



Berliner Elektronenspeicherring-Gesellschaft  
für Synchrotronstrahlung m.b.H.

# The actual status of the RF transmitter for the Willy Wien Laboratory

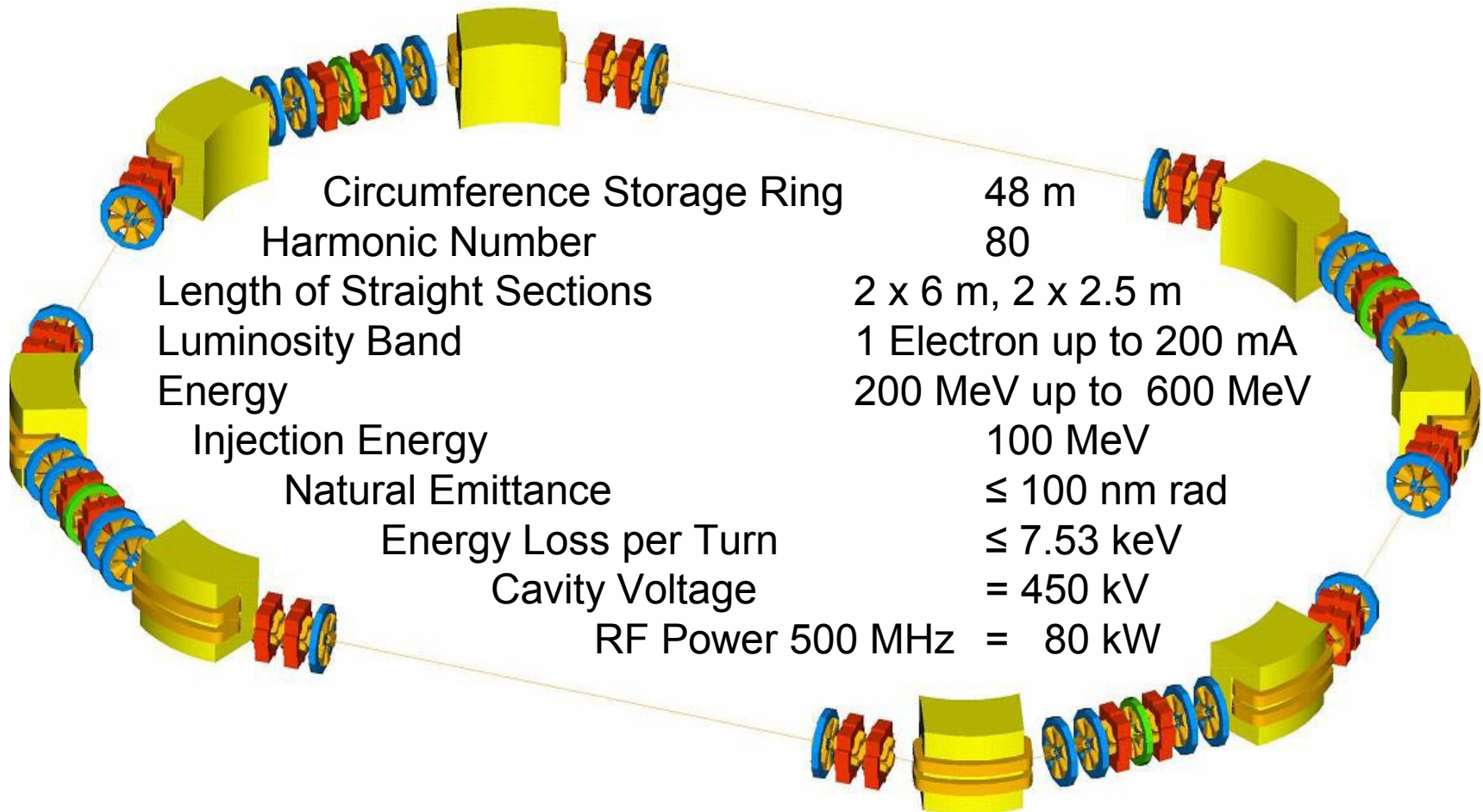
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## Willy Wien Laboratory : Part of PTB

PTB = Physikalisch Technische Bundesanstalt  
(German Bureau of Standards)

