/02/14 (金)		0%	0%	Takahashi R.,Yamamoto Kazuhiro
85	1.5.1.3	Preparation for candidates test	26日	13/11/18 (月) 13/12/13 (金)		0%	0%	Chen Dan,Student from AEI Hannover
86	1.5.1.4	Test at cryo temp	1.43月	14/02/17 (月) 14/03/31 (月)	84,85	0%	0%	To be determined (ICRR),Small cryostat

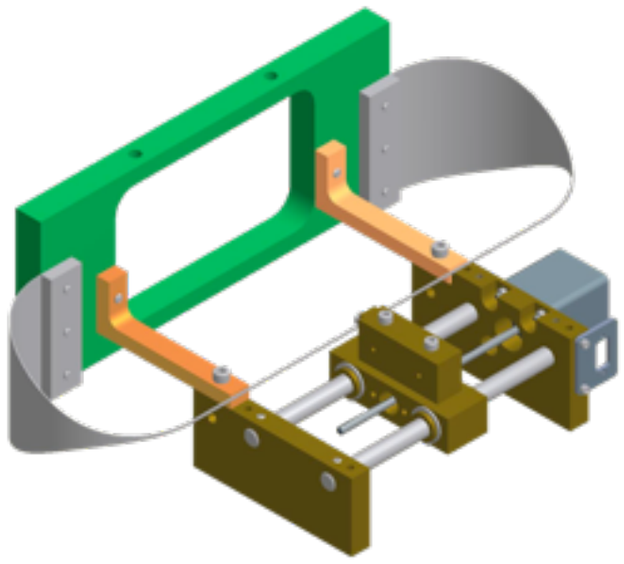
Status

Name	Number we have in ICRR	comment
Stepping motor	0	The delivery time is 2.5 month. The company said this works at 4K. We have ordered.
Pico motor	1	We had a cooling test using a PT cooler. But it did not work below 200K.
Autex	0	Salesmen from Autex show us a motor (PZT). But they said they don't have experience at 10K. They will give us a sample for cooling test. And they will search a stage for cryo.

We are calculating a rough requirement. (accuracy and dynamic range)

Test of actuator for initial alignment in cryogenic temperature A/I

- We are calculating a rough requirement. (accuracy and dynamic range)
- We will make a test stage for Stepping motor.
  - We have to consider the connection point between the motor we ordered and this stage. (We don't have the stage now. The stage which VI group have is made by a Italian company.)
- We have to consider the rotate component is.



Test of Displacement sensor and actuators (OSEM) in cryogenic temperature

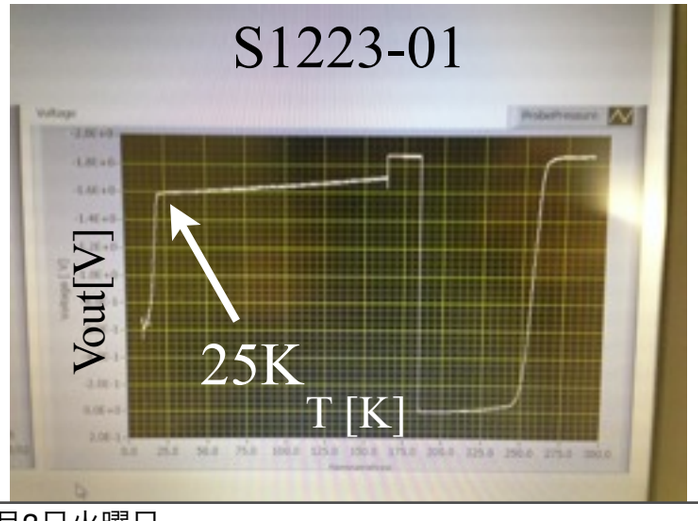
87	**1.5.2**	**Displacement sensor and actuators (between Intermediate Mass and Intermediate Recoil Mass) (ICRR)**	**117日**	**13/11/04 (月) 14/02/28 (金)**		**0%**	**0%**	**Chen Dan**
88	1.5.2.1	Candidate list of light sources and photo diodes	12日	13/11/04 (月) 13/11/15 (金)		0%	0%	Suzuki T,Takahashi R,Yamamoto Kazuhiro,Chen Dan
89	1.5.2.2	Procurement of candidates of light sources and photo diode	26日	13/11/16 (土) 13/12/11 (水)	88	0%	0%	Chen Dan
90	1.5.2.3	Preparation of test for the candidates of light sources and photo diode	12日	13/11/29 (金) 13/12/10 (火)		0%	0%	Chen Dan,Student from AEI Hannover
91	1.5.2.4	Test for the candidates of light sources and photo diode	20日	13/12/12 (木) 13/12/31 (火)	90,89	0%	0%	Chen Dan,Small cryostat
92	1.5.2.5	Preparation for test of sensor	27日	13/11/17 (日) 13/12/13 (金)		0%	0%	Student from AEI Hannover
93	1.5.2.6	Test of sensor at cryogenic temperature	54日	14/01/06 (月) 14/02/28 (金)	92	0%	0%	To be determined (ICRR),Small cryostat

