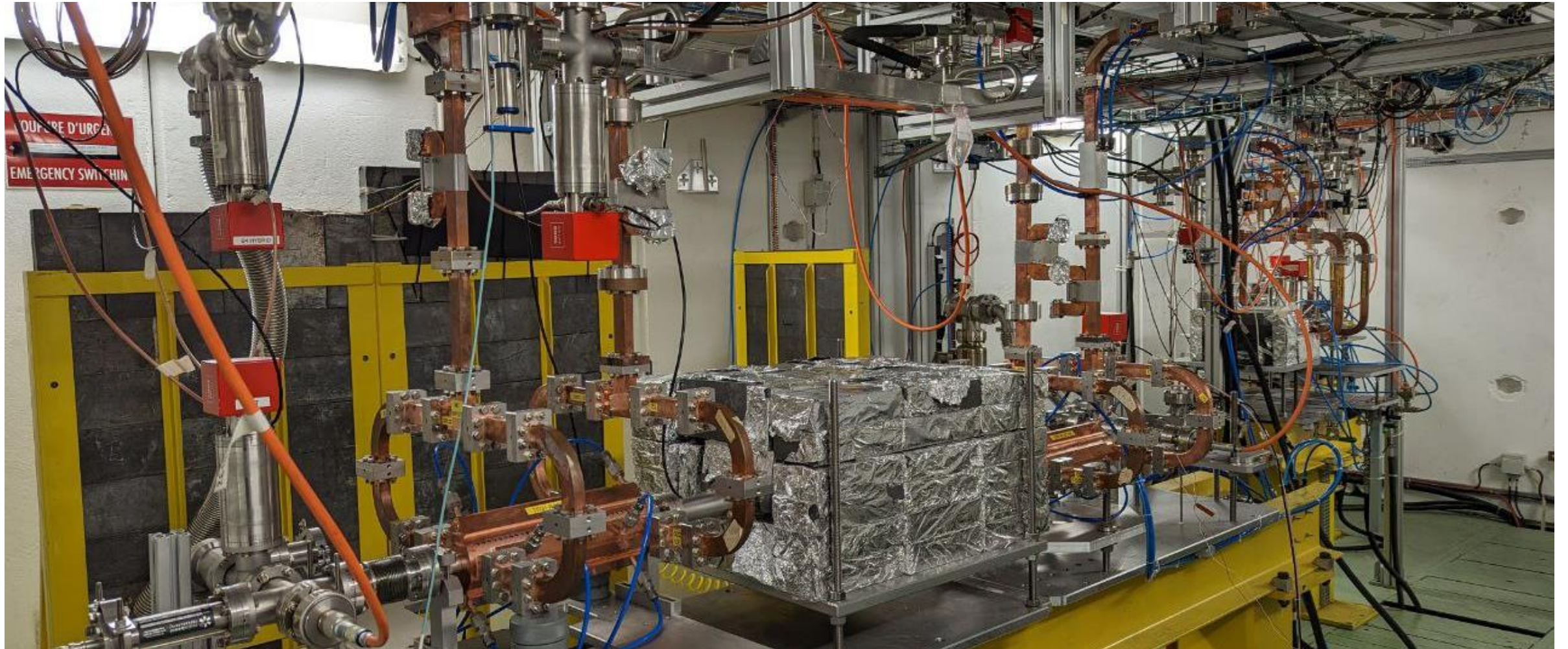




X-Box Update

30.08.2023

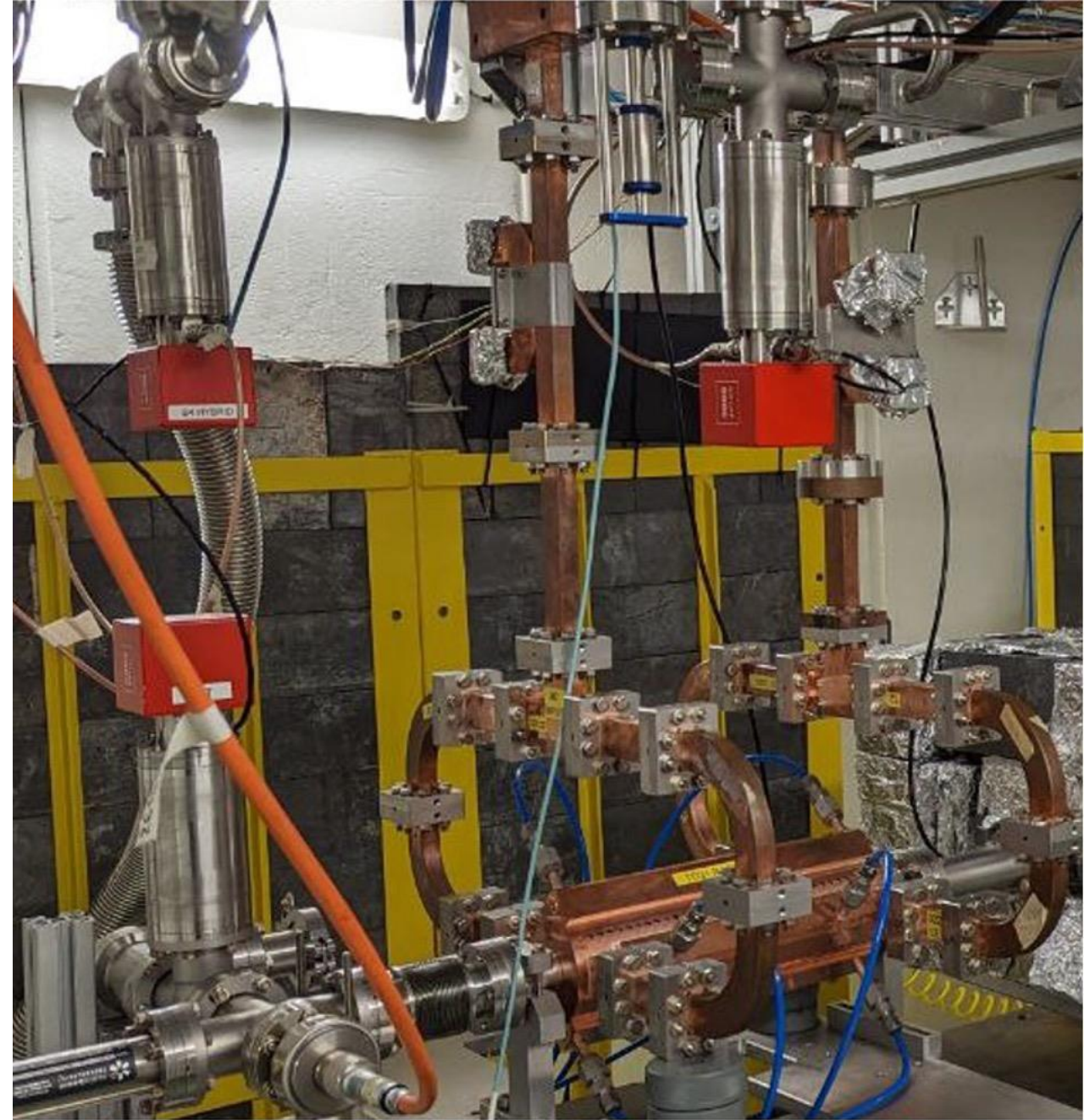
X-Box 2: TD31 N3 N4



X-Box 2 TD31 N3 N4: Structure B

