Installation of Pulse Cable in the Tunnel 11.09.06

Hans-Jörg Eckoldt

Hans-Jörg Eckoldt

DESY MKK

New tests

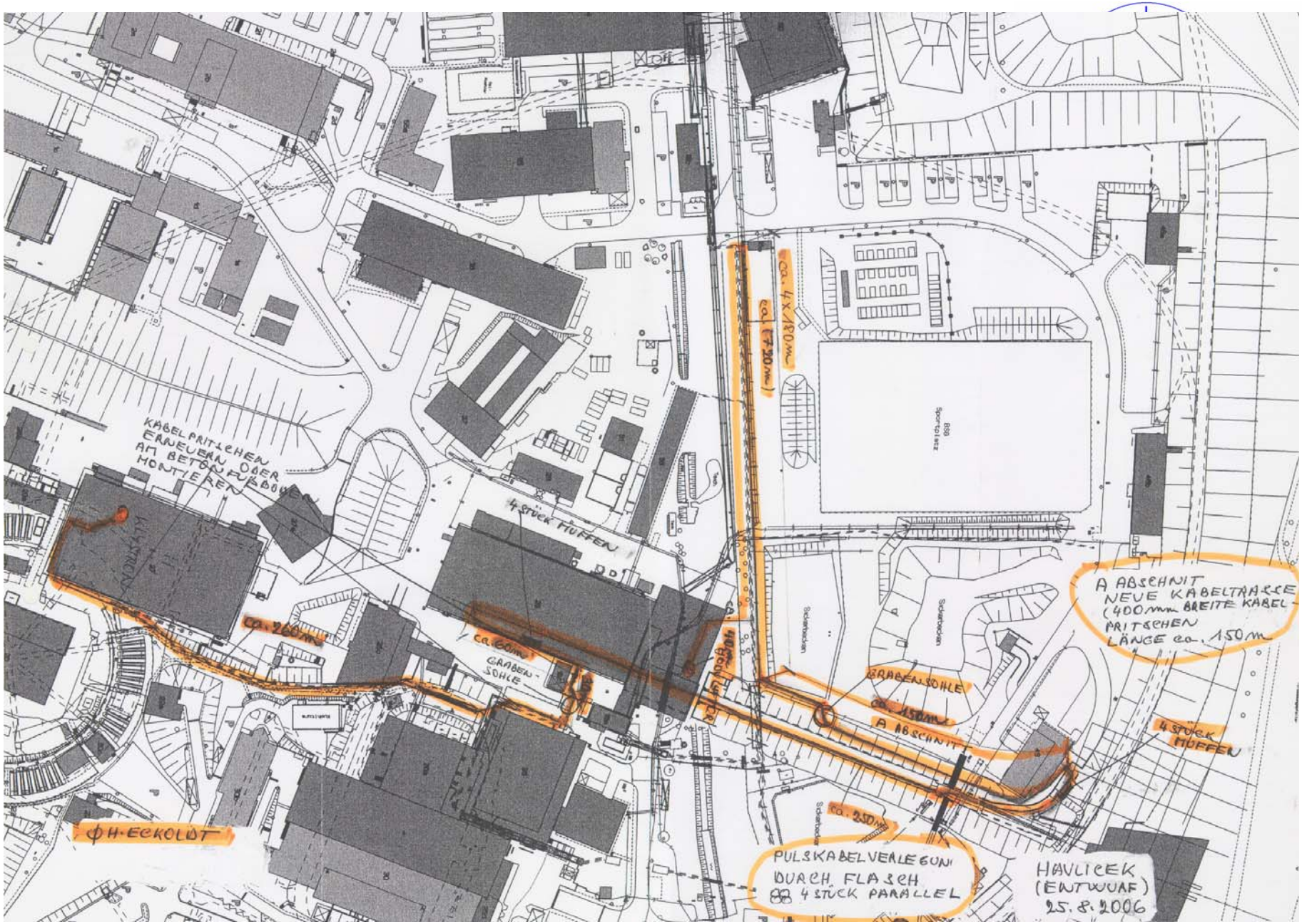
- It is foreseen to have another pulse cable test which represents the future use in the XFEL
- Therefore a new set of cable shall be installed inside the tunnel, near the accelerator