- Parameters
- Building
- Transmitter parts
- Time schedule

## Willy Wien Laboratory Parameters



# Building, September 2006





### Power supply by FuG

IOT high voltage

Voltage : 0..40 kV adjustable

Max. current : 3.5 A

Stability (short term): <0.05 %

Stability (long term):  $\pm 1$  %

IOT heating

Current : 0..30 A adjustable

Voltage : 0..17 V

Stability (long term):  $\pm 1$  %

IOT grid voltage

Voltage : 0..250 V adjustable

Current :  $\pm 300$  mA

Stability (long term):  $\pm 1$  %

Further

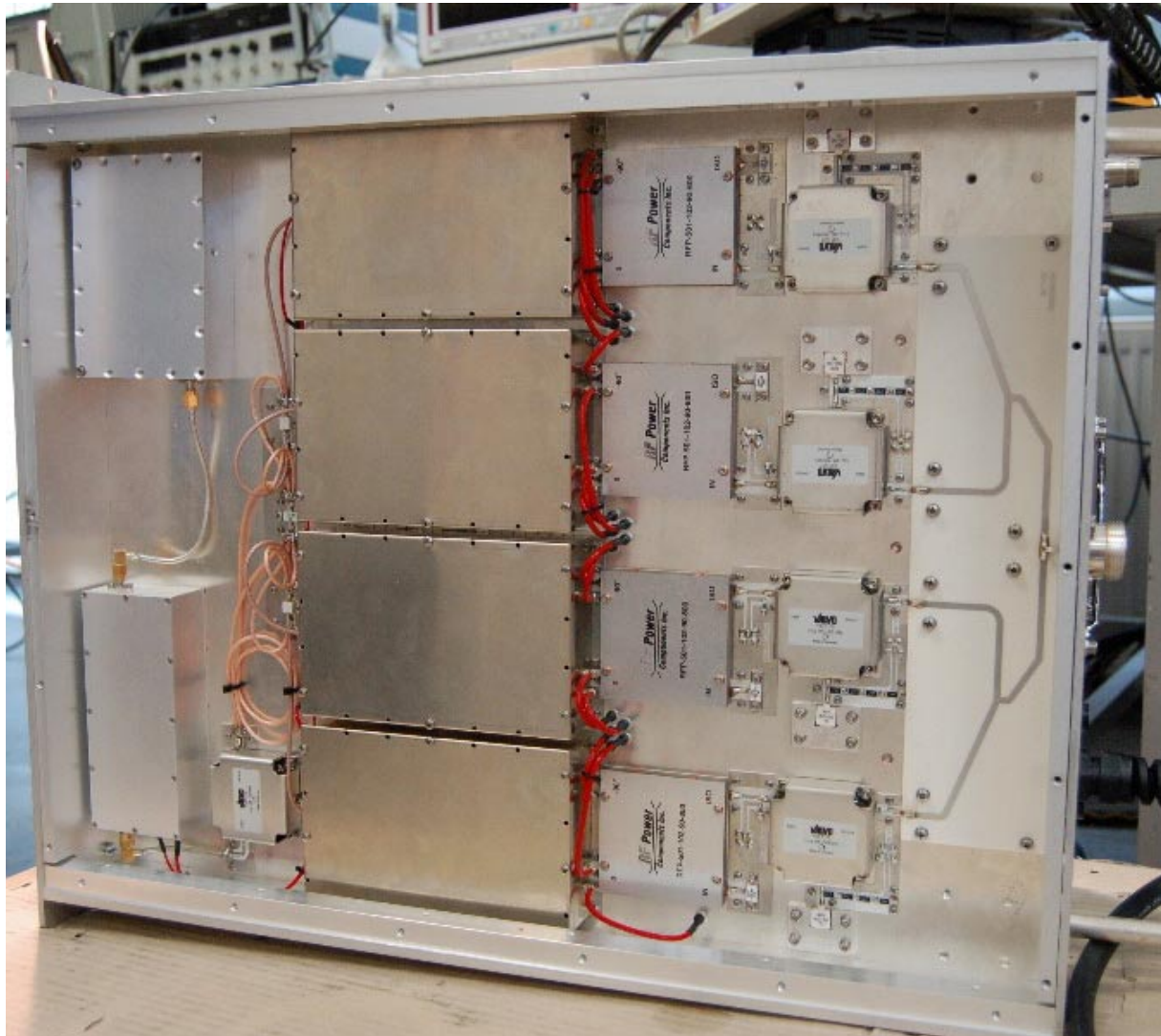
IOT focus current

IOT vacuum pump voltage

Cavity plunger control

Interlocks

