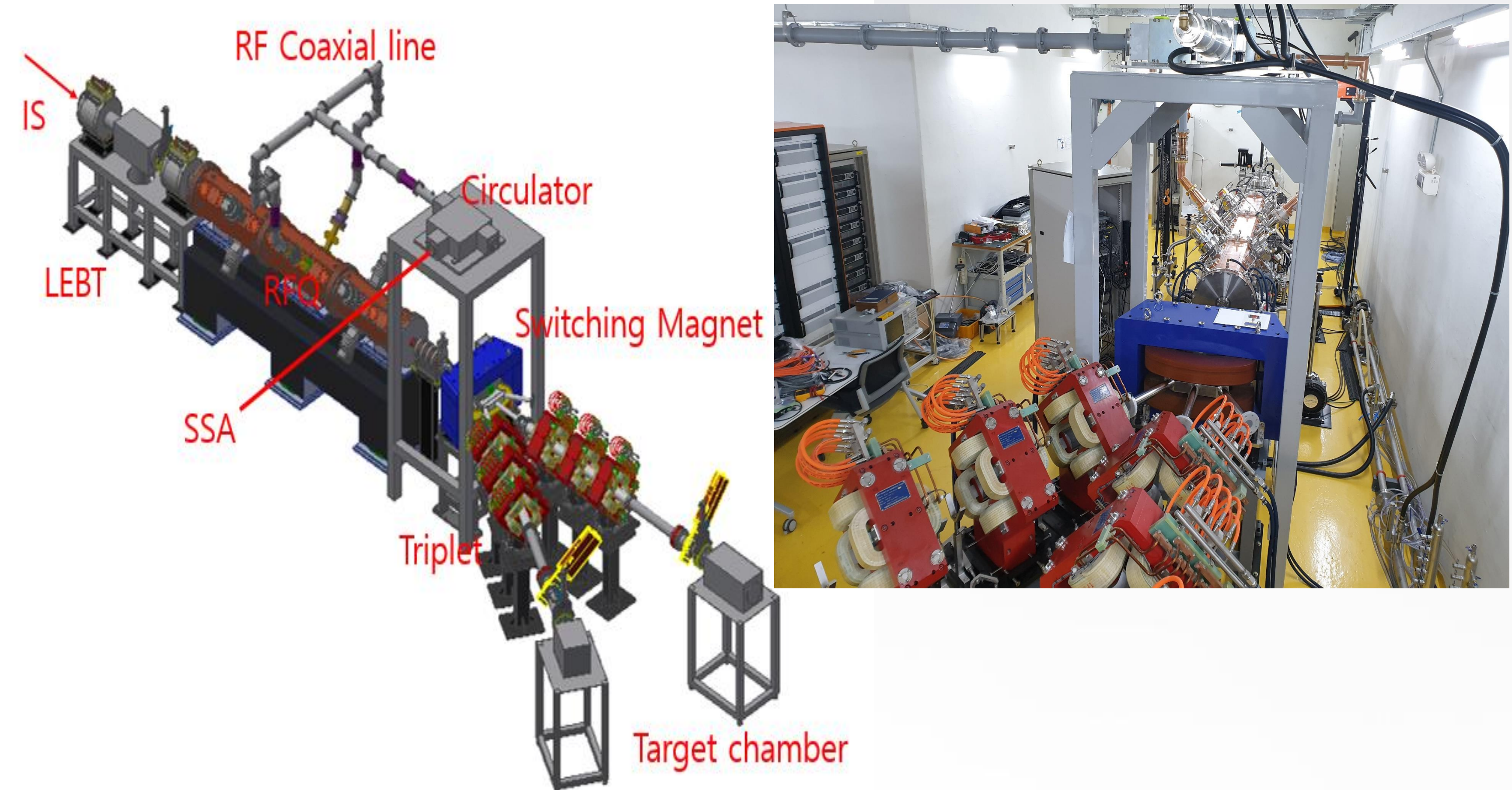


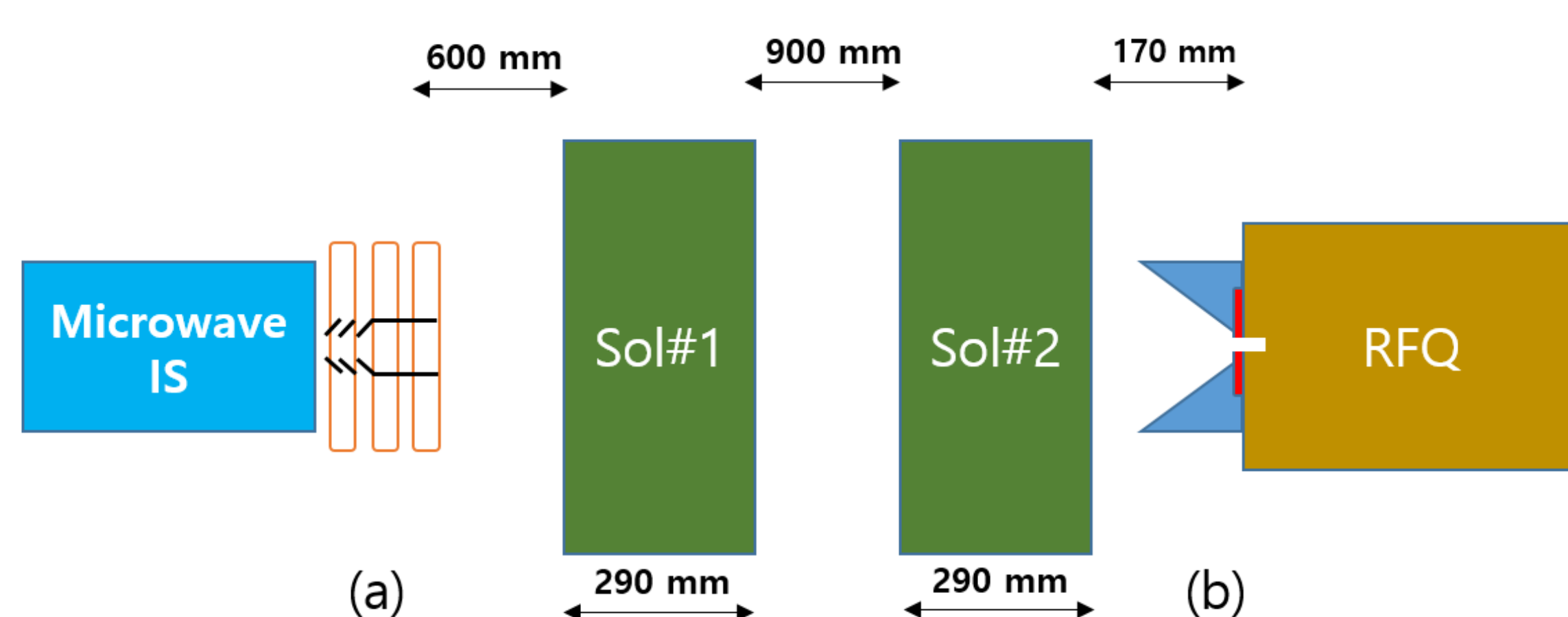
Parameters of the 1 MeV/n RFQ accelerator

Design particle	4He^{2+}
Input beam Energy	100 KeV
Output beam Energy	4 MeV
Peak Current	10 mA
Structure Type	Four vane
RF frequency	200 MHz
RF power	130 kW
Length	320 cm
Transmission	96.4 %

