ABSTRACT

In preparation for a future Large Hadron electron Collider (LHeC) at CERN, an ERL test facility is foreseen as a test bed for SRF development, cryogenics, and advanced beam instrumentation, as well as for studies of ERL-specific beam dynamics. The CERN ERL test facility would comprise two linacs, each ultimately consisting of 4 superconducting 5-cell SCRF cavities operating at 802 MHz, and two return arcs on either side; a final electron energy of about 300 MeV is reached. The average beam current should be above 6 mA to explore the parameter range of the future LHeC. In this paper we present a preliminary optics layout.

Conclusions

Due to the demand of providing a reasonable validation of the LHeC’s final system plan is, at present, more oriented towards employing a FMC cell based lattice [3]. A next step will be the study of a hardware solution which could work at the same time as an FMC cell and as a FODO based second order achromat cell.

ACKNOWLEDGMENT

This work is supported by the European Commission within the ePAC project under Grant Agreement 289585.

REFERENCES