

FE induced radiation monitoring at KEK and plan for evaluation at J-Lab using MHI#10

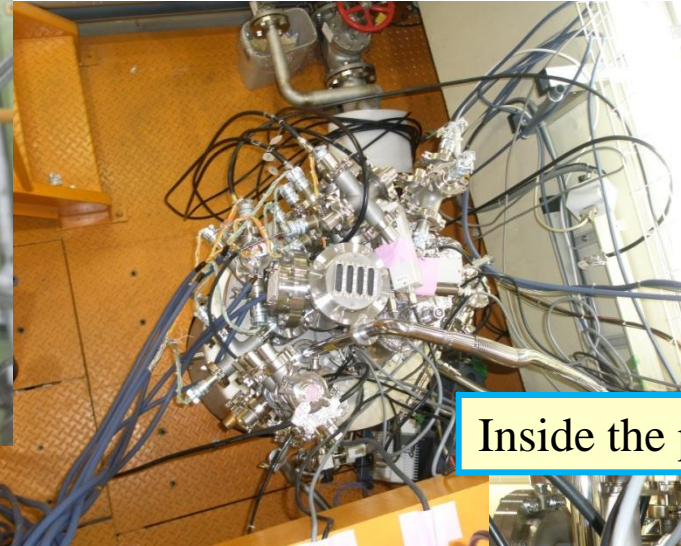
- ◆ Measurement method @KEK-STF
 - ◆ Radiation monitor
 - ◆ X-ray-mapping using PIN diodes
- ◆ Plan for J-Lab and KEK collaboration

Radiation monitor at STF

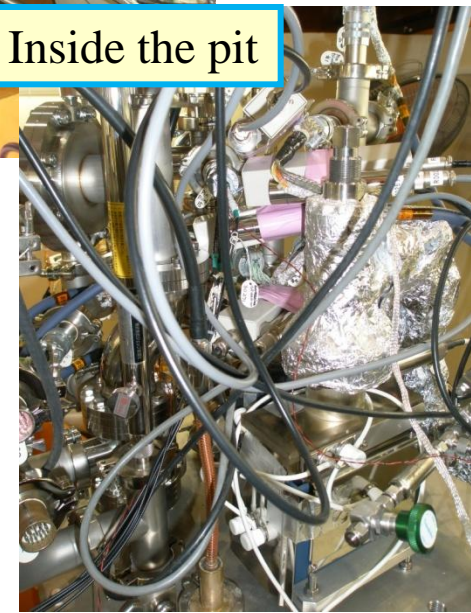
Final state at 4th V.T. for MHI#8

4 sets of two types of radiation monitors

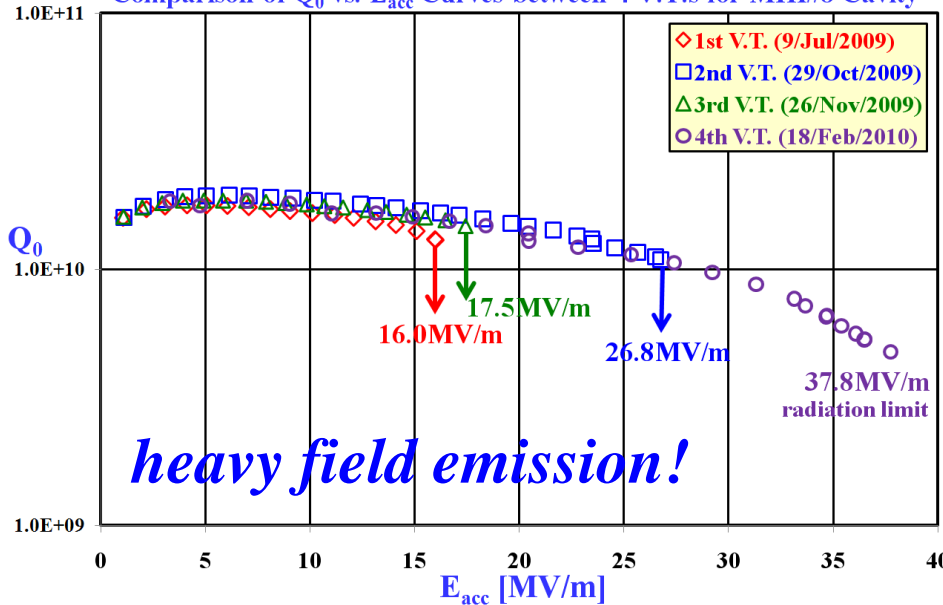
high sensitivity : 0.1~999.9 μ Sv/h
 low sensitivity : 0.01~99.99mSv/h



