

News of 500 MHz rf activities at DESY.

Overview of different works during PETRA III shutdown



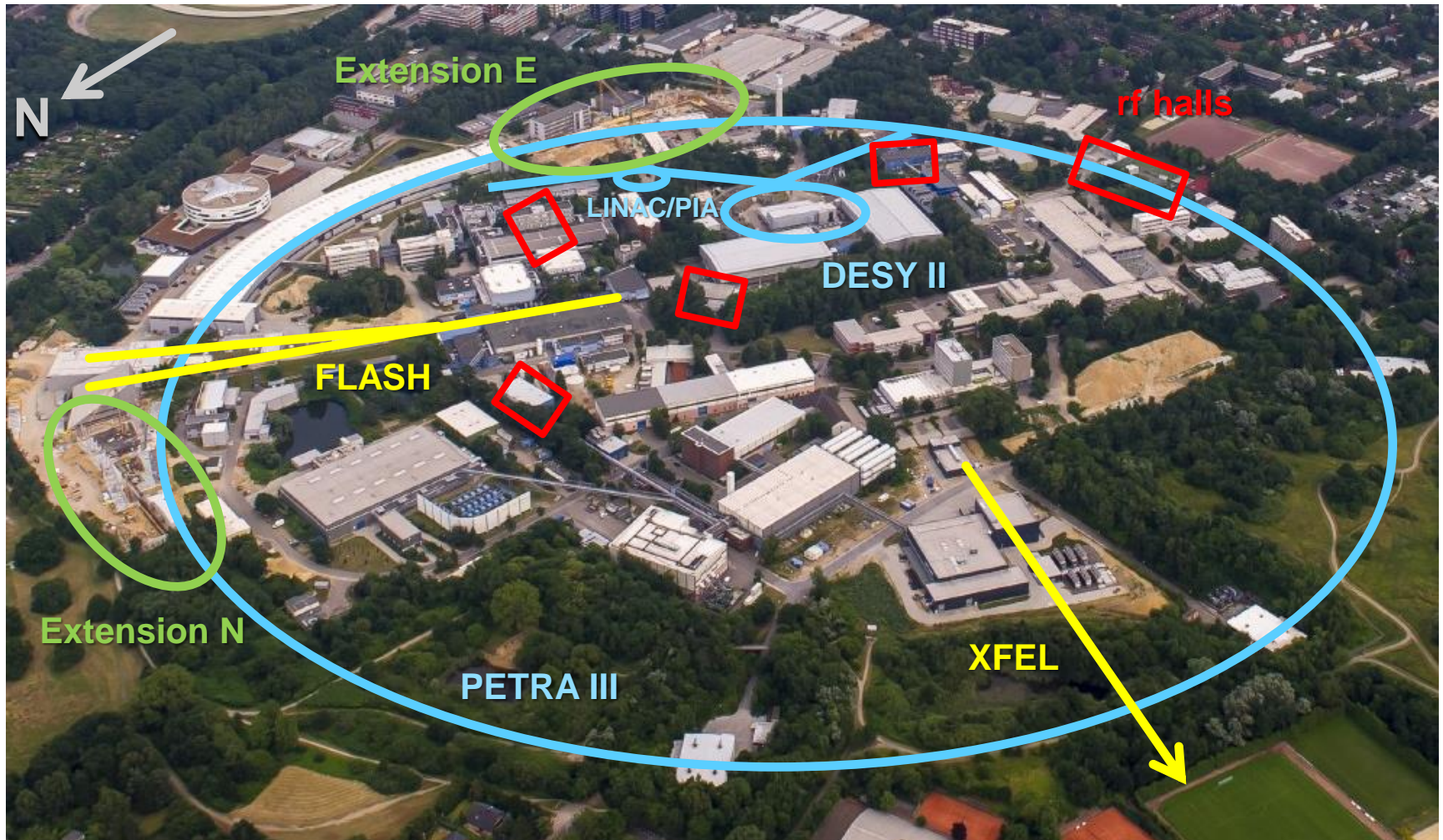
Stefan Wilke, DESY MHF-e
18th ESLS RF workshop
Dortmund, 2014-09-17/18

main topics.

