

# **S1G Experiment Schedule Plan; 03292010**

ILC10 GDE meeting

03292010 H. Hayano

# Assembly work after cavity arrival

## Module C (INFN module)

- ( 1 ) check the listed component
- ( 2 ) review the assembly procedure with arrived components
- ( 3 ) cavities connection in clean-room, leak check
- ( 4 ) He pipe welding at outside clean-room, leak check
- ( 5 ) Tuner and mag. shield assembly at outside clean-room
- ( 6 ) Cavities installation into cold-mass
- ( 7 ) Temp. sensor, RF cables
- ( 8 ) thermal anchor, super-insulator, installation into vacuum vessel
- ( 9 ) Installation into STF tunnel

8 weeks

2010.01~2010.02

## Module A (KEK module)

Start immediately after clean-room available

same procedure as phase1 cavities

9 weeks

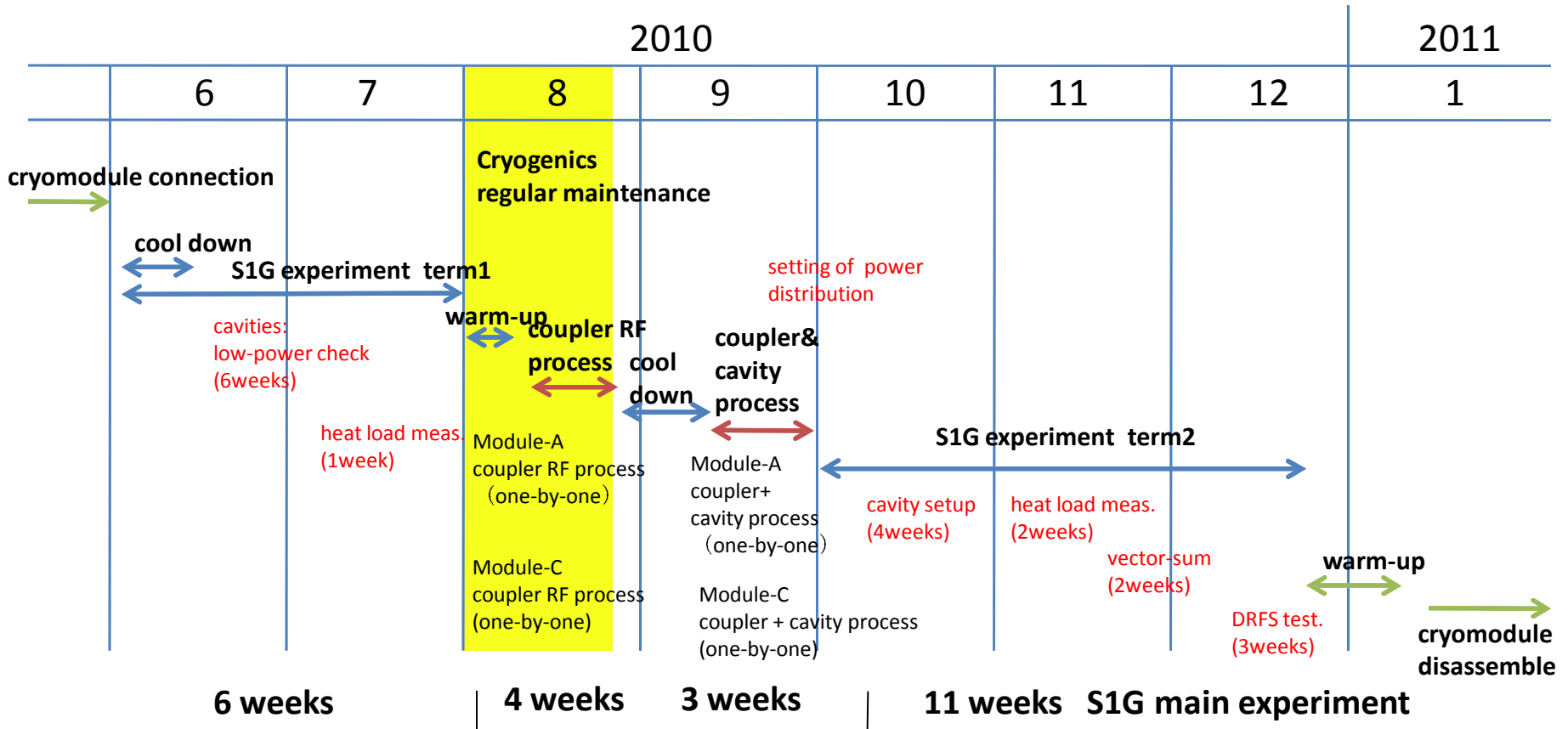
2010.03~2010.04

Connection work of Module C (INFN module) and Module A (KEK module)  
in STF tunnel

