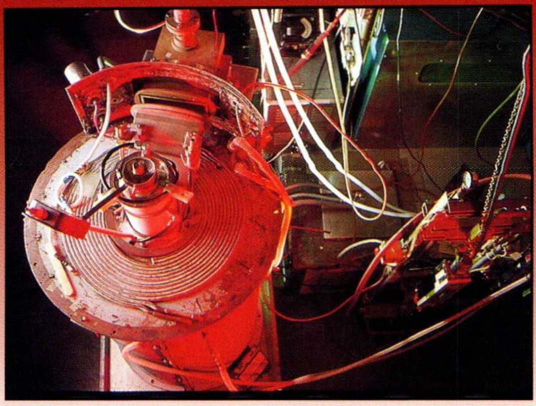
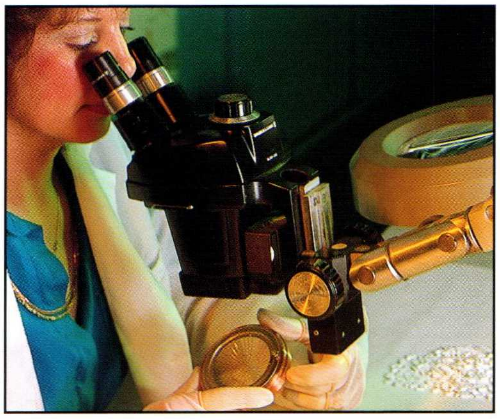
Litton TWTs