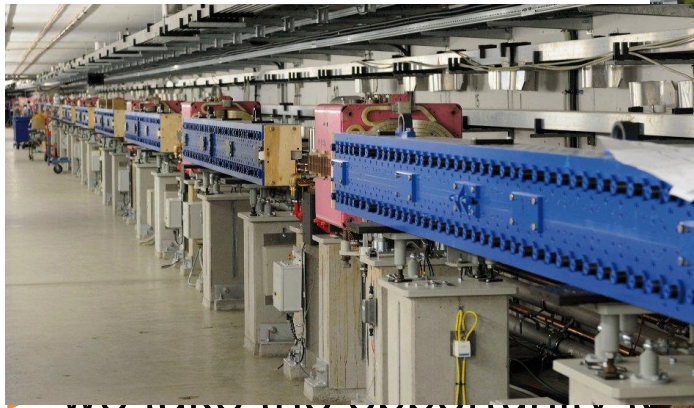
- > many constructions sites, PETRA III shutdown: two extension buildings
- > new transmitter DESY south
- > reuse of a DORIS transmitter for future cavity tests
- > verification of 2. CPI IOT prototyp (1.3 GHz, 100 kW cw)



locations.



- Shutdown since february 2014
- 10 new beamlines



- We take the opportunity to
- update controls
 - change 2 of the 4 klystrons
 - better plungerposition?
 - cavity teststand

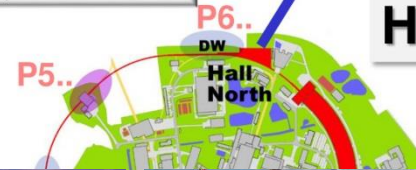
Hall North

North

- o long straight with damping wigglers
- o 4 straight sections (2m) in the arc



Hall East

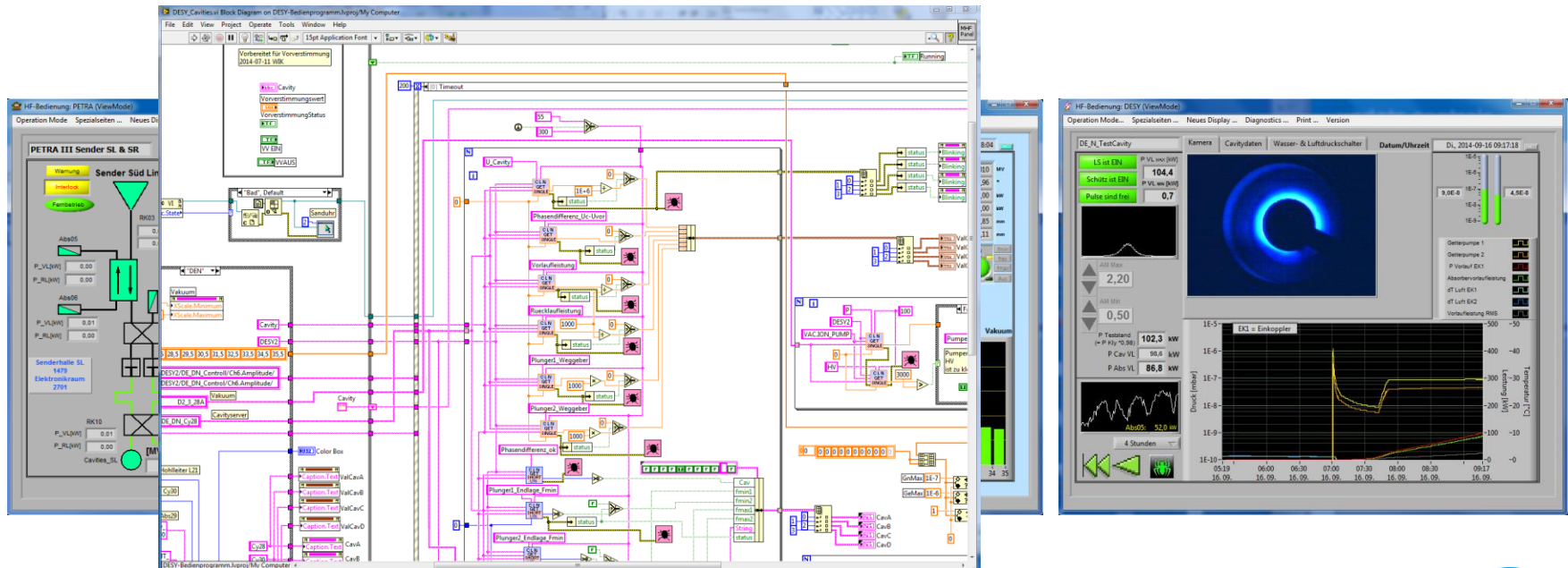


update controls.