Layout

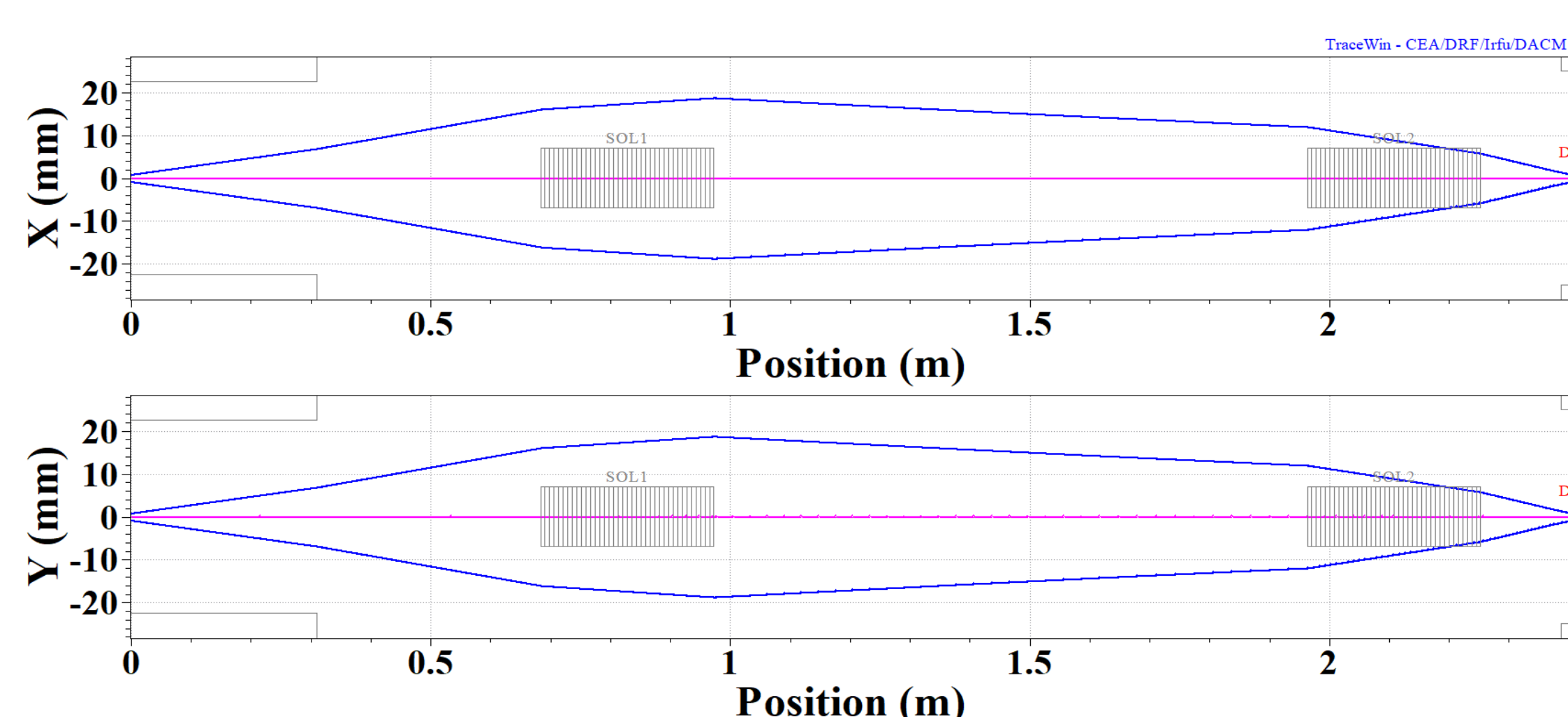


LEBT beam line



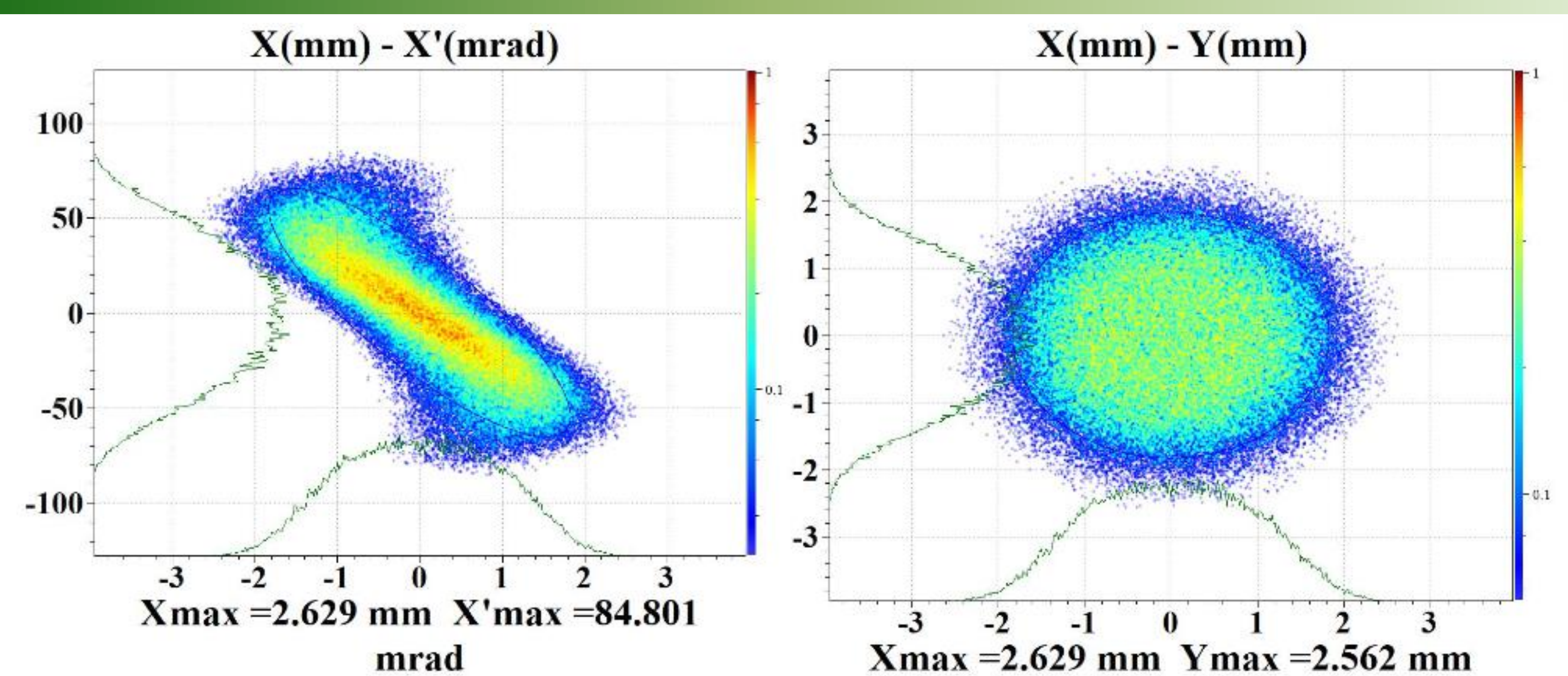
Scheme of LEBT. (a) : Microwave IS extraction system (b) : RFQ injection cone and injection port of RFQ