Hans-Jörg Eckoldt

DESY MKK

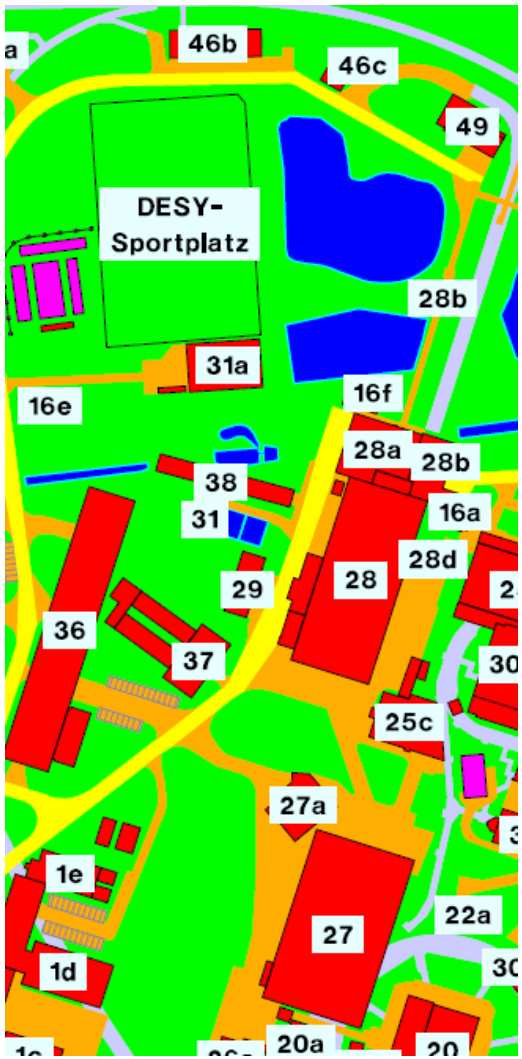
Tests

- High Voltage Test (voltage withstand)
- Commissioning on test load
- Arc test on test load
- Commissioning with klystron and low voltage
- Begin of measuring of EMC


KABELPRITSCHEN ERNEUERN ODER AM BETONFUSSBODEN MONTIEREN
4 STÜCK MUFFEN
ca. 260m
ca. 60m
GRABEN-SOHLE
ca. 4 x 180m
ca. (720m)
A ABSCHNIT NEUE KABELTRASSE (400mm BREITE KABEL-PRITSCHEN LÄNGE ca. 150m
GRABENSOHLE
ca. 150m
A ABSCHNIT
4 STÜCK MUFFEN
ca. 250m
ØH·ECKOLDT
PULSKABELVERLEGUNG DURCH FLASCH 4 STÜCK PARALLEL
HAVLICEK (ENTWURF) 25.8.2006