4 weeks

2010.05

# S1G overall schedule



IPAC2010  
May23-28, Kyoto

ICHEP2010  
July21-28, Paris

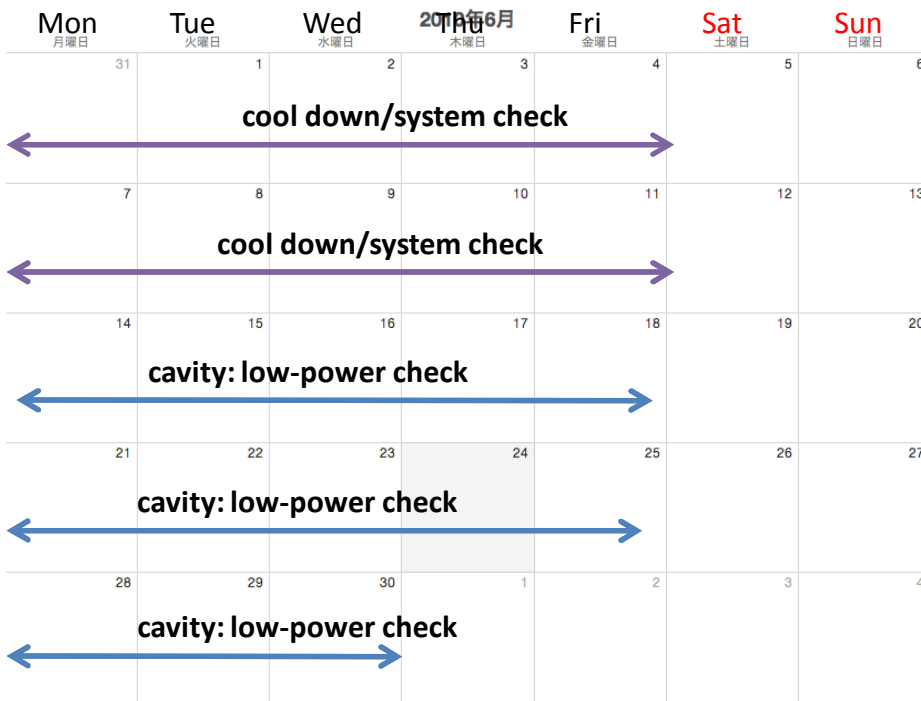
LINAC2010  
Sep12-17, Tsukuba

Domestic Accelerator Meeting  
Aug 2010

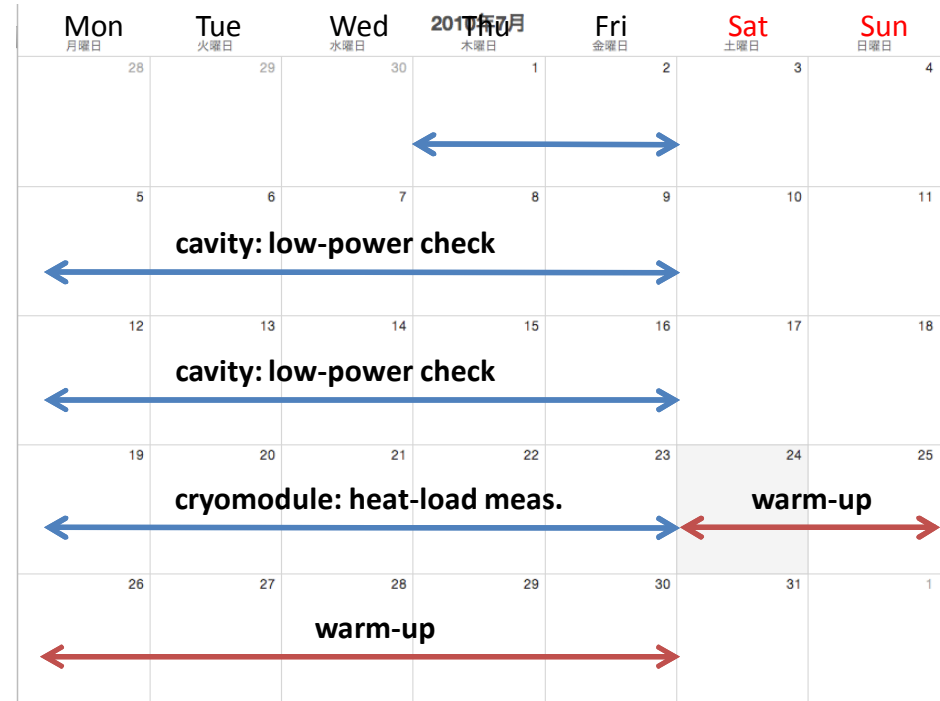
Only LN2 will be Continuous full day operation.  
LHe operation will be daytime only.  
Monday : 2K cool-down,  
Tuesday – Friday : 12:00 – 19:00  
7hours for S1G experiment at 2K.

