

MAX-lab

Status MAX-lab

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Outline

- **MAX I**
 - New Transmitter
- **MAX II**
 - Installation of circulators for the transmitters
 - Phase Measure electronics
- **MAX III**
 - Lifetime improvement by excitation of the vertical tune
- **MAX IV**
 - RF System

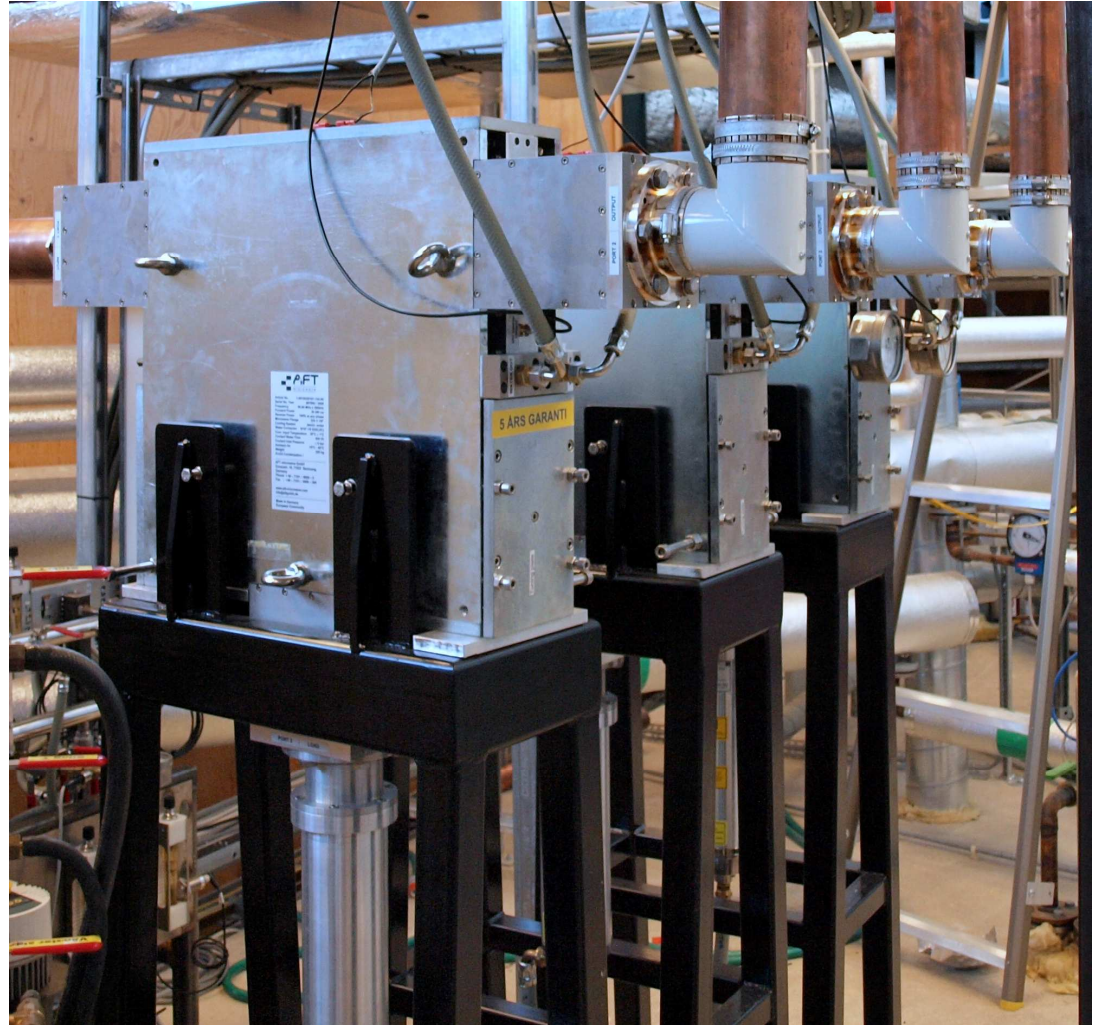
MAX I Transmitter

- **Transmitter MAX I**
 - GEC-Marconi B7547A
 - Frequency: 500MHz
 - Std Power: 40 kW
 - Power limited to 15kW



