



ABSTRACT

The first prototype of the in-vacuum undulator (U15) for the SwissFEL project has been completed and tested with magnetic measurements. In this paper the main design parameters are recalled, the instrumentation and the magnetic measurements results and analysis are presented. Particular attention is given to the algorithm for both the trajectory and phase optimization.

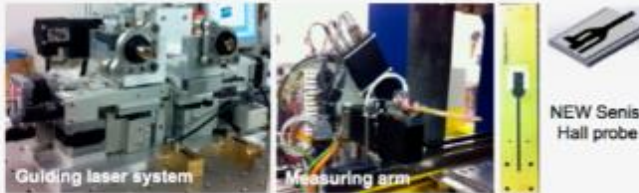
AIR CUSHION VEHICLE



MAGNETIC STRUCTURE



MAGNETIC MEASUREMENT INSTRUMENTATION

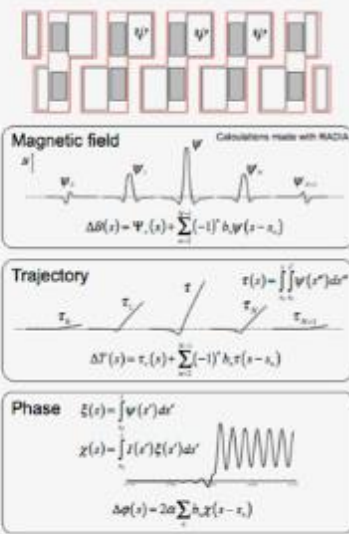


NEW Senis Hall probe

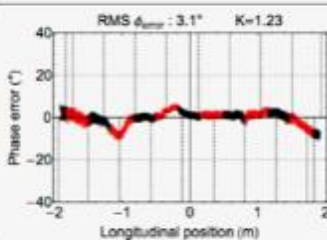
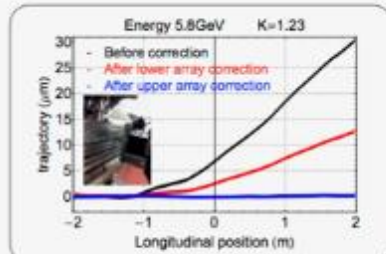
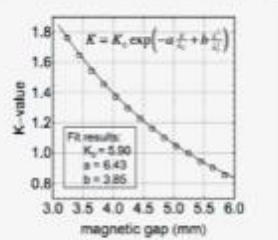
AUTOMATIC POLE HEIGHT ADJUSTER



OPTIMIZATION ALGORITHMS



MAGNETS ASSEMBLY AND VACUUM TESTS AT BRUKER



CONCLUSIONS

The U15 prototype fulfills the requirements in terms of K-value, trajectory and phase, the automatic optimization procedure together with accurate magnetic measurements allows a fast and smooth optimization in view of the series test campaign.