# Six cavity test 5.

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<u>Outline:</u>

- Layout with 1.9" inserts between cavities and the RFQ vane to first quad center spacing of 261 mm
- Output energy increased from 2.8 MeV to 3.13 MeV
- The same without acceleration
- The same with acceleration of zero current beam
- The same without acceleration of zero current beam
- First estimation of sensitivity to quadrupole misalignment
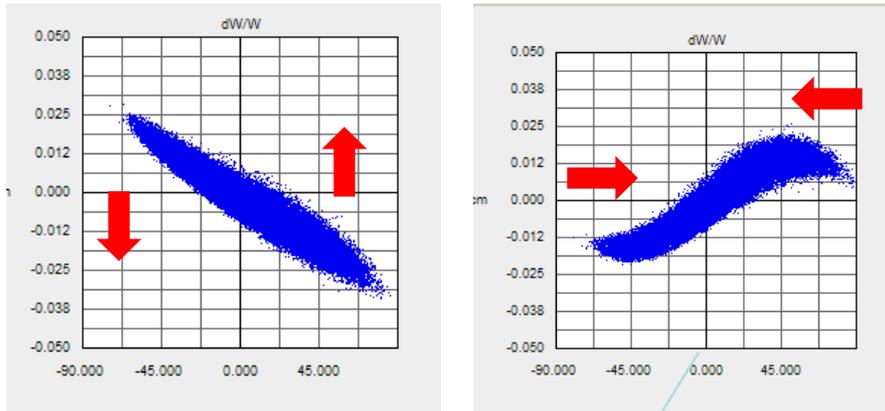
Changes in layout, 10/07/2009
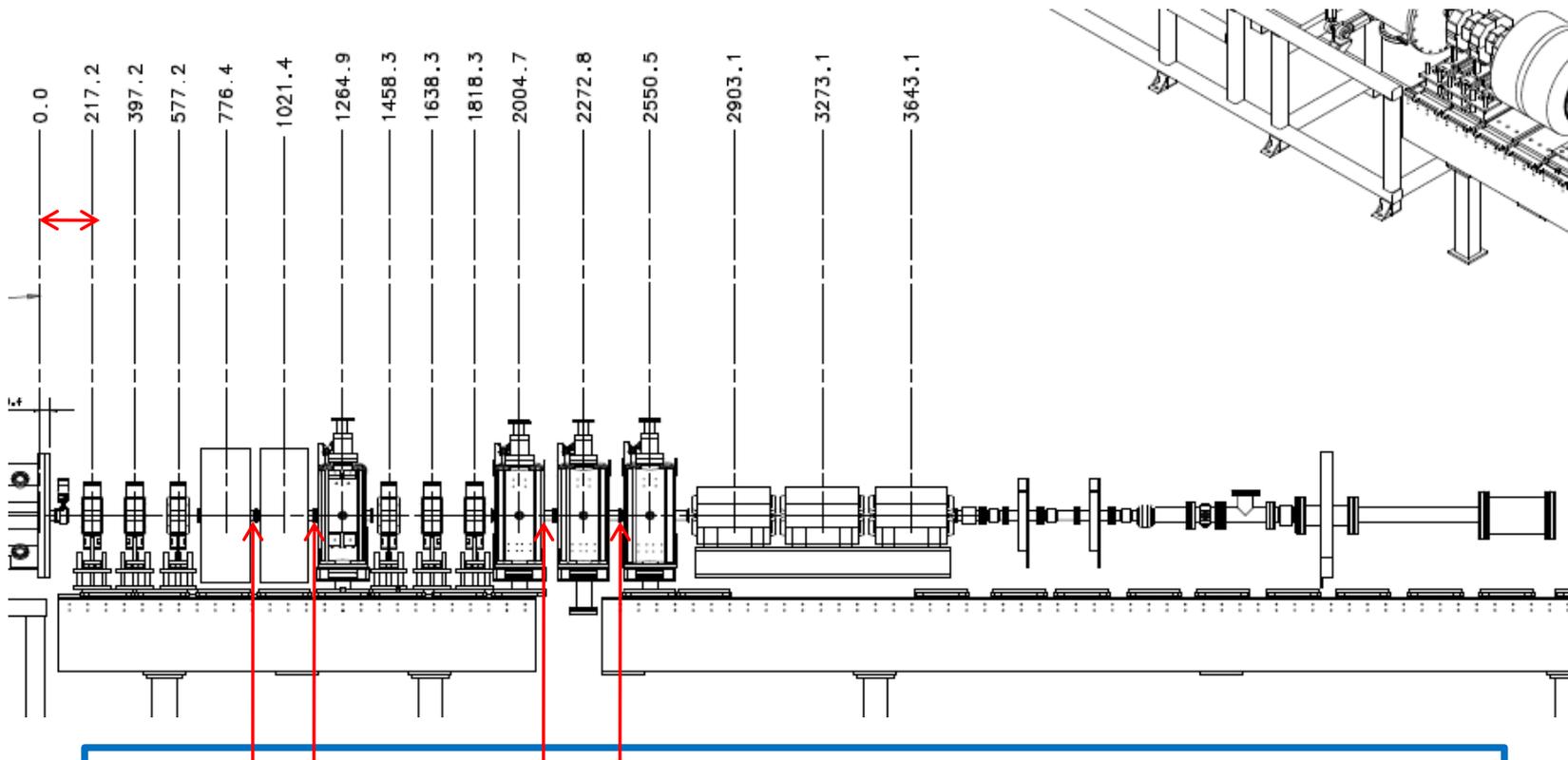
Iter.5: The spaces between cavities increased from 1.5" to 1.9",
Distance from vane tip to first quad center increased from
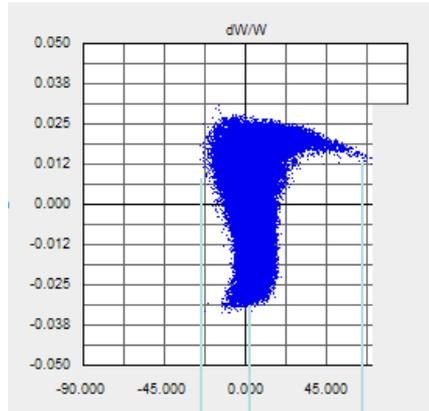217 mm to 261 mm
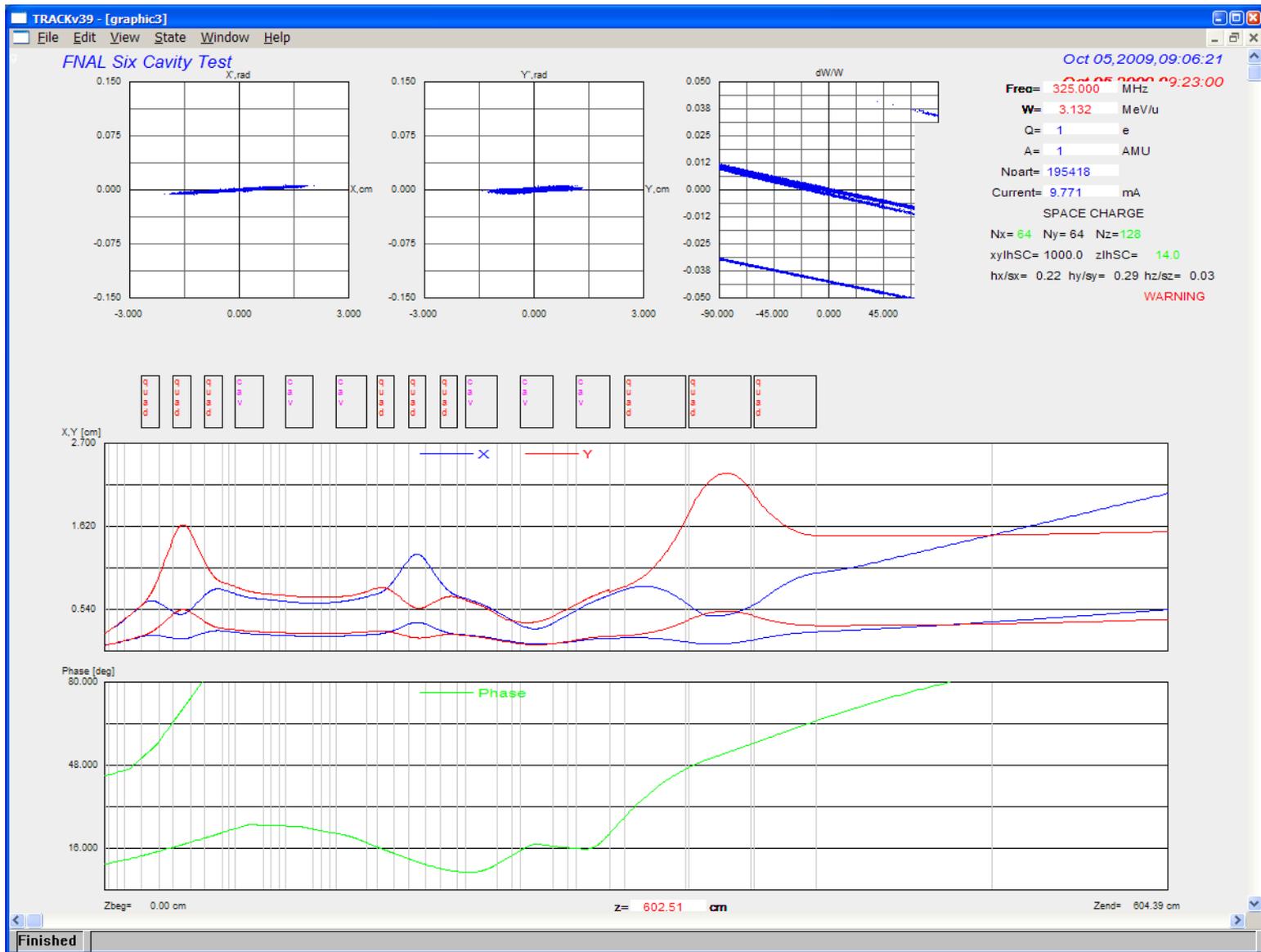
I=10 mA, dW=0.632 MeV (Wout=3.132 MeV), transmission 99.998%