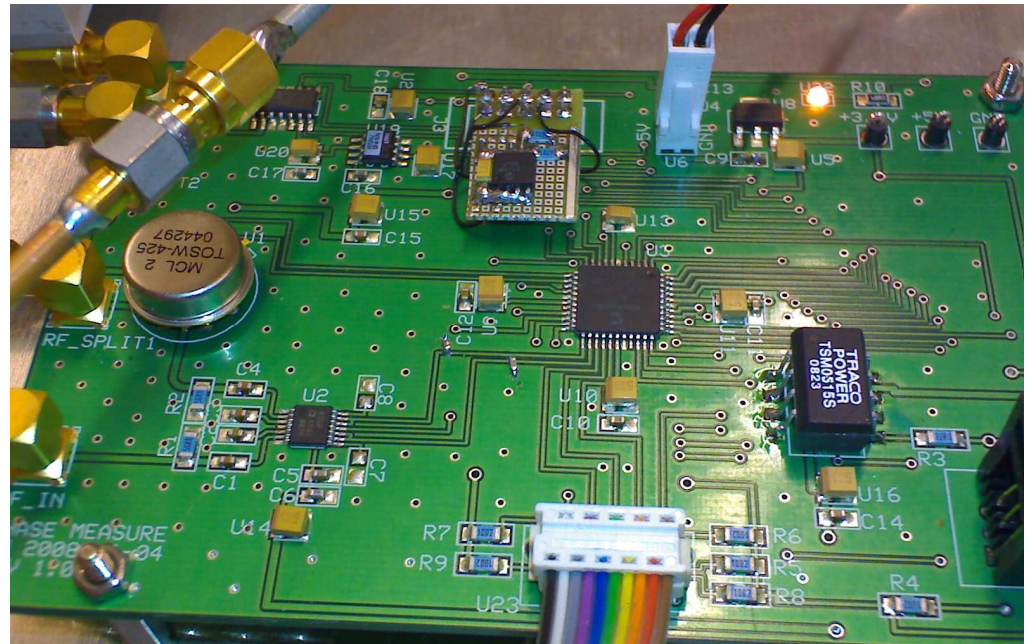
MAX II Circulators

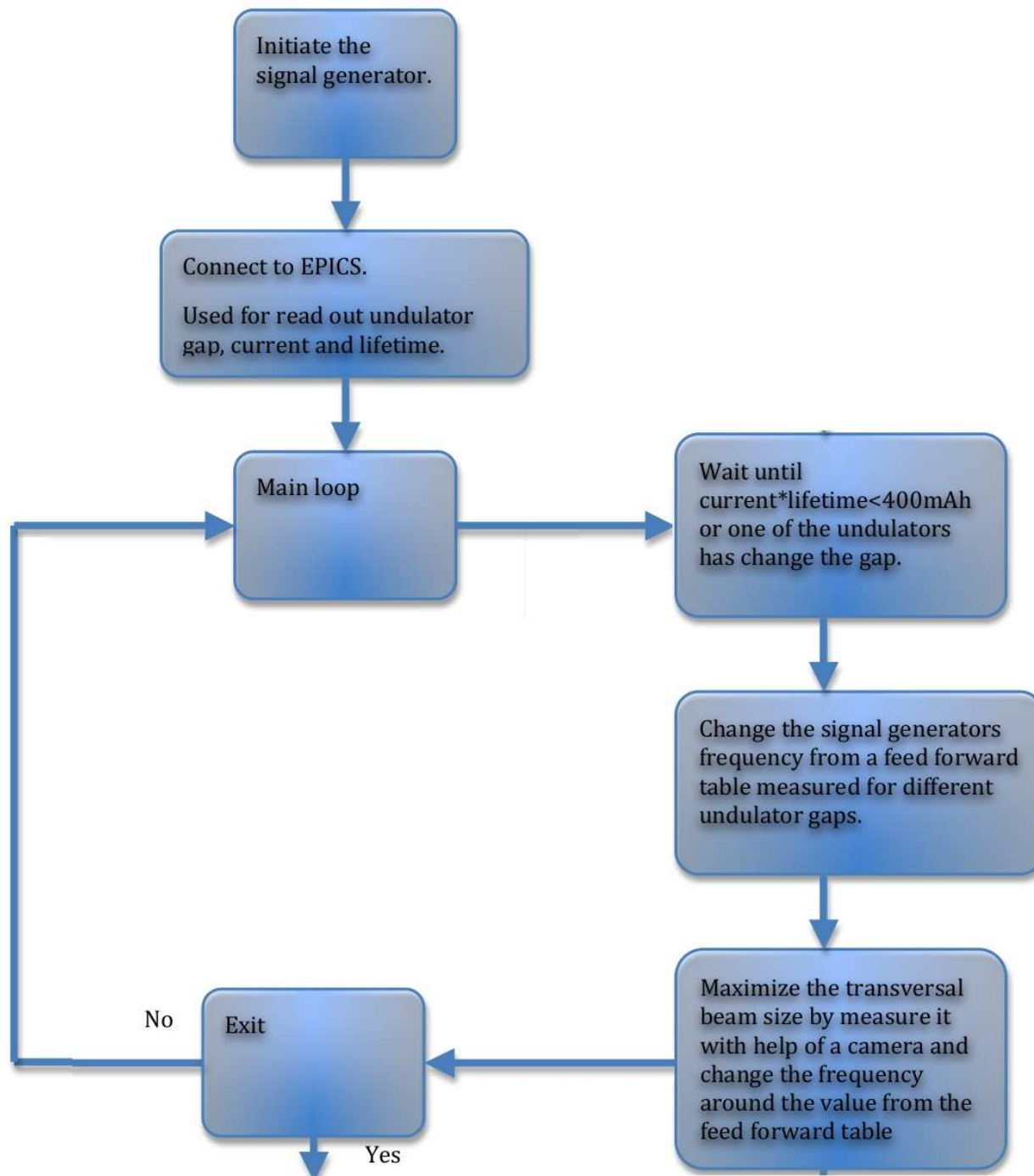
- **Circulators for MAX II**
 - Frequency: 99.95 Mhz
 - Bandwidth: ± 200 kHz
 - Forward Power: 30 kW
 - Insertion loss: 0.15 dB
 - Isolation: > 20 dB
 - Reflected power: 30kW at any phase
- **Needs to be optimized at the working power**



