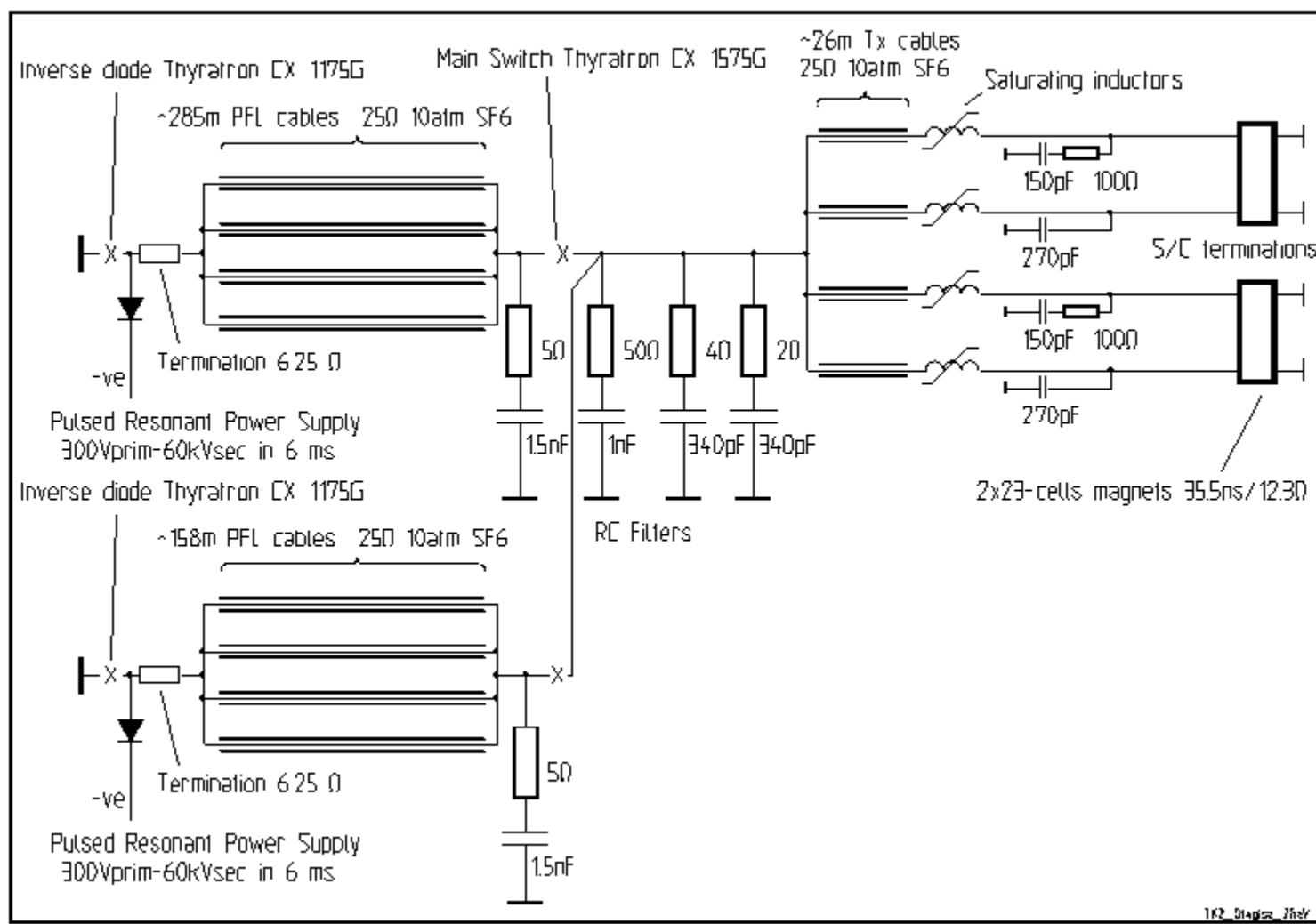




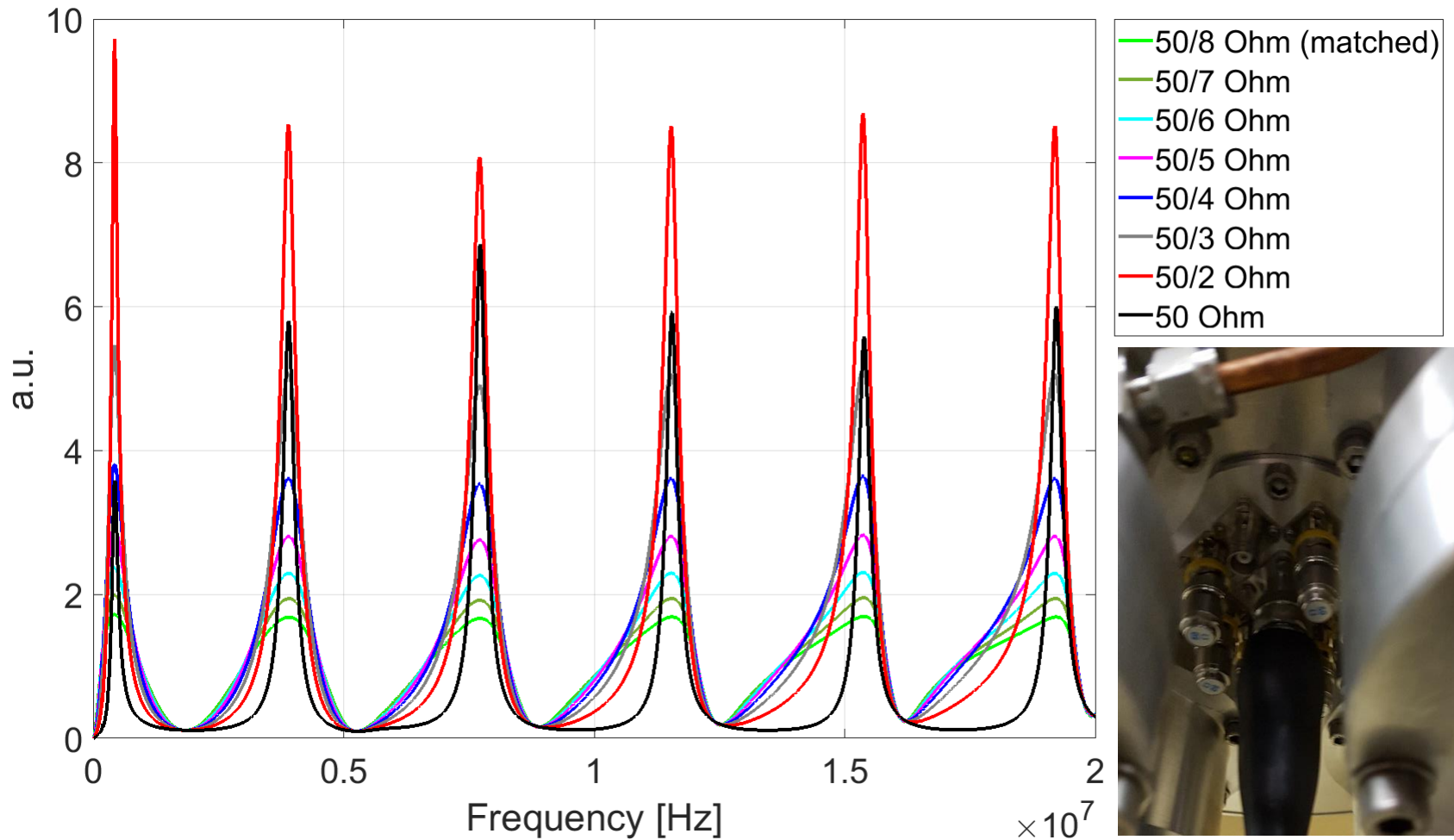
Measurements of the PS KFA20

M. Barnes, E. Koukovini-Platia, L. Sermeus, C. Zannini

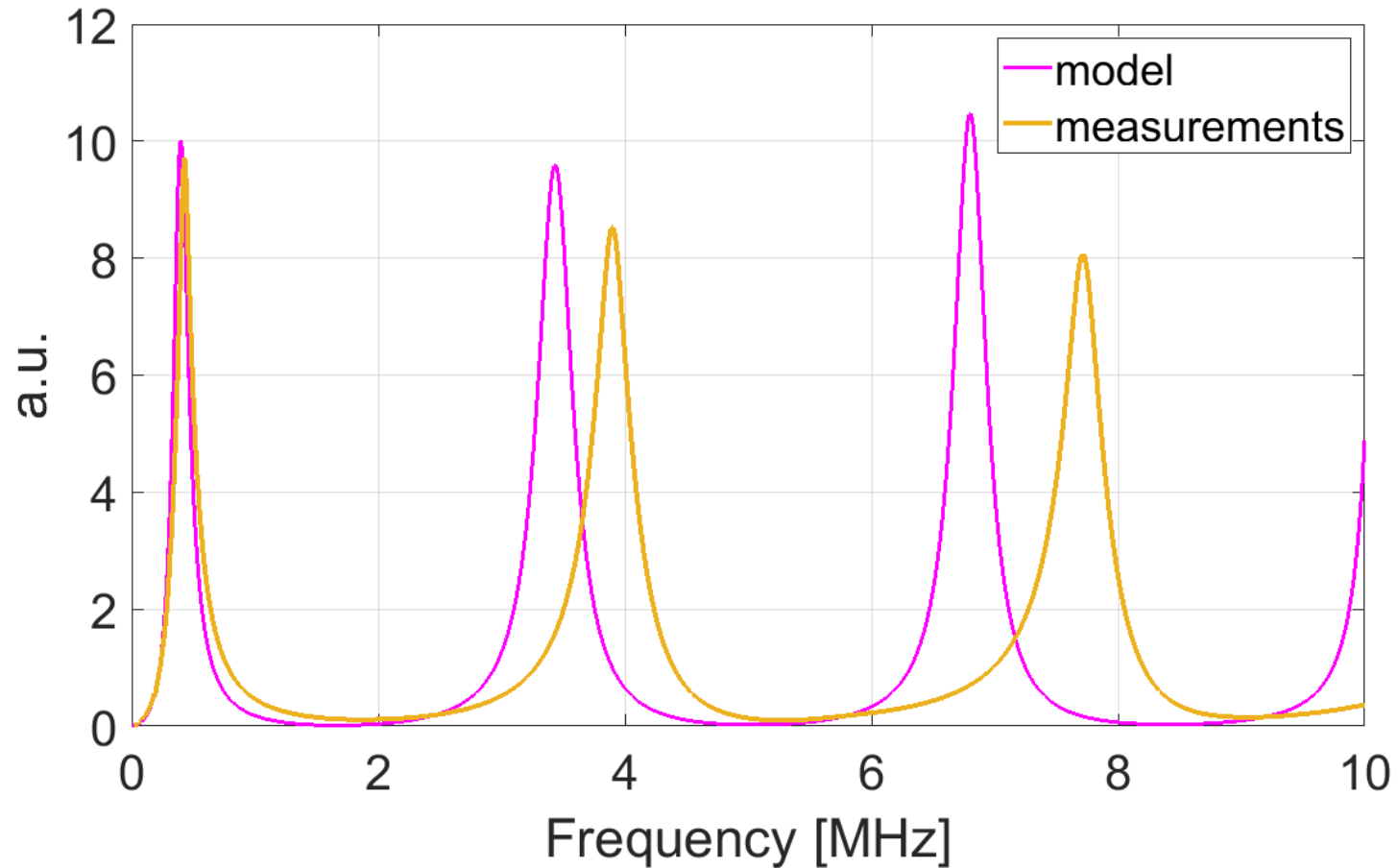