# S1G schedule 1

June 2010



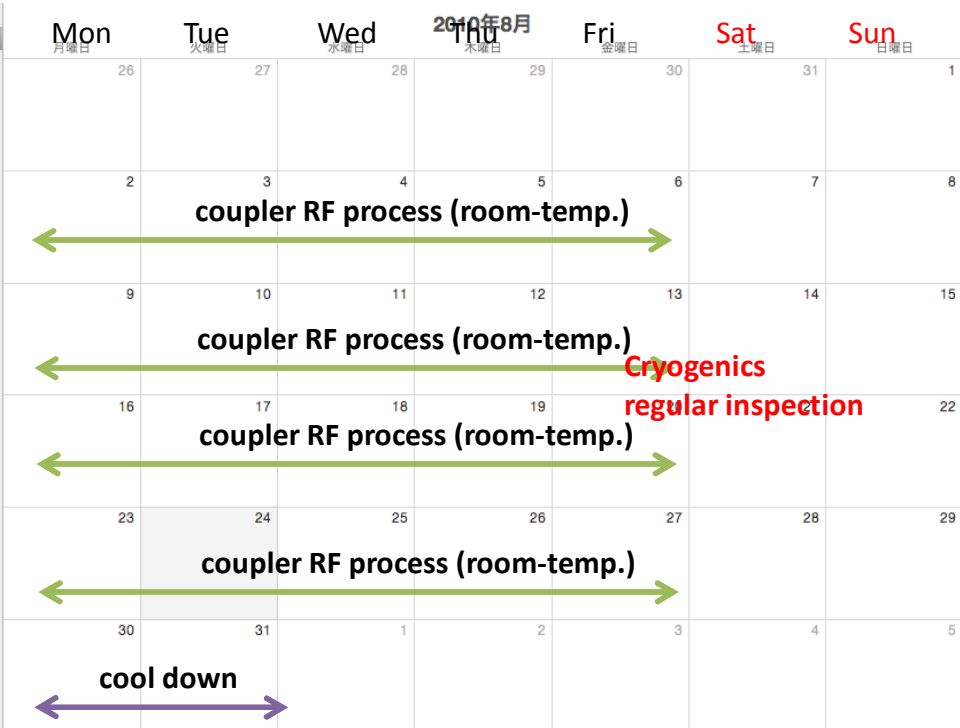
July 2010



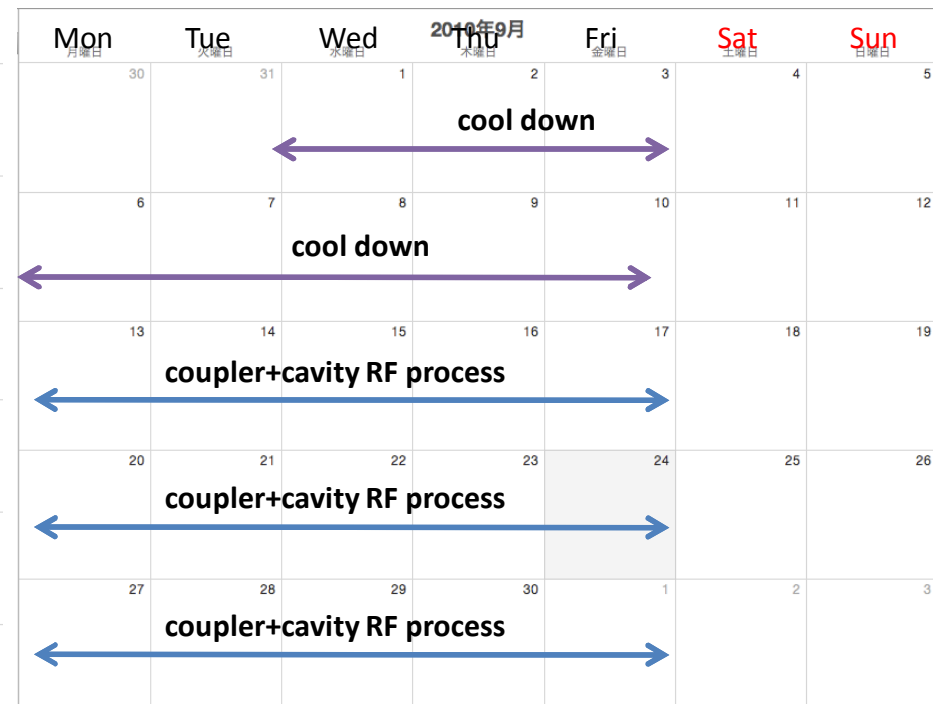
from June 14 – July 16 : RF check, tuner check -> request DESY, FNAL, INFN participation.

# S1G schedule 2

Aug. 2010



Sep. 2010



from Sep 13 – Oct 1 : coupler+cavity process -> request DESY, FNAL participation.

# S1G schedule 3

Oct. 2010

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28	29	30	1	2	3
4	5	6	7	8	9	10
cavity performance study, LD compensation						
11	12	13	14	15	16	17
cavity performance study, LD compensation						
18	19	20	21	22	23	24
cavity performance study, LD compensation						
25	26	27	28	29	30	31
cavity performance study, LD compensation						

Nov. 2010

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
Cryomodule Heat-load meas.						
8	9	10	11	12	13	14
Cryomodule Heat-load meas.						
15	16	17	18	19	20	21
Vector-sum operation						
22	23	24	25	26	27	28
Vector-sum operation						
29	30	1	2	3	4	5
DRFS test						

from Oct 4 – Oct 29 : cavity gradient, LD study -> request DESY, FNAL, INFN participation.

from Nov 15 – Nov 28 : vector sum op study -> request DESY, FNAL, INFN participation.