Inside the pit

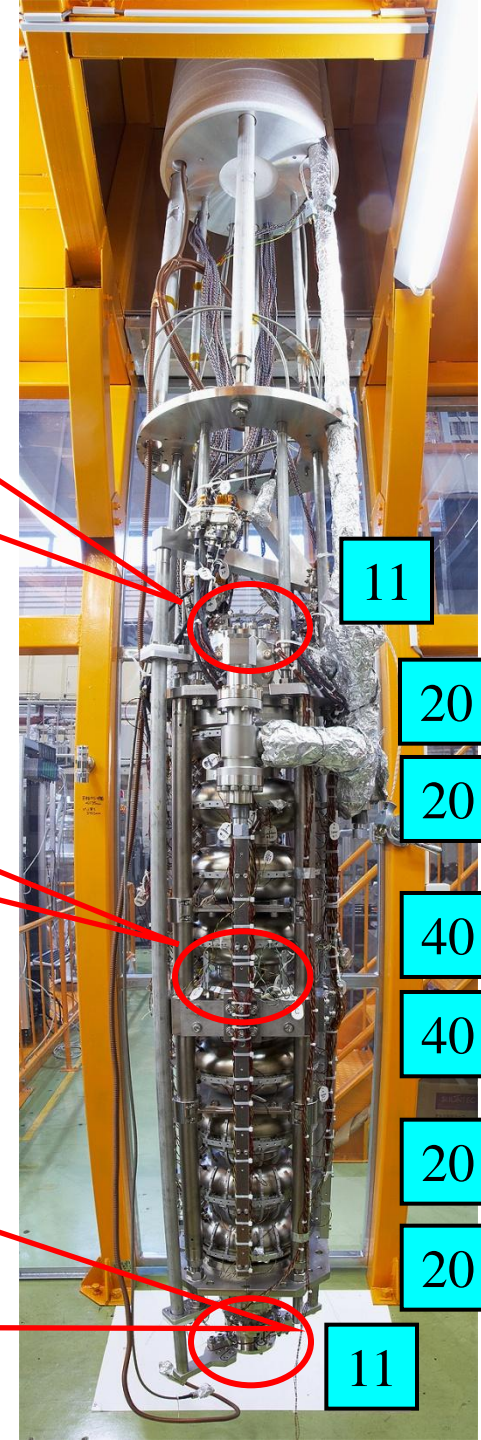
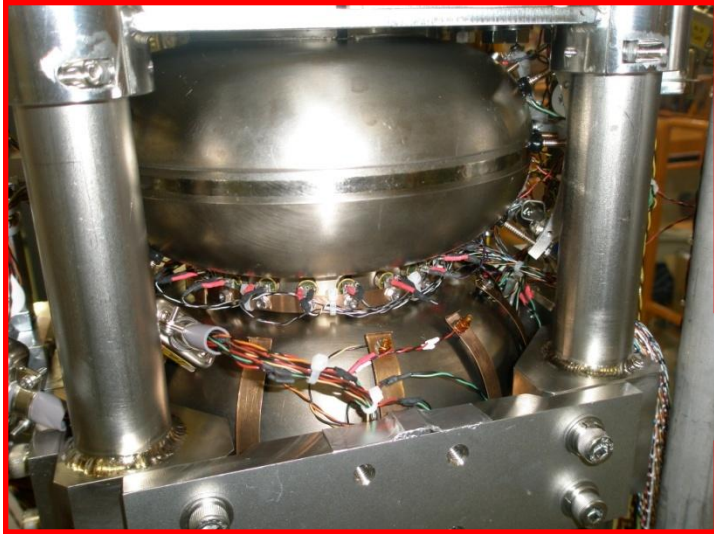


