

KEK status

Sep. 25, 2009

T. Higo

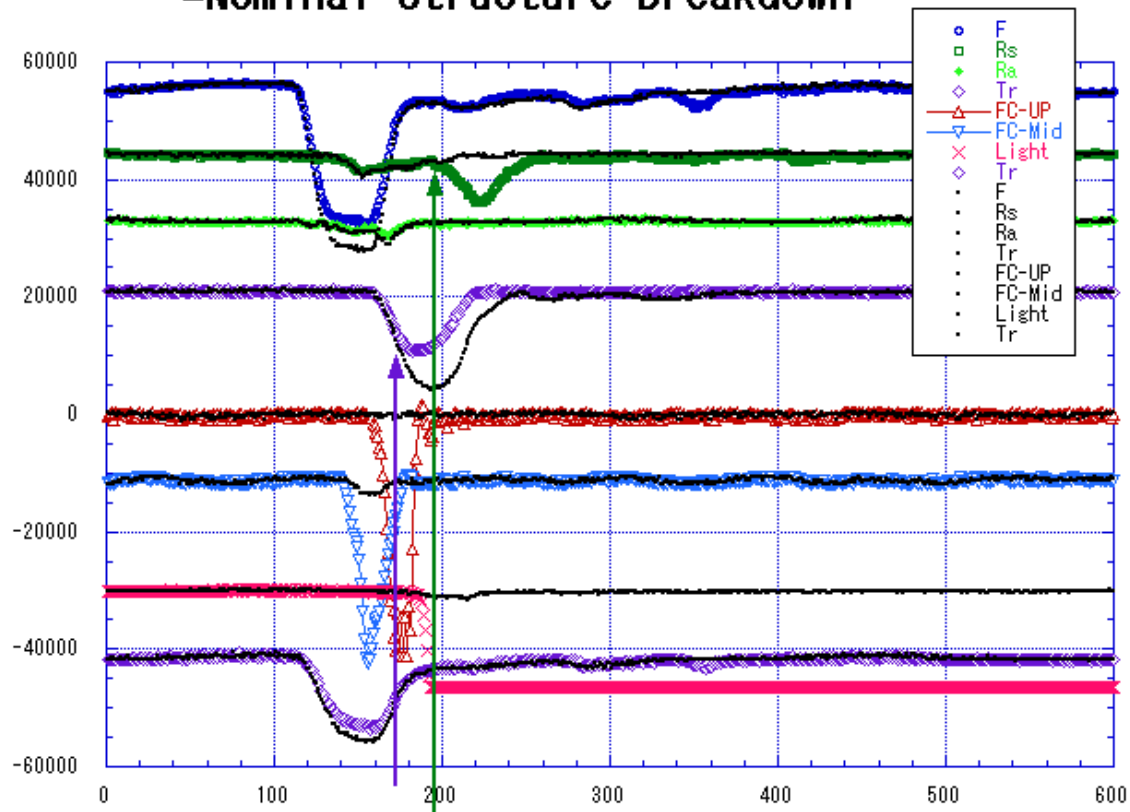
Contents

- Quad #5
 - Still being processed at 50ns, 12MW
 - To be discussed future step
- T18_Disk_#2
 - RF bead pull showed change
- Production of test structures

Quad #5 status

Processing being proceeded all with 50ns and 50Hz.

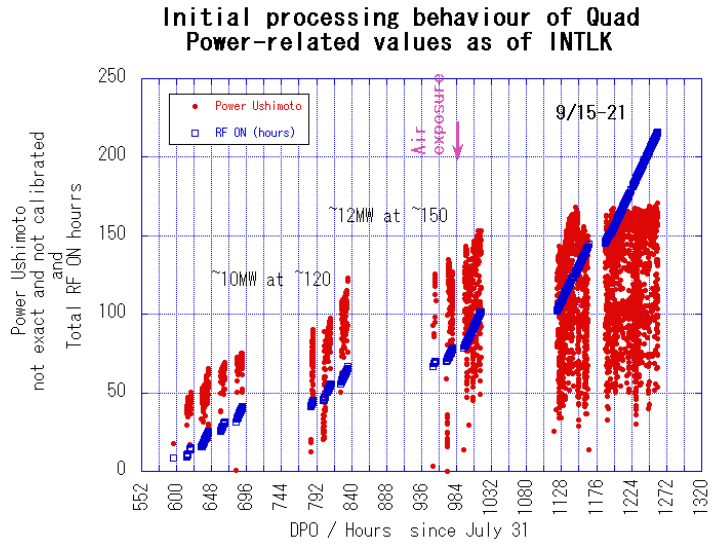
1002=20090920_041256_0&1
=Nominal Structure Breakdown



