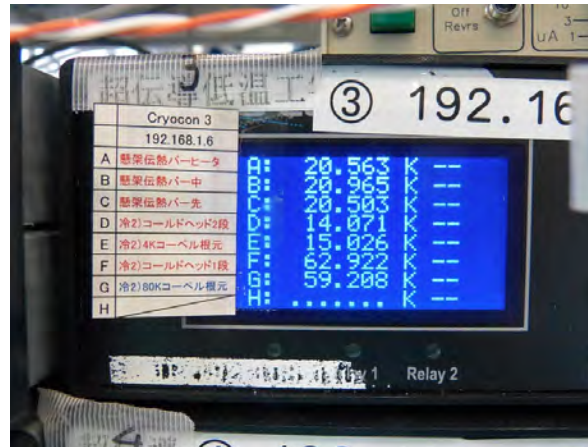


Cryogenics : Cryostat



Cooling in Progress



Installation of Al spere

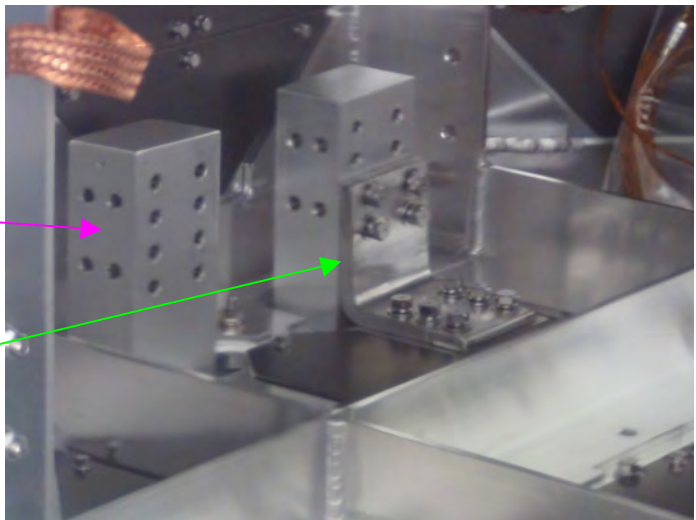
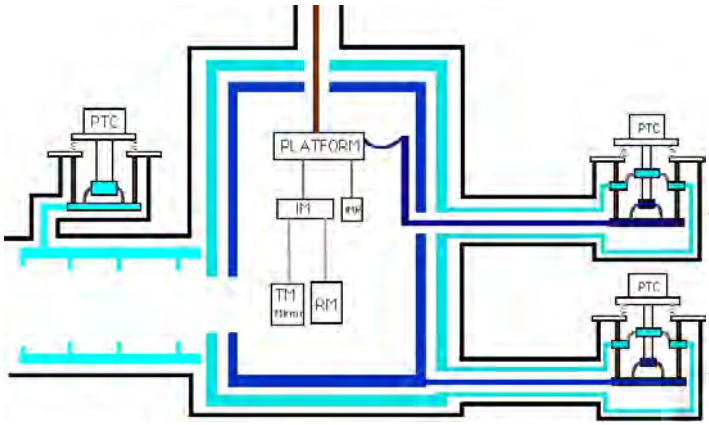
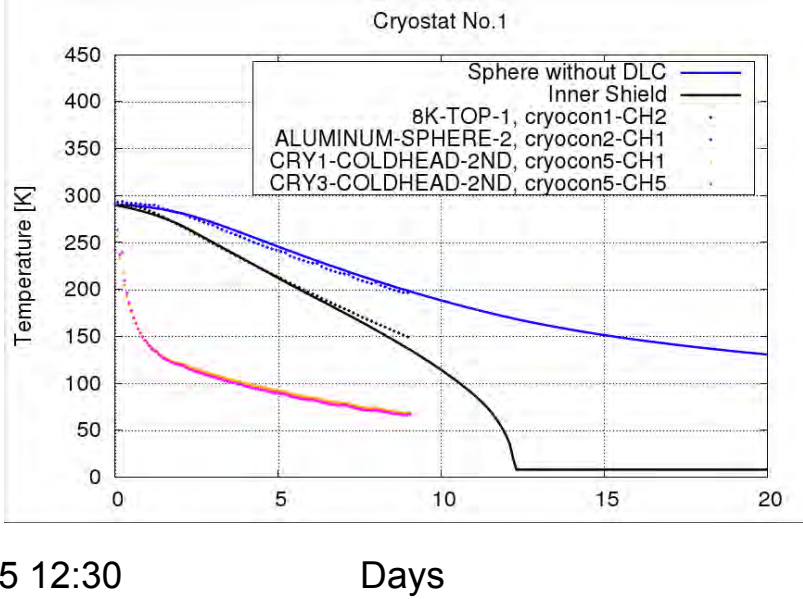
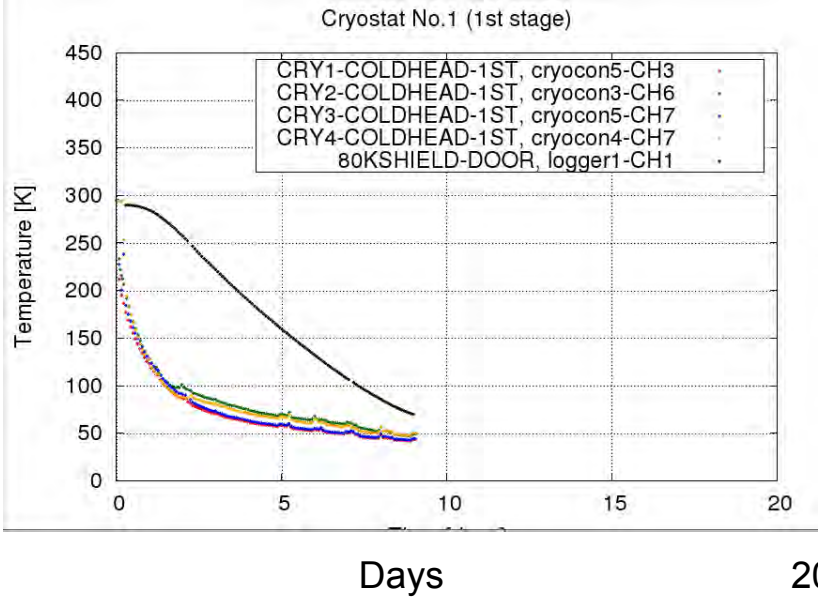
Cryostat #1 Cooling Start 6 Feb.