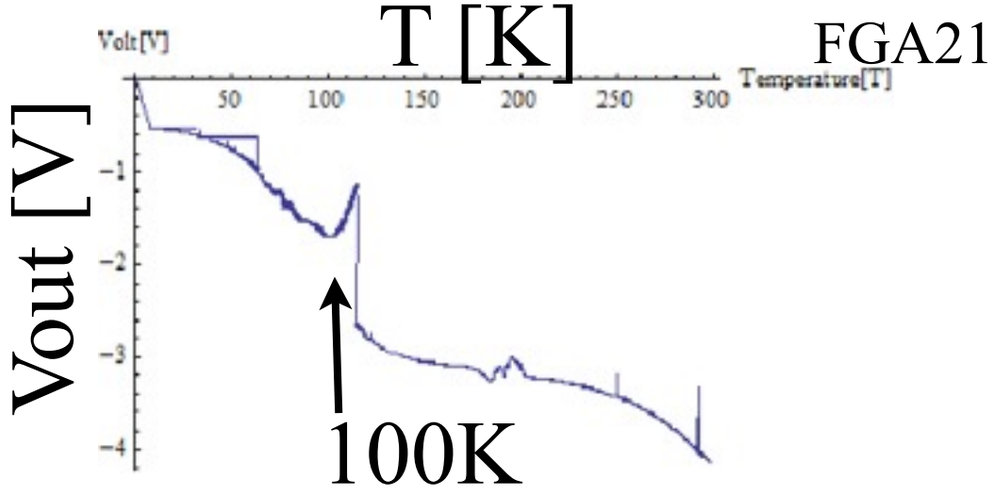
Status

PD: We tasted 2 PDs at low temperature.
LED: One of LD works at 77K.

PD

Name	Type	Peak	Number we have in ICRR	comment
S1223-01	Si PIN PD	960 nm	5	We had a cooling test. Efficiency decreases at low T (37%)
G8370-01	InGaAs PIN PD	1550 nm	0	Tomaru-san said this works at low T. I asked a quotation but is was out of stock.
FGA21	InGaAs Pin PD	1600 nm	2	The quantum efficiency decreases at low T(15%).





LED

Name	Type	Peak	Number we have in ICRR	comment
OP232	GaAIAs	890 nm	5	This is used in OSEM at room temperature.
L2656-03	GaAlAs	890 nm	0	Tomaru-san said this works at low T. I asked a quotation.
ML925B45F	InGaAsP	1550 nm	2	

Liquid nitrogen test: 77K

OP232	Does not work
ML925B45F	Works!

Detect by sensor card

Test of Displacement sensor and actuators (OSEM) in cryogenic temperature A/I

- Search other PD and LED. (Manu is in process.)
- Test LEDs we have in 77K and cryostat.
- Calculate the noise from the data we have now.

Other

- Is really the fiber 30cm? (Baffle...)