# S1G schedule 4

Dec. 2010

Mon 月曜日	Tue 火曜日	Wed 水曜日	2010年12月 Thu 木曜日	Fri 金曜日	Sat 土曜日	Sun 日曜日
29	30	1 DRFS test	2	3	4	5
		← DRFS test →				
6	7	8 DRFS test	9	10	11	12
		← DRFS test →				
13	14	15 DRFS test	16	17	18 warm-up	19
		← DRFS test →		← warm-up →		
20	21	22 warm-up	23	24	25	26
		← warm-up →				
27	28	29	30	31	1	2

# **S1G experiment term1 : 6 weeks**

before summer shut-down

## **1. : Low power measurement of each 8 cavities. (cavity people)**

measurement and set up of cavity; Q-values, frequency, main coupler coupling  
mechanical tuner response, piezo tuner response, mechanical vibratino mode, HOMs, etc.

**5 weeks (2010.06-07)**

## **2. : Heat load measurement (static) (N. Ohuchi and H. Nakai)**

**1 week (2010.07)**



# S1G experiment term **summer shutdown** : 7 weeks

at room temperature

## **1. : Main coupler RF process of one by one. (cavity people)**

#1 Klystron will be connected to Module-C cavities one-by-one (DESY cavity, FNAL cavity)

#2 Klystron will be connected to Module-A cavities one-by-one (MHI cavities)

Parallel coupler processing          one + one /week; total 4 weeks.