Al sphere with DLC and an accelerometer

- Assembling of cryostats and preparation of performance tests are in progress in the TOSHIBA Keihin Factory.
- Basic test items
 - Cooling time, minimum attainable temperature under various heat loads.
- Specific test items
 - Cryostat No.1 : Cooling test of $\phi 105$ Al sphere without DLC.
 - Cryostat No.2 : Cooling test of $\phi 105$ Al sphere with DLC and vibration measurement of 8K shield by accelerometer.
 - Cryostat No.3 : Cooling test of half-scaled cryogenic payload with $\phi 100 \times 60$ sapphire cylinder.
 - Cryostat No.4 : optional (Cooling test of $\phi 105$ Al sphere with NiP)

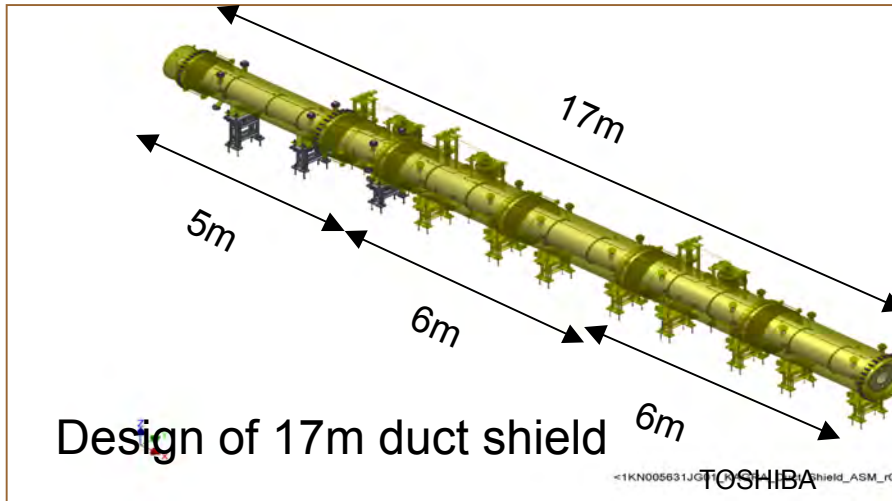
