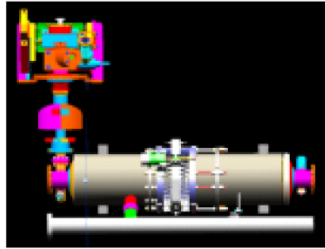


Superconducting Accelerating Module Test at STF/KEK

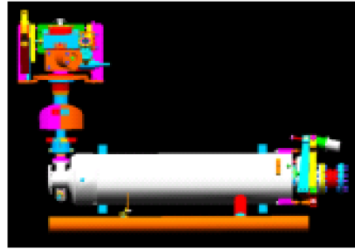


Module S1-Global

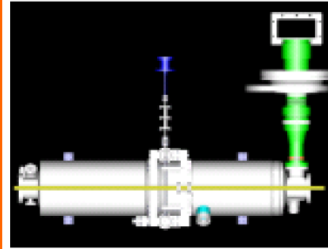
FNAL#1,#2
AES004, ACC011



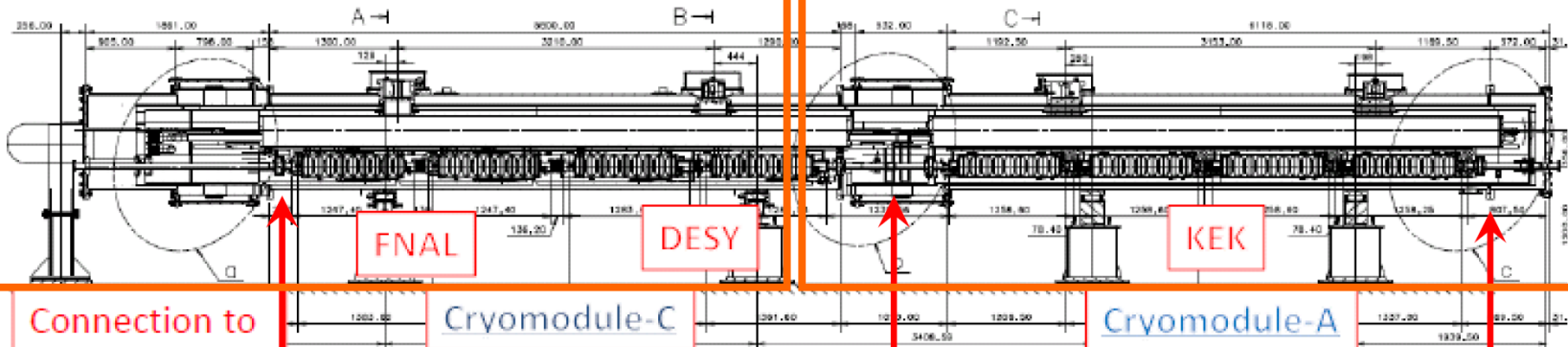
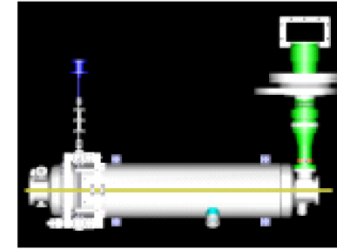
DESY#1,#2
Z108, Z109