- control software changed:
- WIN XP → WIN7
- 50 new controller necessary
- LabVIEW 8.5 → 2012



"ELWIS"
becomes
"ZWERG"



klystrons at PETRA.

- exchange of 2 philips klystrons (YK1304) by 2 from thales (TH-2178) in PETRA transmitter hall south left
- one with bad vacuum at the beginning
- they were installed at DORIS
- until now more than 300kW each

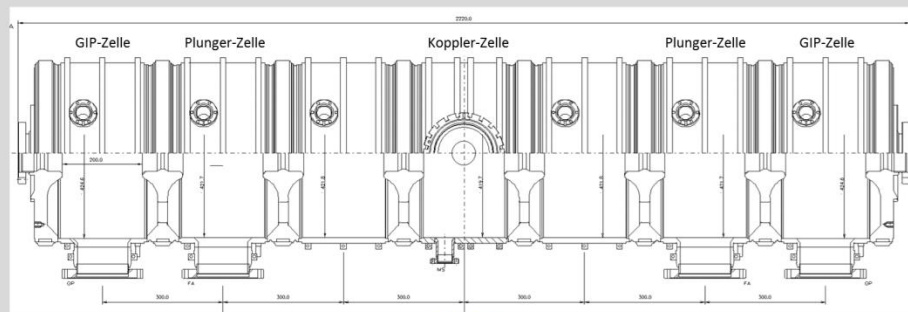


better plungerposition?.

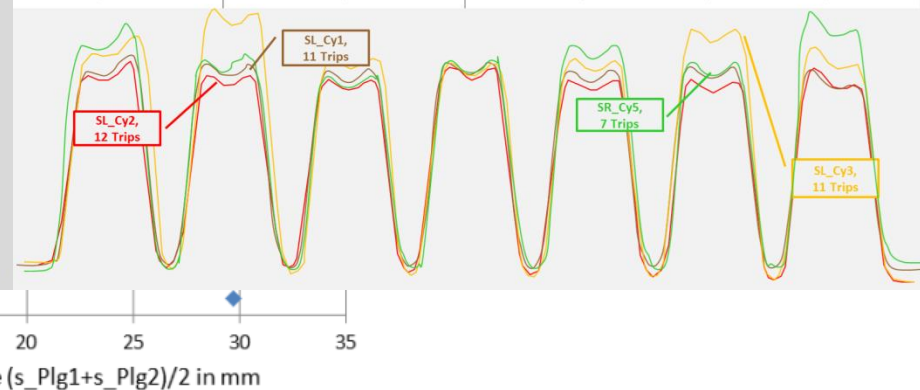
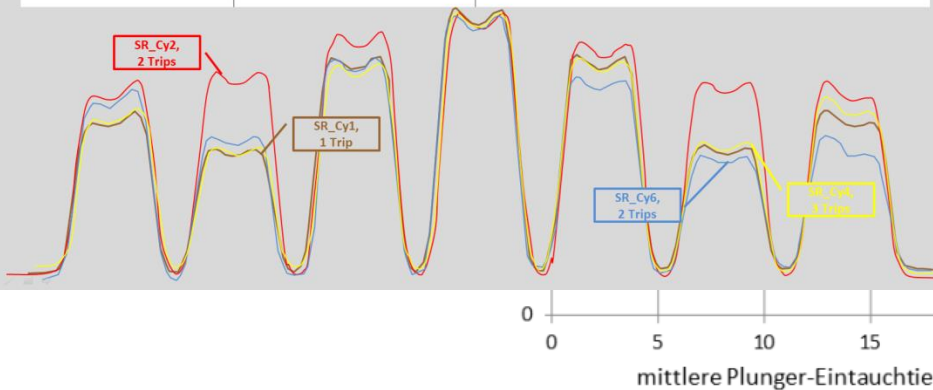
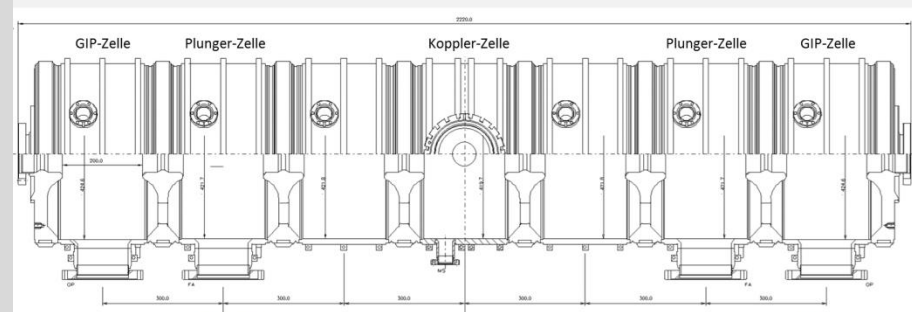
- upgrade the cavity water temperature regulation to set plungers more in
- it seems that cavities with plungers more in did not trip so often

