

**ENTRY NO:**CU17**Date:** 1 Apr 2005 17:00:00**Machine Name:** MC50**Institution:** Korea Institute of Radiological & Medical Sciences (KIRAMS)**Address:** 215-4, Gongneung-Dong, Nowon-Gu, Seoul, Korea**Telephone:** +82-2-970-1331**Fax:** +82-2-970-1332**Web Address:** <http://lad.re.kr> or <http://cal.re.kr>**Person in Charge of Cyclotron:** Jong Seo Chai**Person Reporting Information:** Dong Hyun An**E-mail Address:** jschai@kcch.re.kr, ectroan@kcch.re.kr**History****Designed by:** scaditronix**Construction Dates:** 1986. 10.**First Beam Date:** 1986. 11.**Characteristic Beams**

p/20-51MeV/60uA

d/10-25MeV/30uA

**Transmission Efficiency (source to extracted beam)****Typical (%):** 10**Best (%):****Emittance****Emittance Definition:** 90%**Vertical (pi mm mrad):** 11.5**Horizontal (pi mm mrad):** 14**Longitudinal (dE/E[%] x RF[deg.]):** 2(%)x40(deg)**USES****Basic Research (%):** 5**Development (%):** 0**Therapy (%):** 0**Isotope Production (%):** 3**Other Application (%):** 90**Maintenance (%):** 2**Beam Tuning (%):** 0**Total Time (h/year):** 2800**TECHNICAL DATA****(a)Magnet****Type:** compact**Kb (MeV):** 50**Kf (MeV):** 50**Average Field (min./max. T):** 1.05-1.75**Number of Sectors:** 3**Hill Angular Width (deg.):****Spiral (deg.):** 55**Pole Diameter (m):** 1.55**Injection Radius (m):****Extraction Radius (m):** 0.57**Hill Gap (m):** 0.115**Valley Gap (m):** 0.205**Trim Coils****Number:** 10x2**Maximum Current (A-turns):** 1260**Harmonic Coils****Number:** 4x2**Maximum Current (A-turns):** 40**Main Coils****Number:** 1x2**Total Ampere Turns:** 259200/coil**Maximum Current (A):** 810**Stored Energy (MJ):** 0.4**Total Iron Weight (tons):** 88.2**Total Coil Weight (tons):** 3.8**Power****Main Coils (total KW):** 97**Trim Coils (total, maximum, KW):** 2**Refrigerator (cryogenic, KW):****(b)RF****Acceleration****Frequency Range (MHz):** 20-26 (usual 22.5MHz)**Harmonic Modes:** 1,2**Number of Dees:** 2**Number of Cavities:** 2**Dee Angular Width (deg.):** 90**Voltage****At Injection (peak to ground, KV):** 40**At Extraction (peak to ground, KV):****Peak (peak to ground, KV):****Line Power (max, KW):** 50**Phase Stability (deg.):** 1**Voltage Stability (%):** 0.1**(c)Injection****Ion Source:** Internal cold cathode P.I.G.**Source Bias Voltage (kV):****External Injection:** axial installation**Buncher Type:****Injection Energy (MeV/n):****Component:****Injection Efficiency (%):****Injector:****(d)Extraction****Elements, Characteristic:** Electrostatic deflector, magnetic deflection channel**Typical Efficiency (%):** 70**Best Efficiency (%):** 75**(e)Vacuum****Pumps:** 2 x oil diffusion pumps**Achieved Vacuum (Pa):** 2.0e-4**REFERENCES****EXPERIMENTAL FACILITIES****COMMENTS**