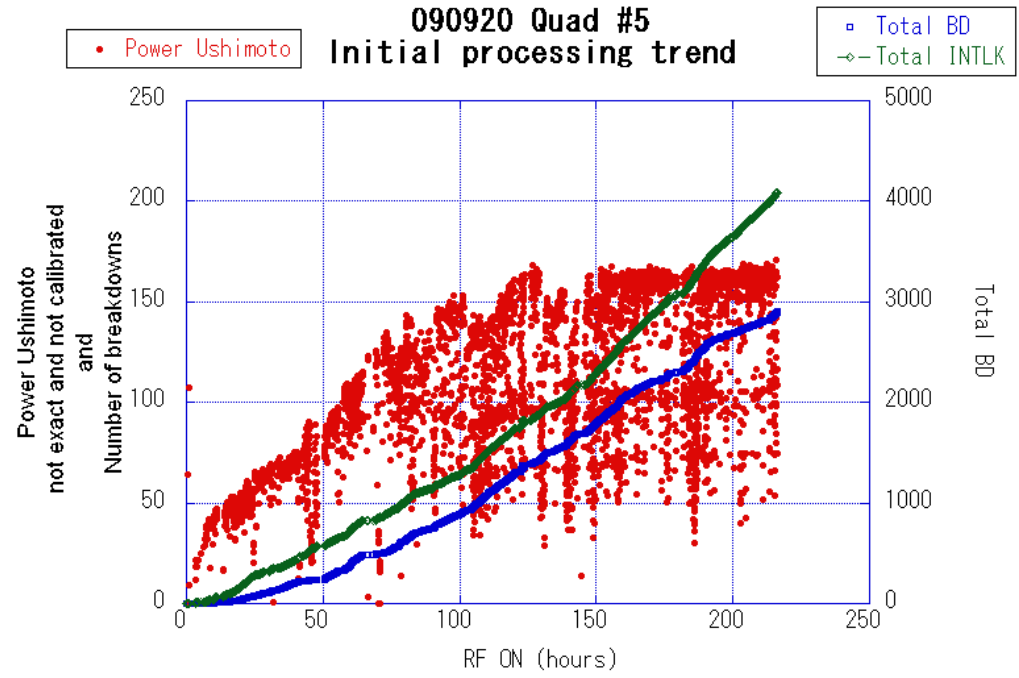
Determination of rise or fall time to be determined

Quad #5 status

090921



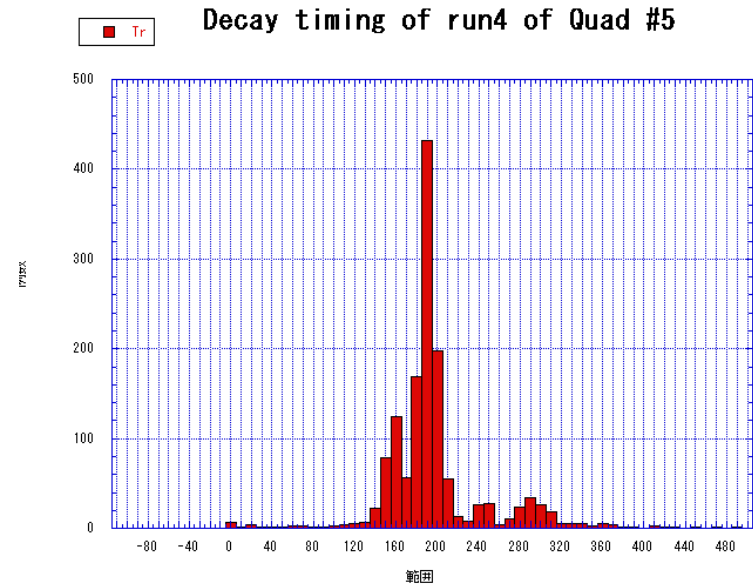
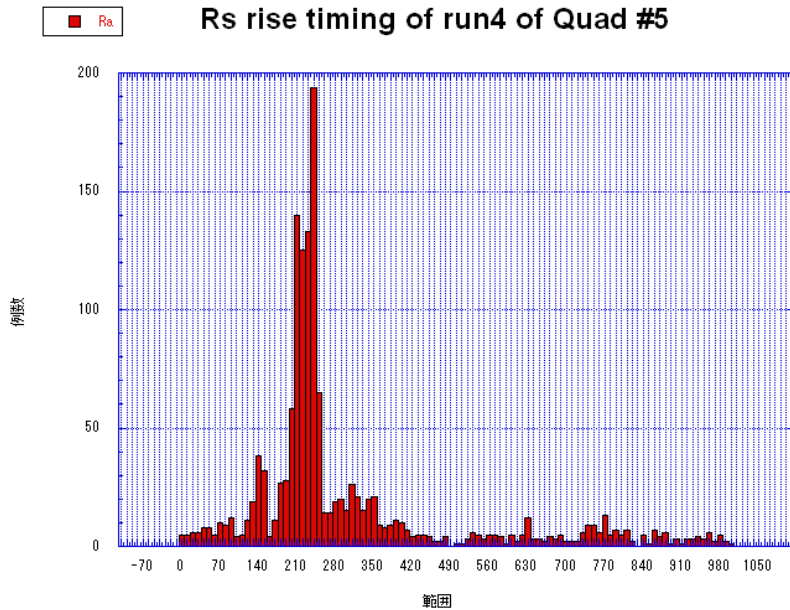
090921