PS KFA20 kicker circuit



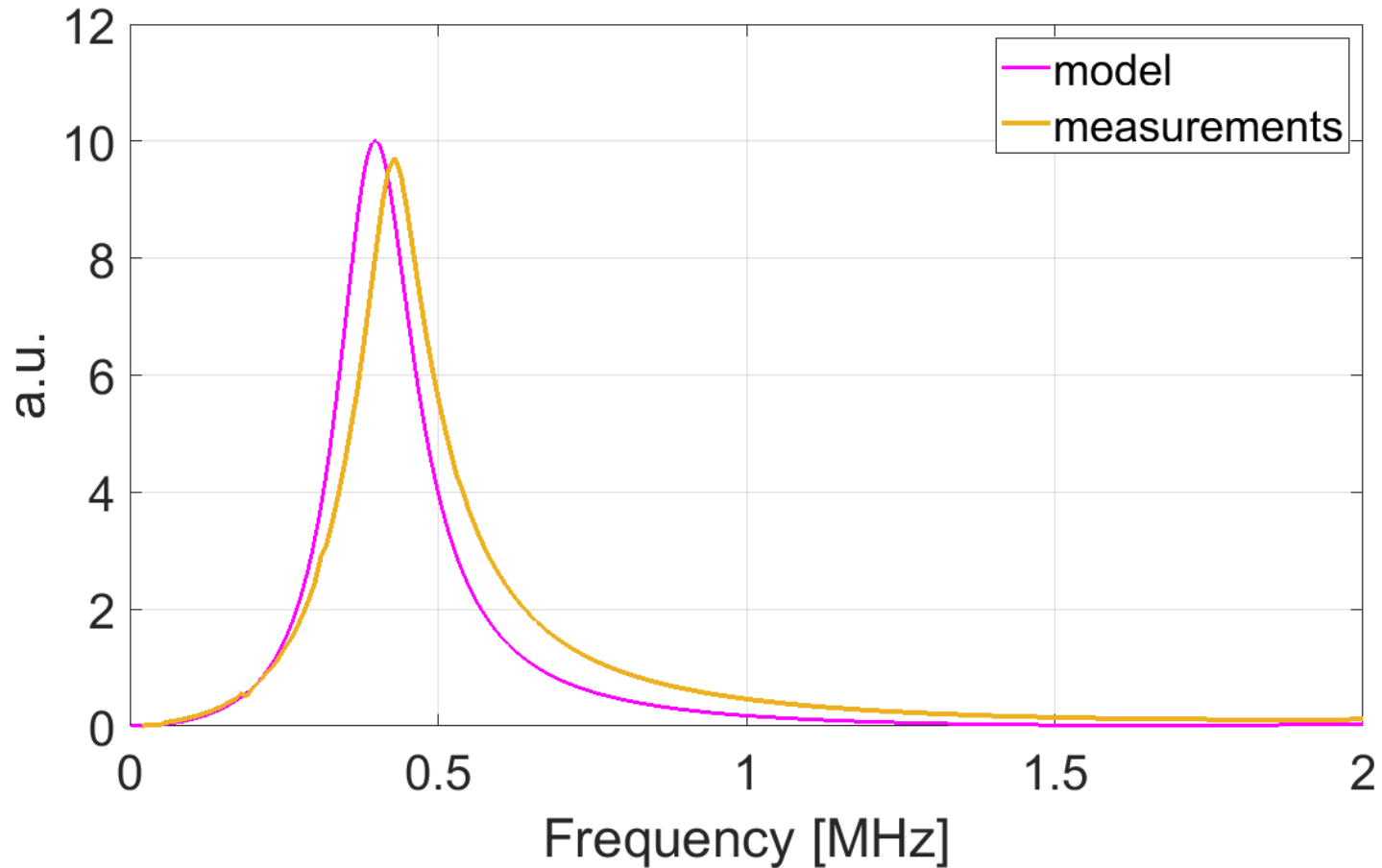
KFA20 measurements



KFA20 measurements



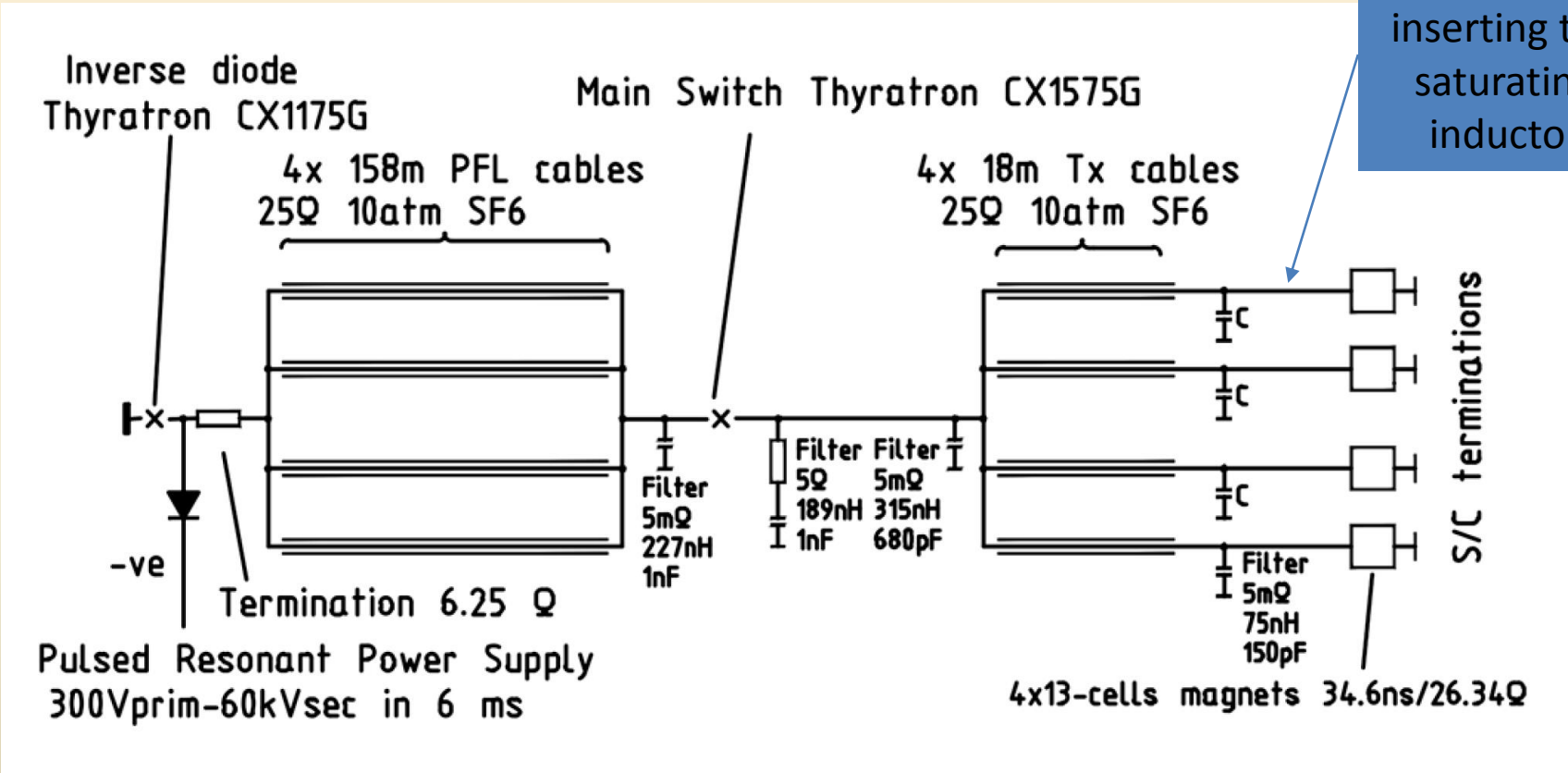
KFA20 measurements



