

# Preliminary magnetic cycles for MQM and MQY measurements

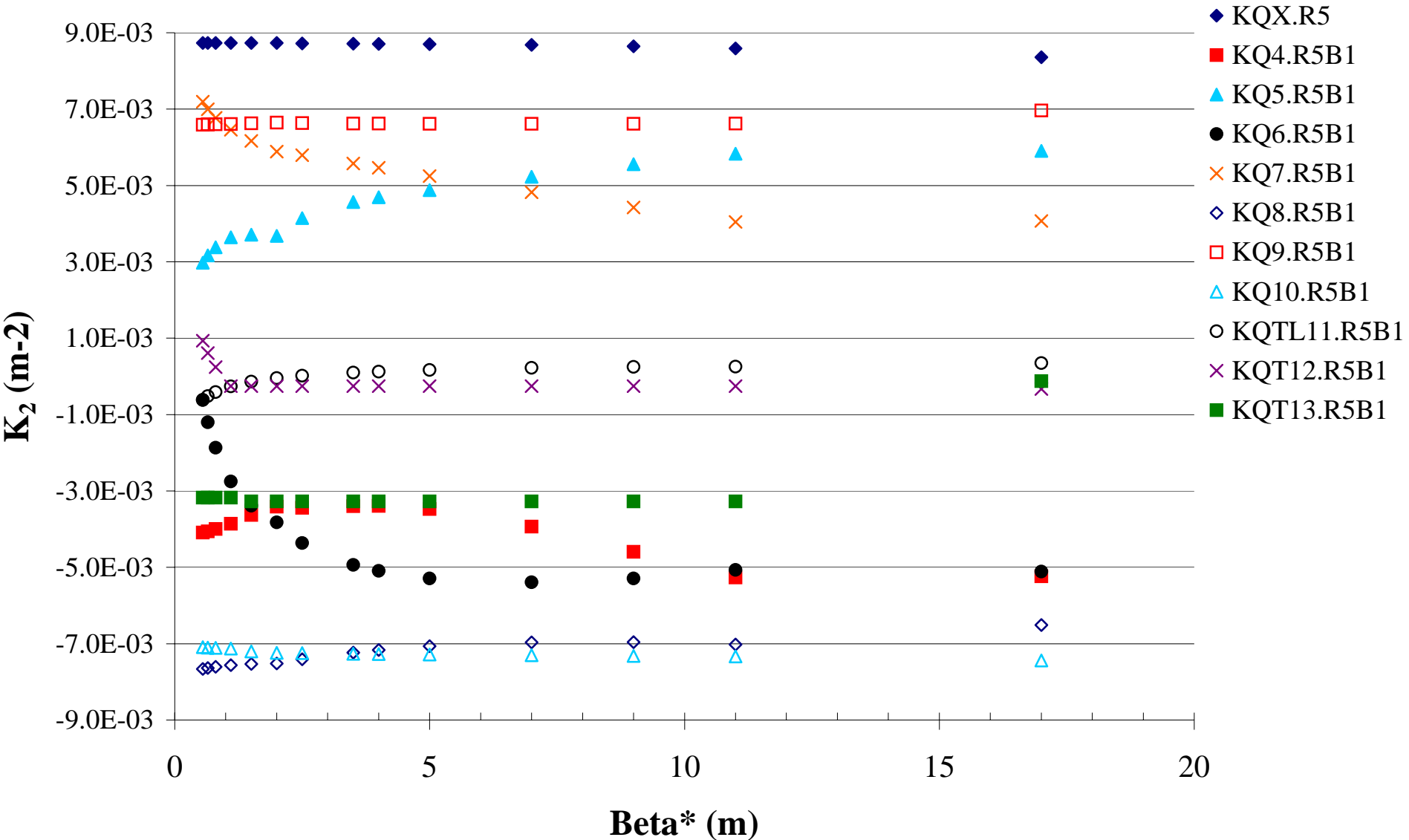
Acknowledgements: O. Brüning, S. Fartoukh, A. Lombardi, T. Risselada

- Optics for IRs
- Insertion quadrupoles powering during squeeze
- Next steps

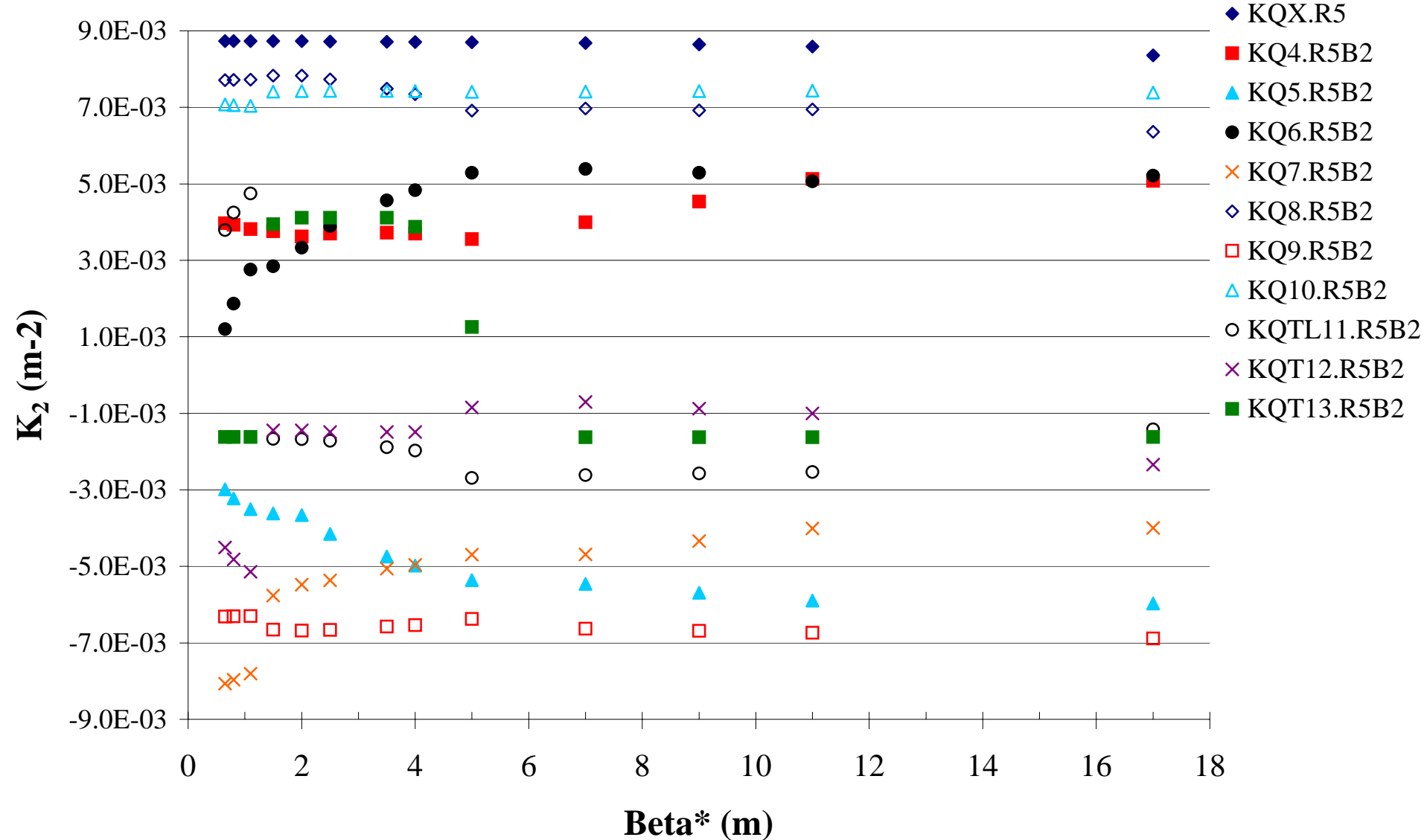
# Assumptions

- Matched optics for various values of the  $\beta^*$  during squeeze
- Linear interpolation between computed values of  $\beta^*$  is used
- Maximum ramp rate of 10 A/s is used during first stage of squeeze. Then, it is reduced to 5 A/s
- Nominal transfer function is assumed for the various classes of insertion quadrupoles