**4 weeks (2010.07.26-08.27)**

Cryogenic system in maintenance and yearly inspection,  
KEK also has 2 days yearly electronic system maintenance

( 2 days AC power off laboratory-wide)

Summer holiday season.

at 2K temperature

## **2. : Main coupler + Cavity RF process of one by one. (cavity people)**

#1 Klystron will be connected to Module-C cavities one-by-one (DESY cavity, FNAL cavity)

#2 Klystron will be connected to Module-A cavities one-by-one (MHI cavities)

Parallel coupler+cavity RF processing          one + one /week; total 4 weeks.

**3 weeks (2010.09.13-10.01)**

# S1G experiment term2 : 11 weeks

(0) Optimization of Waveguide distribution (power distribution ratio) (HLRF group)

(1) Set-up of FF-table, preparation of vector-sum circuit (LLRF group)

## 1. : **cavity performance study, set-up of LD compensation for each cavity**

gradient check, LD measurement and compensation

**4 weeks (2010.10)**

# Proposal from Michizono-san; 03\_04\_2010

## 2. : **Cryomodule Heat-load meas.**

Static and dynamic heat-load

2 weeks (2010.11)

(0) Optimization of Waveguide distribution (power distribution ratio) (HLRF group)

(1) Set-up of FF-table, preparation and setup of vector-sum circuit (LLRF group)

## 3. : **Vector-sum operation**

8 cavities Vector Sum set-ups: 5 days

Vector sum control 8 cavities : 2 days

Vector sum control IF-mix: 1 day

Adoptive FF: 1 day

RF power fluctuation: 1 day

2 weeks (2010.11)

Connect 1 small klystron to two cavities in tunnel, LLRF also in tunnel. : 3 days