Akkumulierte Cavity-Trips

fields in cavities with seldom trips

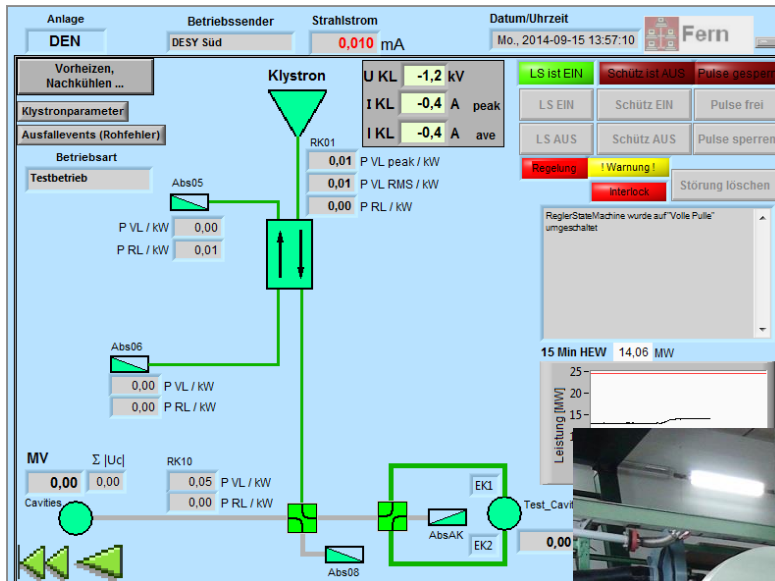


fields in cavities with often trips



cavity teststand.

- cavity teststand to investigate „blue light“ and conditioning a set of spare couplers (2 couplers, one venting)



blue light.

- short sequence at ca. 100 kW
- test are made with AM and FM (50 kHz)

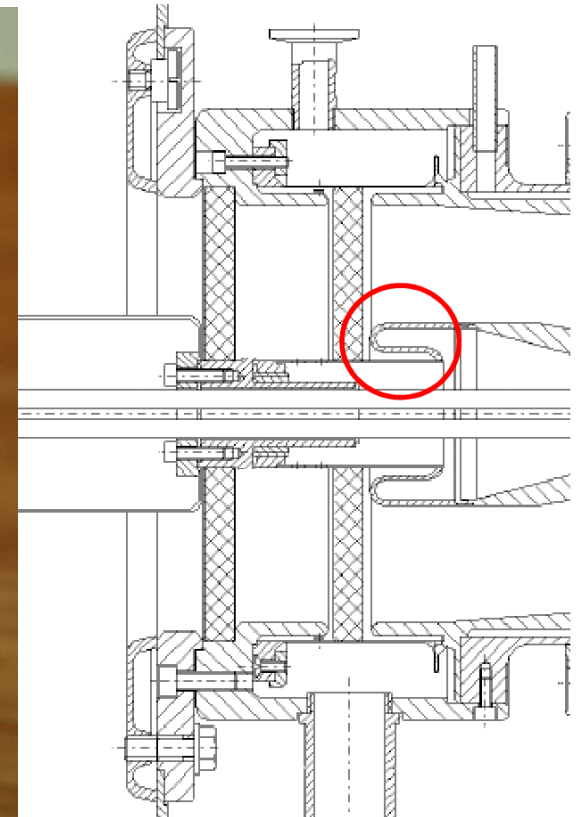


1 2 3 4 5



coupler inspection.