Pulse Cable in the Tunnel

Hans-Jörg Eckoldt



Pulse Cable in the Tunnel

Hans-Jörg Eckoldt

Installation in the tunnel

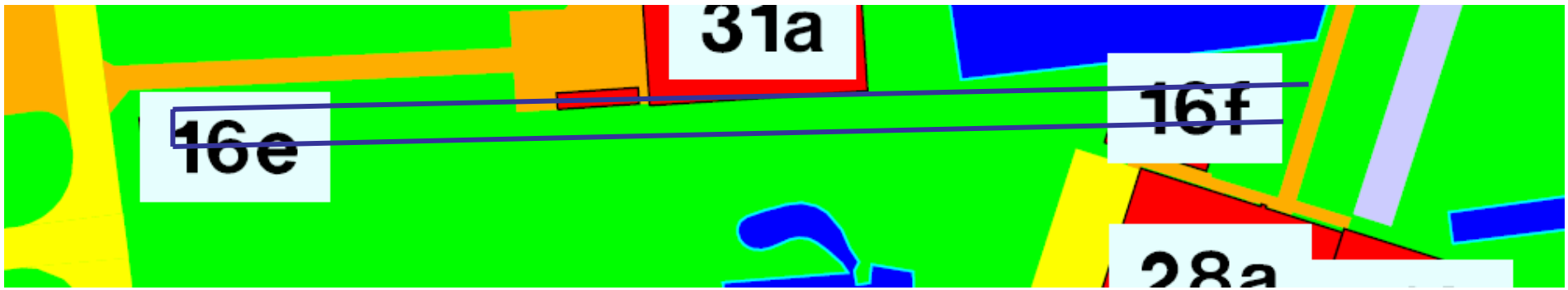
Length 250 m

Pulse Cable in the Tunnel

Hans-Jörg Eckoldt

Cable on tray parallel to existing cable

Length 720 m



Pulse Cable in the Tunnel

Hans-Jörg Eckoldt

Installation in hall

Intersection

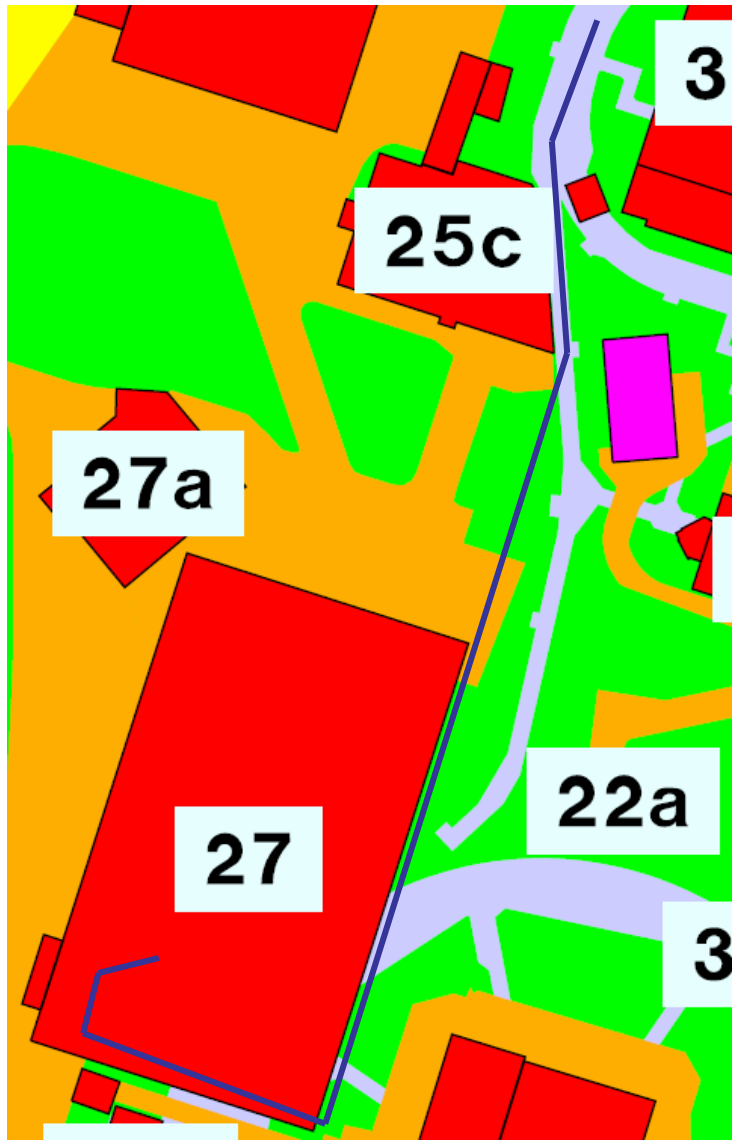
Pulse Cable in the Tunnel

Hans-Jörg Eckoldt

Hall II

Teststand