Vertical axis (power) is still in arbitrary unit.

Seems hard region at around 12MW to overcome.

(Z,T) to be calculated



These are just for showing the present status of analysis.

These need to be verified well. Not cite these as a firm base for discussion.

Now trying to adopt CERN MatLAB code to analyse these by Matsumoto to obtain (Z,T) information of breakdowns.

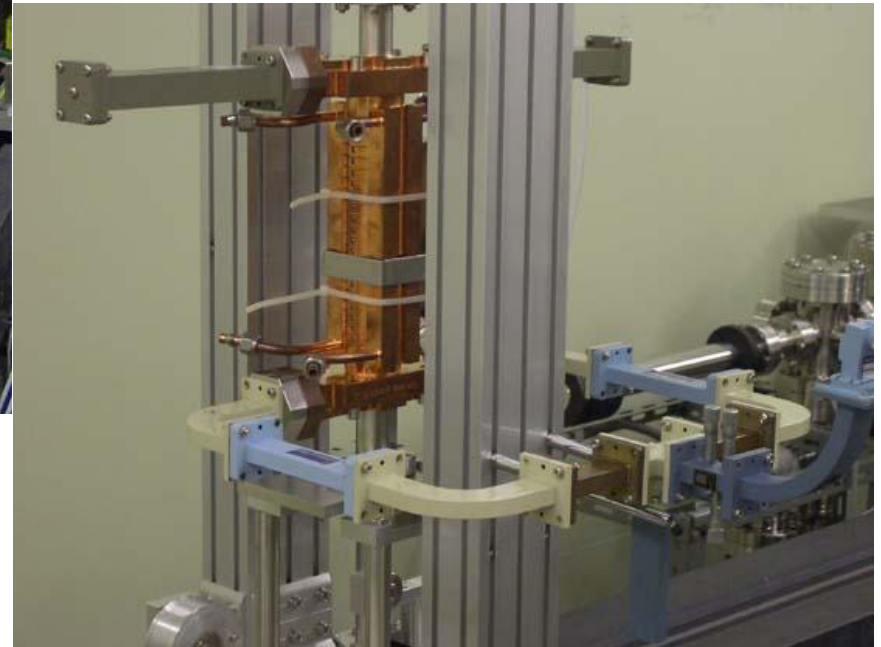
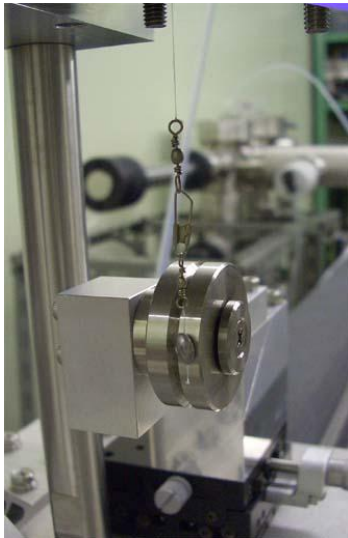
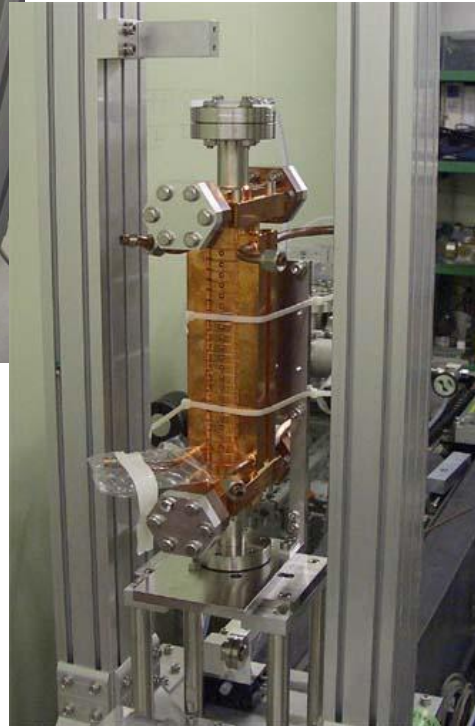
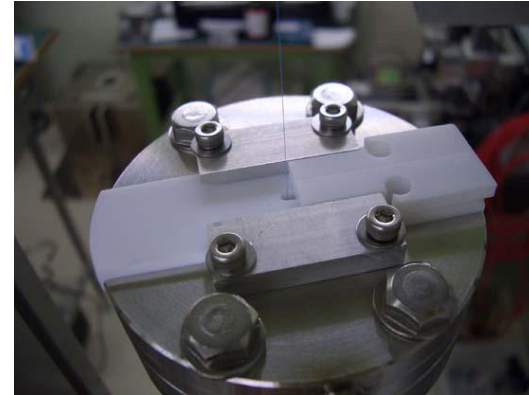
The next step?