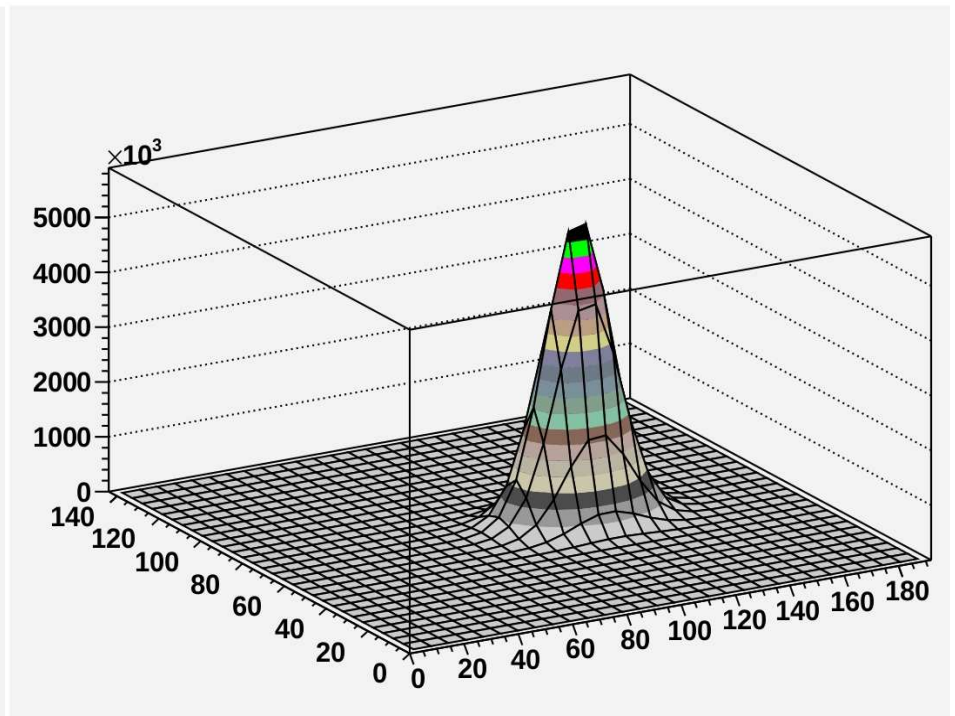
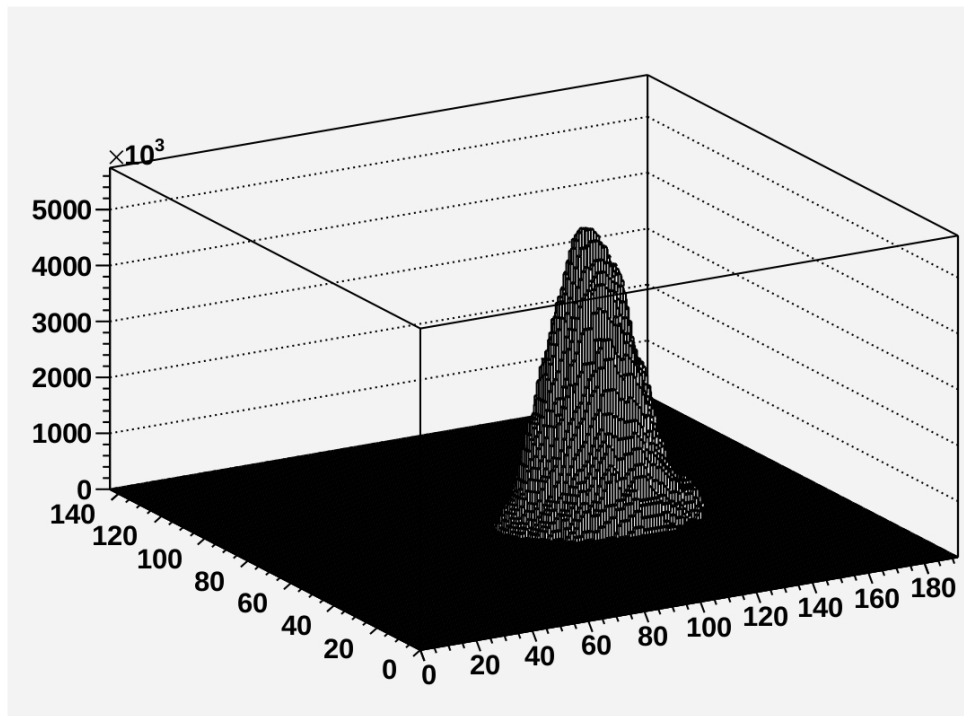
MAX II Phase measure