Cryogenics : Cooling Log of #1 Cryostat



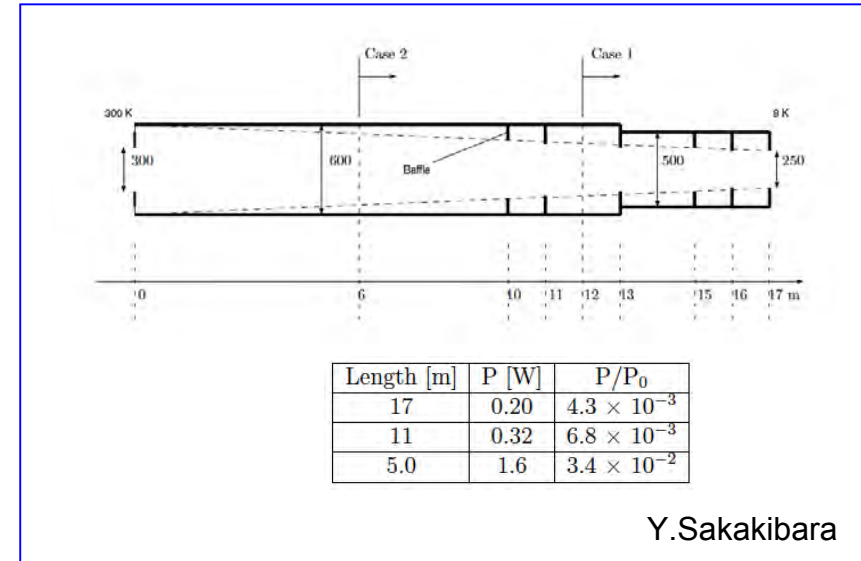
Cryostat : Schedule

	Feb. 2013	Mar. 2013
Cryostat #1	2/6 Al sphere without DLC	2/28 Heat Load Test
Cryostat #2		3/4 Al sphere with DLC. Accelerometer
Cryostat #3		3/17 1/2 Payload
Cryostat #4		3/18 3/30

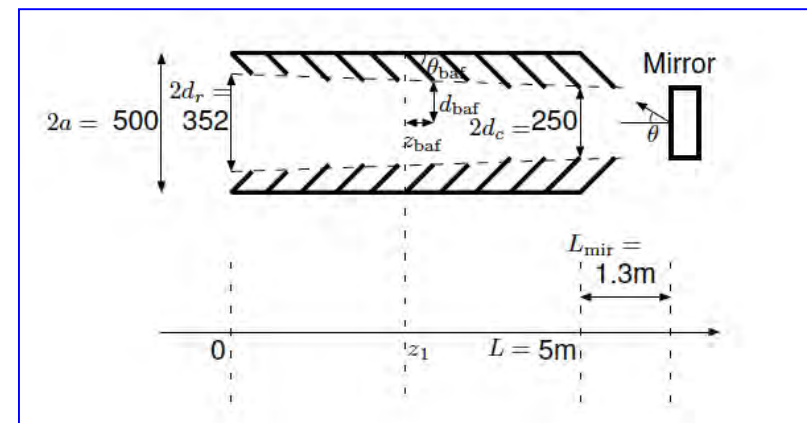
Cryogenics : Duct shield



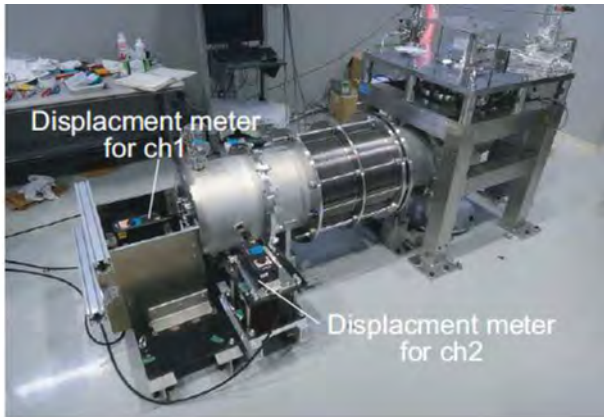
- An investigation for shorter cryo-pipe is in progress for the requirement of cost reduction.
 - Thermal radiation
 - Scattering
 - Molecule
 - Cryocooler
- Cryo-pipe : 17m -> 5m, alternative cryocooler : PTC -> Solvay
- Three sets of duct shield will be manufactured in 2013FY by an supplementary budget.