Length ca. 260 m

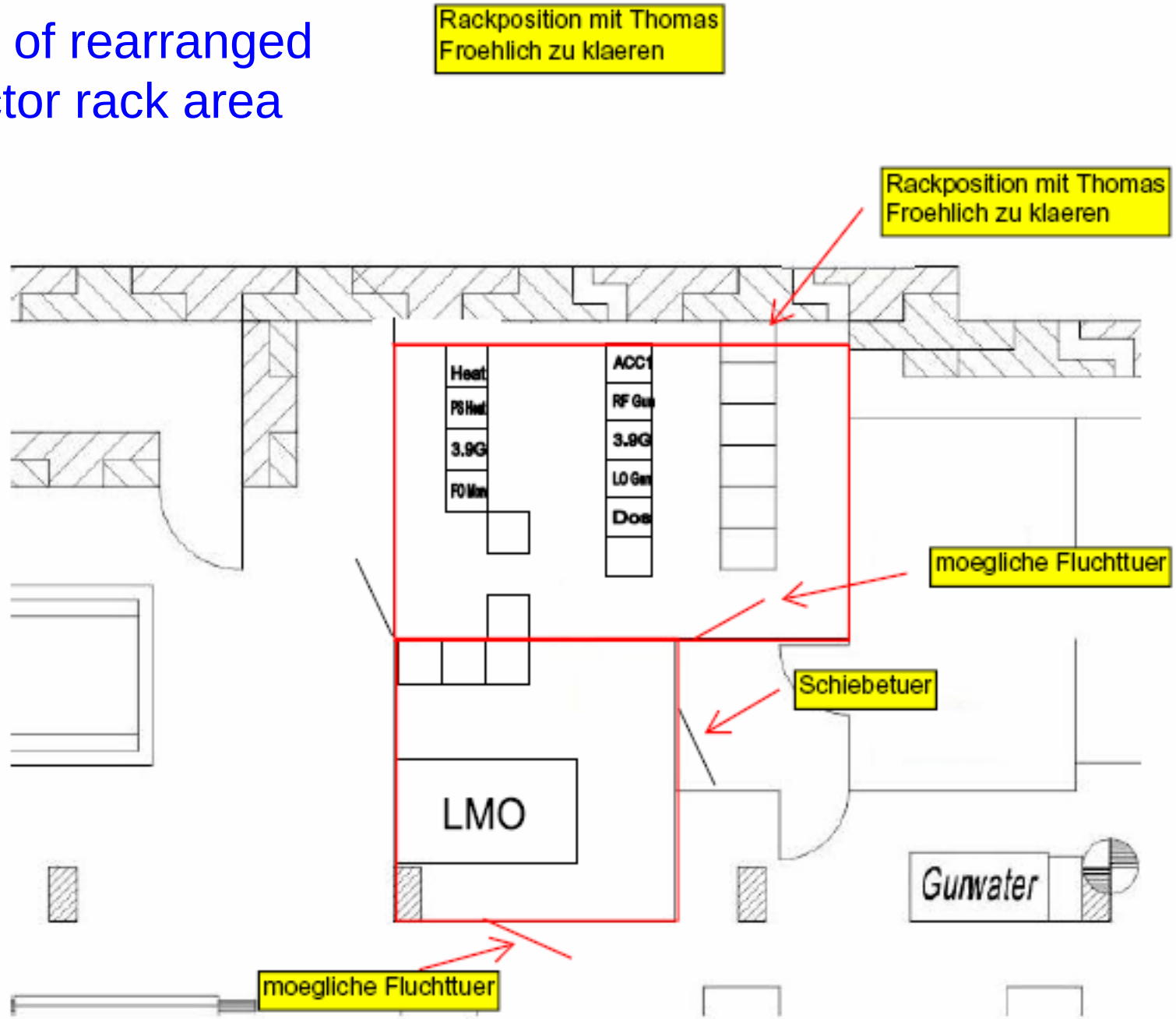


EMC Status FLASH Injector Area

H. Kapitza (FLA) 11.09.06

- The hut for the synchronisation laser has been set up. Now only one entry to the rack area is left.
- Lots of unused TTF1 cables have been removed.
- FLASH plus operators = very robust system.
- Involved people: K.Klose (coord), T.Froelich (racks), B.Sparr (huts), S.Mohn (power), E.Friedrich (Klima), A.Knabbe, A.Winter (LMO), H.Kapitza (EMC) and others.