Interface to control system



### Preamplifier by SSB

Frequency : 500 MHz

Bandwith : > 5 MHz

Power : 200 / 500 / 1000 W cw

Dynamic Range : 60 dB

Linearity :  $\pm 1$  dB

Final tests at factory running,  
delivery in October



### IOT by CPI

Model CHK 5900 W1

Output power : 80 kW cw

Input power : 500 W

Gain : ~ 22 dB

Efficiency : ~ 70 %

Cooling : Water & Air

HV : 40 kV



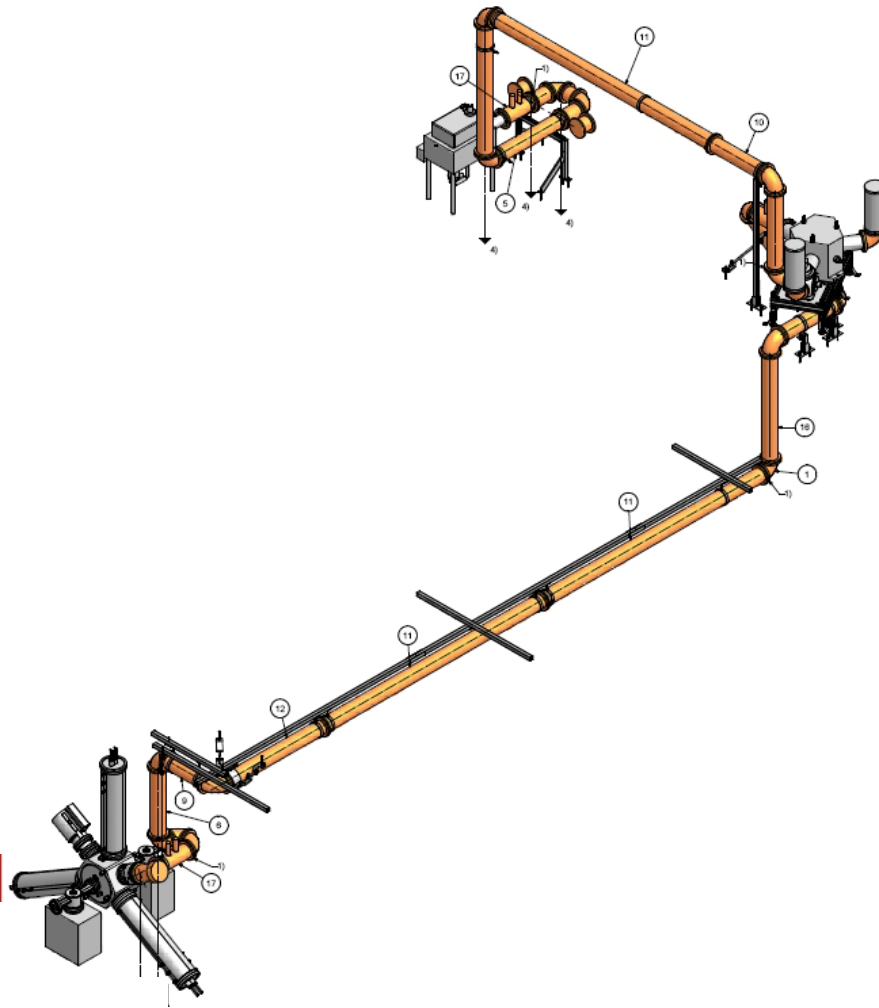
## **Girder**

Circulator by AFT

Switch by Spinner

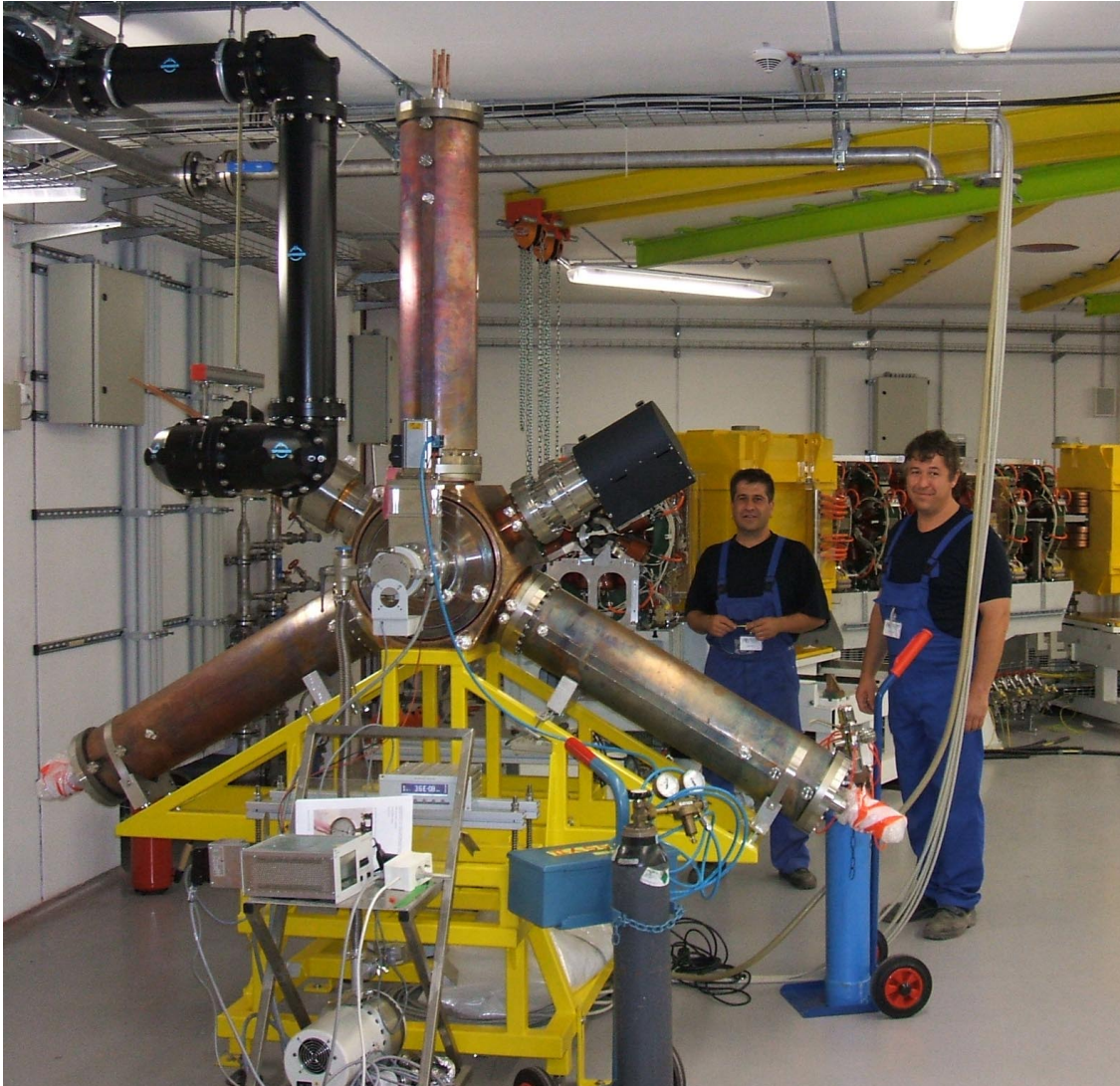
2 Water loads by Altronics, 125kW





**RF Power Line** by Spinner

6 1/8" EIA system



**EU-Cavity** with ferrite dampers

→ see talk of E. Wehreter

## Summary

- Power supply, FuG, delivered in August
- Low level RF: in house, ongoing testing
- Preamplifier: SSB, 1kW, delivery in October
- IOT tube: CPI, delivered in September
- Circulator: AFT, mounted
- Water loads: Altronic, 125kW, mounted
- RF lines: Spinner, 6 1/8" EIA, mounted
- Cavity: delivered in September, at final position
- Water cooling: all stainless steel water tubes had to be redone, still problems with cooling towers!

## Next Steps

- Transmitter commissioning 11/2006
- Cavity conditioning 12/2006
  
- Storage ring commissioning start 3/2007
- Start user operation 1/2008