

**Accelerator Beam Charge Breakdown
4-25 MeV Linacs, Cost/Hour, Dec. 5, 2006**

Microwave System	Cost (\$)	Life (hr)	Cost/hr (\$/hr)
Klystron	200,000	5,000	40.00
Thyratron	4,000	2,000	2.00
Power Supplies	10,000	5,000	2.00
PFN Capacitors	6,000	1,000	6.00
Pulse Transformers – RF drivers	10,000	10,000	1.00
Magnet Power Supplies	45,000	10,000	4.50
Accelerator			
Guide	250,000	50,000	5.00
Gun	15,000	590	25.50
Gun Driver	12,000	1,000	12.00
Vacuum Pumps	20,000	1,000	20.00
Support Equipment/Supplies			
TV Cameras	2,000	300	7.00
Gas - SF6	800 /bottle	100	8.00
Internal “Utility” Conditioning (details on next page)	na	na	25.00
Personnel			
Operator/Technical Support	na	na	67.00
Dosimetry, Health Physics	na	na	25.00
TOTAL			\$ 250.00

**Detailed Internal “Utility” Conditioning Costs
4-25 MeV S-BAND LINACS**

IAC Internal Utility Costs for water, electrical, other fluids, and compressed air/gas conditioning systems	Estimated Component Costs (\$)	Life (run time) (hrs)	Per hour charge (\$/hr)
A. Water conditioning:			
1. Main building circulation system filters	\$600	500hrs	\$1.20
2. Main circulation system pumps routine rebuild	\$1500(3 pumps)	1000hrs	\$1.50
3. S band Accelerator chillers	\$9000(3 chillers)	5000hrs	\$1.80
4. Circ. System Chillers routine maintenance/repair	\$5,000	1000hrs	\$5.00
B. Internal electrical switching, level changing and control conditioning systems:			
1. Main air compressor	\$500	1000	\$.50
2. UPS for Vacuum Pumps	\$1,000	\$1,000	\$1.00
3. UPS for instrumentation	1,000	1,000	\$1.00
4. Voltage conversion systems/ S BAND	\$50,000	5,900	\$8.50
5. Isolation transformers for instrumentation	10,000	10,000	\$1.00
C. Other fluid conditioning			
1. Transformer oil systems	\$1,500	1000	\$1.50
D. Compressed air and gas conditioning systems:			
1. Waveguide flush system	\$500	1000	\$.50
2. Waveguide SF6 systems	\$1,000	1000	\$1.00
TOTAL			\$25.00