- Preparing Q-mass
 - Check gas at base, at a few MW, at BD, etc.
- Stop and
 - Optical / mechanical inspection KEK
 - SEM? at SLAC or CERN?
 - Cleaning or etching?
- Any proposal is welcome

T18 bead pull

- N5230A: TRL calibrated
 - IF = 1kHz, #pts=3
- HP VEE program
- Step 0.2mm over 300mm
- N₂ flow ~2 liter/min
- Surface temperature = 22.7C
- Circumference
 - air temperature = 22.2C, Humidity = 42%

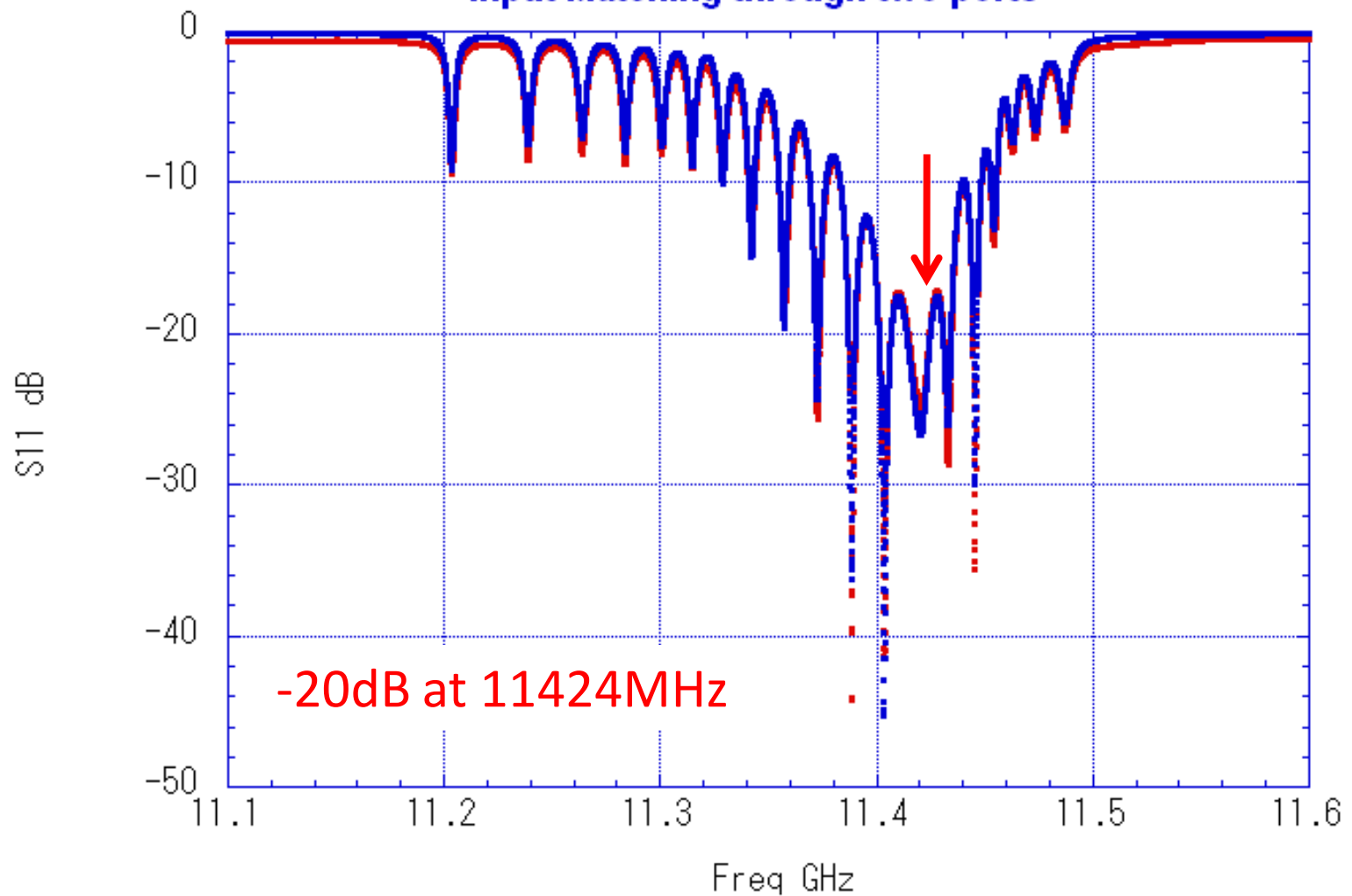
Bead pull Setup



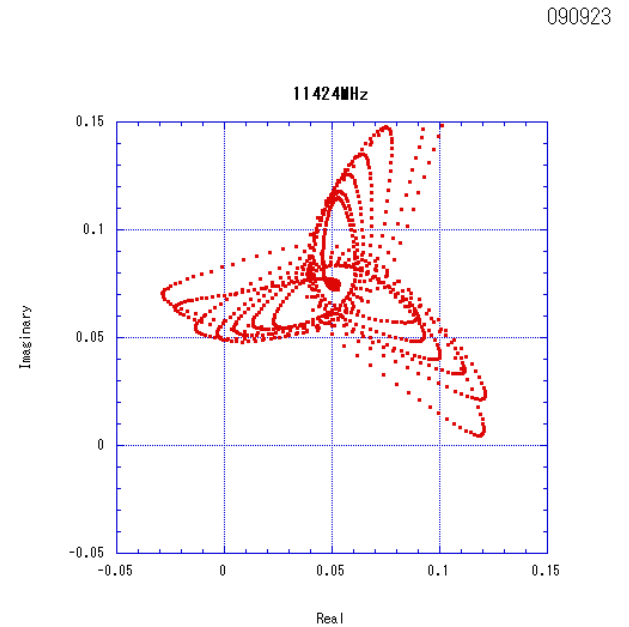
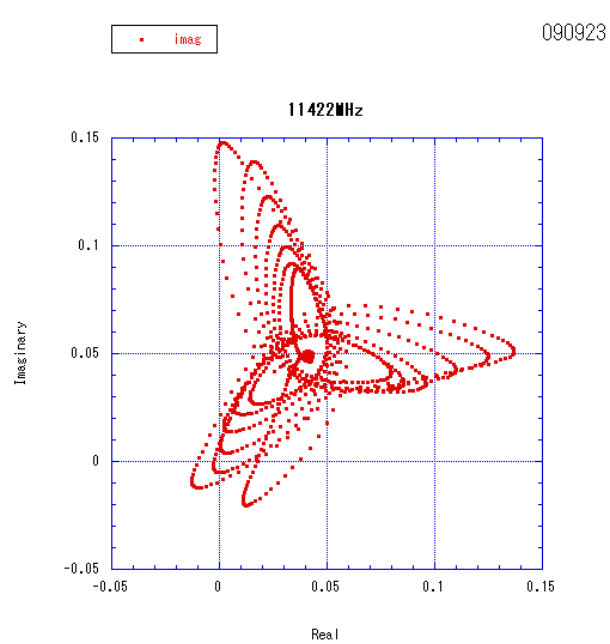
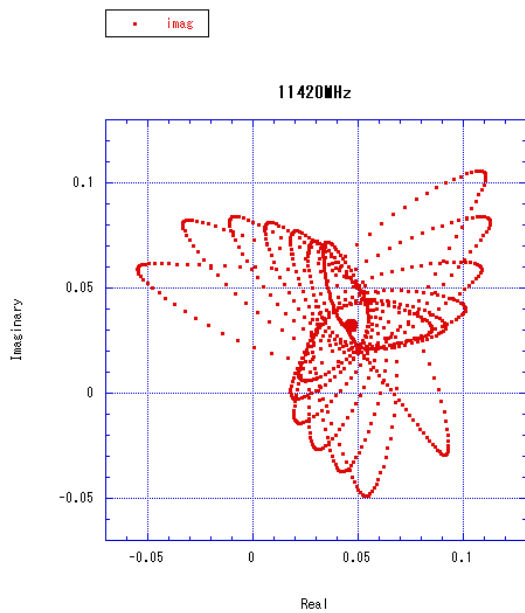
T18_disk #2 input match after High Gradient Test