- coupler with manually broken ceramik (vacuum side) to inspect the suspicious area (silver solder)

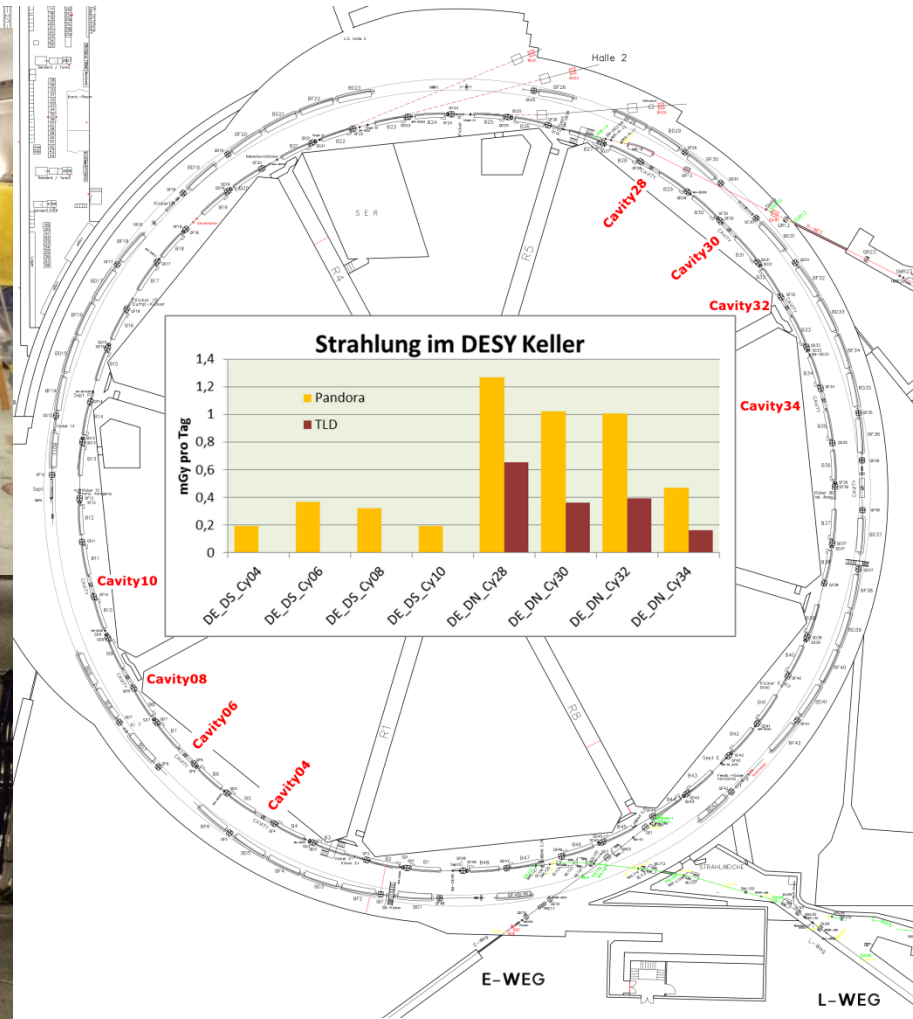
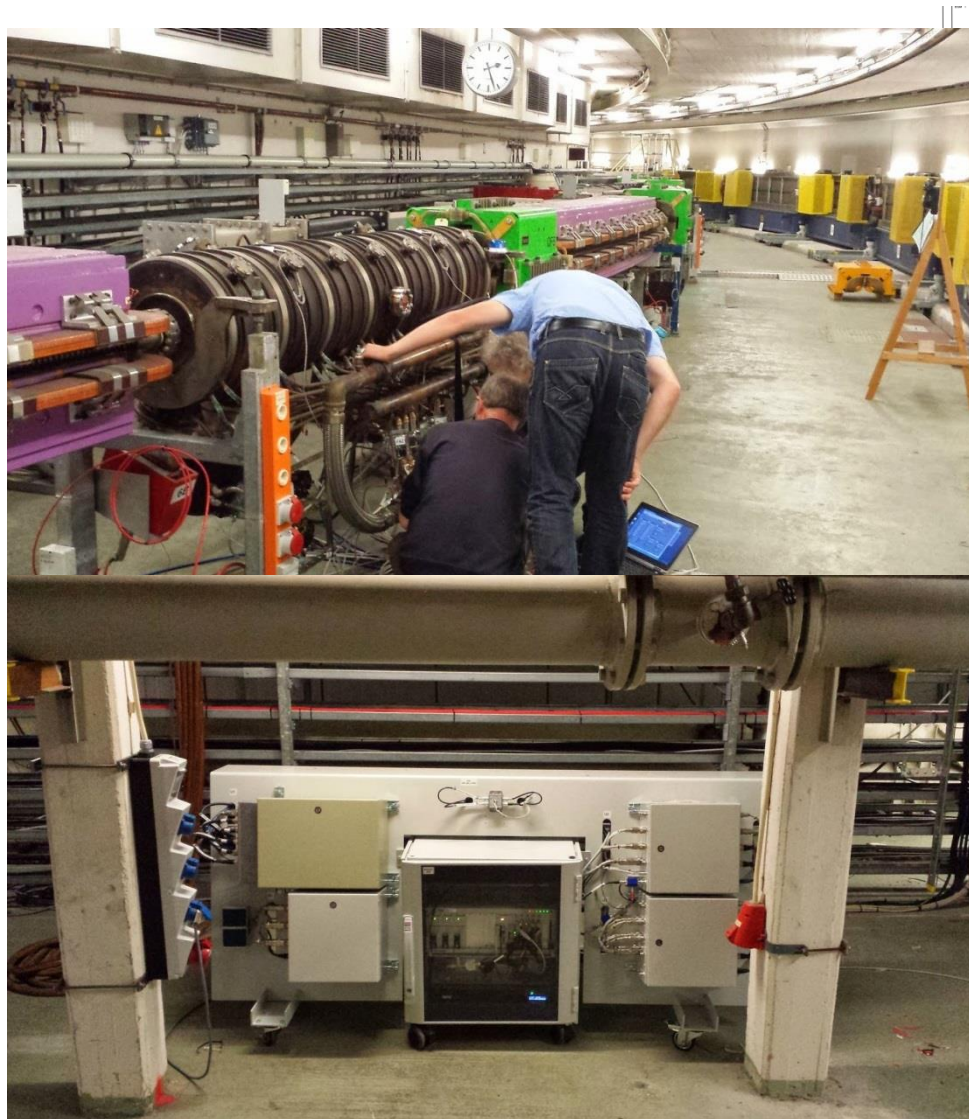