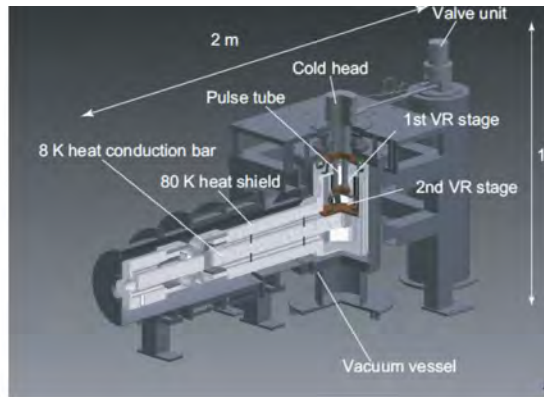
↓ Investigation of shorter cryo-pipe



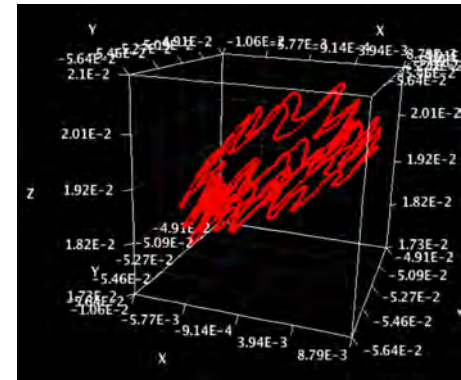
Cryogenics : 4k Cryocooler unit



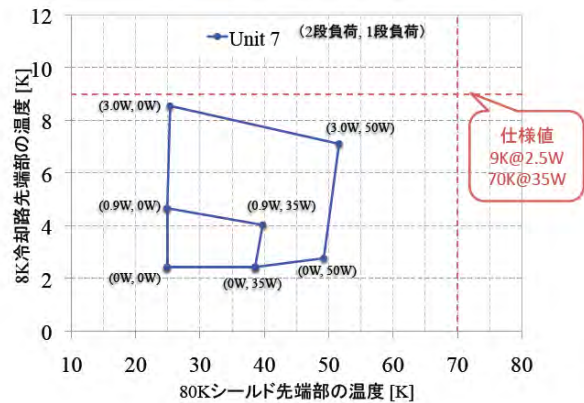
4K cryocooler unit and set of displacement meter.



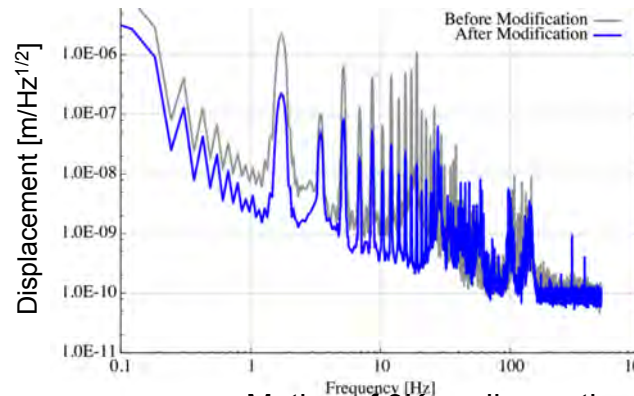
Inner structure of cryocooler unit.



3D plot of 8K cooling path. Voltage to displacement conversion factor is 10^{-5} m/V. Moving average of 0.2 sec was applied.



Load map of cryocooler. (C.Tokoku, 2012 Nov. CSJ)



Motion of 8K cooling path.

- 4K cryocooler units with vibration reduction mechanism are manufacturing.
 - Assembling and cooling power test finished for unit #13 in JTorisha.
- Cooling power of the cryocooler satisfied the requirement.
- Vibration level was improved by a reinforcement of support structure.