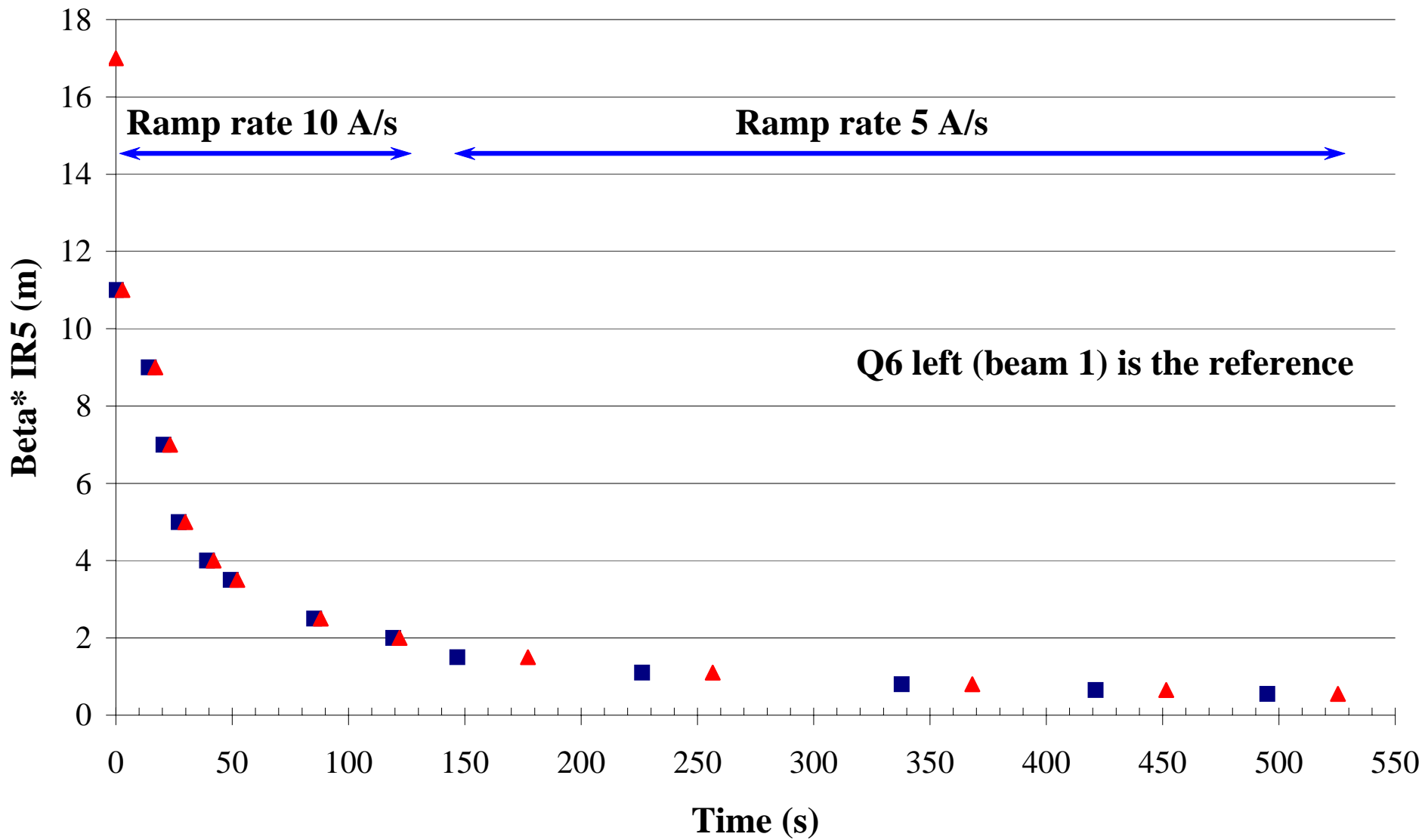
# IR5 (1) optics - I



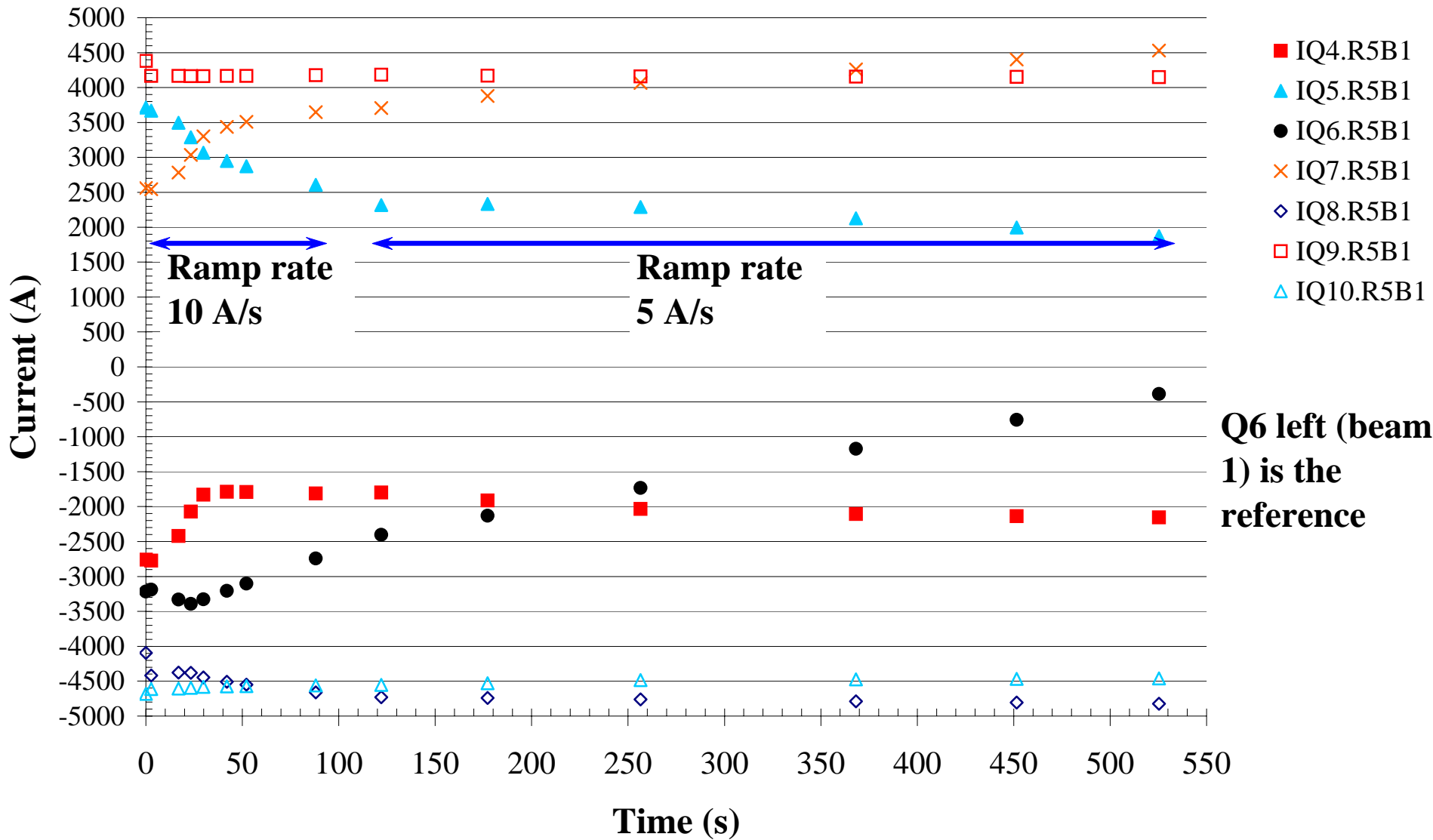
# IR5 (1) optics - II



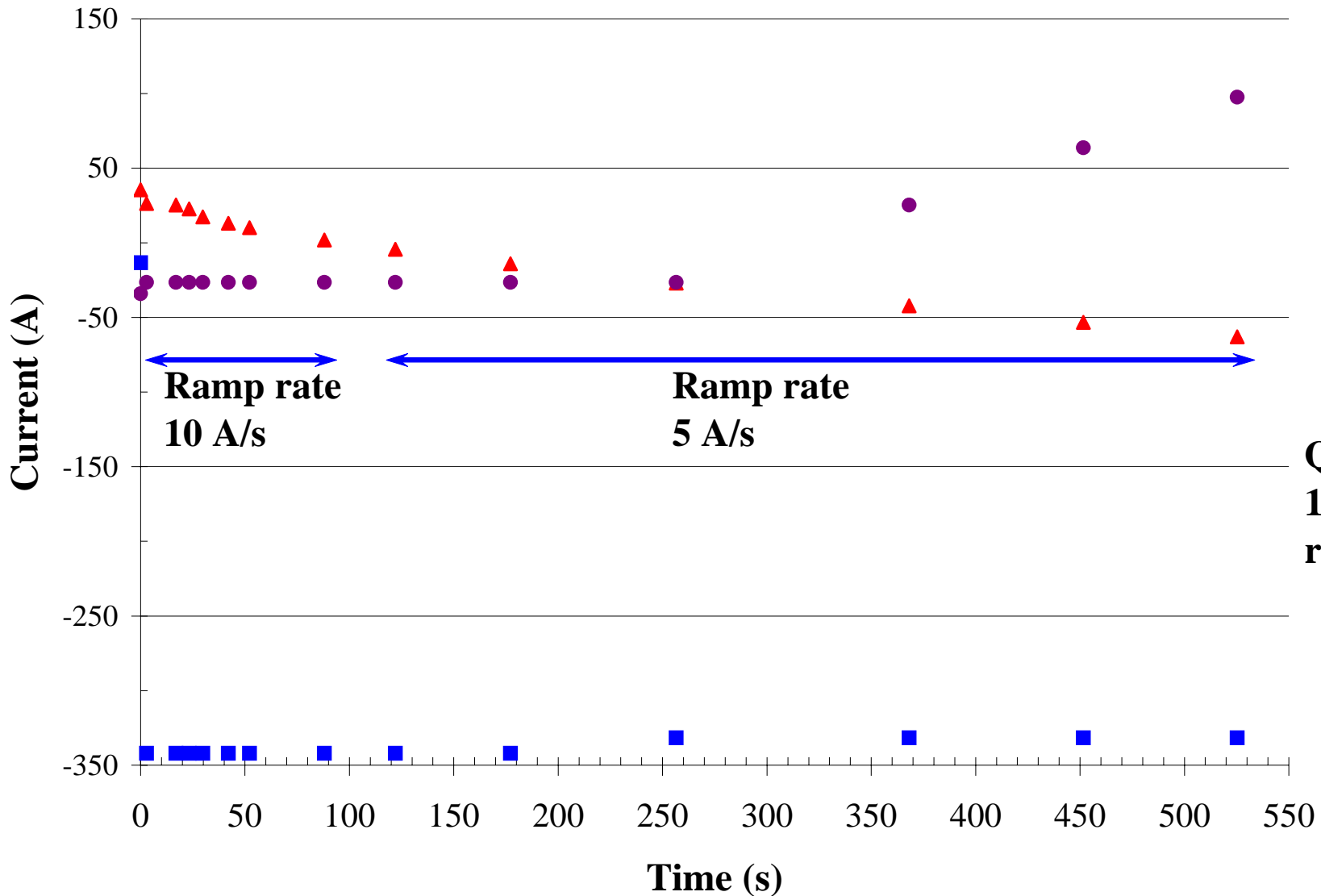
# Results for IR5(1) - I



# Results