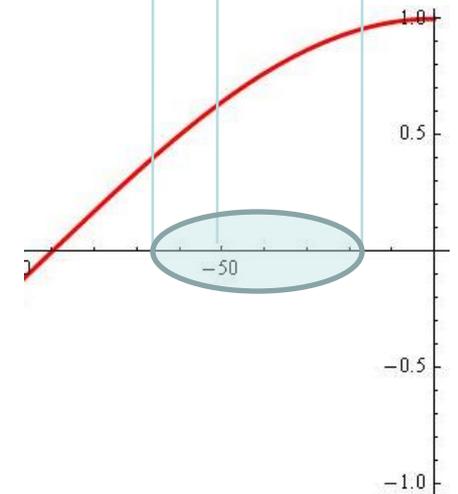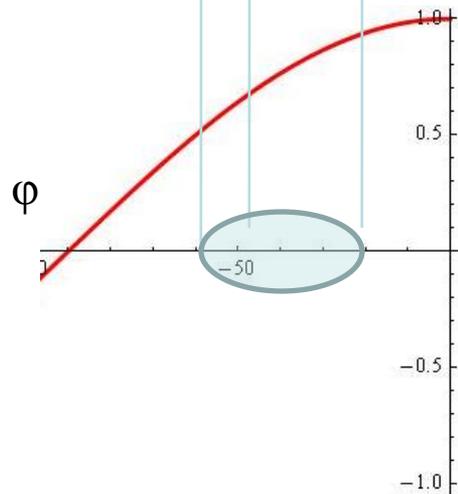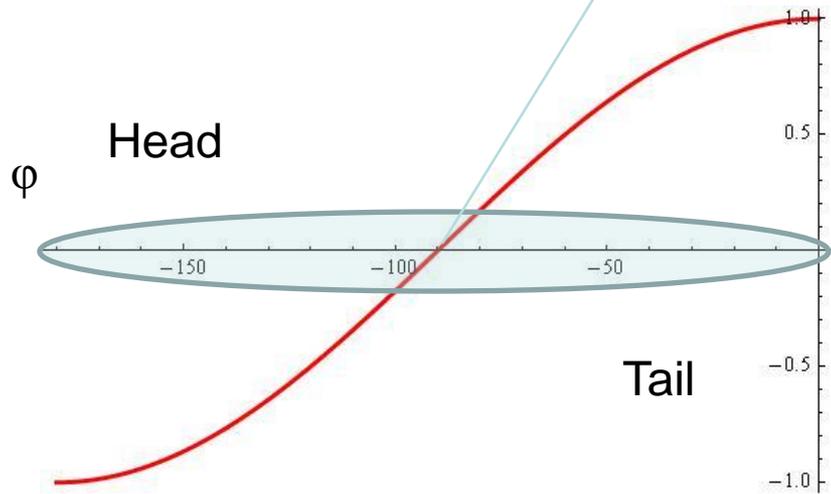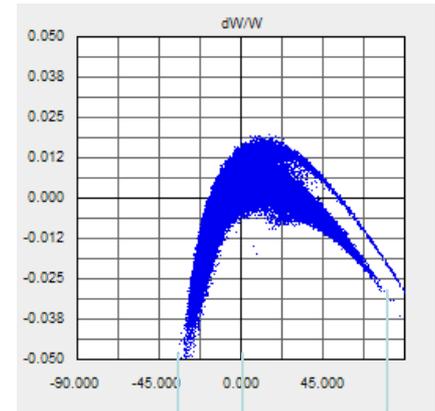Before first re-buncher   After first re-buncher   Before CH3   Before CH4

Head

φ

Tail

φ

Quadrupole	Gradient T/m
HE 1	12.14
HE 2	-15.5
HE 3	9.0
HE 4	-7.3
HE 5	12.14
HE 6	7
MI 1	2.5
MI 2	-2.7
MI 3	1.4

Cavity	Power, kW
Buncher 1	0.7
Buncher 2	0.2
CH 1	0.3
CH 2	5.2
CH 3	8.15
CH 4	**15.6**

For CH 4 nominal design power is 10 kW.
Can we do 16 kW?

Variant	Transmission, %
I=0, dW=0	99.95
I=10 mA, dW=0	99.93
I=0, dW=0.6 MeV	100

Sensitivity to quadrupole misalignment

Just started. Three seeds with random displacement of quadrupoles
and their random tilts have been simulated. Amplitude of x,y displacement
was 1 mm, maximum tilt was 0.7 mrad. Transmission was 93%, 73%
and 24%. Obviously, in the last case the beam was just pushed off the
 axis.
May be for our short beam line a consideration of individual quadrupole
lens misalignments would be more appropriate and informative.