

A.2: Commissioning of Linac-B1 at ARPF and testing of Linac-B2 for 9 kW, 7.85 MeV operation at RRCAT

The beam commissioning of the first electron linac (Linac-B1) has been completed at Agricultural Radiation Processing Facility (ARPF), Indore. Beam power was increased gradually during the commissioning and a beam power of 5 kW at 9 MeV was obtained in March 2018. The linac was also tested for typical shift operations at ARPF at beam power of 5 kW and nominal beam energy of 9 MeV. Typical beam and system parameters during the test are shown in Figure A.2.1.

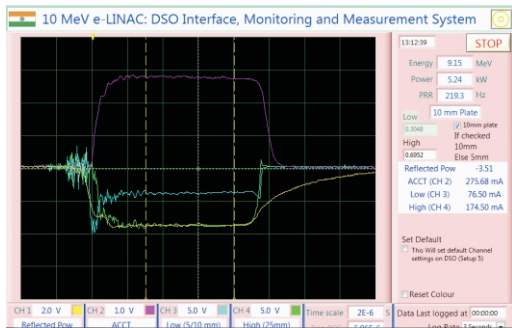


Fig. A.2.1: Operational parameters of Linac-B1 during beam testing at ARPF.

The assembly and system integration activities of second linac, having beam parameters of 9 MeV, 6 kW (Linac-B2) are in progress at ARPF. Both the linacs are seen in the accelerator vault of ARPF in Figure A.2.2.



Fig. A.2.2: Both linacs assembled at ARPF.

The two beam scanners, beam catchers and a segment of product handling system in the “Process Chamber” of ARPF are seen in Figure A.2.3. Microwave system and coolant distribution in the Equipment Room of ARPF are seen in Figure A.2.4.

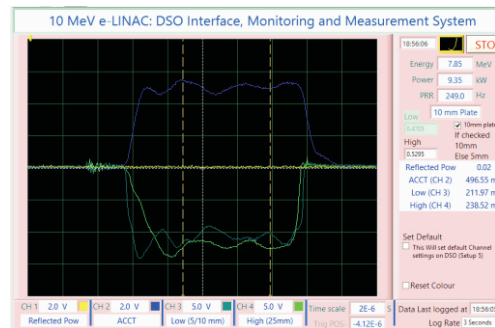
Before shifting Linac-B2 to ARPF, the linac was experimentally tested at a beam power of 9.35 kW at beam energy of 7.85 MeV, with AERB approval, for generating inputs for system improvements, as shown in Figure A.2.5.



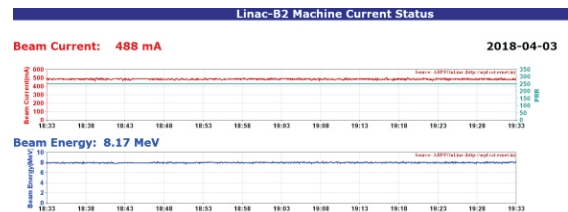
Fig. A.2.3: Process Chamber at ARPF. Two beam scanners, beam catchers and a segment of product handling system are seen.



Fig. A.2.4: Microwave system and coolant distribution for both the linacs are seen in the Equipment Room of ARPF.



(a)



(b)

Fig. A.2.5: Operational parameters of Linac-B2 during high power testing at RRCAT. (a) Beam pulse, and, (b) beam parameters with time.

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