

Meeting for
S1-Global module design
Cryomodule and Cryogenics
20081111

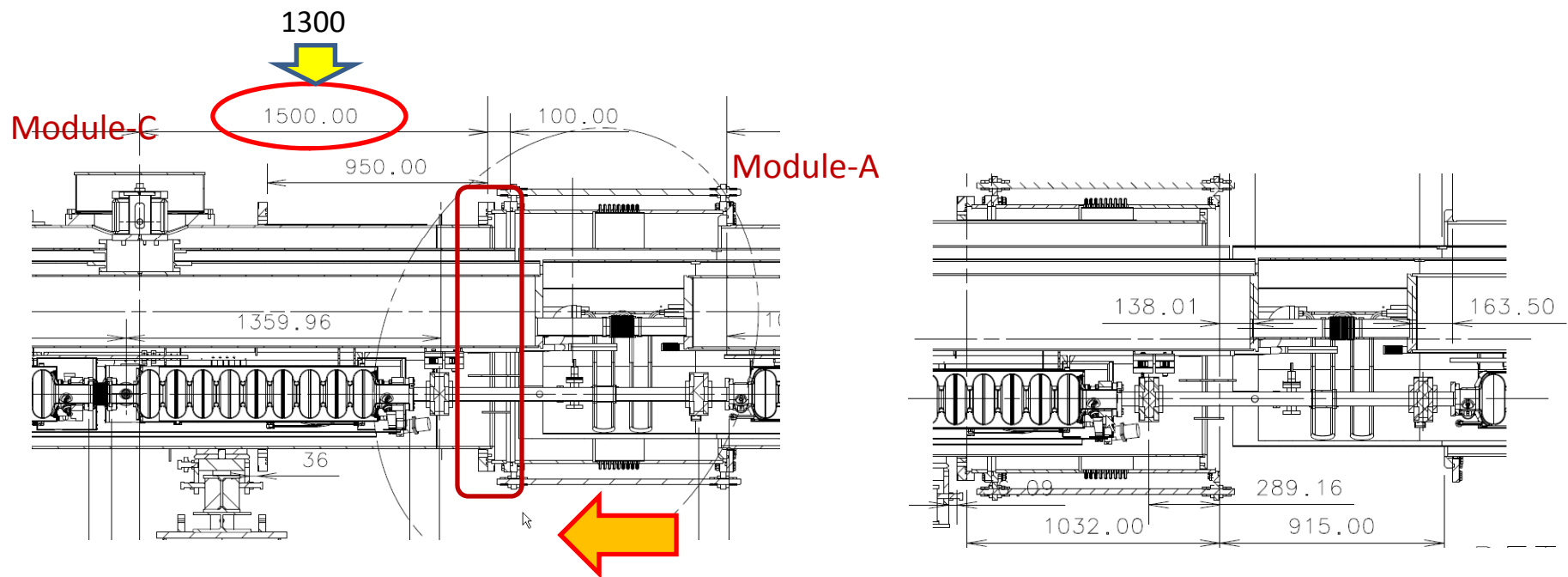
Norihito Ohuchi

Agenda

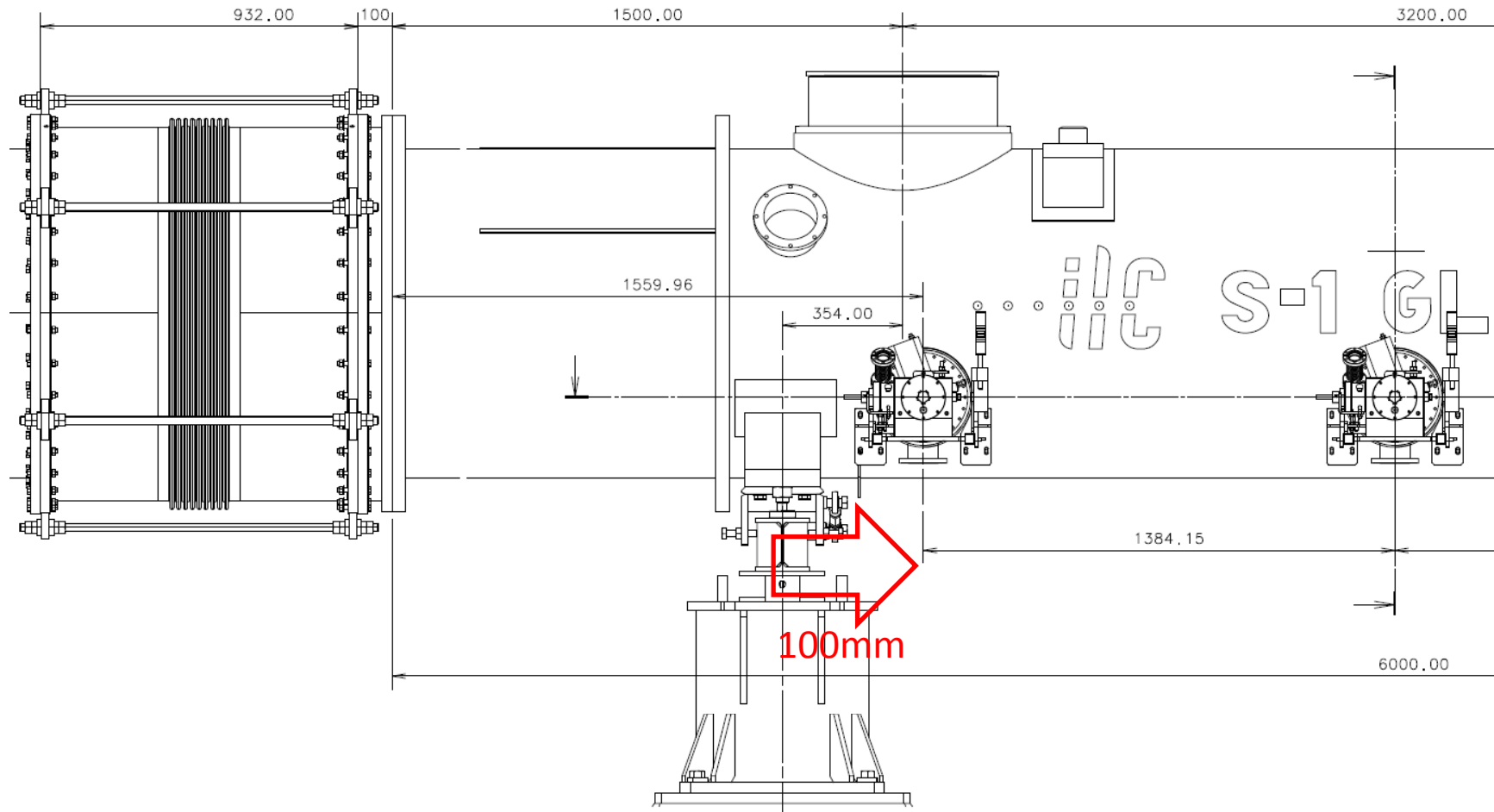
1. New design of FNAL cavity vessel and interface in Module-C (Harry Carter)
2. Design modification of S1-G modules (Norihiro Ohuchi)
3. Heat loads of cryogenics in RDR (Tom Perterson)
4. STF cryomodule heat load (Norihiro Ohuchi)
5. GDE-meeting agenda for cryomodule and cryogenic session

2.1 Design modification of S1-G modules

- Design change of the Module-C induced by the KEK tuner position change
 - Length of module-C : 5800 mm -> 6000mm
 - Position of the vacuum vessel support moves close to the input coupler by 100 mm.
 - Design of the Module-C flange (at the connection side with Module-A) is changed to the double flange.
 - In the modified design, the position of the gate valve is not changed.
 - The cooling pipes in Module-C are modified in their lengths.



2.2 Design modification of S1-G modules



4.1 STF cryomodule heat load (4 cavities)

	2 K	5 K	80 K
Measured	4.9	8.2	64.9
RF cables	2.48	0	7.92
Piezo cables	1.68	0	0
Temp. cables	0.08	0.55	0.42
Input couplers	0.17	5.98	6.56
Tuner drive shafts	0.48	0	0