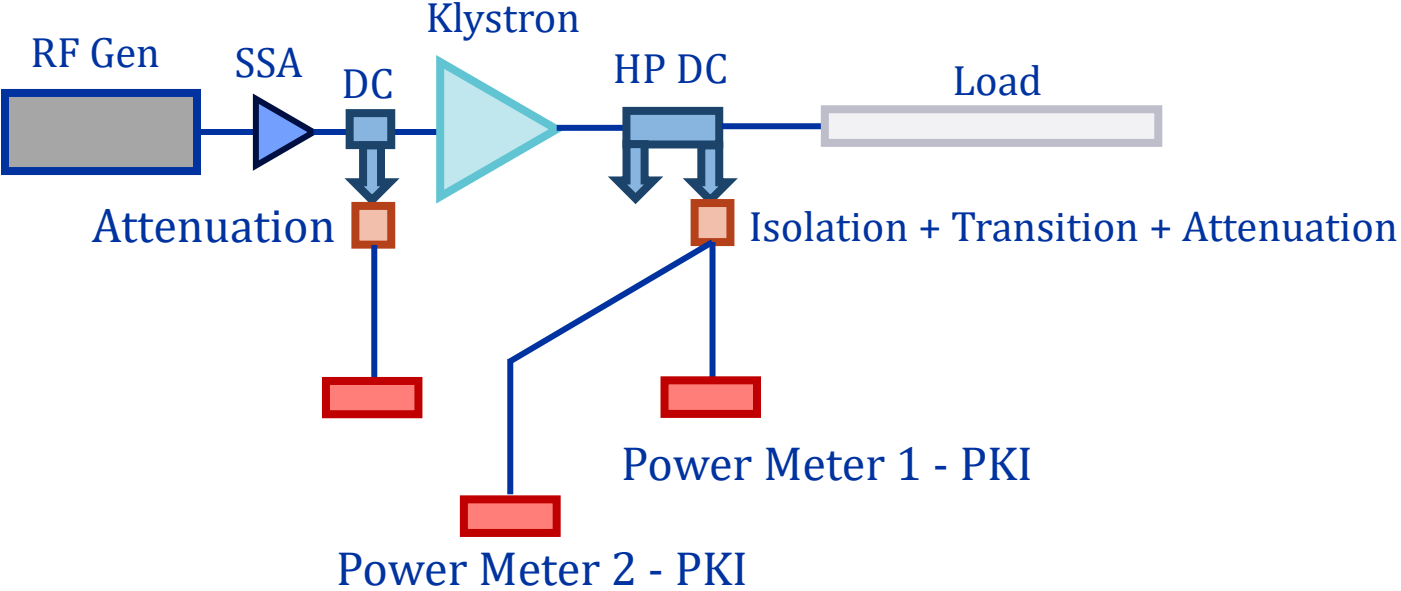
- Restarted 22.08.2023
- 100% power going to Structure B
- Calibration lines B – checked
- Currently: 25MW

