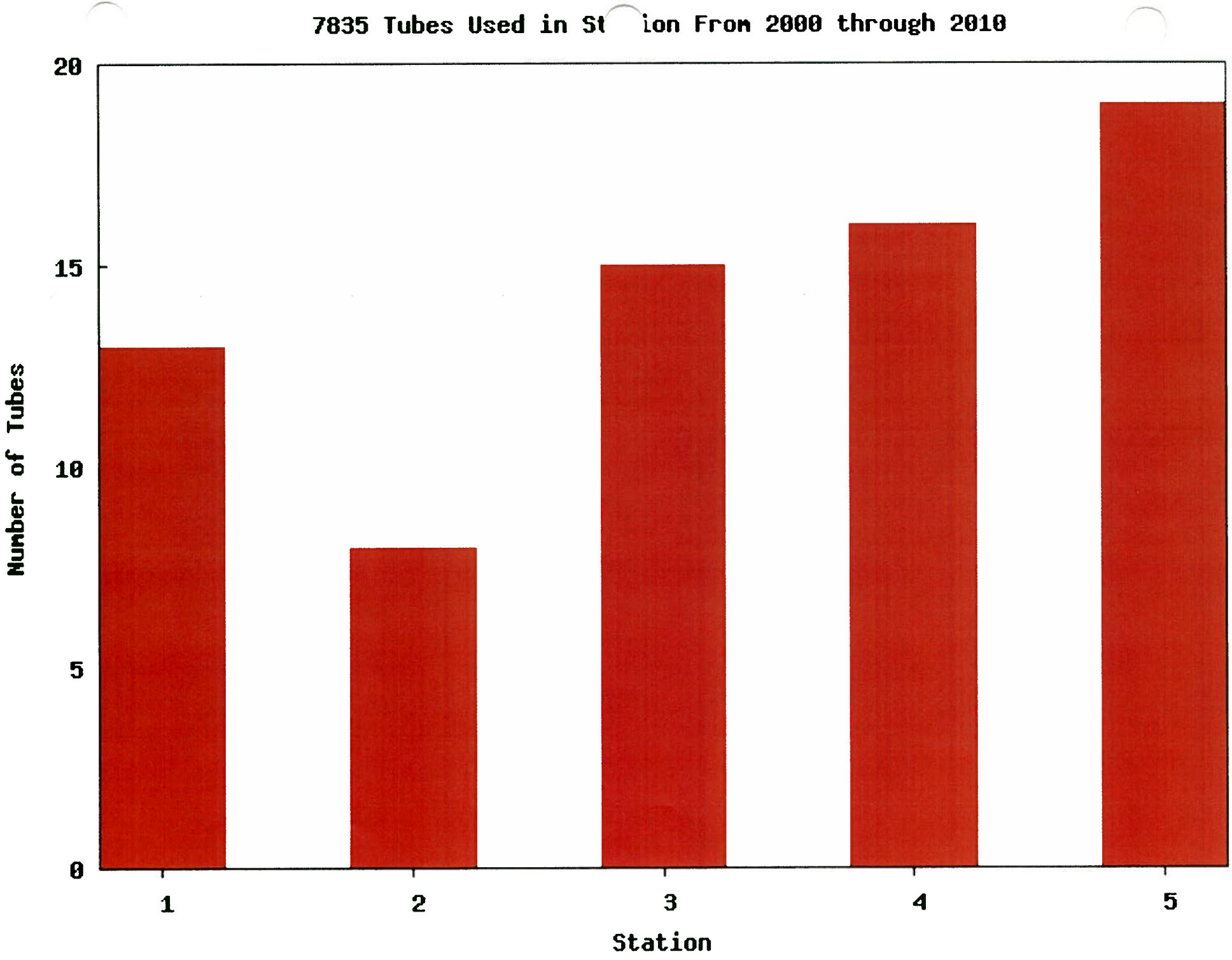
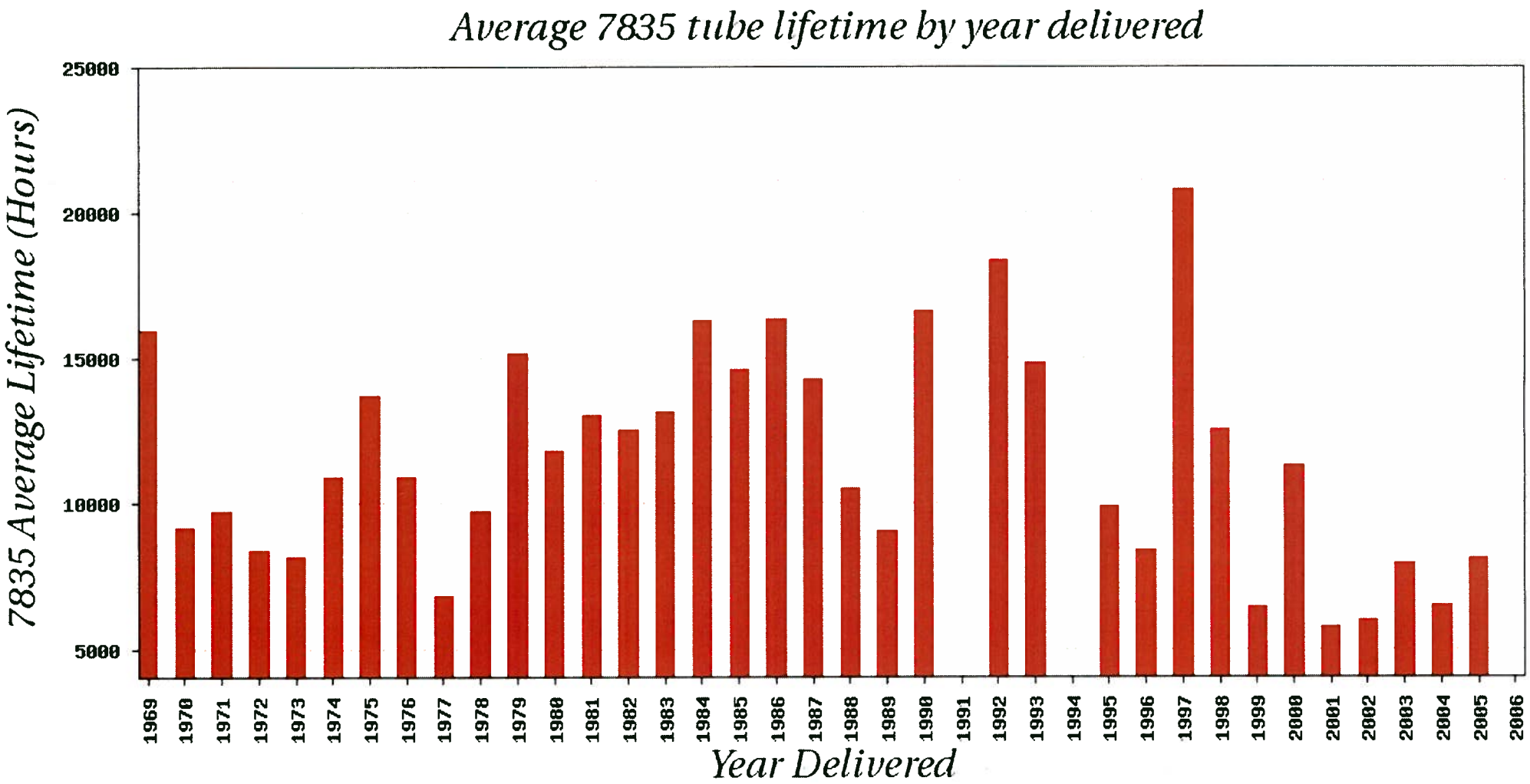
	Designation	Tube Type	Supplier	Cost New	Cost Rebuild	Life (years)	# in use	Capital Cost	Cost/year	# spares	Spare inventory	Usage
1	3CW20000A1	Triode	D&C Electronics	$2,935	$1,960	5.0	4	$11,740	$2,348	10	$29,350	Haefley Power Tubes
2	4PR250C	Triode	Amprex/Richardson	$2,260		3.0	2	$4,520	$1,507	3	$6,780	Extractor
3	CX-1154	Thyratron	English Elec. Valve	$8,261		20.0	4	$33,044	$1,652	1	$8,261	750 keV Chopper
4	7651	Triode	Burle Ind.	$2,236		1.2	5	$11,180	$9,275	7	$15,652	Driver - 201 MHz power. (IPA2 Output: 4 kW drives the grid of 4616
5	4616	Triode	Burle Ind.	$40,346	$25,000	1.8	5	$201,730	$111,293	3	$121,038	Driver - 201 MHz power. (Output: 200 kW drives the cathode of 7835 triode
6	ML-6544	Triode	CPI	$11,200	$6,000	3.7	5	$56,000	$15,298	14	$156,800	Driver - regulation for 4616 & modulator switch tubes
7	GL-7703	Ignitron	Richardson	$1,475			5	$7,375	$147,500	3	$4,425	Driver - 4616 Driver Crowbar circuit
8	8613	Thyratron	Richardson	$1,173		3.5	5	$5,865	$1,659	3	$3,519	50 kV 201 MHz crowbar for the 7835
9	NL-37248	Ignitron	Richardson	$1,885		4.6	5	$9,425	$2,051	5	$9,425	50 kV 201 MHz crowbar for the 7835