Beam pipe	0.01	0.14	0.70
Thermal radiation	~0	0.76	20.4
Support posts	(0.24)	1.54	10.8
Sum. of comp.	4.90 (5.14)	8.97	46.8

Thermal flux density by thermal radiation:

from 80 K to 5 K with 10 layers of MLI = 0.05 W/m²

from 300 K to 80 K with 30 layers of MLI = 1.0 W/m²

4.2 STF cryomodule heat load (9 cavities)

	2 K	5 K	80 K
RF cables	5.58	0	17.82
Piezo cables	3.78	0	0
Temp. cables	0.18	1.24	0.95
Input couplers	0.38	13.46	14.76
Tuner drive shafts	1.08	0	0
Beam pipe	0.01	0.14	0.70
Thermal radiation	~0	1.71	45.9 / 91.8
Support posts	0.36	2.31	16.2
Sum. of comp.	11.37	18.86	96.3 / 142.2

GDE meeting agenda

- 13:30- 13:50 Static and dynamic heat loads of Type III+ cryomodule
: Carlo Pagani
- 13:50- 13:20 Recent ILC heat load estimates, CM1 instrumentation
: Tom Peterson
- 13:20- 14:40 Heat load study of cryomodule in STF
: Norihito Ohuchi
- 14:40- 15:00 Break
- 15:00- 15:30 12 GeV upgrade cryogenics for Jlab
: Dana Arenius
- 15:30- 15:50 ILC cryosystem discussion
- 15:50- 16:10 5K shield removal experiment at KEK
: Norihito Ohuchi
- 16:10-16:30 Material property study for high pressure code in KEK
: Hirotaka Nakai (Video)
- 16:30- 16:50 High pressure code for dressed niobium cavities in FNAL
: FNAL people