Resonance due to saturating inductor

PSB EKF

Mitigation inserting the saturating inductor



Inverse diode
Thyatron CX1175G

Main Switch Thyatron CX1575G

4x 158m PFL cables
25Ω 10atm SF6

4x 18m Tx cables
25Ω 10atm SF6

-ve

Termination 6.25 Ω

Pulsed Resonant Power Supply
300V_{prim}-60kV_{sec} in 6 ms

Filter
5mΩ
227nH
1nF

Filter
5Ω
189nH
1nF

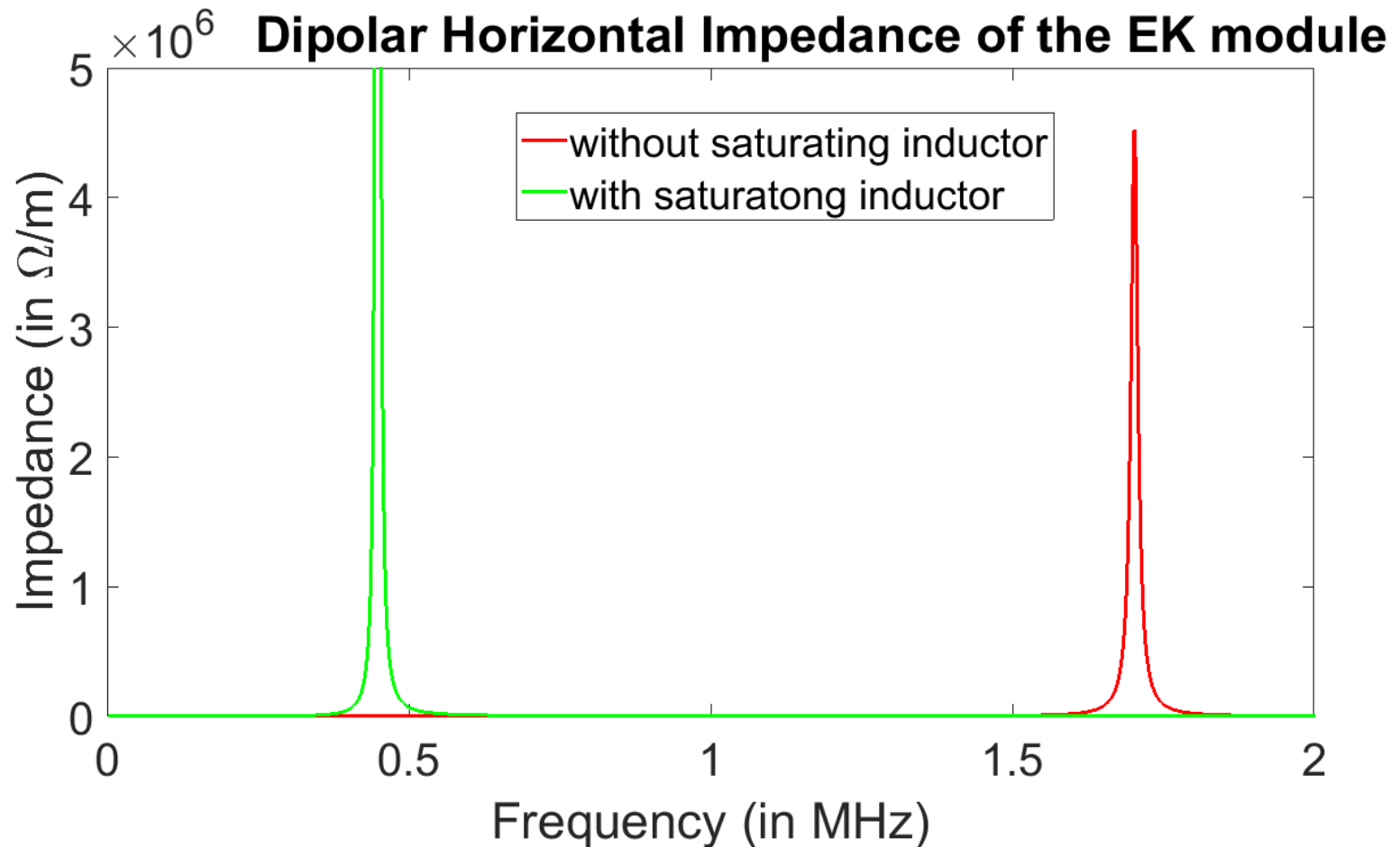