Comparison of Q_0 vs. E_{acc} Curves between 4 V.T.s for MHI#8 Cavity

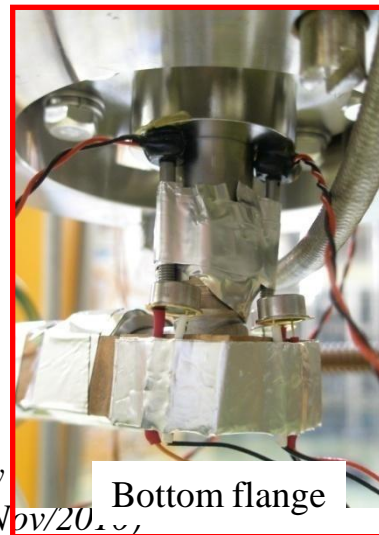


meeting by WebEx /2010)

X-ray-mapping system



20 PIN diodes are attached at iris between #1-#2, #2-#3, #7-#8 and #8-#9 cell.
40 PIN diodes are attached at iris between #4-#5 and #5-#6 cell.
At the iris between #3 and #4 cell, and #6 and #7 cell, they are not attached.

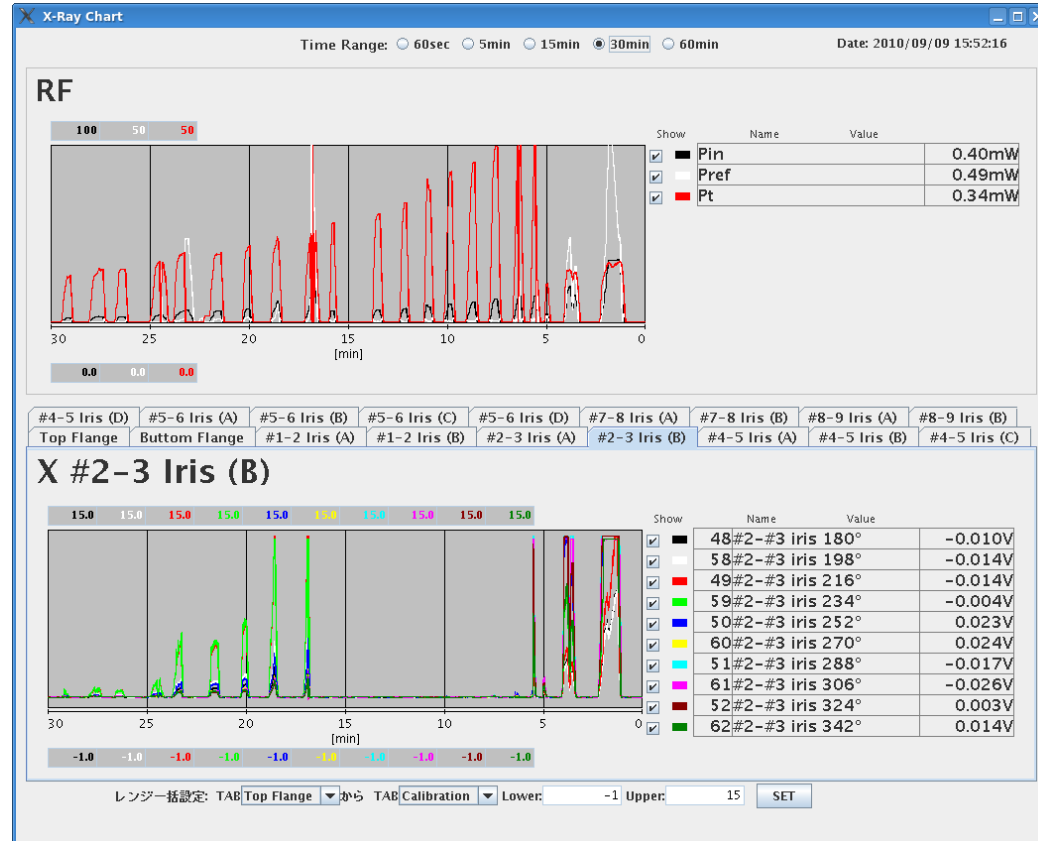
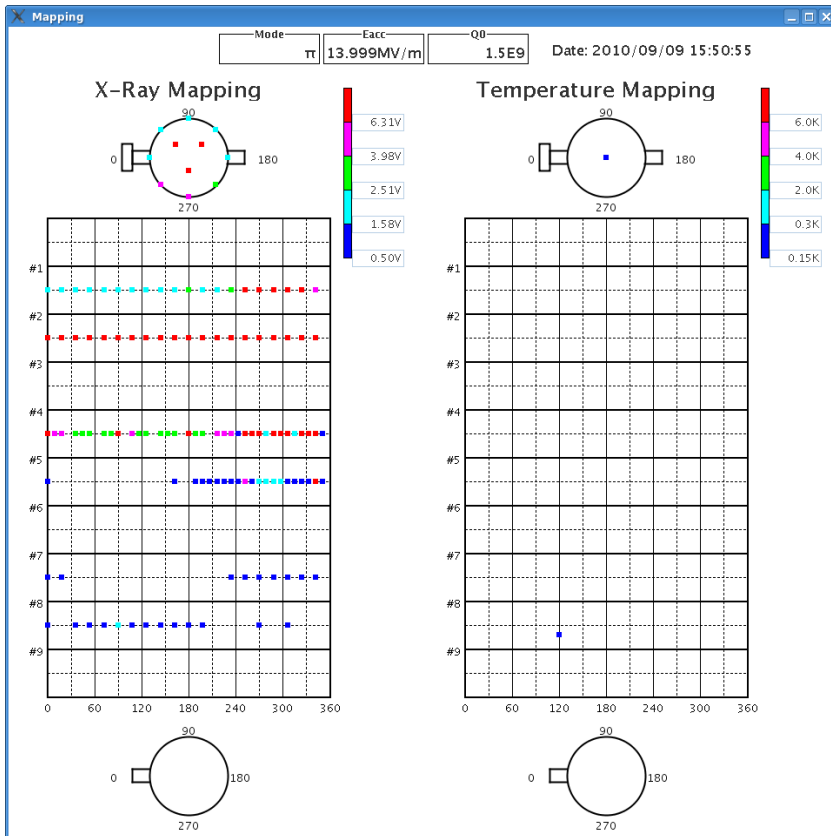


ILC S0 Cavity
(9/Nov/2011)