transmitter DESY south.

- new klystron: thomson → philips
- new controls: PLC → ZWERG
- new rooms



radiation at positions of electronic.



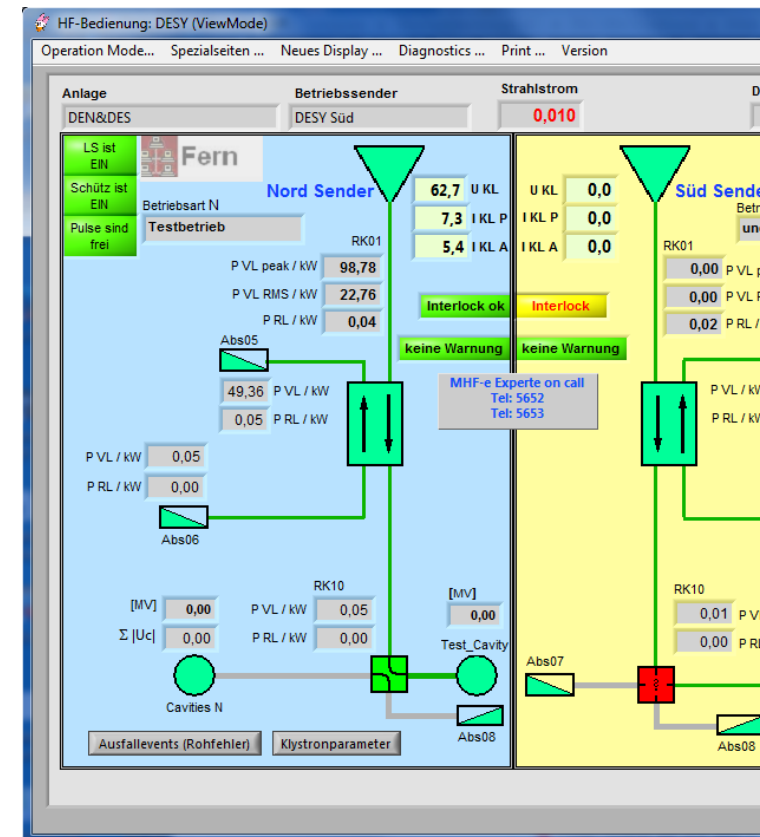
reconditioning transformers.