KEK#1,#2
MHI05, MHI06



KEK#3,#4
MHI07, MHI09



Connection to
2K cold box

FNAL

DESY

KEK

Cryomodule-C

Cryomodule-A

Pumping
system
Up stream

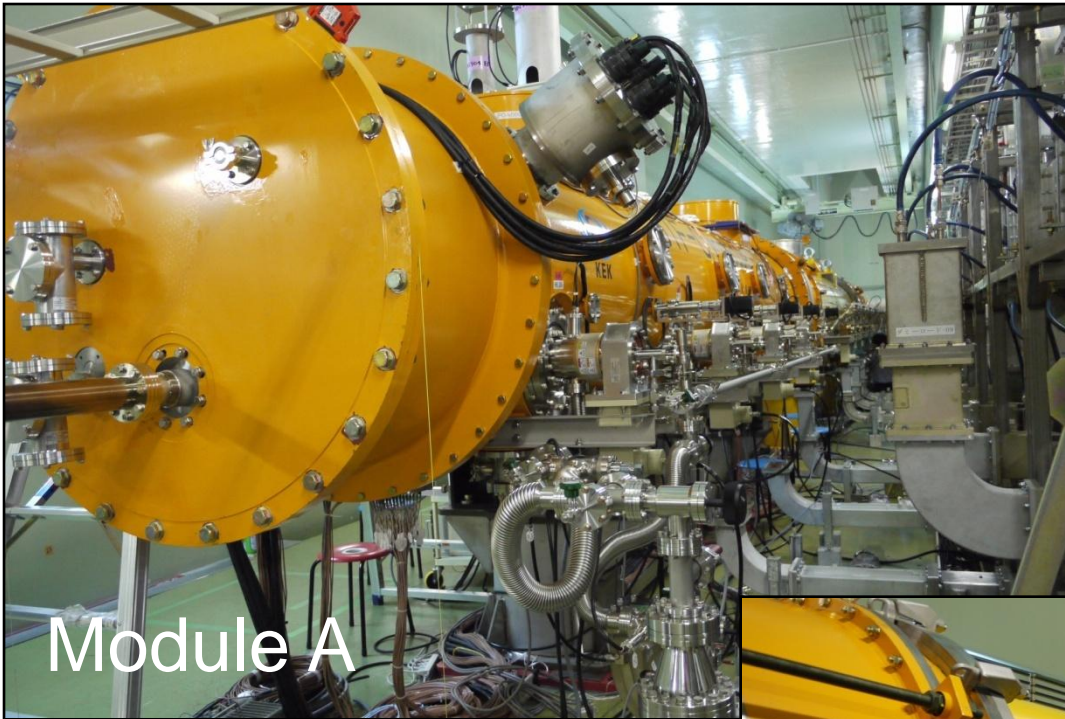
Gate-valve

No connection
No beam tube
No gate-valve
Closed by Blind Flange

Pumping
system

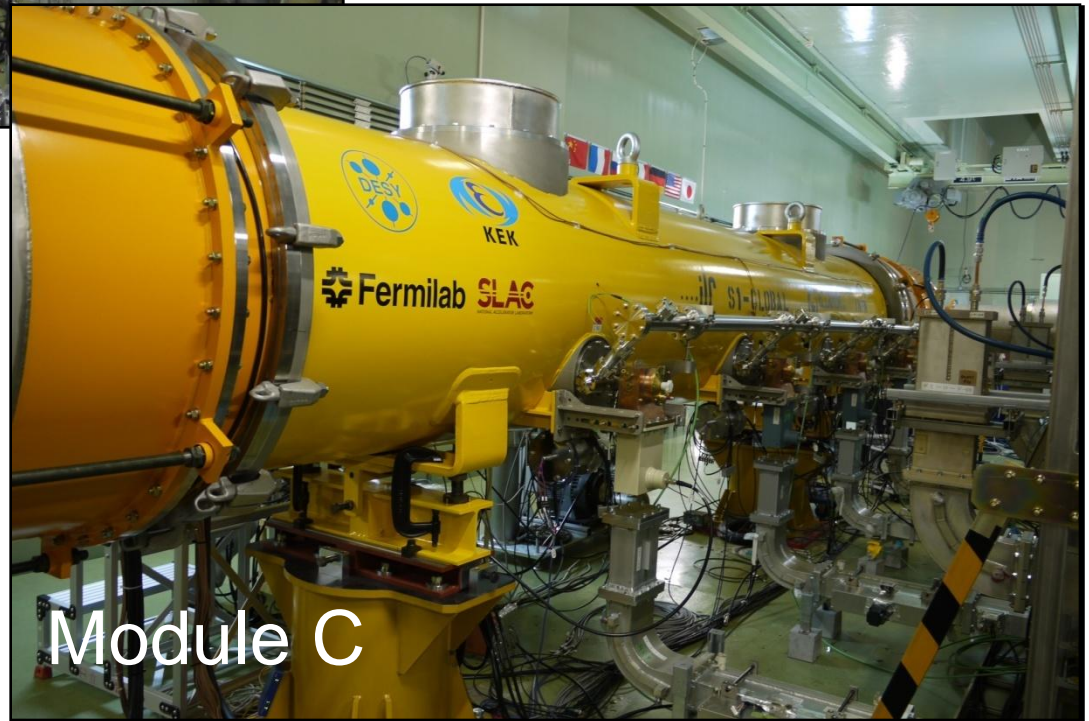
Gate-valve
Down stream

KEK STF Module Test



Module A

S1-Global module



Module C

KEK STF Module Test



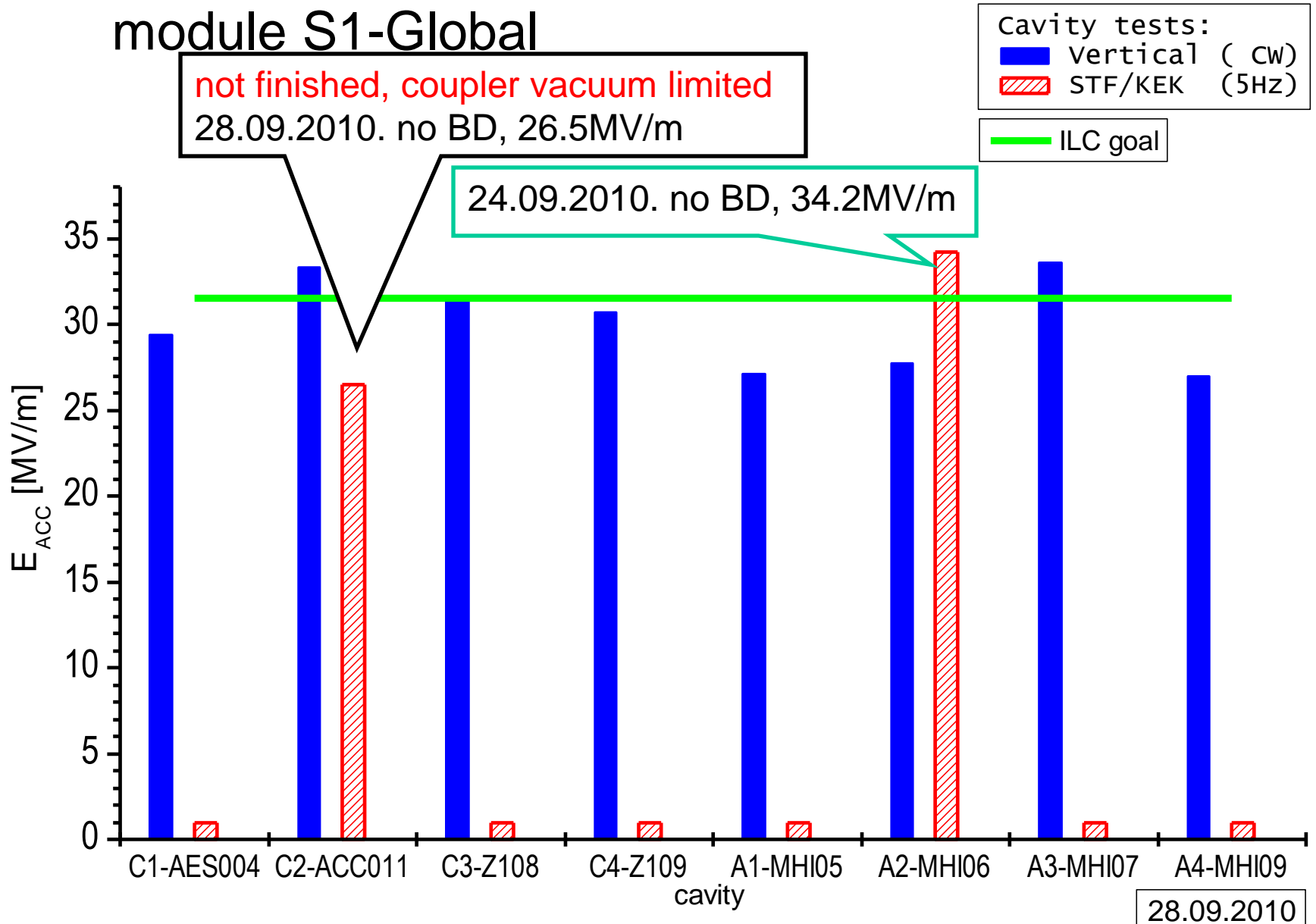
5MW klystron