for IR5(1) - II



# Results for IR5(1) - III

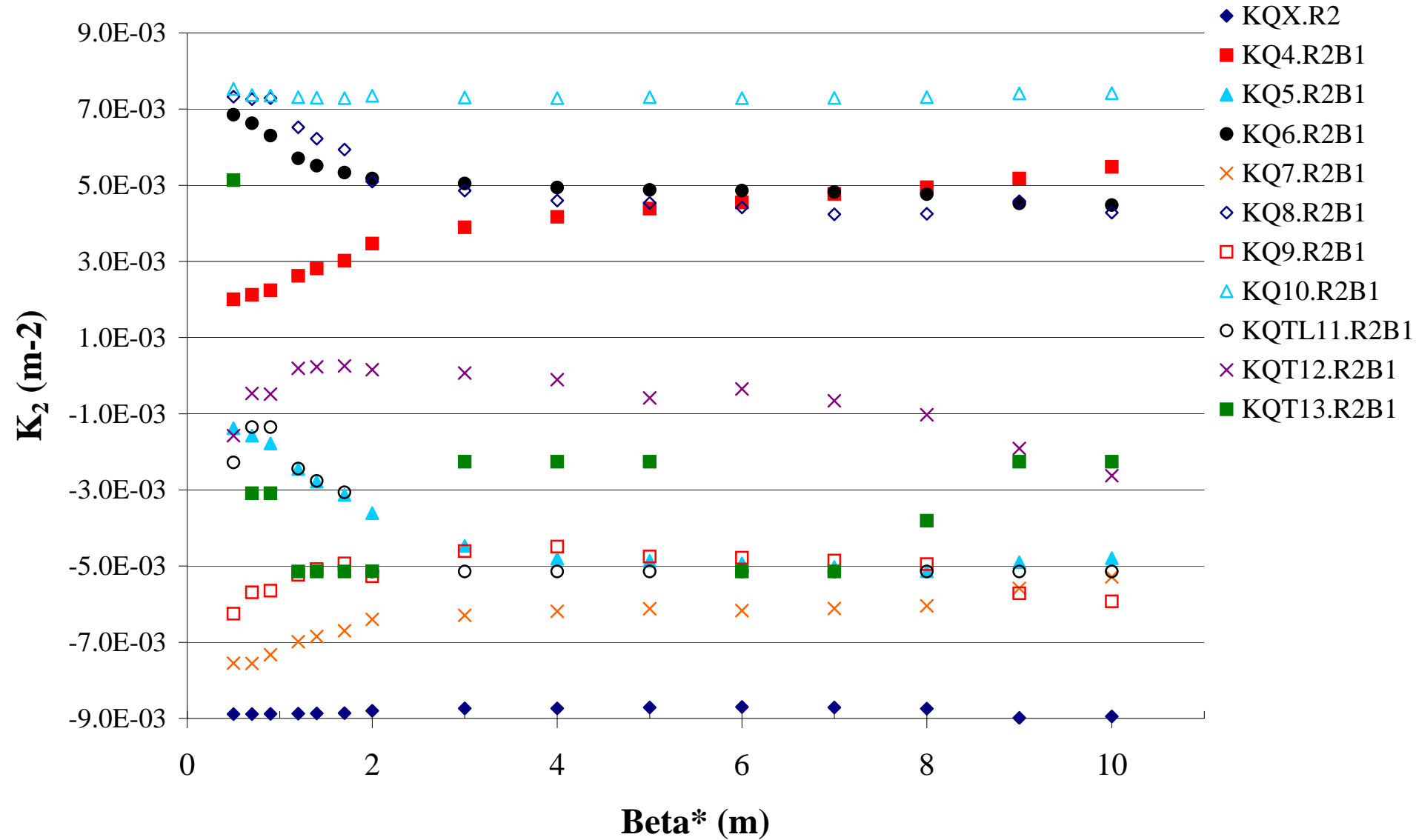


# Remarks for IR5(1)

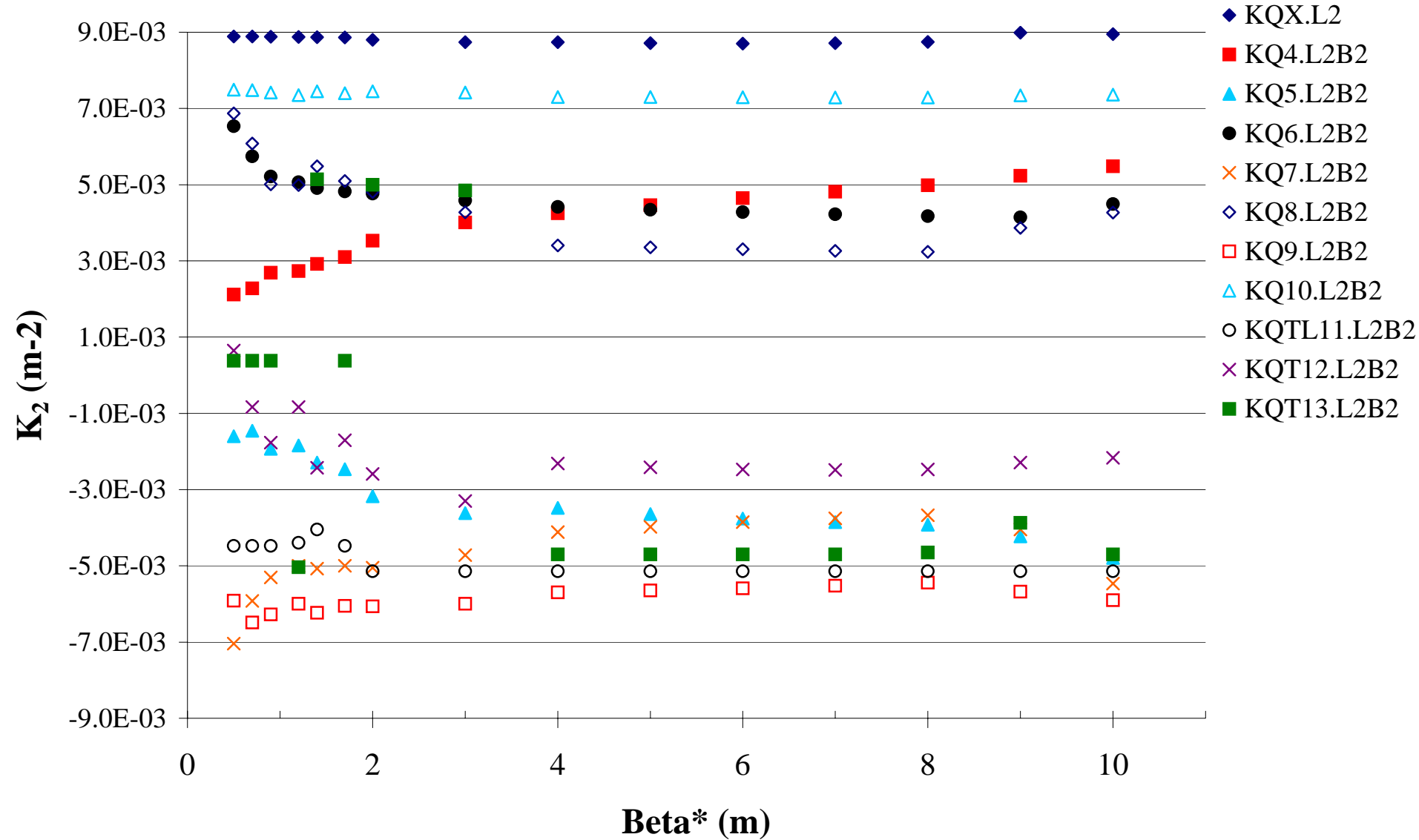
- Currents smooth during squeeze.
- Settings for  $\beta^*=17$  m join smoothly those starting from 11 m.
- Ramp rate exceeded only at beginning of squeeze: at this stage the “free wheel” behaviour of the power converters could allow for a higher ramp rate.