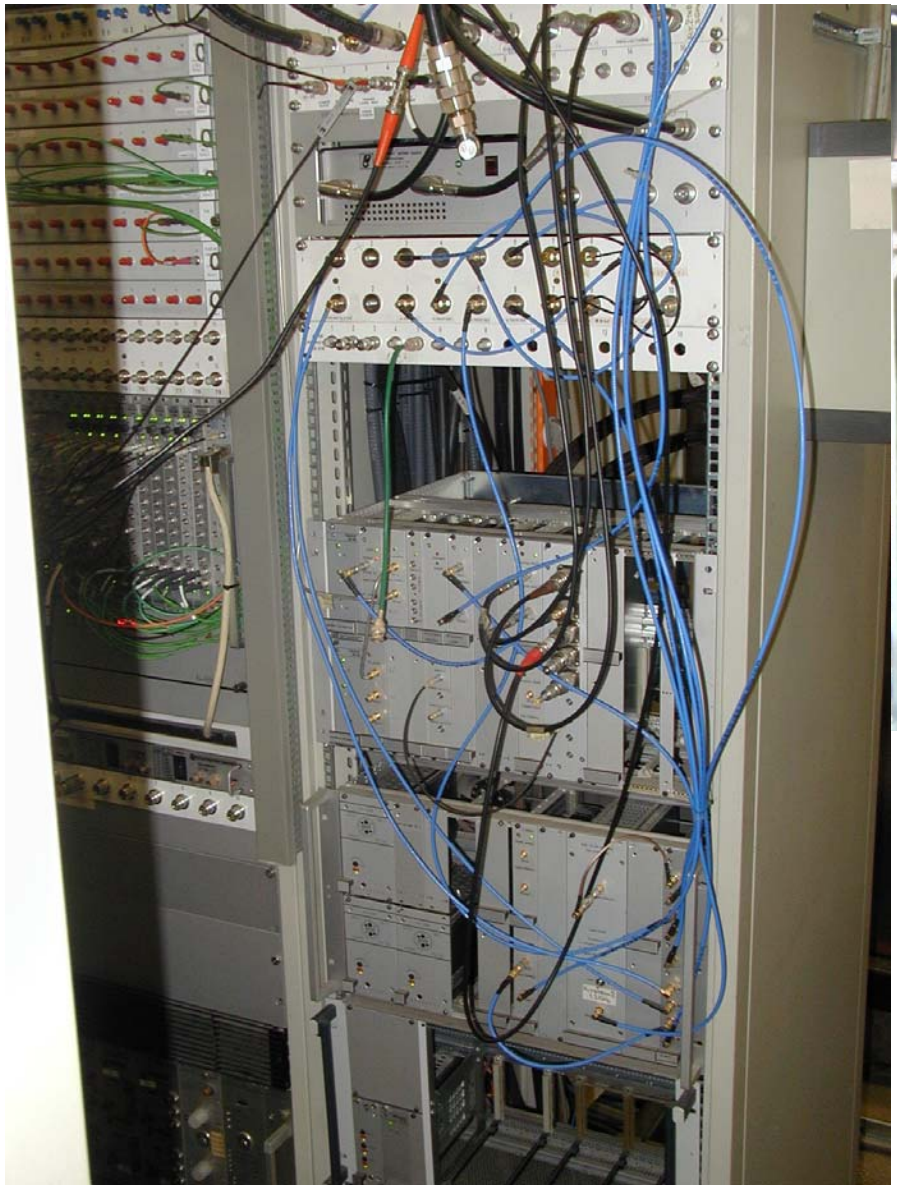
Plan of rearranged injector rack area

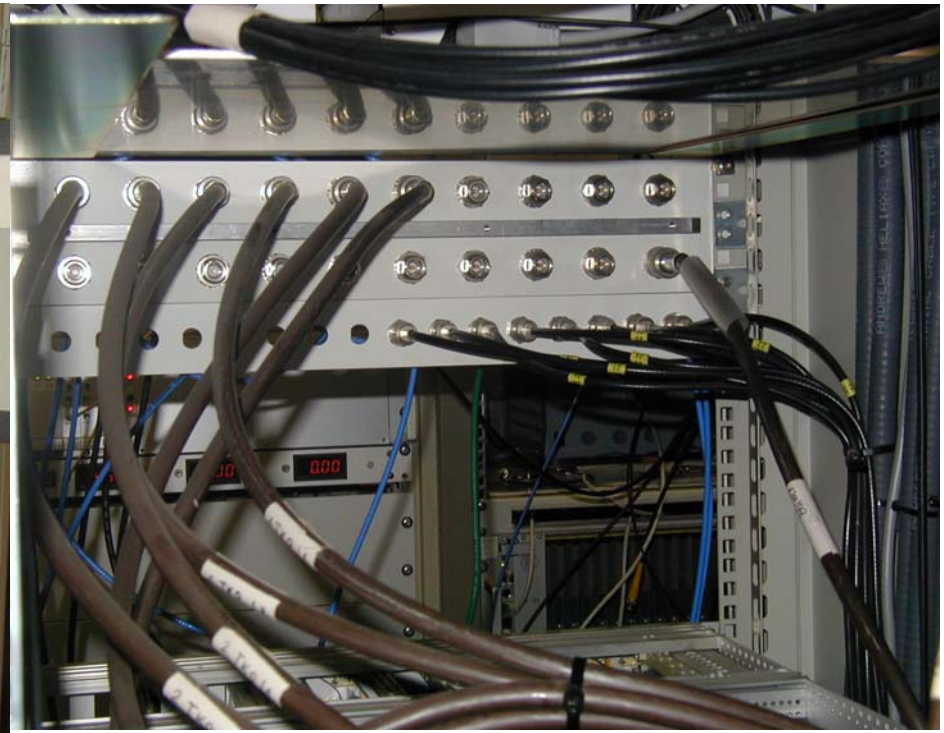


The new synchronisation laser hut

Tidy up the old floor regions. Clean the steel frame before closing with Al plates. Screw distance at least 25 cm.