- Not operating – new electrical installation

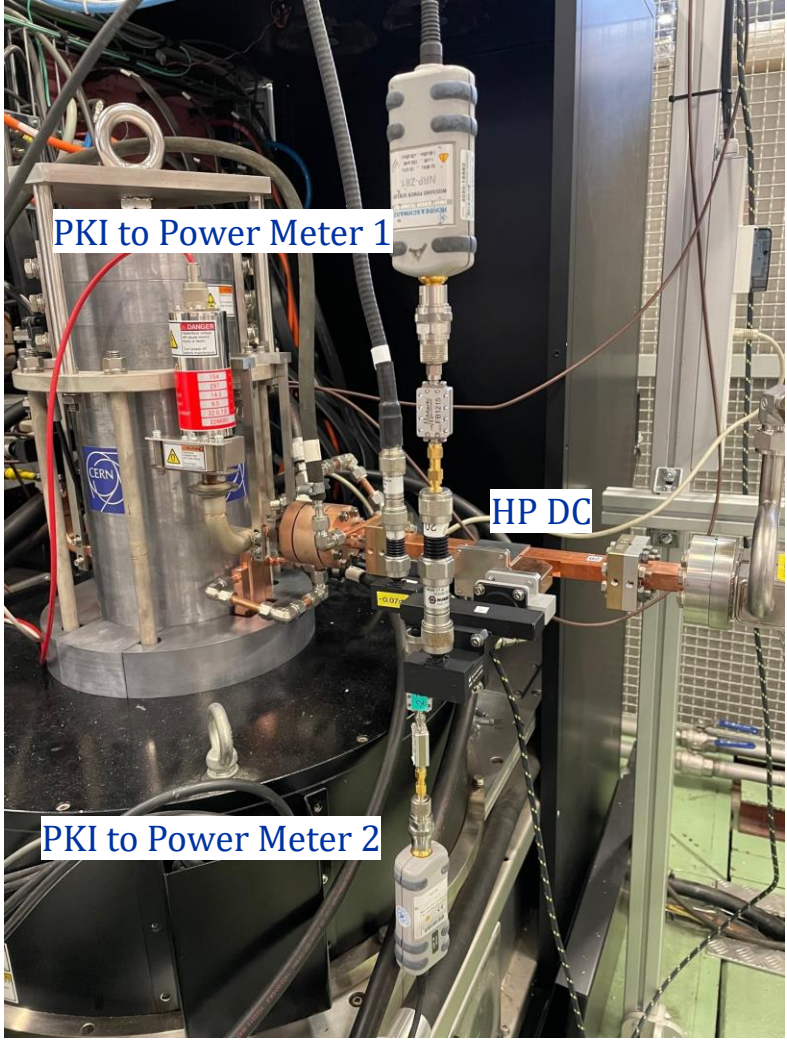


High Efficiency Klystron ER37117 TUBE1

Measurement setup



Chain	Att(dB)@11.994GHz
PKI, chain 1	42.77
PKI, chain 2	44.53
KLYIN	49.68

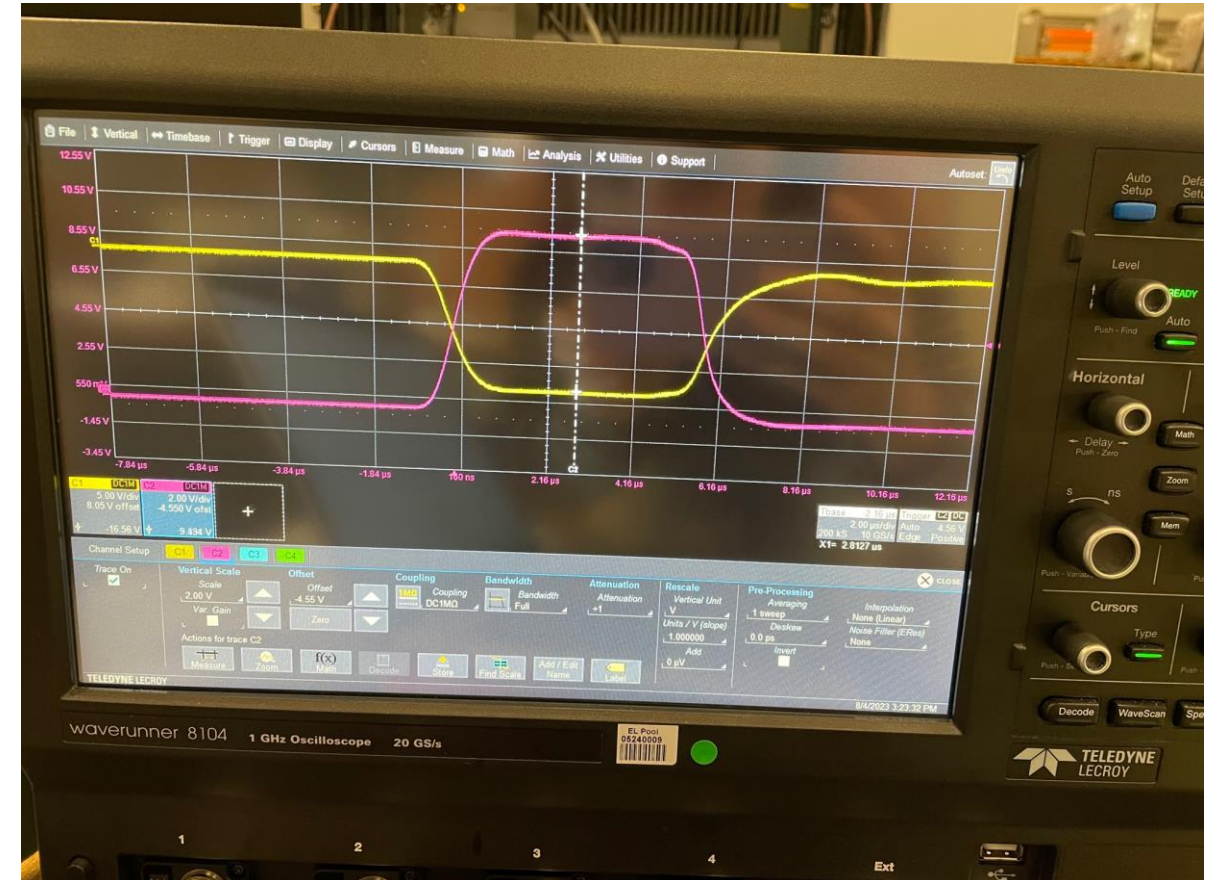


High Efficiency Klystron ER37117 TUBE1

Measurement setup

Same Configuration as CANON

Beam Current (A)	94 (*)
RF pulse width (us)	1.00
Klystron pulse width(us)	6.4
Frequency (Hz)	11.994
PRR	50
Main Coil Sol Curr (A)	32
Counter Coil Sol Curr (A)	7



(*) Beam Current is set on basis of oscilloscope measurement. A uPe of 1.55 has been assumed.