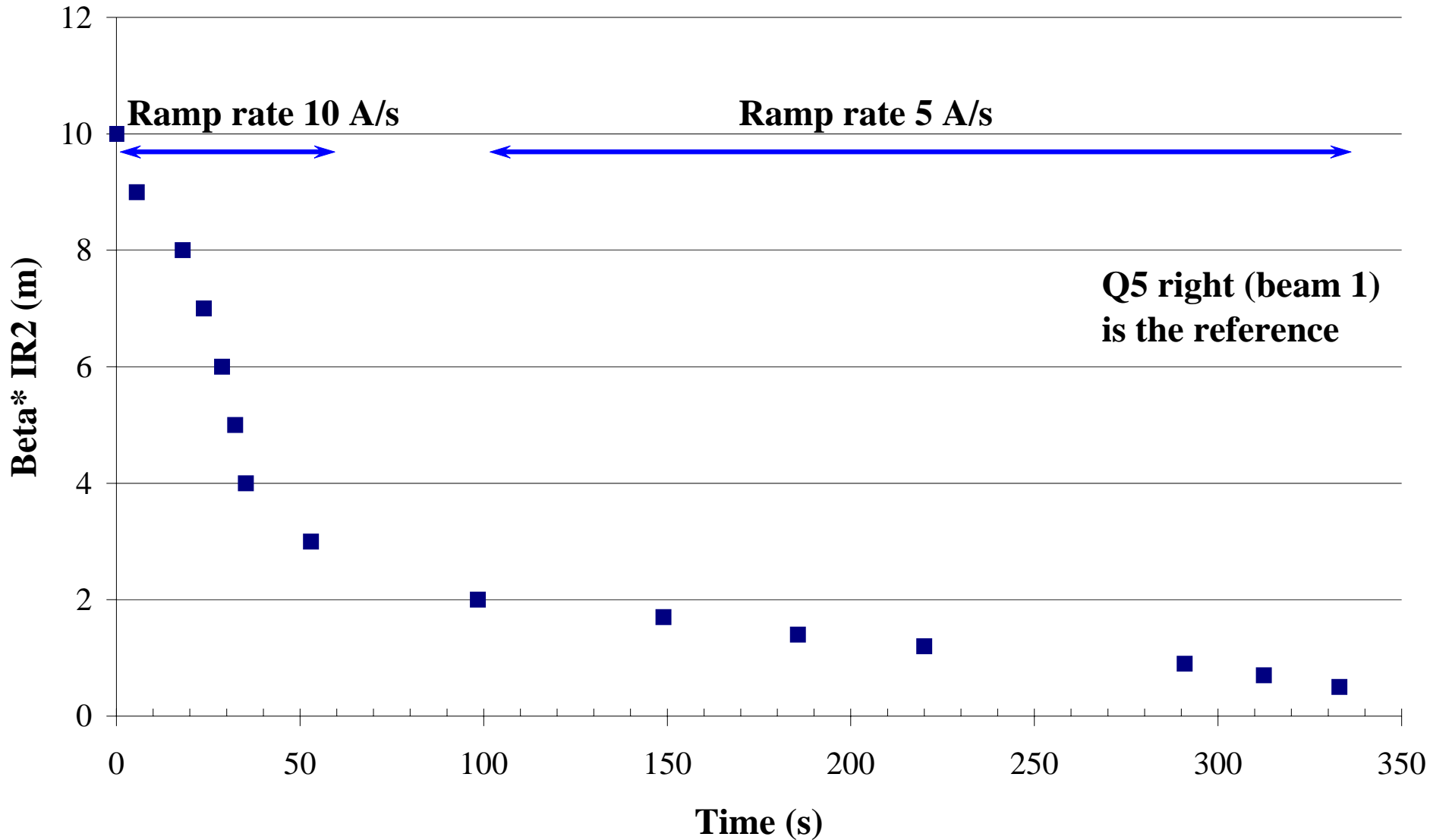
# IR2 optics - I



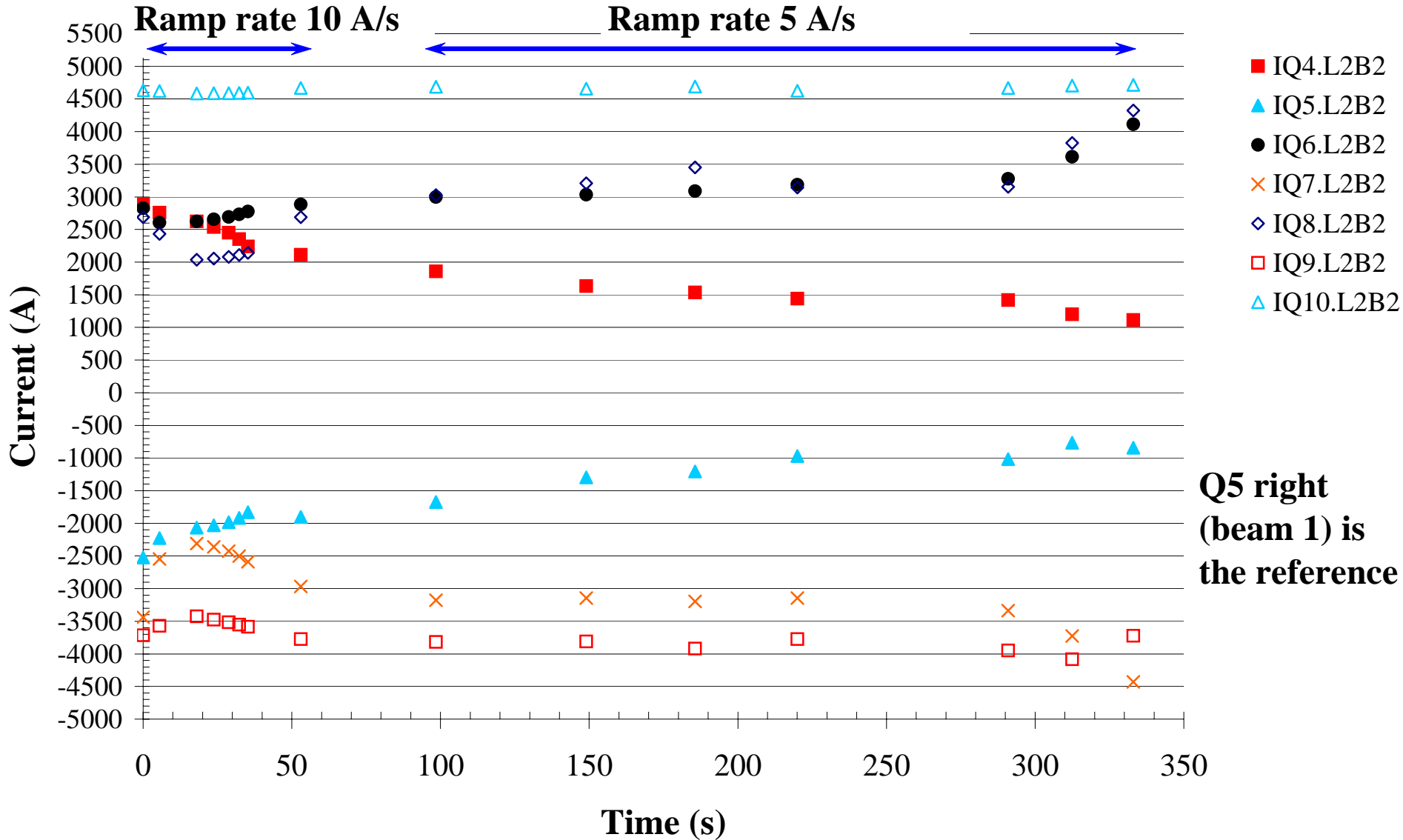
# IR2 optics - II



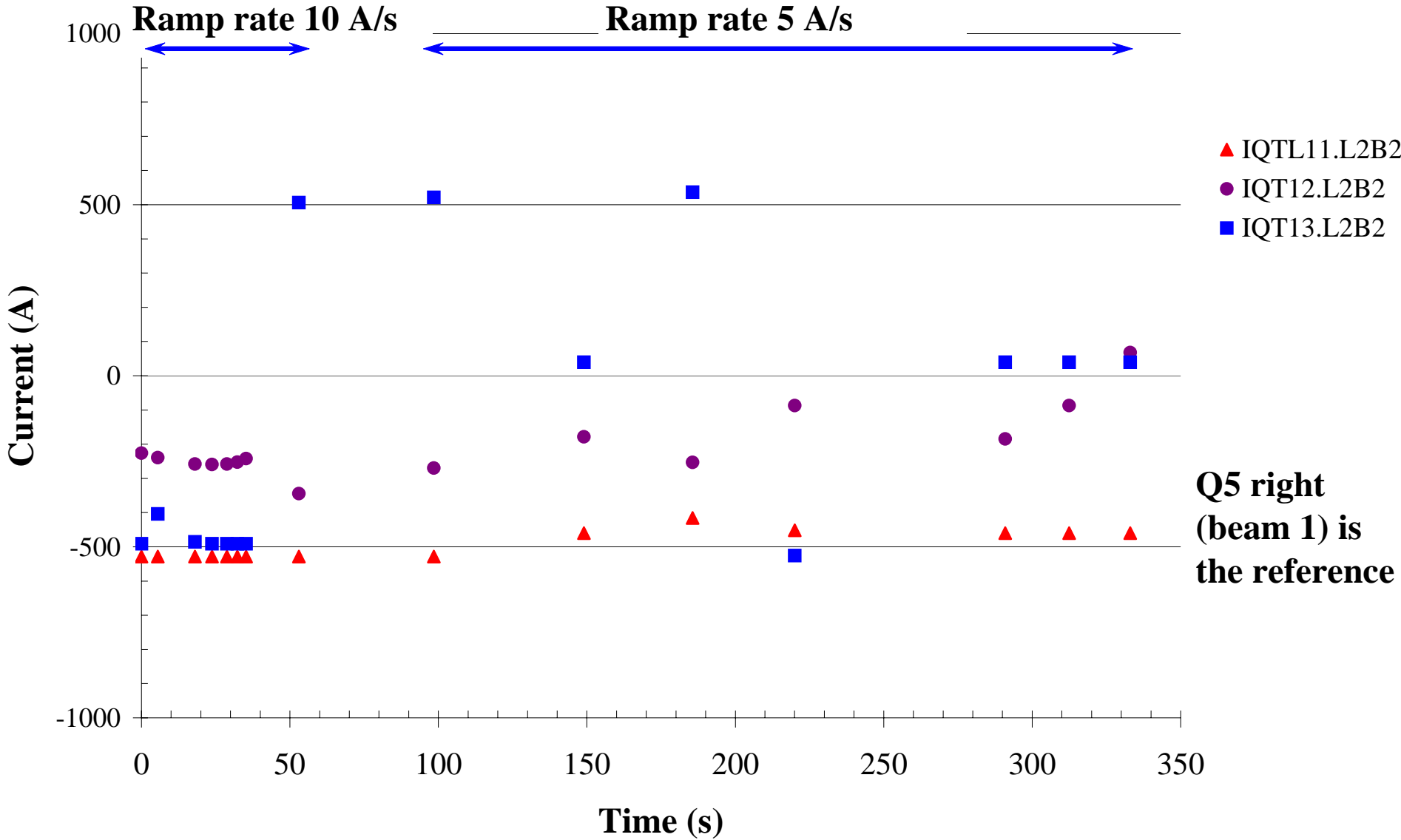
# Results for IR2 - I



# Results for IR2 - II



# Results for IR2 - III

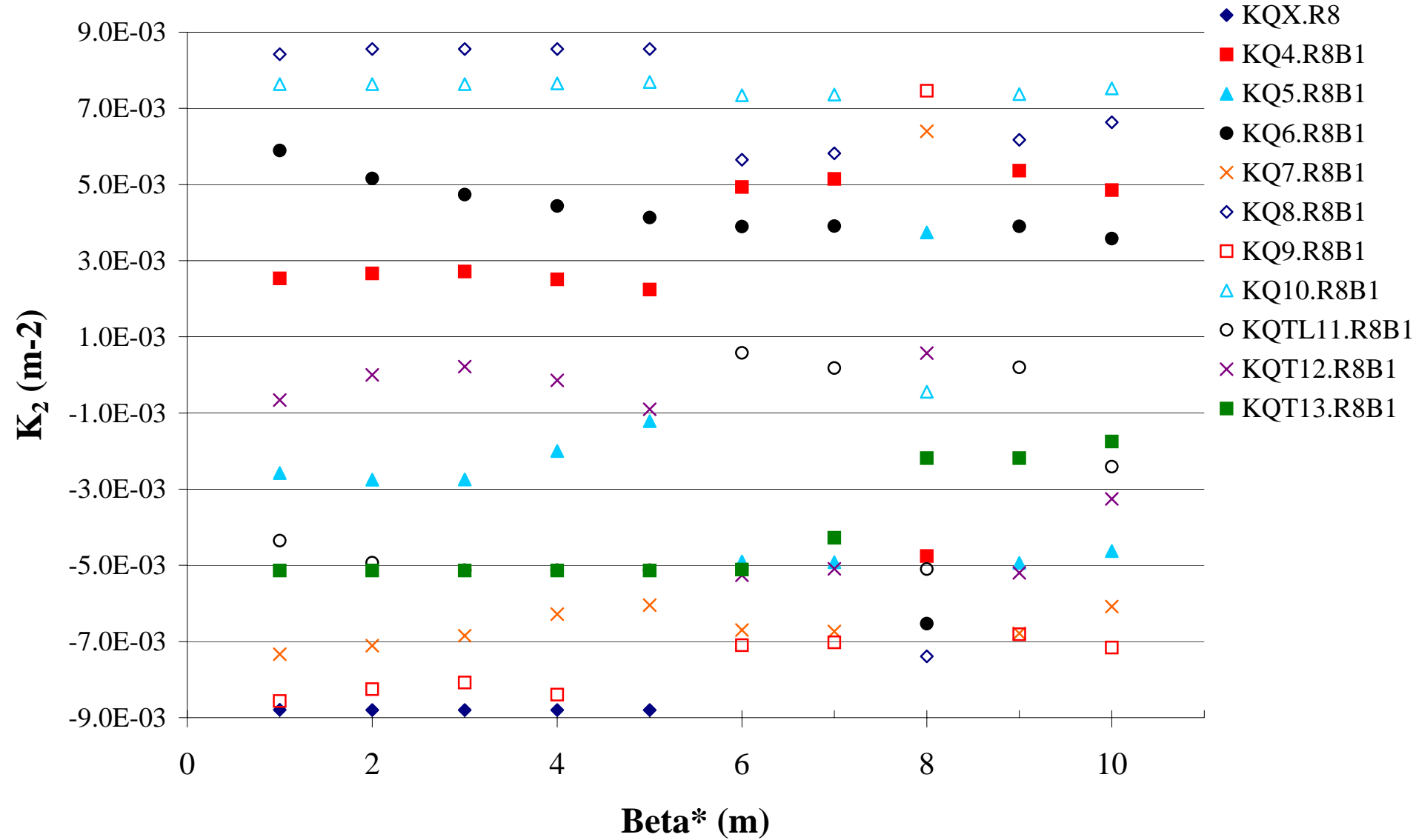


Q5 right  
(beam 1) is  