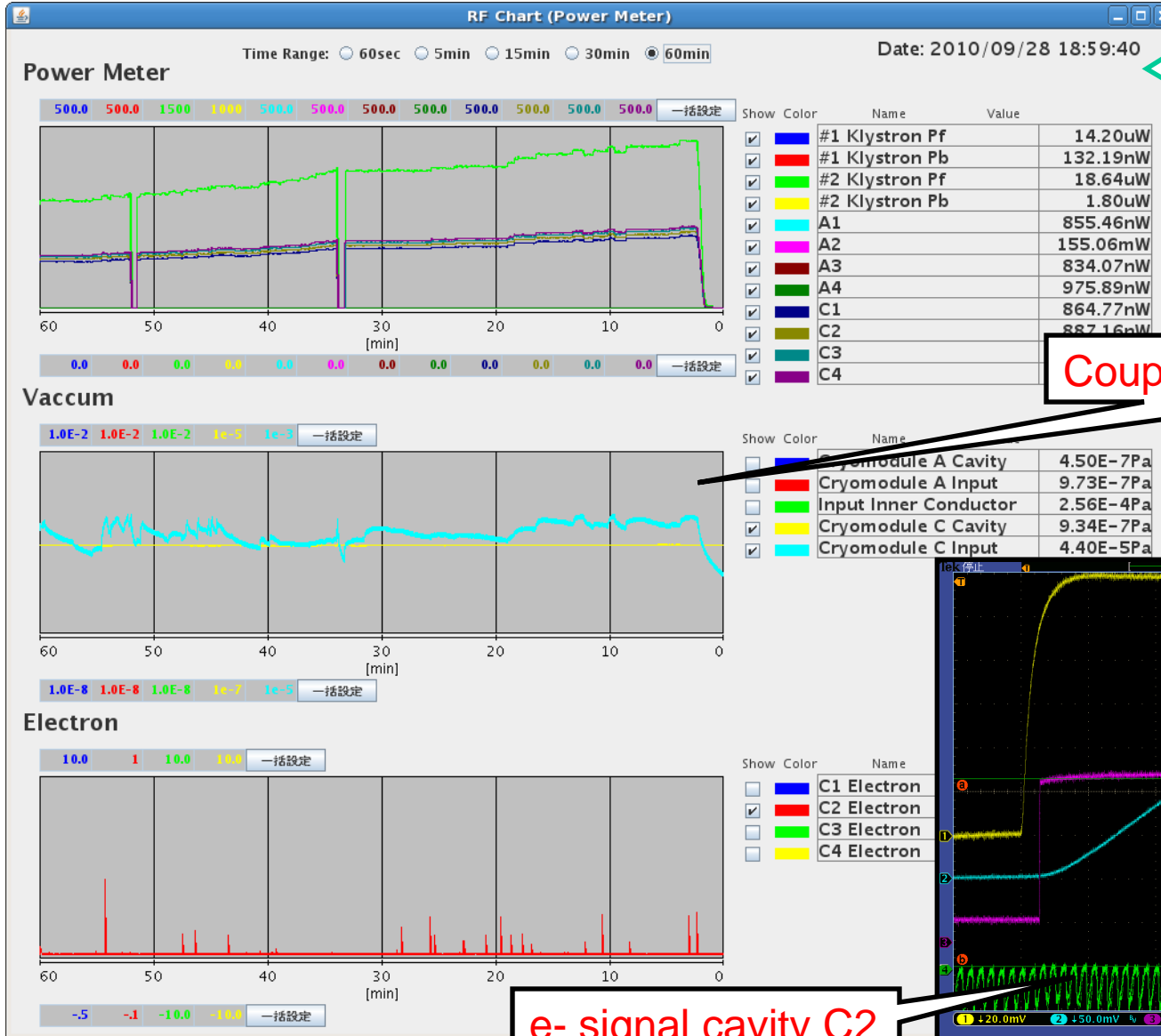
control and measurement system

Module Test Results

module S1-Global

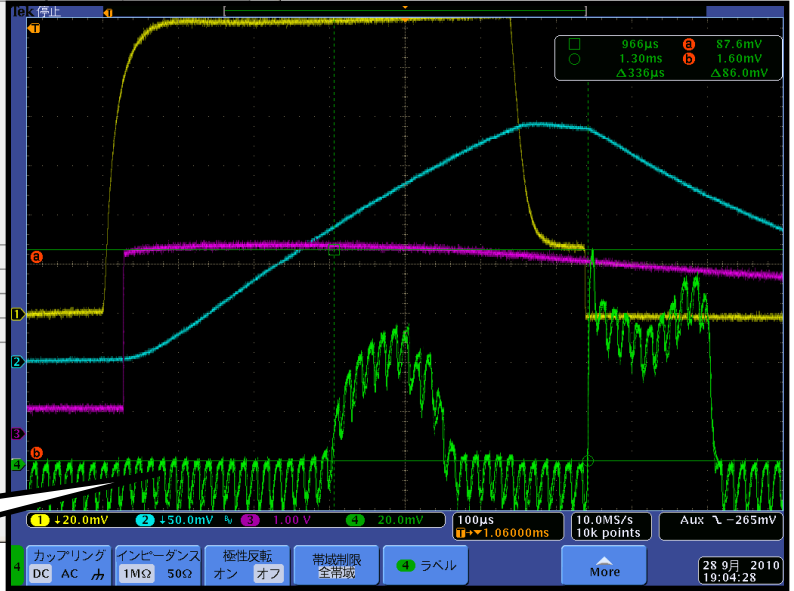


Module Test: cavity C2



FT pulse:
540+100us
26.5MV/m
209kW

Coupler vac.limit 2e-06 mbar



e- signal cavity C2

Summary

- S1-Global superconducting module test was started at STF/KEK.
- S1-Global module has 8 TESLA-type cavities, 4 KEK cavities (A1..A4), 2 FNAL cavities (C1, C2) and 2 DESY (C3, C4) cavities.
- Cavities A2 and C2 have a tuner problem.
- Klystron 1 used for the cavities C1..C4 test got a modulator (IGBT switch) problem and can not be used for some time, Klystron 2 (A1..A4) will be used to test cavities C1..C4 after switching the waveguides.
- Cavity A2 (MHI-06) was tested. Cavity reached 34.2MV/m with feedback on, without quench, limited by RF power. Initially FE started at 10 MV/m, cavity was conditioned: FE onset is 18 MV/m after conditioning. X-rays measured about 0.01 mGy/min. LFD was 400+200Hz (FT pulse, 34MV/m).
- Cavity C2 (ACC011) was tested with a short FT pulse 540us + 100us up to 26.5 MV/m. Cavity was limited by the coupler, it needs more on-resonance conditioning. Cavity showed low FE at 22 MV/m, after reaching the 26 MV/m it was conditioned and X-rays reading was about 0.001 mGy/min. Initially X-rays onset was 15 MV/m, it did go up to about 20 MV/m after conditioning.
- Next steps: cavity C2 with a long pulse (coupler conditioning), then cavity C3.

Thank You !

