

Improvement of Nb surface quality with electro-polishing

(pioneering work done at KEK)



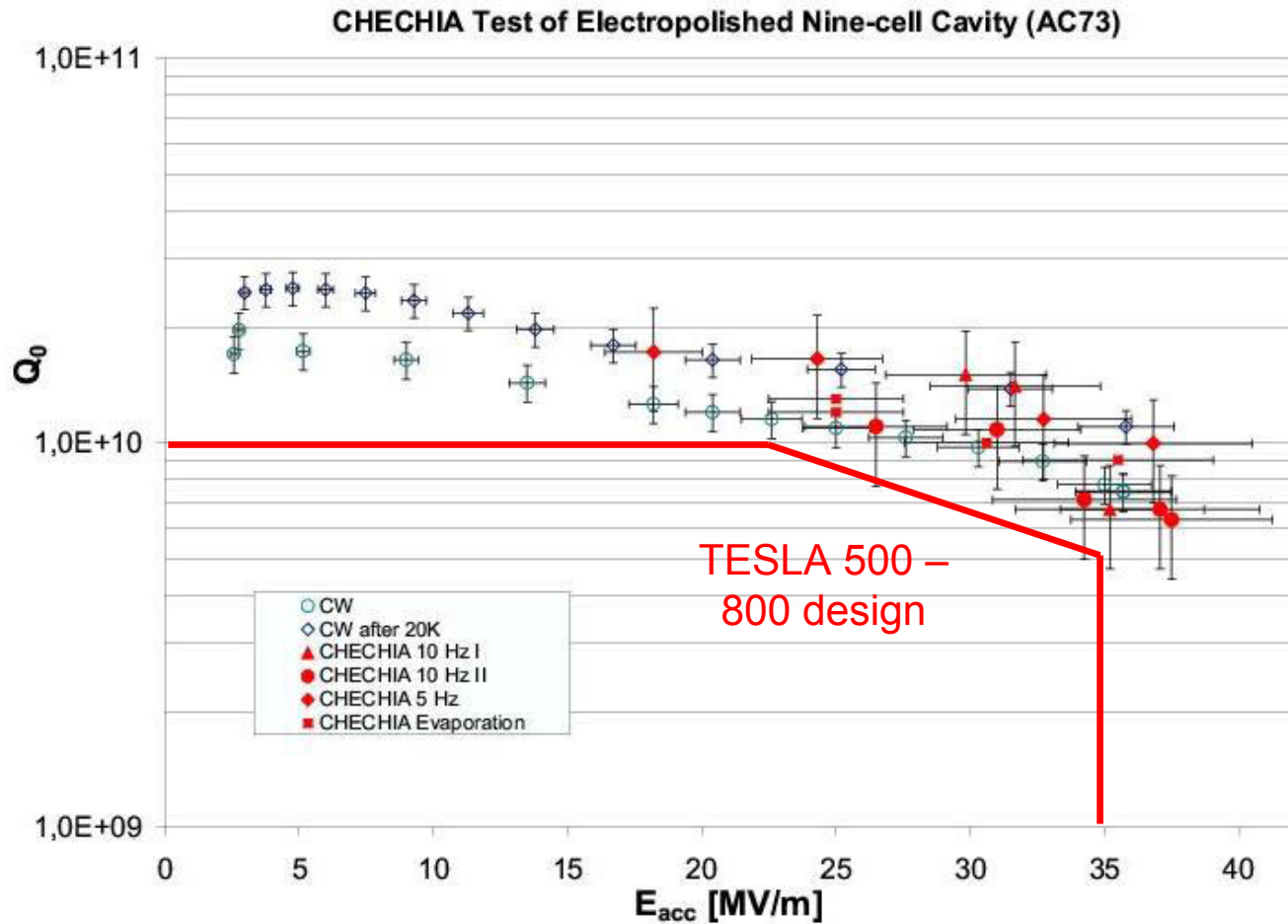
BCP

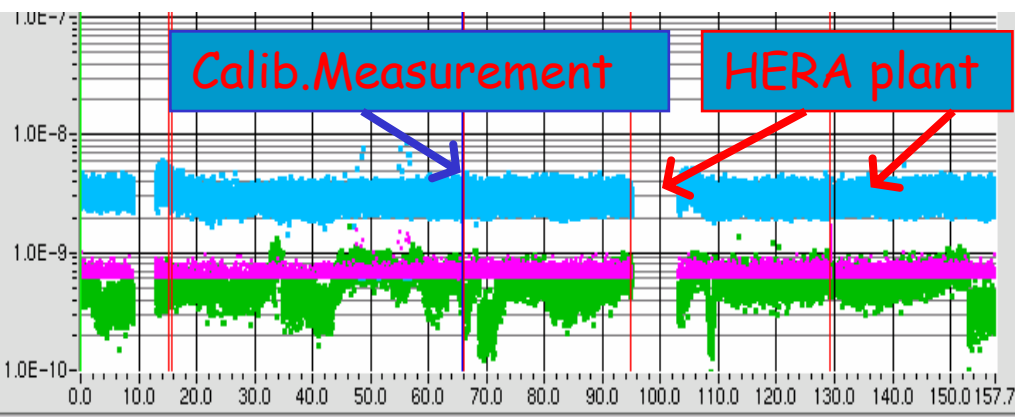


EP

- Several single cell cavities at $g > 40$ MV/m
- 4 nine-cell cavities at ~ 35 MV/m

CHECHIA test in pulsed mode

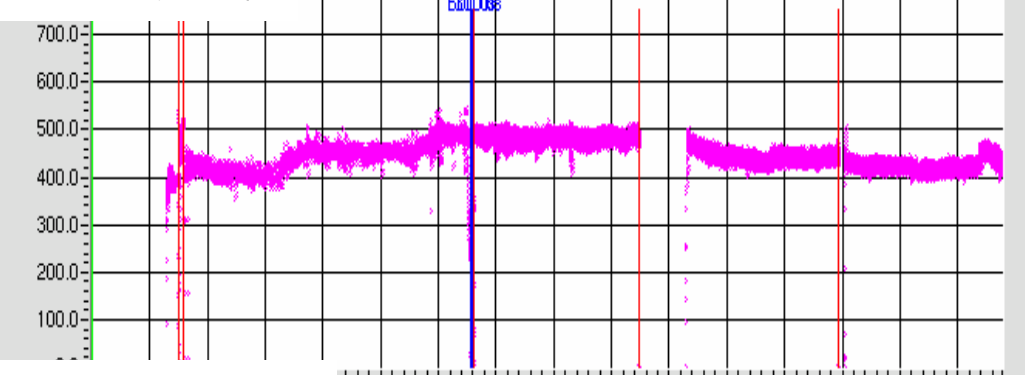




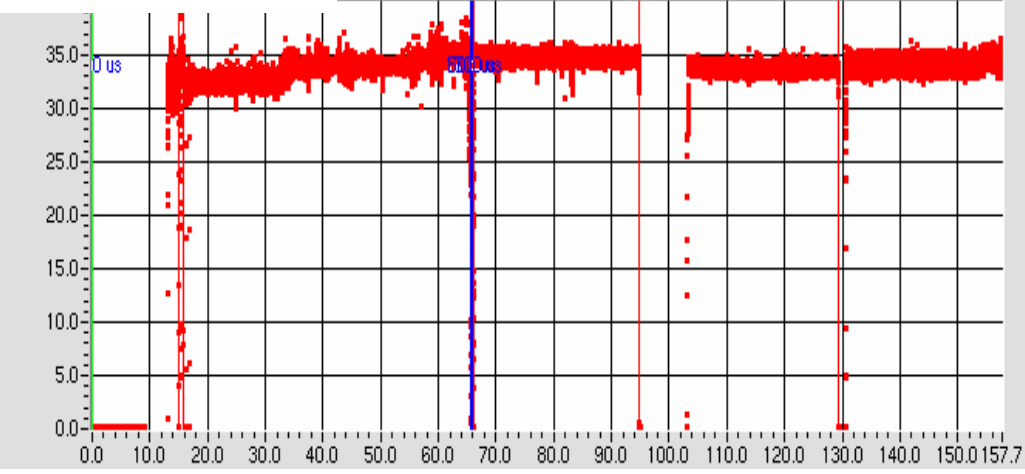
High Power Test of a complete EP nine-cell cavity

- 1/8th of a TESLA cryomodule
- 5 Hz, 500 μ s fill, 800 μ s flat-top
- **35 +/- 1 MV/m** with no interruption related to cavity-coupler for more than **1000** hours
- **36 +/- 1 MV/m** with no interruption related to cavity-coupler for a few hours (30 +)
- No field emission upto 35MV/m, small FE > 35 MV/m
- Active compensation of Lorentz force detuning operational for more than 500 hours
- Interruptions due to
 - cryoplant (HERA shutdown, TTF restart)
 - RF system (power jumps, problem with old LLRF system +modulator)

Power/kW



Eacc/MV/m



target

max

pcou

target

pcavity_mass2

Power / kW

pforw

Eacc / MV/m

eacc