the reference

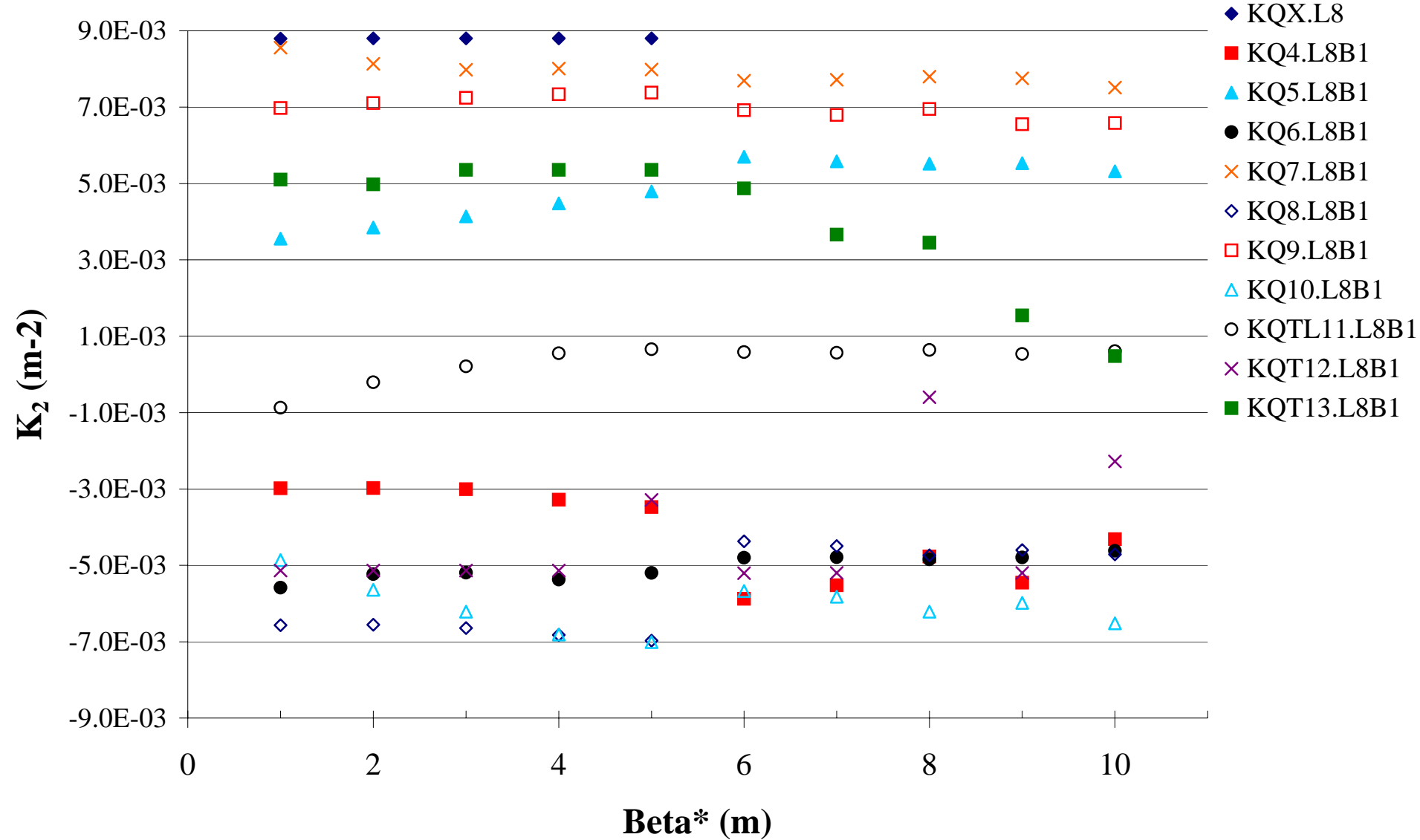
# Remarks for IR2

- Currents smooth during squeeze.
- Q8 has a powering a bit too low at injection.
- Ramp rate exceeded only at beginning of squeeze: at this stage the “free wheel” behaviour of the power converters could allow for a higher ramp rate.