## 4. : **DRFS study**

DRFS study

cavity performance: 1 day

adaptive FF: 2 days

RF power fluctuation: 2 days

sag compensation: 2 days

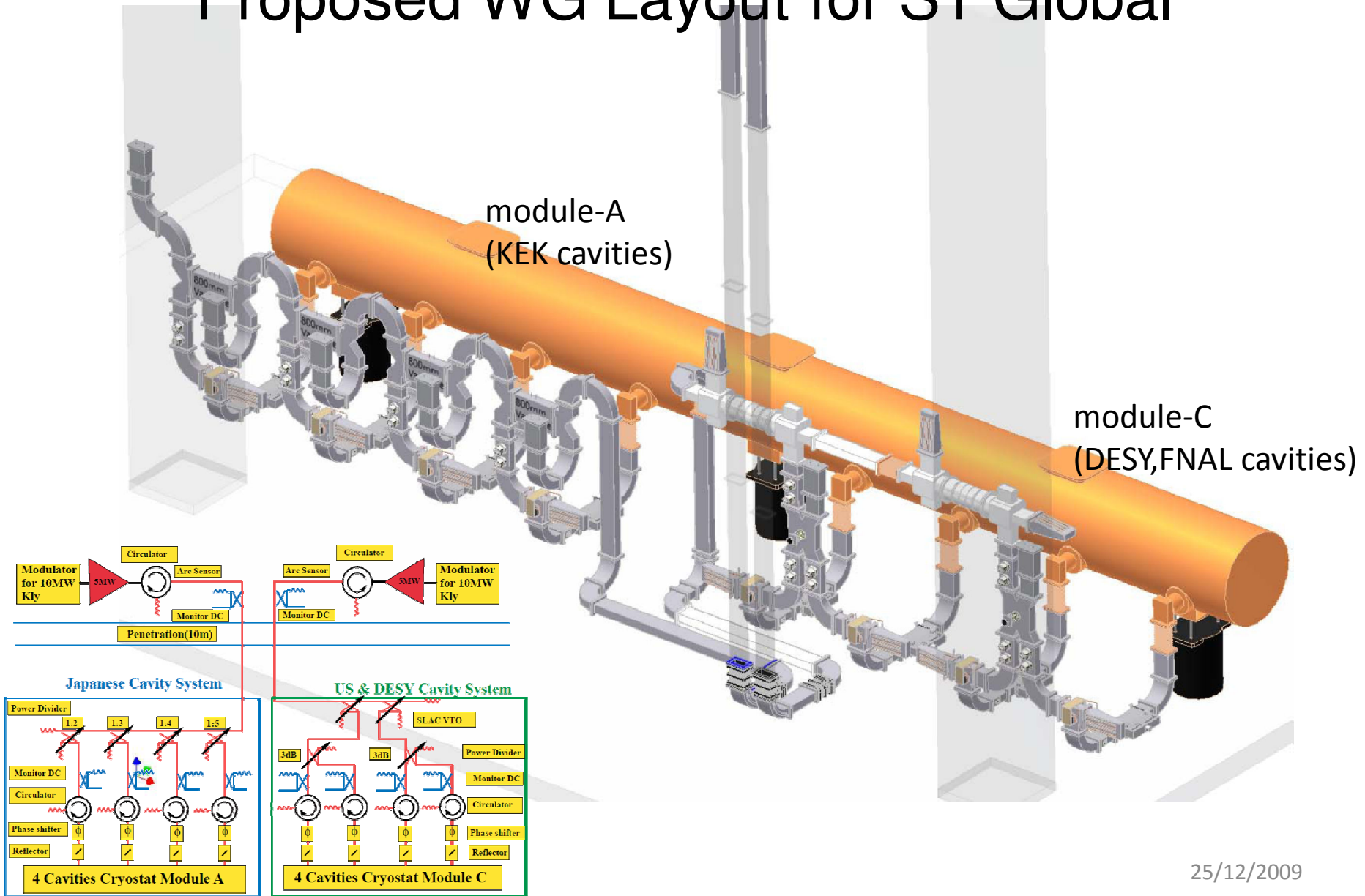
feedback algorithm: 1 day

loaded Q monitor: 1 day

fast interlock performance: 1 day

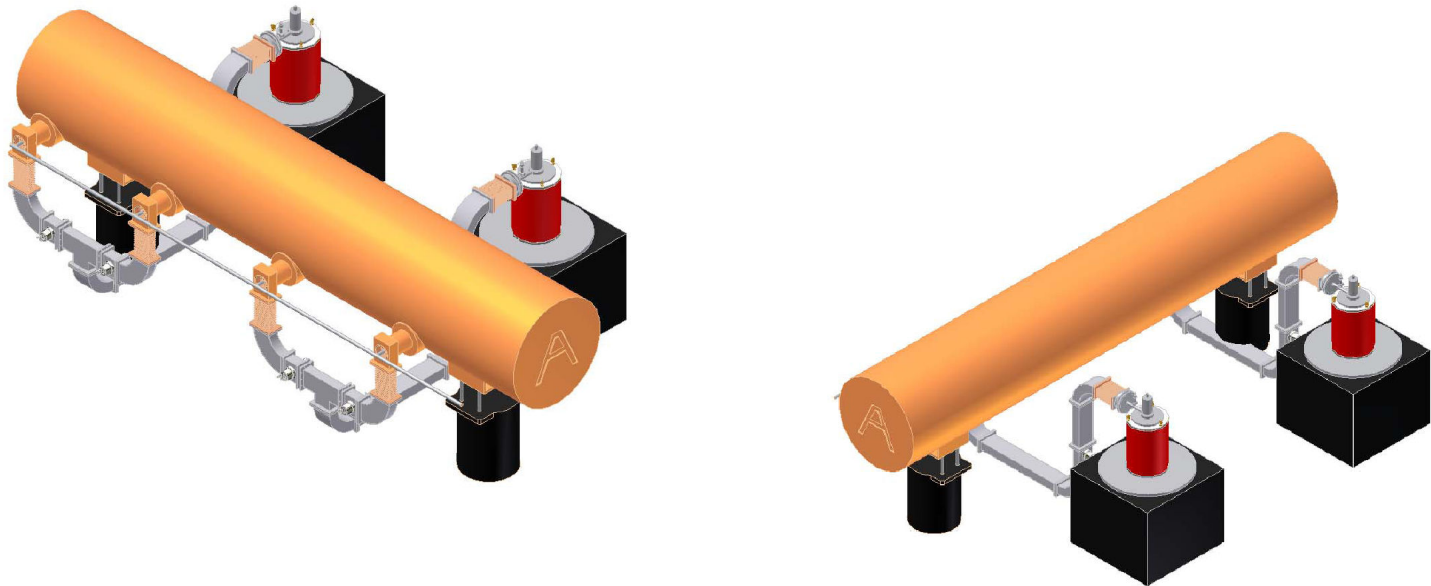
3 weeks (2010.12)