Filter
5mΩ
315nH
680pF

Filter
5mΩ
75nH
150pF

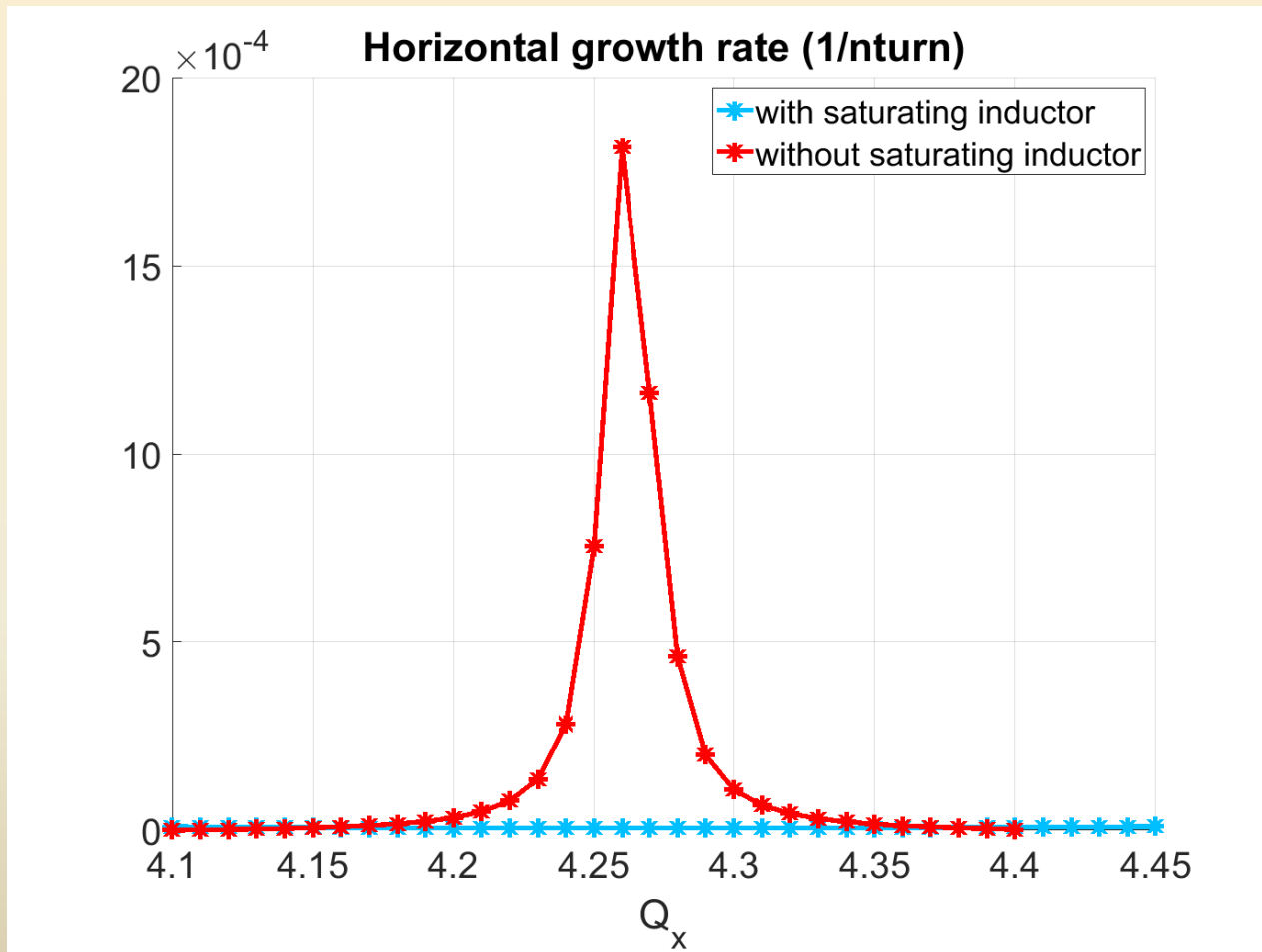
4x13-cells magnets 34.6ns/26.34Ω

S/C terminations

Expected effect of the saturating inductor



Expected effect of the saturating inductor



The saturating inductor is expected to suppress the instability below half-integer

Next step

- Measurements on the KFA10 with and without saturating inductor to experimentally verify that the model well reproduces the effect of the saturating inductor (resonance at about 400 kHz and shift to higher frequency of the first cable resonance)