- LEBT was designed to transmit an ion beam with an energy of 25 keV/n at the entrance of the LEBT.



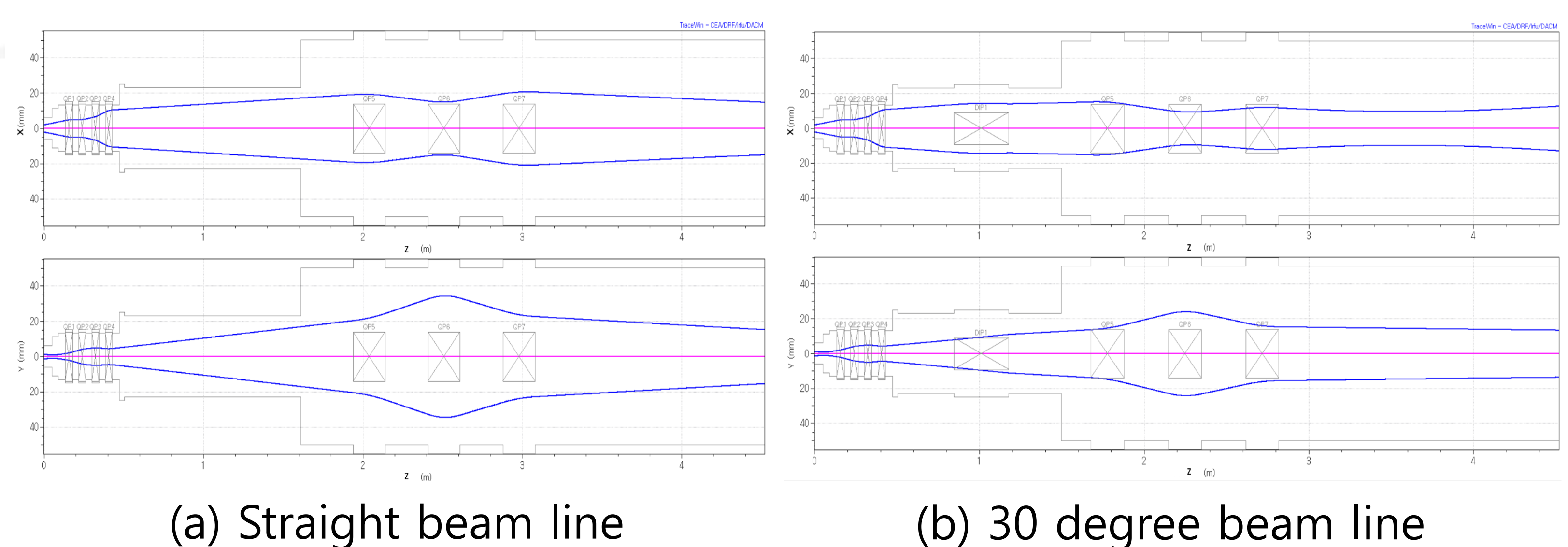
- The 4He^{2+} beam with 10 mA, 100 keV energy from ion source transports through the LEBT and RFQ entrance aperture
- The solenoid magnetic field values on axis are 0.227 T and 0.291 T

Particle phase space distribution at RFQ entrance



- The transmission of the RFQ up to 99.67% along the LEBT
- At the RFQ entrance, the RMS emittance is $0.1194 \pi \cdot \text{mm} \cdot \text{mrad}$ and the Twiss parameters are $\alpha=1.5$, $\beta=0.051 \text{mm} / \pi \cdot \text{mrad}$

Beam line to the target chamber



Conclusion and Future Plan

- All components of the beam line have been fabricated.
- The test for conditioning for RF input to the RFQ is going to be conducted .
- After completion of RF conditioning, beam test will be followed.
- Inspection for the operating license from KINS is under preparation.