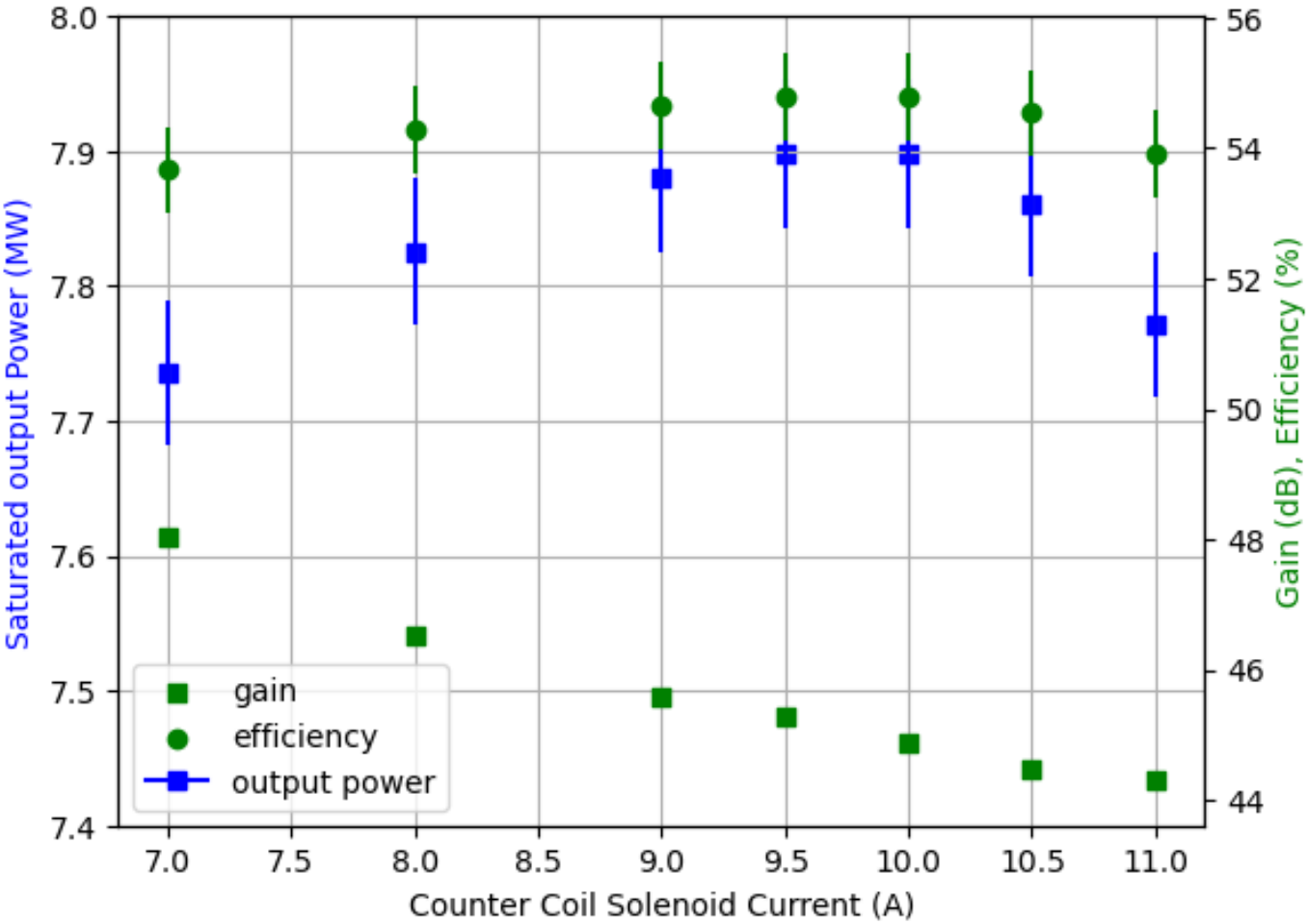
High Efficiency Klystron ER37117 TUBE1

Optimal operation point

Hypothesis confirmed:
CANON reported curves for
CCC=11 A instead of CCC=