Totally 182ch PIN diodes
0.1sec sampling time

Online X-ray-mapping and T-mapping

Linux / EPICS



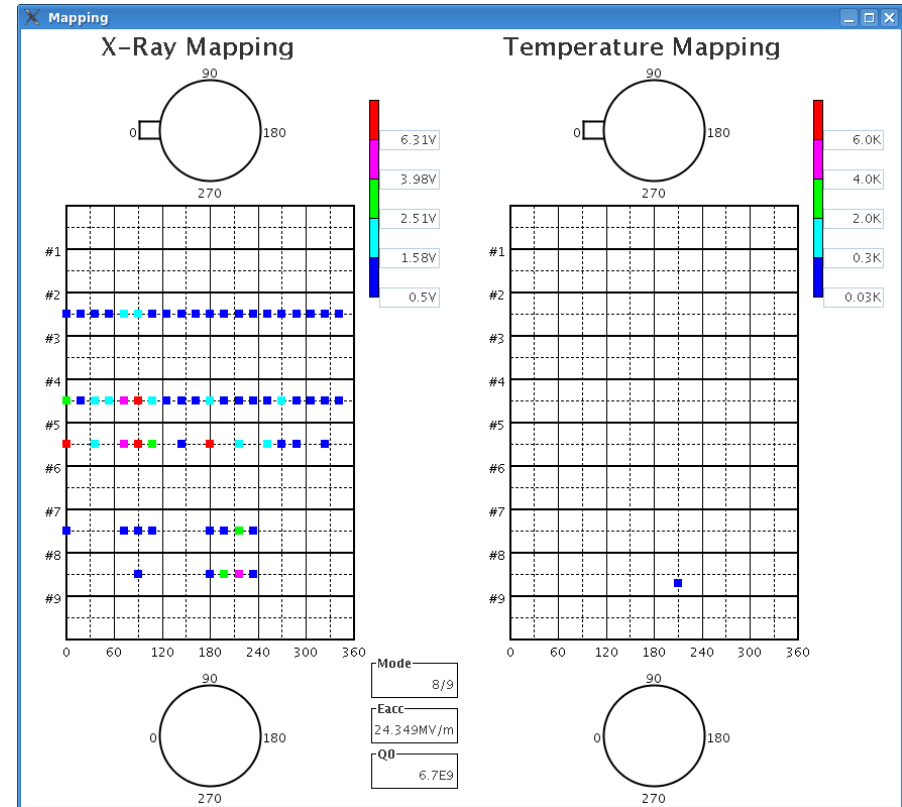
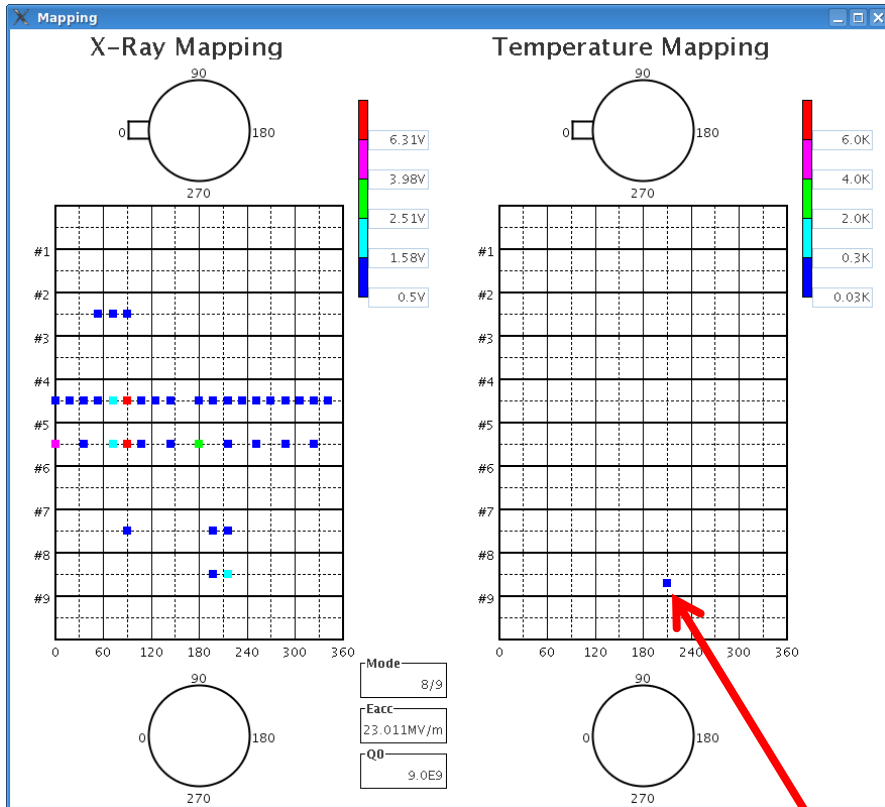
Online display is updated every 5 sec.