Input Matching through divider with magic tee

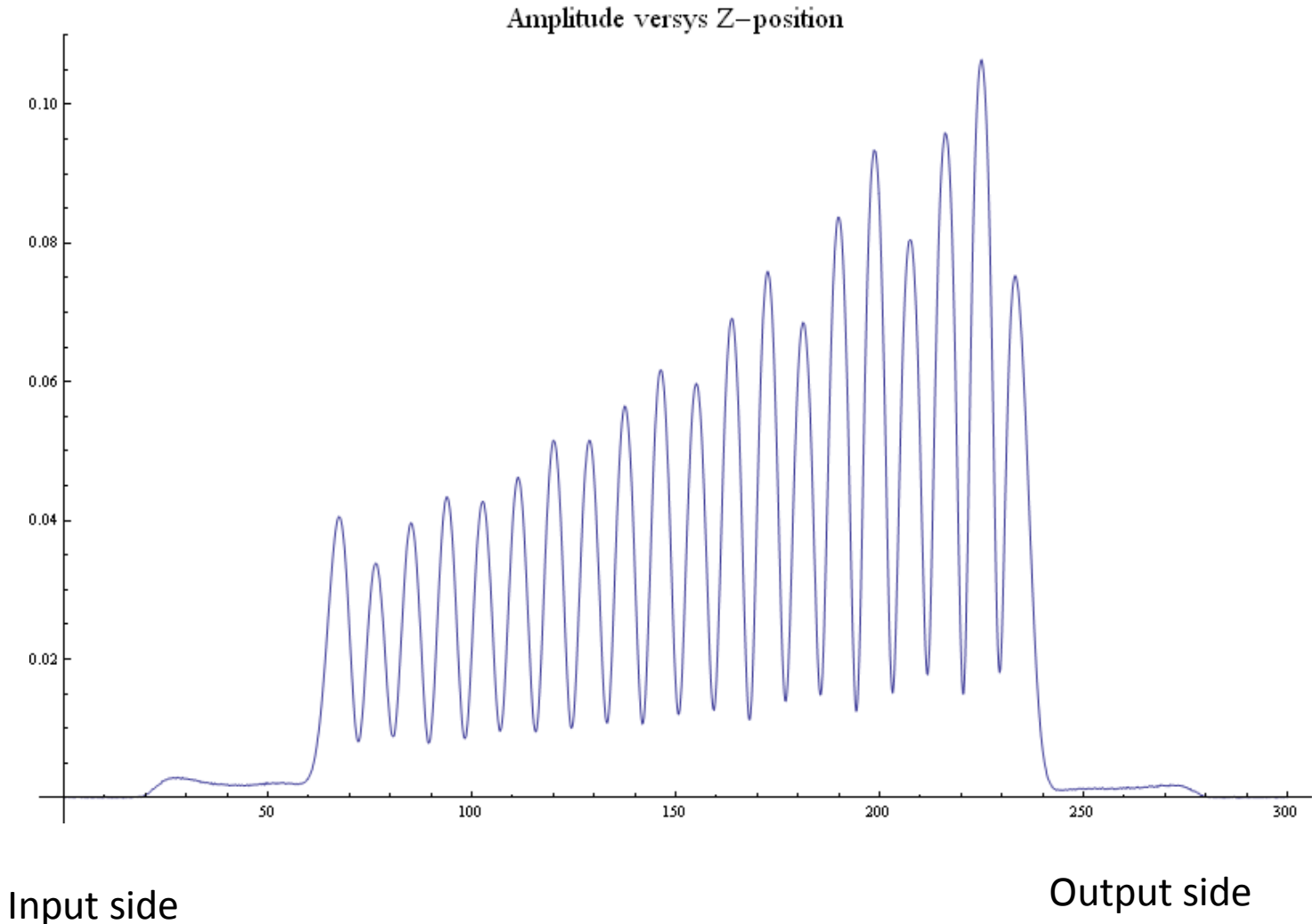
Input Matching through two ports



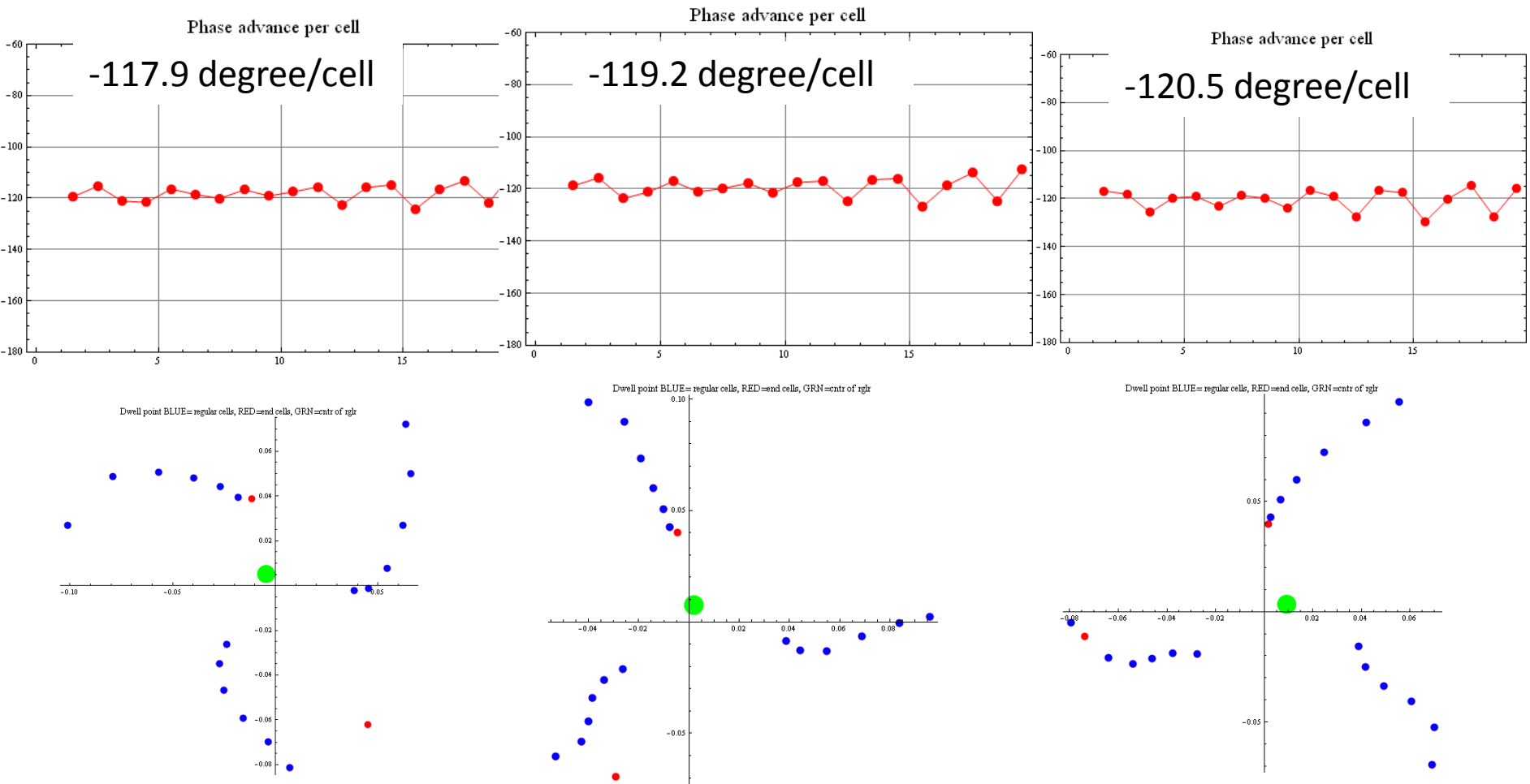
Bead pull raw data on Sep. 23