7 A

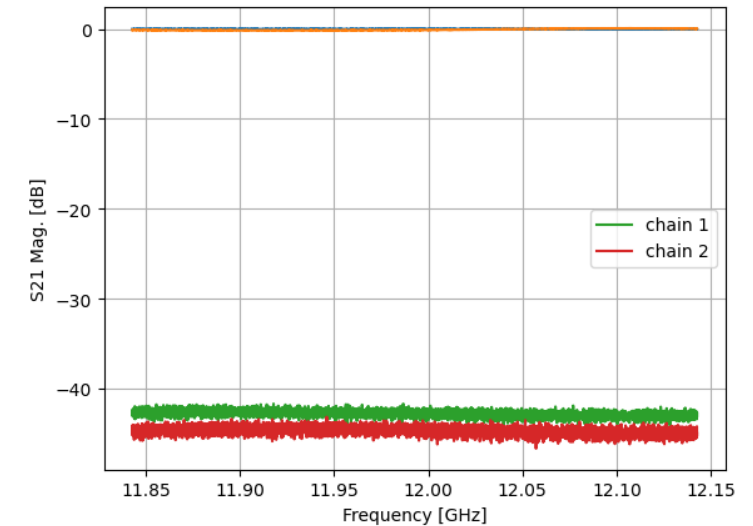
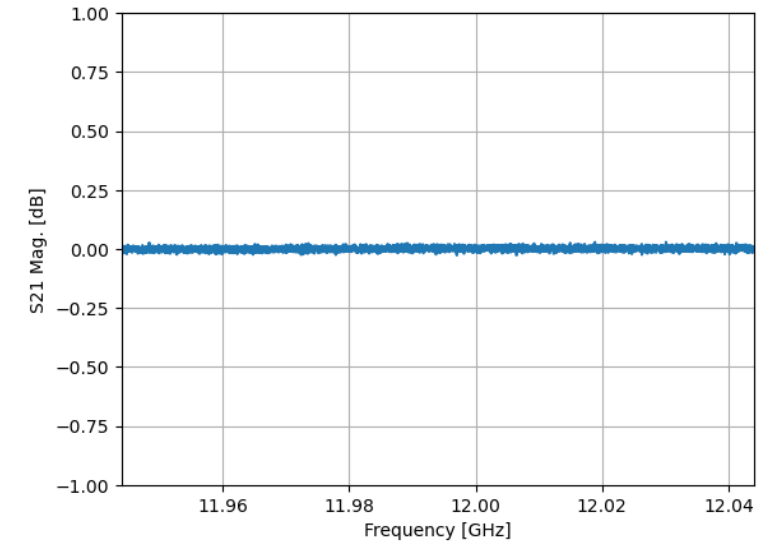
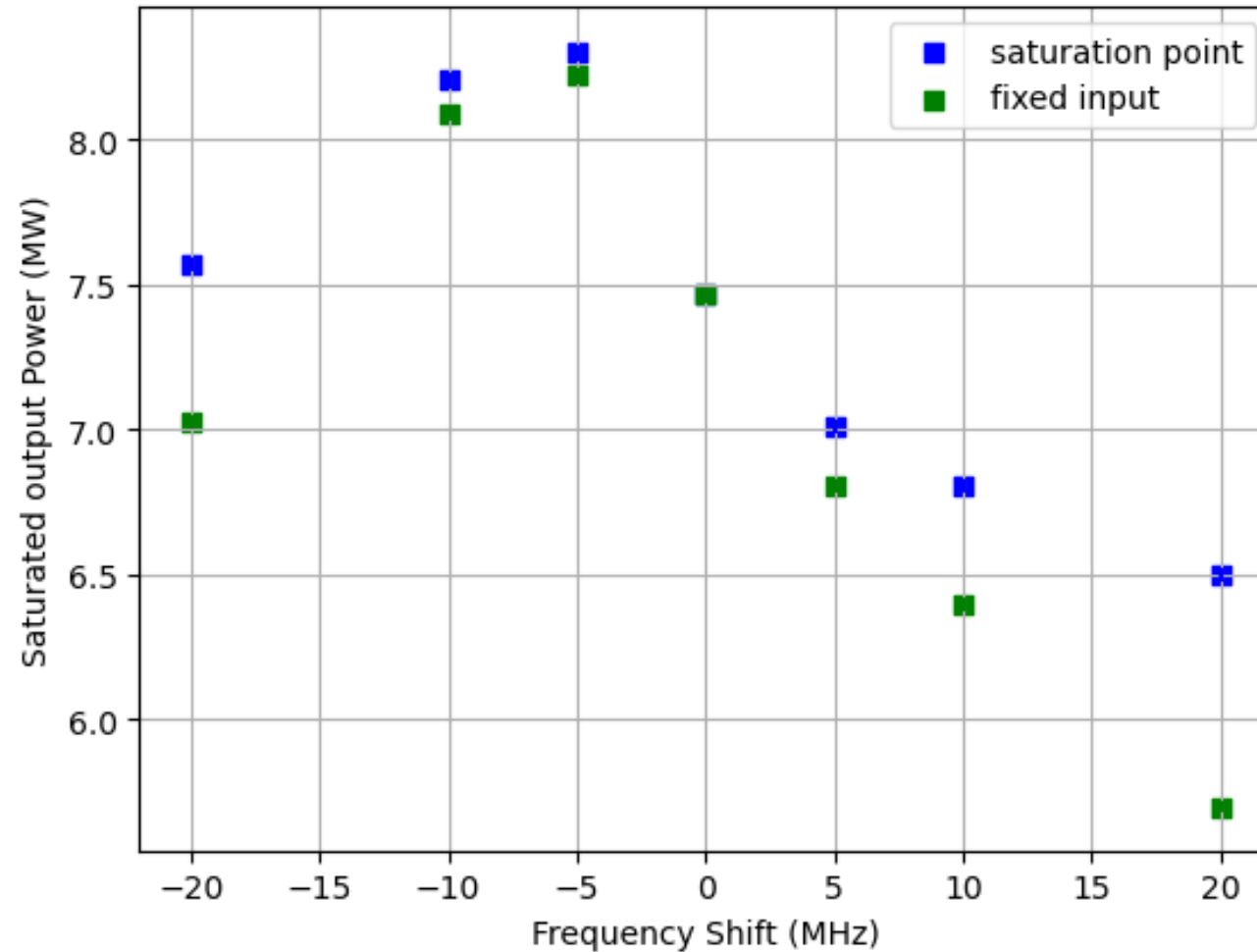
Fine tuning of CCSC to find
optimal point