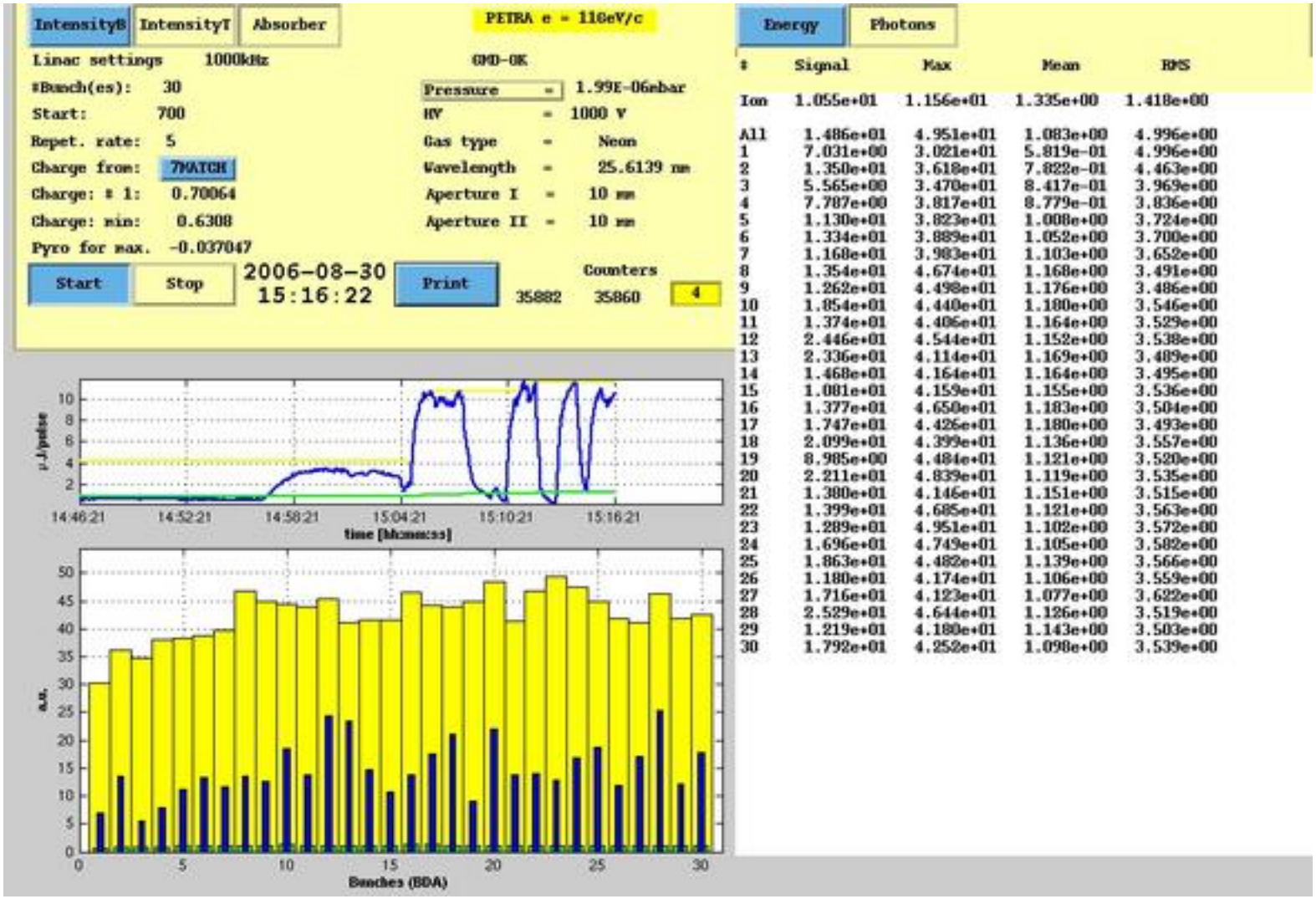
The middle old rack area now looks almost as tidy as the new one. Lots of unused cables were extracted. Ready for floor paint. Cable ties must go after painting.





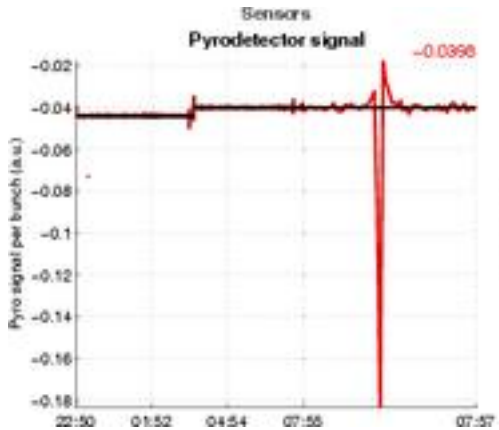
Many strong cables (Cellflex and brown ones) ended on a patch panel in the RF rack. All but 3 could be unplugged without affecting SASE.

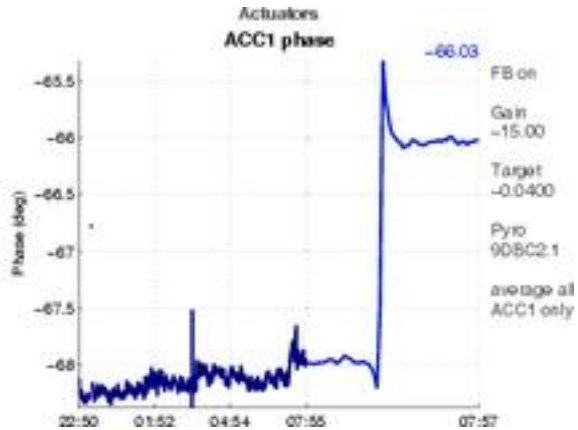
SASE loss by unplugging critical open (!) cables