# IR8 optics - I

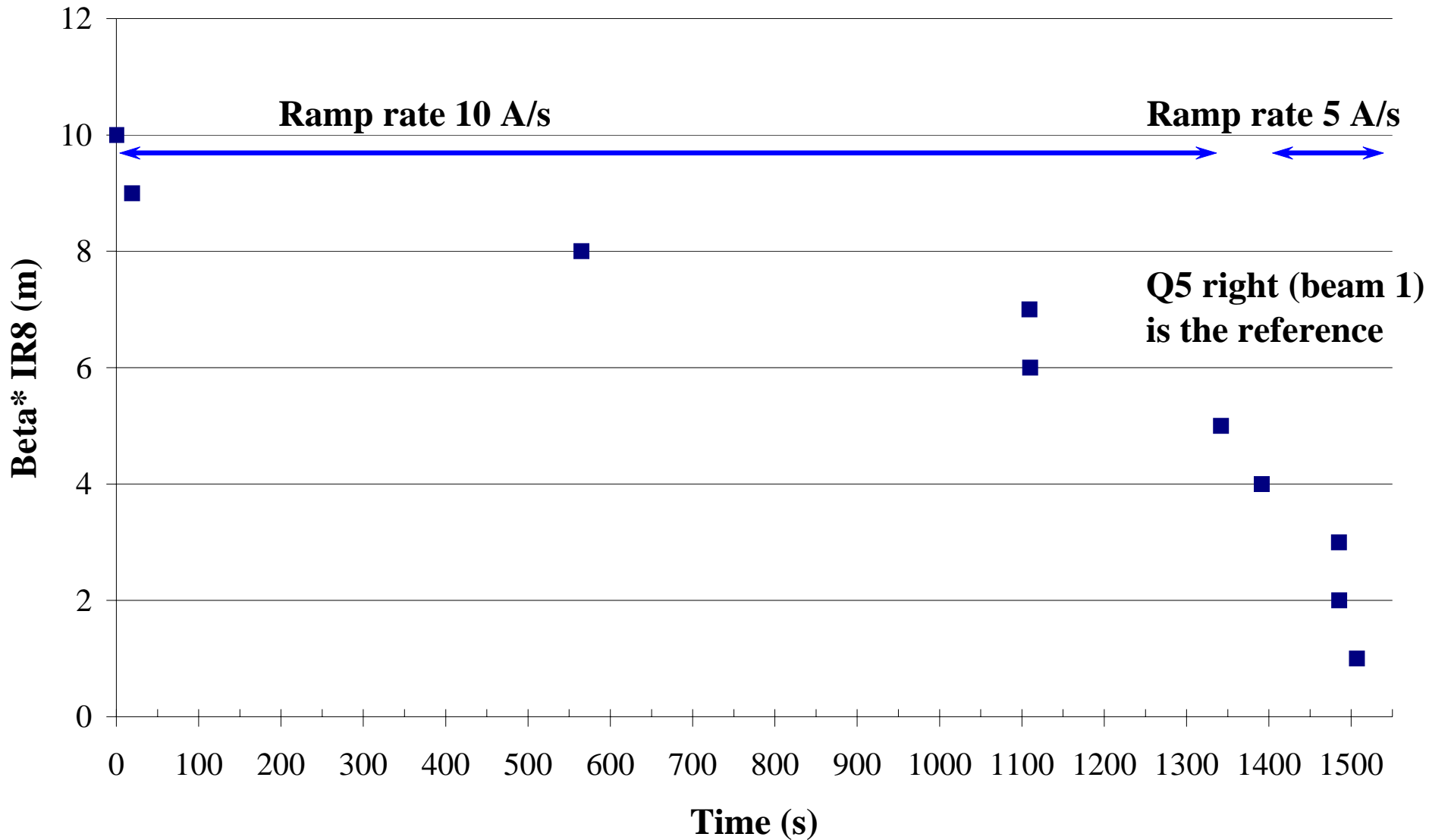


# IR8 optics - II

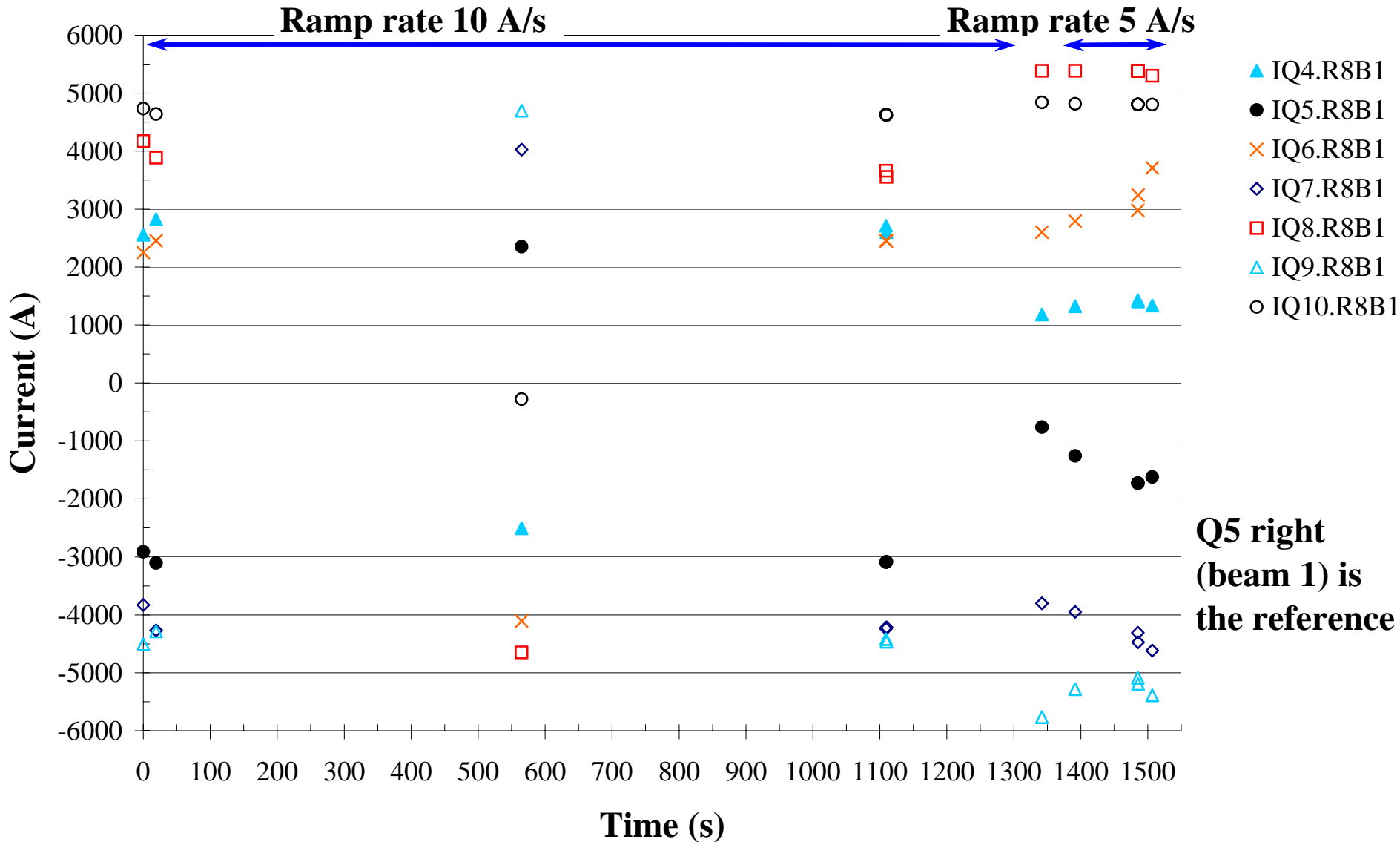




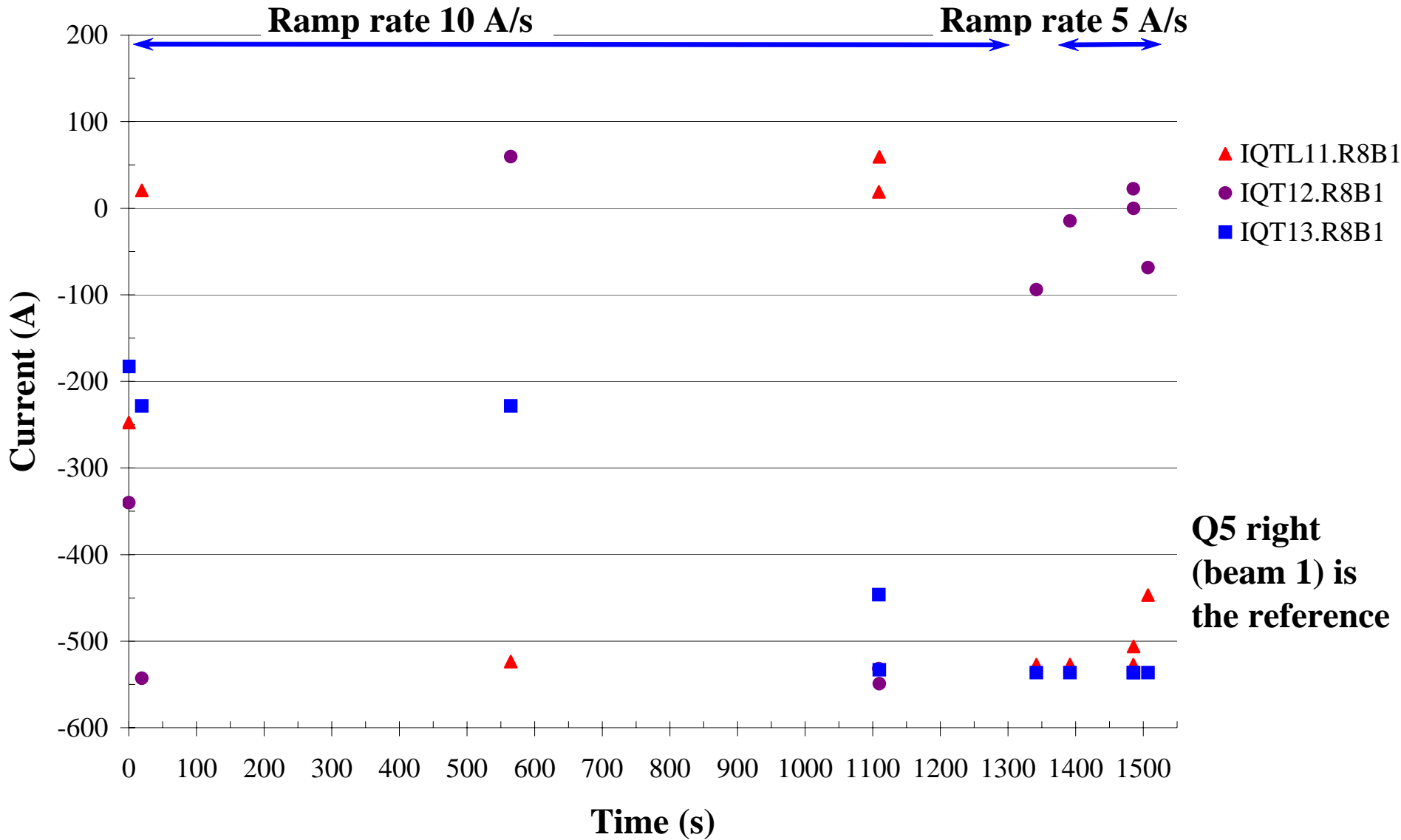
# Results for IR8 - I



# Results for IR8 - II



# Results for IR8 - III



# Remarks for IR8

- Currents not smooth enough during squeeze.
- Ramp rate largely exceeded not only at beginning of squeeze.

# Next steps

- Final check of results...
- Discussions with F. Bordry to define assumptions to be used for final computations. This will allow providing the necessary data to AT/MEL to proceed with the definition of the measurement cycles at least for IR1, IR5, and IR2.
- Improved matching for IR8 seems to be necessary, before data can be delivered to AT/MEL.