- **Phase Measure**
 - Measures the phase difference between two RF Sources
 - Based on Analog Devices AD8302 RF/IF Gain Phase detector
 - Outputs the phase difference on a TFT screen in both degrees and ns
 - DAC output for phase diff.
 - ± 180 degrees





MAX III Lifetime improvement



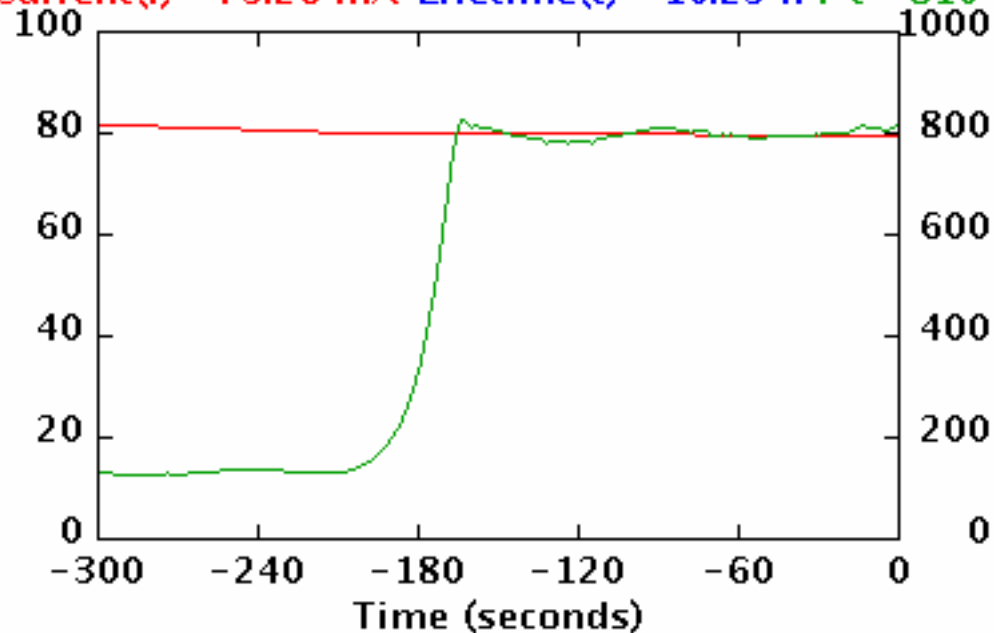
MAX III Lifetime improvement

Status MAX 3 storage ring

Time = 16:49:22

Date = 2009-09-28

Current(I)= 79.26 mA Lifetime(t)= 10.23 h $I \cdot t = 810$ mAh



MAX IV RF System

- 100 Mhz RF System based on commercially available FM transmitters
- Six 120 kW RF stations with one cavity each
- Two 60 kW transmitters / RF station combined with a 3 dB hybrid
- 120 kW circulators