

**ENTRY NO:**C08

**Date:** 07 Feb 2005 10:26:11

**Machine Name:** cyclotron orleans

**Institution:** cnrs

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**Person in Charge of Cyclotron:** briaud joseph le polotec loic

**Person Reporting Information:** briaud joseph

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#### History

**Designed by:** cgr-mev

**Construction Dates:** 1971

**First Beam Date:** 1974

**Characteristic Beams**

#### Transmission Efficiency (source to extracted beam)

**Typical (%):**

**Best (%):**

**Emittance**

**Emittance Definition:**

**Vertical (pi mm mrad):**

**Horizontal (pi mm mrad):**

**Longitudinal (dE/E[%] x RF[deg.]):**

**USES**

**Basic Research (%):** 30

**Development (%):** 5

**Therapy (%):** 30

**Isotope Production (%):** 5

**Other Application (%):** 20

**Maintenance (%):** 10

**Beam Tuning (%):**

**Total Time (h/year):** 2000

#### TECHNICAL DATA

##### (a)Magnet

**Type:** compact

**Kb (MeV):**

**Kf (MeV):**

**Average Field (min./max. T):** 1.9/1.1

**Number of Sectors:**

**Hill Angular Width (deg.):**

**Spiral (deg.):**

**Pole Diameter (m):** 1.6

**Injection Radius (m):**

**Extraction Radius (m):** 0.67

**Hill Gap (m):** 0.13

**Valley Gap (m):** 0.27

**Trim Coils**

**Number:** 8

**Maximum Current (A-turns):** 300

**Harmonic Coils**

**Number:** 4

**Maximum Current (A-turns):** 50

**Main Coils**

**Number:** 1

**Total Ampere Turns:**

**Maximum Current (A):** 1000

**Stored Energy (MJ):**

**Total Iron Weight (tons):** 110

**Total Coil Weight (tons):**

**Power**

**Main Coils (total KW):** 110

**Trim Coils (total, maximum, KW):** 20

**Refrigerator (cryogenic, KW):**

##### (b)RF

**Acceleration**

**Frequency Range (MHz):** 20/40

**Harmonic Modes:** 2/3/4

**Number of Dees:** 2

**Number of Cavities:** 2

**Dee Angular Width (deg.):** 60

**Voltage**

**At Injection (peak to ground, KV):** 45

**At Extraction (peak to ground, KV):** 40

**Peak (peak to ground, KV):**

**Line Power (max, KW):** 200

**Phase Stability (deg.):** 0.1

**Voltage Stability (%):** 0.5

##### (c)Injection

**Ion Source:** internal livingstone type

**Source Bias Voltage (kV):**

**External Injection:**

**Buncher Type:**

**Injection Energy (MeV/n):**

**Component:**

**Injection Efficiency (%):**

**Injector:**

##### (d)Extraction

**Elements, Characteristic:** electrostatic deflector

**Typical Efficiency (%):** 60

**Best Efficiency (%):** 70

##### (e)Vacuum

**Pumps:** oil diffusion

**Achieved Vacuum (Pa):** 10<sup>-6</sup> mbarr

#### REFERENCES

#### EXPERIMENTAL FACILITIES

#### COMMENTS