Optimal point @9.5A
Efficiency 54.4%



High Efficiency Klystron ER37117 TUBE1

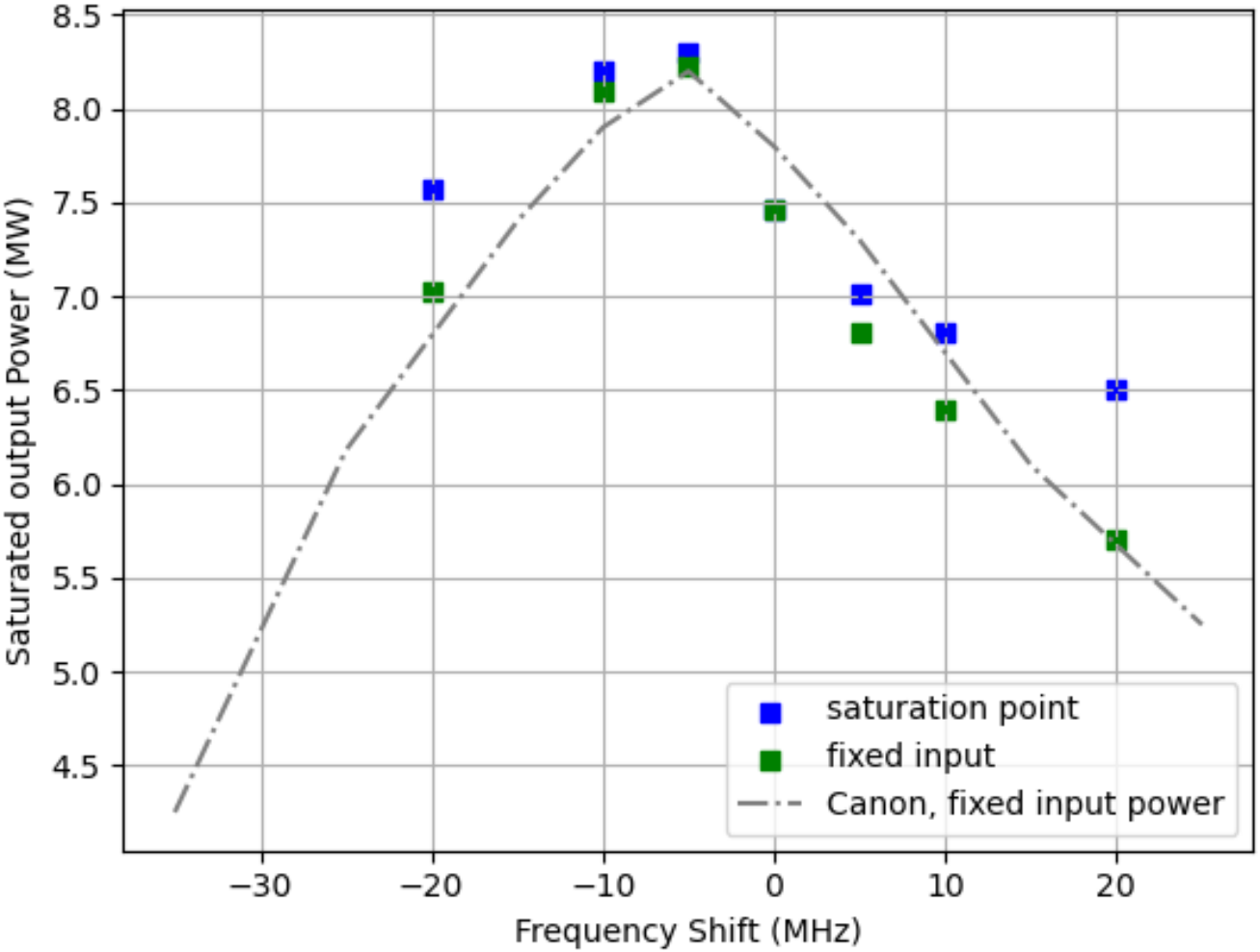
Frequency behaviour



High Efficiency Klystron ER37117 TUBE1

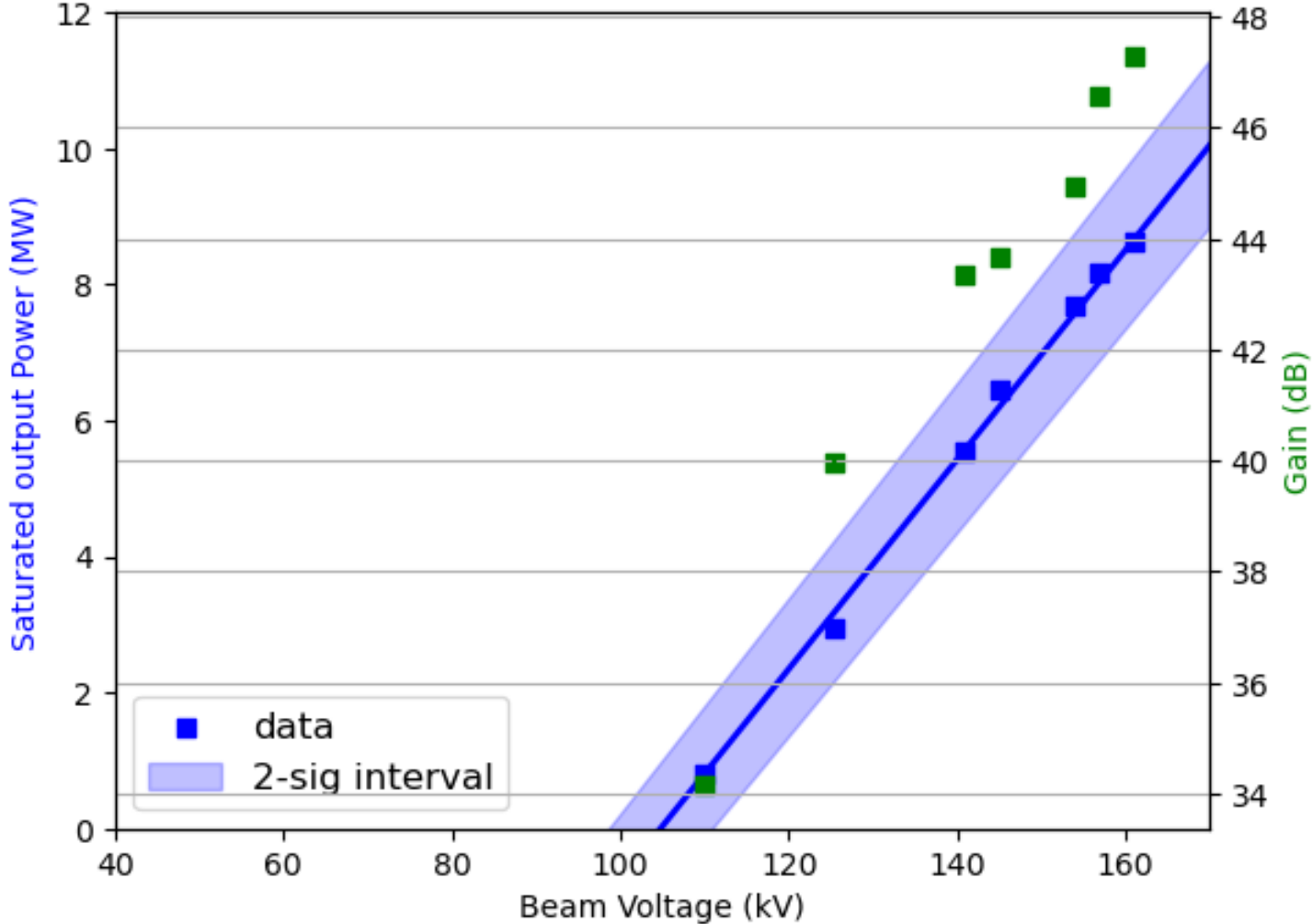
Frequency behaviour

(*) Canon curve has been shifted -5 MHz



High Efficiency Klystron ER37117 TUBE1

Beam voltage dependency



X-Box 3: High Efficiency Tubes Characterisation



- **Calibrated setup – problems with VNA -> recalibrated using VNA with coaxial type N ports**
- **Measured curves of first TUBE (mod A)**
- **Now – no tension in filament (under investigation)**



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