- our HV group send the old transformers of our DESY transmitters to reconditioning



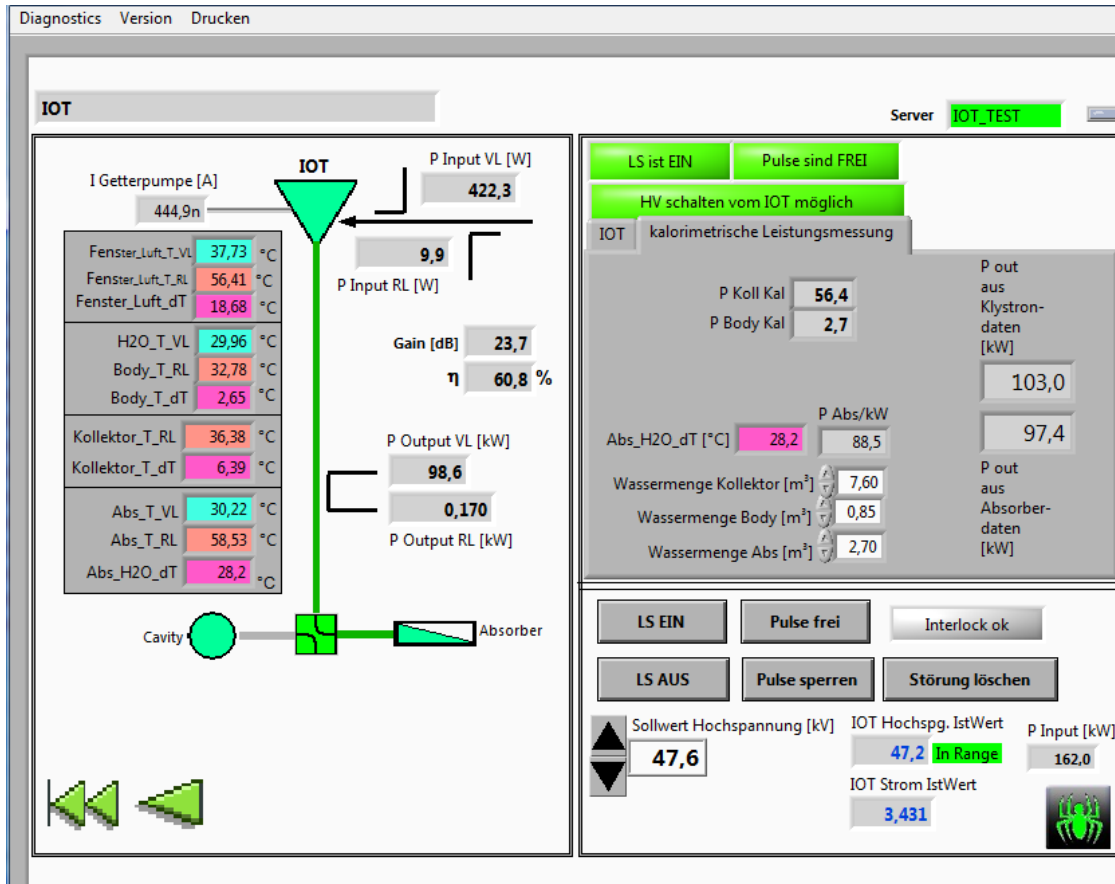
future cavity tests.

- we start work to use one of the switched-off DORIS transmitter for future cavity tests
- so the now used transmitter DESY north can run for operation



verificationtest of 2. prototype IOT from CPI.

- 1.3 GHz, 100 kW cw reached, drive 422 W, gain 23.7 dB
- less power when pulsed



the end.

- > thanks to the whole group MHF-e
(18 colleagues, half of them doing shifts in control room)

thank you