10	4E27A15	Triode	Richardson	$550		3.2	5	$2,750	$847	3	$1,650	Modulator: Switch tube bias regulator tube
11	3CX3000F1	Triode	Richardson	$1,590		5.3	5	$7,950	$1,511	3	$4,770	Modulator: Swtich tube bias regulator tube
12	F-1123	Triode	Varian/ITT - Triton	$7,540	$3,000	2.4	15	$113,100	$47,522	63	$475,020	Modulator: Switch tubes - tube discontinued.
13	7835	Triode	Burle Ind.	$195,303	$90,000	1.1	5	$976,513	$859,188	16	$3,124,840	201 MHz primary power amplifier
14	VKP-7955	Klystron	Varian	$90,000	$90,000	18.0	3	$270,000	$15,000	2	$180,000	805 MHz system primary power amplifier
15	L-5859	Klystron	Litton	$225,000	$225,000	18.0	7	$255,000	$14,167	5	$1,125,000	Power Amplifier for "three little" klystrons
16	7703LP	Ignitron	Richardson	$1,475		3.0	7	$10,325	$3,442	3	$4,425	Klystron Crowbar circuit
							Total cost per year		$1,234,258			
							Total cost to 2019		$4,564,168			


7835 Tubes Used in St ion From 2000 through 2010
20
15
10
5
0
Number of Tubes
1
2
3
4
5
Station


Average 7835 tube lifetime by year delivered
7835 Average Lifetime (Hours)
25000
20000
15000
10000
5000
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year Delivered