One example of X-ray-mapping

$8\pi/9$ mode at 3rd V.T. for MHI#9 (Dec/16/2009)

23MV/m

24.3MV/m

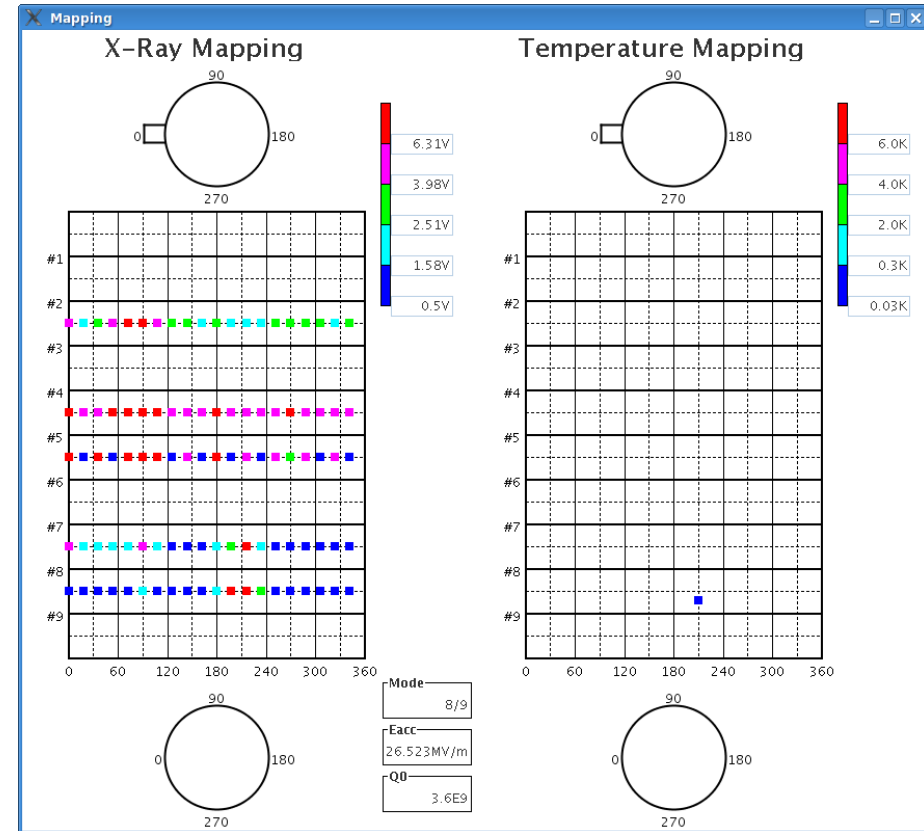
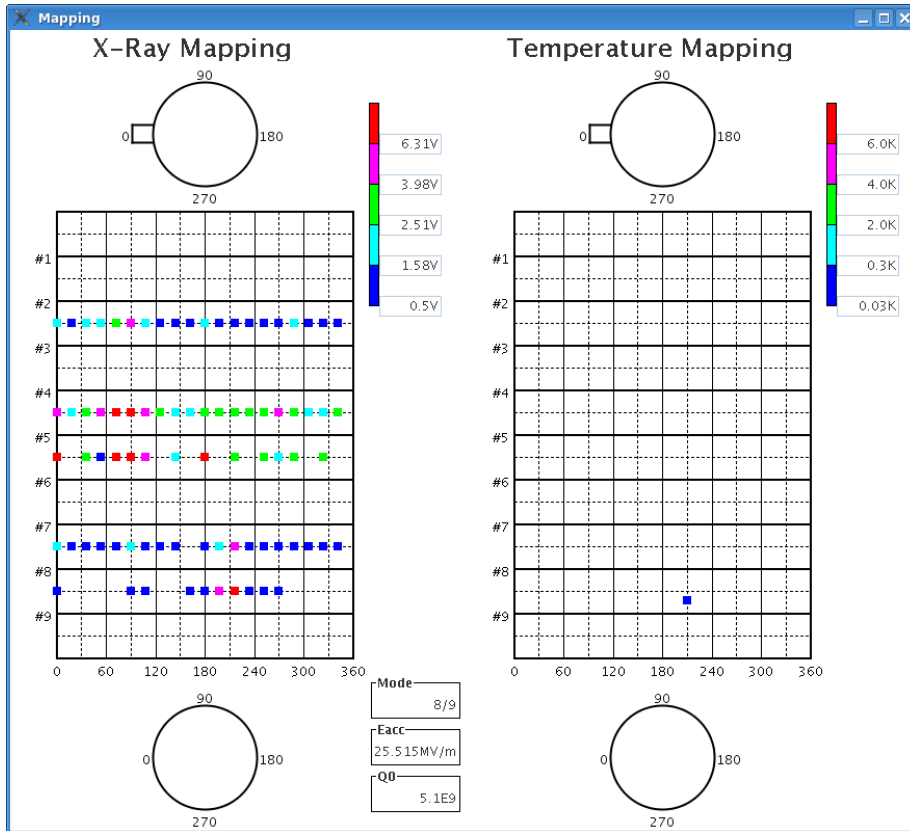