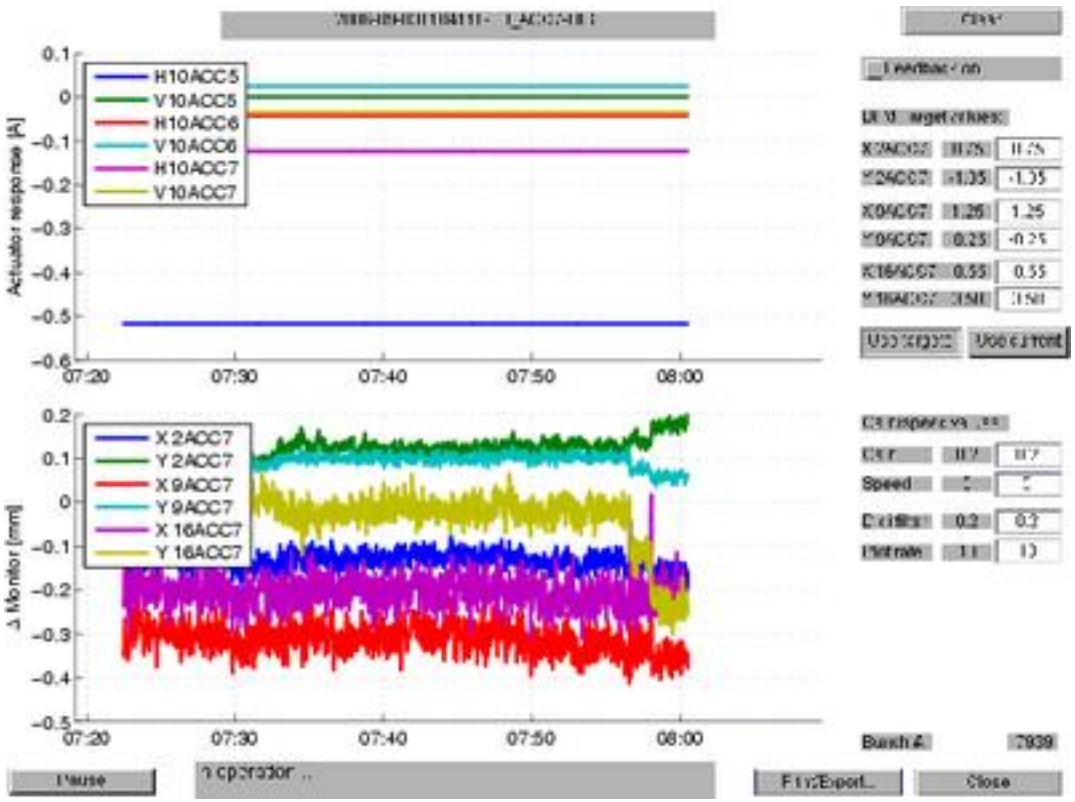
#	Signal	Max	Mean	RMS
Ion	1.055e+01	1.156e+01	1.335e+00	1.418e+00
All	1.486e+01	4.951e+01	1.083e+00	4.996e+00
1	7.031e+00	3.021e+01	5.819e-01	4.996e+00
2	1.350e+01	3.618e+01	7.822e-01	4.463e+00
3	5.565e+00	3.470e+01	8.417e-01	3.969e+00
4	7.787e+00	3.817e+01	8.779e-01	3.836e+00
5	1.130e+01	3.823e+01	1.008e+00	3.724e+00
6	1.334e+01	3.889e+01	1.052e+00	3.700e+00
7	1.168e+01	3.983e+01	1.103e+00	3.652e+00
8	1.354e+01	4.674e+01	1.168e+00	3.491e+00
9	1.262e+01	4.498e+01	1.176e+00	3.486e+00
10	1.854e+01	4.440e+01	1.180e+00	3.546e+00
11	1.374e+01	4.406e+01	1.164e+00	3.529e+00
12	2.446e+01	4.544e+01	1.152e+00	3.538e+00
13	2.336e+01	4.114e+01	1.169e+00	3.489e+00
14	1.468e+01	4.164e+01	1.164e+00	3.495e+00
15	1.081e+01	4.159e+01	1.155e+00	3.536e+00
16	1.377e+01	4.650e+01	1.183e+00	3.504e+00
17	1.747e+01	4.426e+01	1.180e+00	3.493e+00
18	2.099e+01	4.399e+01	1.136e+00	3.557e+00
19	8.985e+00	4.484e+01	1.121e+00	3.520e+00
20	2.211e+01	4.839e+01	1.119e+00	3.535e+00
21	1.380e+01	4.146e+01	1.151e+00	3.515e+00
22	1.399e+01	4.685e+01	1.121e+00	3.563e+00
23	1.289e+01	4.951e+01	1.102e+00	3.572e+00
24	1.696e+01	4.749e+01	1.105e+00	3.582e+00
25	1.863e+01	4.482e+01	1.139e+00	3.566e+00
26	1.180e+01	4.174e+01	1.106e+00	3.559e+00
27	1.716e+01	4.123e+01	1.077e+00	3.622e+00
28	2.529e+01	4.644e+01	1.126e+00	3.519e+00
29	1.219e+01	4.180e+01	1.143e+00	3.503e+00
30	1.792e+01	4.252e+01	1.098e+00	3.539e+00