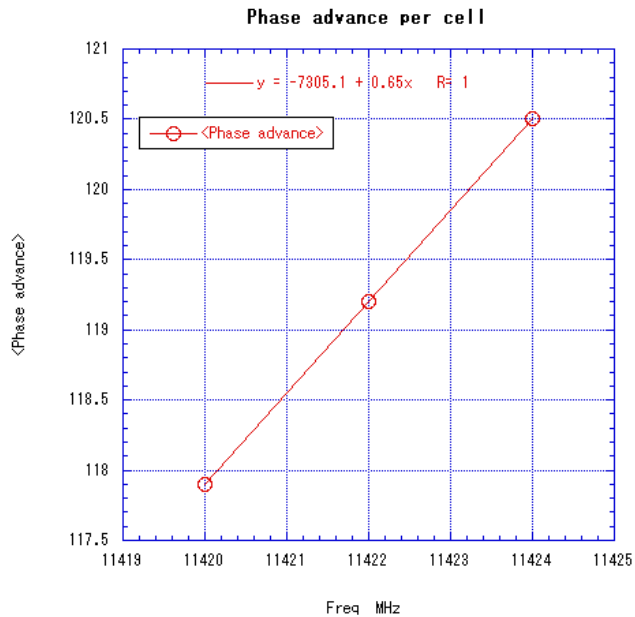
Bead pull amplitude plot 11422MHz



Dwell points



Phase advance per cell



Condition

at 22.7degC in Nitrogen

Bead pull result:

11423.2MHz \rightarrow 120deg/cell

delf 22.7 \rightarrow 30C -1.38MHz

delf N2 \rightarrow VAC +3.12

Total delf = 1.74MHz

The structure now shows

120deg/cell at 11424.9MHz

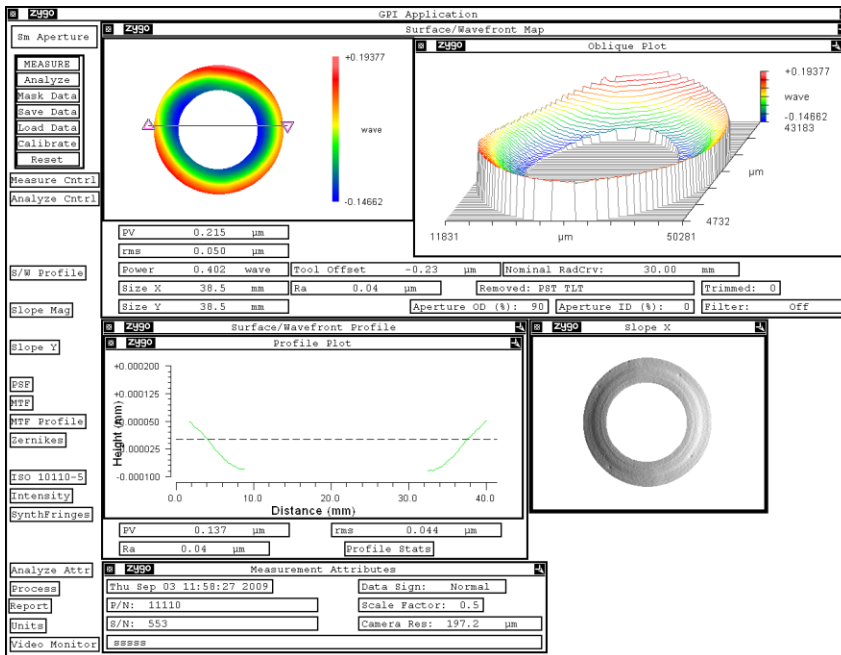
Test structure fabrication

- C10
 - Cells were delivered to KEK
 - Flatness and others seem OK
 - Other parts are to be fabricated
- CD10
 - Now in test production of cells by the company
- T24
 - After CD10, and waiting for CERN money to actually start contract-related process of KEK
- TD24
 - After T24
- Schedule
 - All should be finished by the end of this year.
 - Detailed scheduling should be tuned with SLAC and CERN.

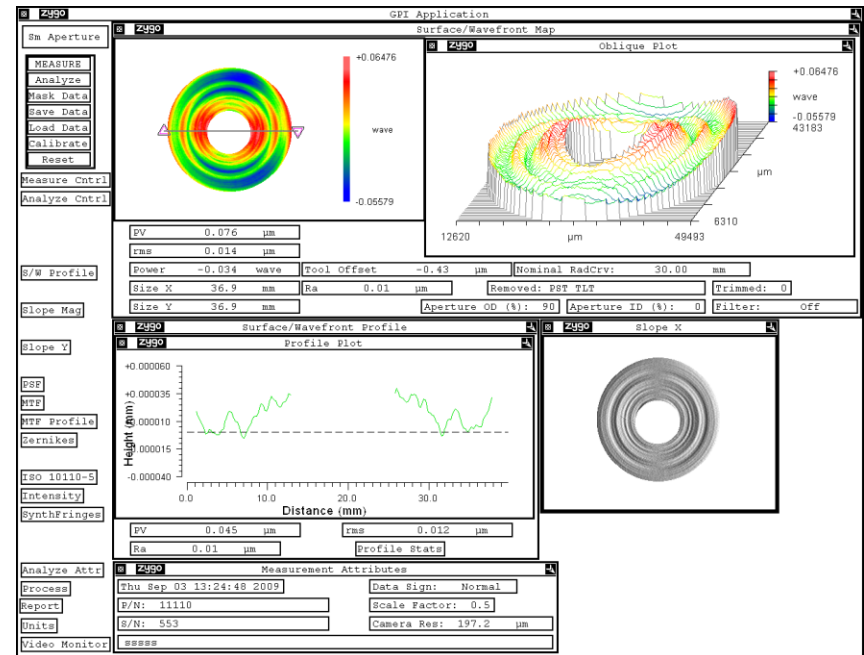
C10 REGULAR CELL 11R08

Typical flatness is 0.3 micron or better. We accept all.

The following example is one of those sitting worse side edge, still OK.



Cup side
0.215



Disk side
0.076