pre-heating

One example of X-ray-mapping

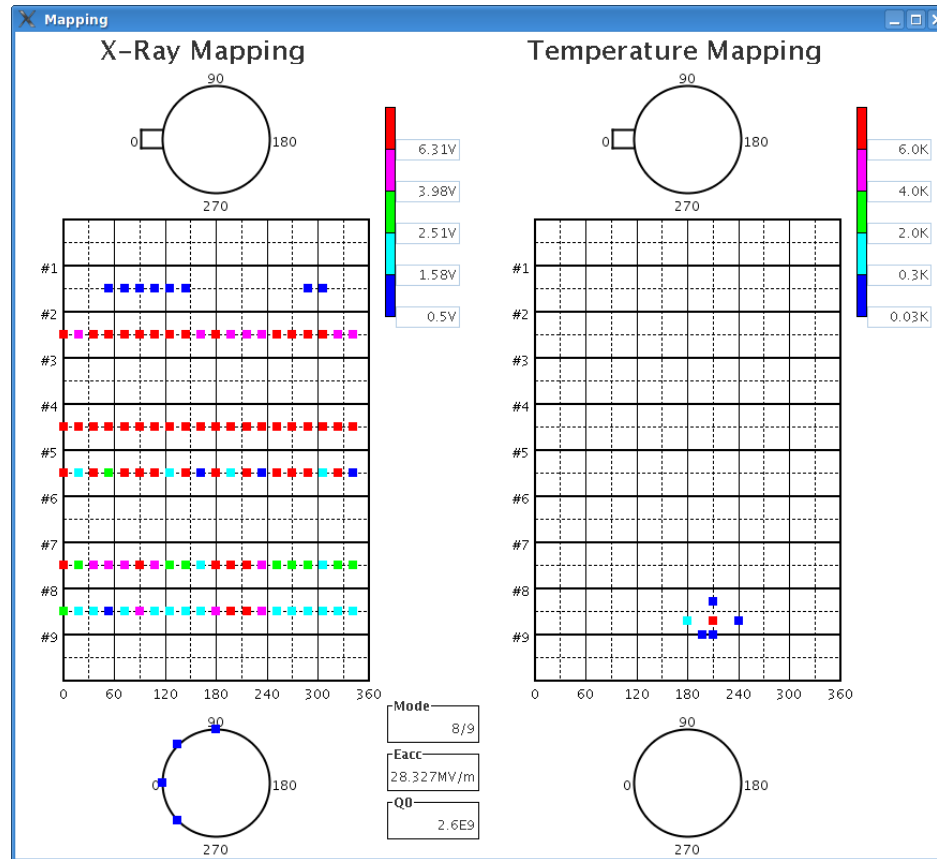
25.5MV/m

26.5MV/m



One example of X-ray-mapping

Quench field (28.3MV/m)



X-ray radiation monitors and sensors



We can compare the radiation level by using the same detectors at J-Lab. PIN diodes also..., but we have to prepare the amplifier.

X-ray monitoring system will be sent to JLab by a separated box, later.