# Proposed WG Layout for S1 Global



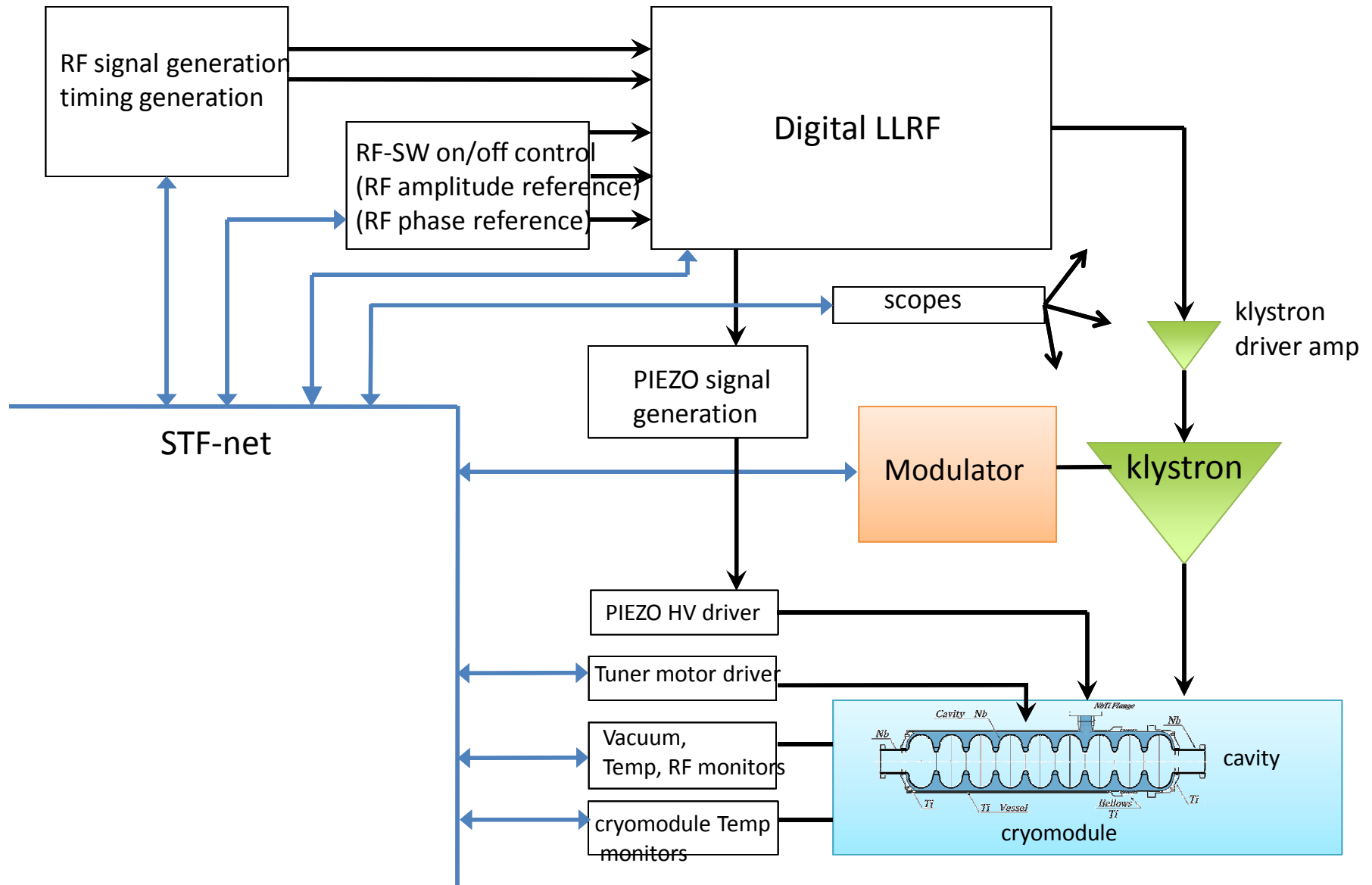
# DRFS Demonstration

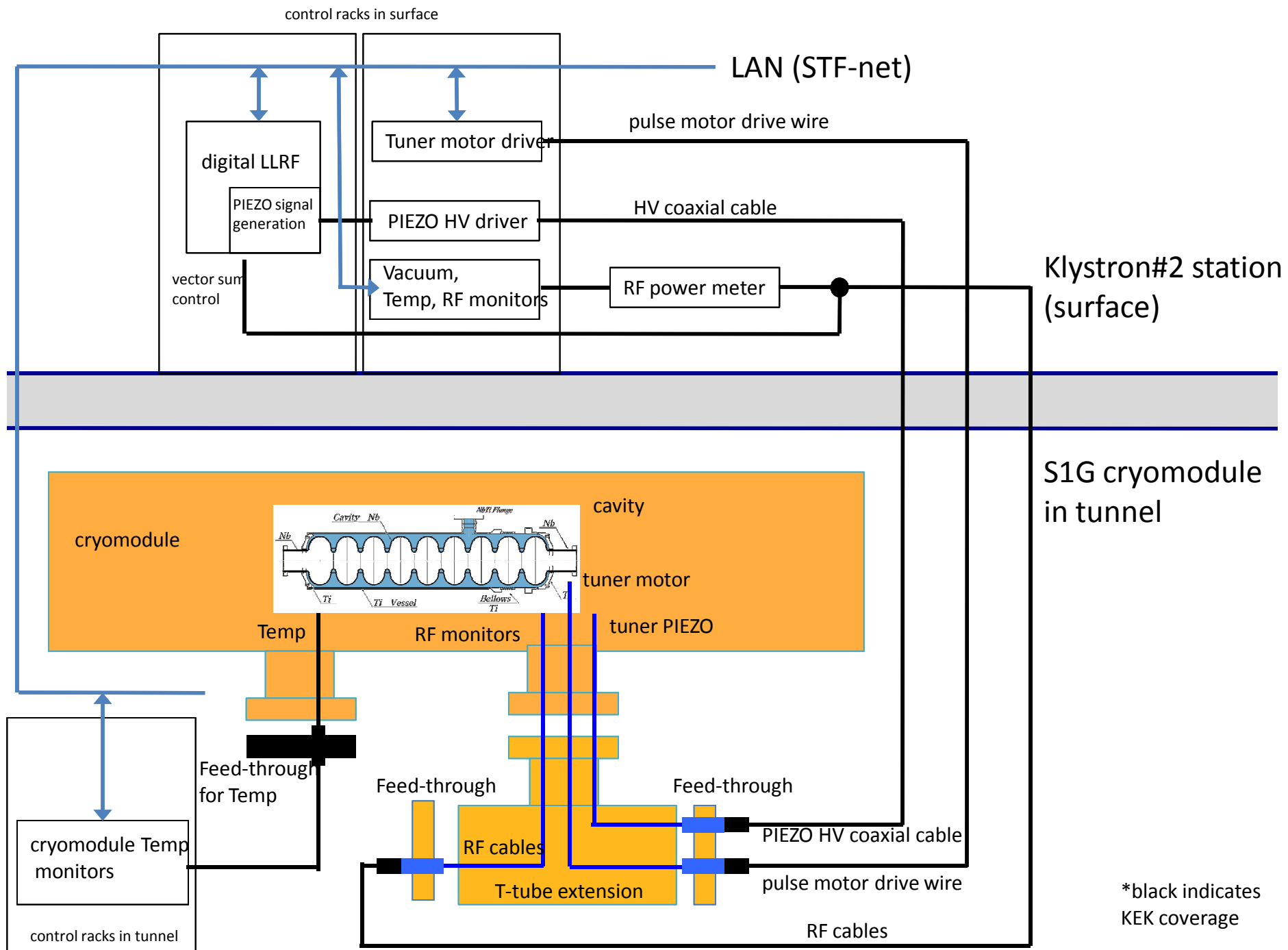
DRFS Demonstration test is approved for 1 week period. 2 unit of DRFS is Planned to be manufactured in FY2009 and FY2010.



DC PS and Mod anode PS are in the surface floor, HV cables come down to the tunnel.

# overall control configuration of S1Global module





END