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## Measurement system for 2-meter long superconducting undulator with small vertical aperture

*Wednesday 4 June 2025 16:00 (2 hours)*

Radiabeam is developing a hall probe measurement system that's capable of measuring a 2m long SCU within a cryochamber. The measurement system will comprise of a Hall probe carriage sliding in a guide tube, driven by flexible linear encoder scale and a reel/de-reel type mechanism to achieve driving and position tracking at the same time. Further the design will fit inside a chamber of down to 3.5mm vertical aperture. We will present the design details addressing the engineering challenges including: thermos-mechanical analysis of the hall probe carriage and guide tube; heating for warm hall probe measurement, motion-induced heat generation and dragging force on the hall probe carriage; and the effect on the scale length due to temperature change.

### Footnotes

### Paper preparation format

Word

### Region represented

America

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