Testing FLASH and its operators: Someone disconnects the touchy cables on Sep 4, 7:58





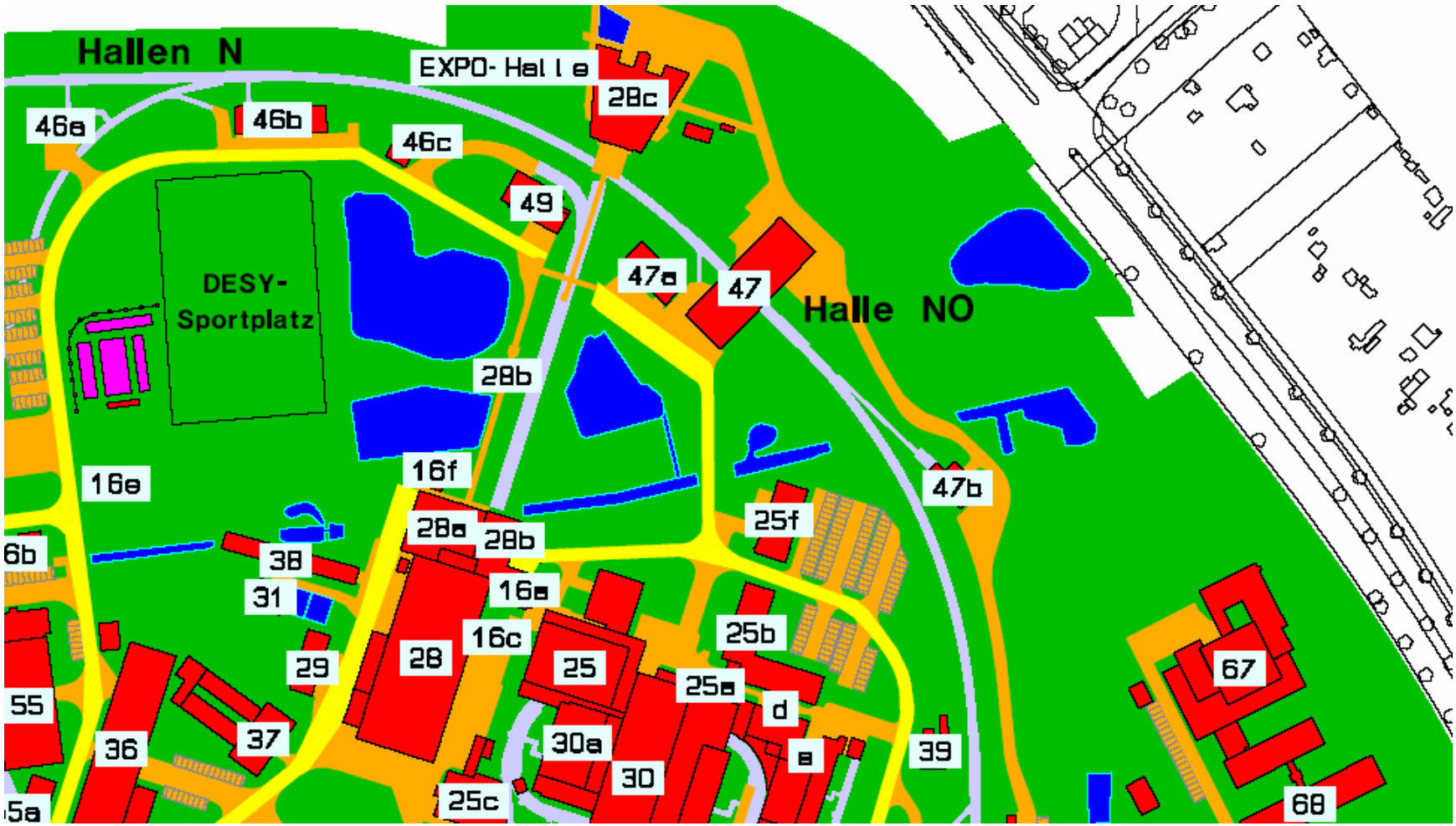
phase jump at ACC1



orbit change

9:38:
SASE back to users.

Discussion PETRA III Power Cabling



Some Facts:

- 1.6 MW @ 10 kV needed for PETRA III.
- Magnetic field of a straight wire:

$$B = \frac{\mu_0 I}{2\pi r} = 2 \cdot 10^{-7} \frac{\mathrm{Vs}}{\mathrm{Am}} \cdot \frac{I}{r}$$

= 20 μT at 10 m for 1 kA

- FLASH was disturbed by 1 μT DC field changes,

presumably most sensitive in injector area.