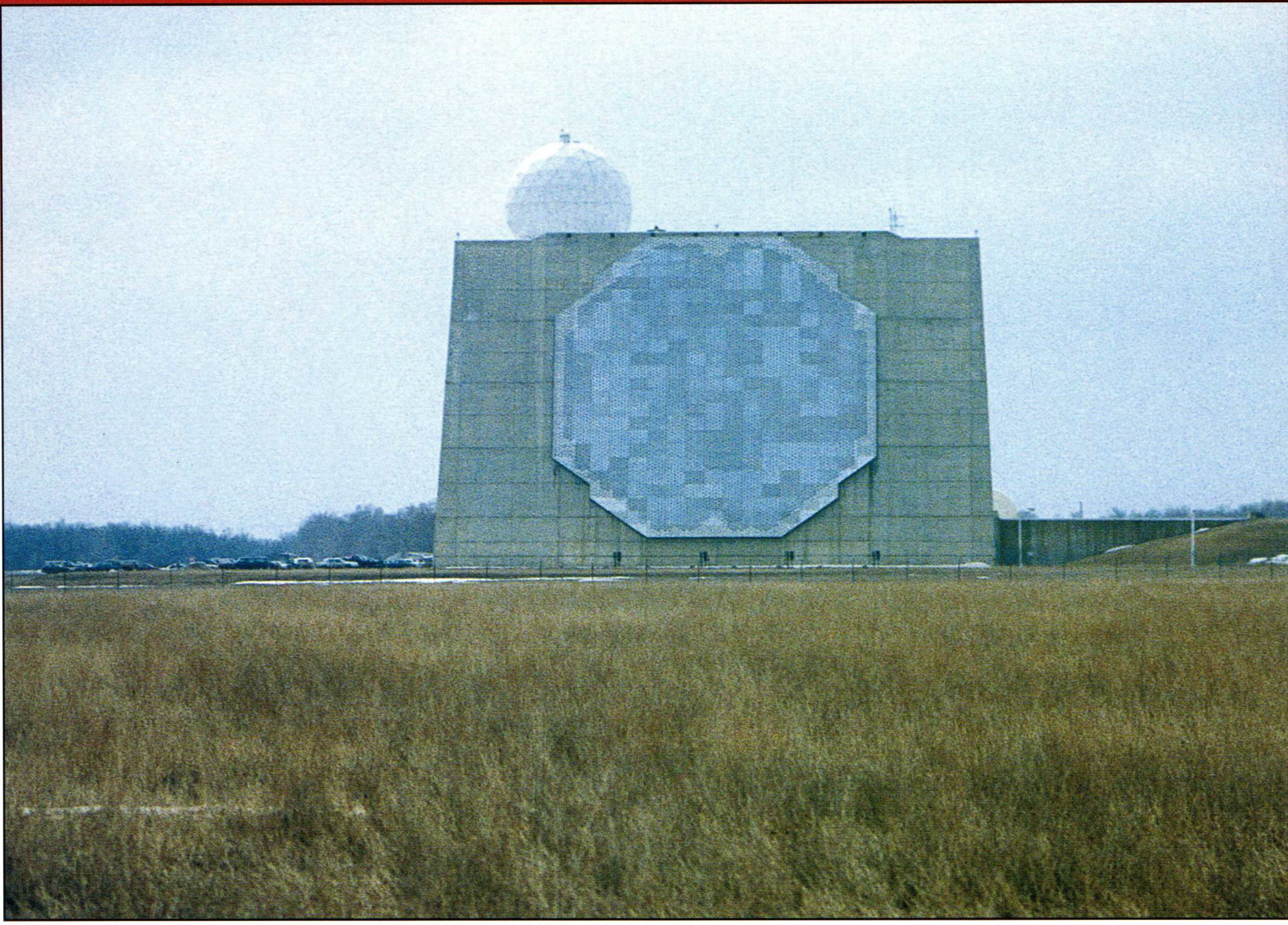
PRIME POWER CONSIDERATIONS

TYPE	CATHODE VOLTAGE kV	CATHODE CURRENT Amps	GRID DRIVE VOLTAGE V	GRID BIAS VOLTAGE V	GRID CURRENT mA	HEATER VOLTAGE V	HEATER CURRENT Amps	FIRST STAGE COLLECTOR VOLTAGE kV	FIRST STAGE COLLECTOR CURRENT Amps	SECOND STAGE COLLECTOR VOLTAGE kV	SECOND STAGE COLLECTOR CURRENT Amps
L-4920	40	14	1300	-750	25	28	4	-12	12	-5	2
L-4922	40	13	1250	-750	10	28	4	0	12.8	N/A	N/A
L-4922A4	40	13	1250	-750	10	28	4	0	12.8	N/A	N/A
L-4923	42	14	1200	-750	14	28	4	-9	10	-3	4
L-4950	40	12	1200	-750	10	28	4	0	11.8	N/A	N/A
L-4966	40	14.5	1400	-750	14	28	4	0	14.3	N/A	N/A
L-4995	40	15	1300	-750	14	28	4	0	14.8	N/A	N/A



ELECTRON BEAM FOCUSING

TYPE	METHOD	SOLENOID VOLTAGE V	SOLENOID CURRENT Amps	SOLENOID RESISTANCE Ohms	MAXIMUM PRIME POWER Watts	MAXIMUM DC INTERCEPT CURRENT mA	MAXIMUM RF INTERCEPT CURRENT mA	COOLANT	FLOW RATE GPM
L-4920	INTEGRAL	72	13	5	1200	250	1250	WATER	3
L-4922	INTEGRAL	80	13	4.5	1100	200	400	WATER	3
L-4922A4	INTEGRAL	80	20	4.5	1100	200	400	WATER	3
L-4923	EXTERNAL	20	20	N/A	500	100	200	WATER	3
L-4950	INTEGRAL	50	13	5	1000	200	500	WATER	3
L-4966	INTEGRAL	80	13	4.5	1100	100	150	WATER	2.5
L-4995	INTEGRAL	80	13	4.5	1100	100	350	WATER	3



BASIC PERFORMANCE GUIDELINES

TYPE	FREQUENCY MHz	OUTPUT POWER PEAK kW	OUTPUT POWER AVERAGE Watts	CATHODE VOLTAGE kV	CATHODE CURRENT Amps	RF DUTY CYCLE %	RAYTHEON DESIGNATION	BASIC ELECTRONIC EFFICIENCY %
L-4920	420-450	175	10,500	40	14	6	PPA-200	40
L-4922	1200-1415	140*	6,000	40	13	3.6	QKW-1671A	35
L-4922A4	1200-1415	140	6,000	40	13	3.6	N/A	35
L-4923	1175-1375	175	10,500	42	14	6	QKW-1723	33
L-4950	3100-3500	125	2,500	40	12	2	QKW-1593	35
L-4966	1250-1350	155	6,000	40	14.5	3.6	N/A	36
L-4995	850-1050	150	6,000	40	15	3.75	QKW-1818	32

* Peak power levels of 200 (kW) are available in this frequency range.

DESIGN NOTES:

1. All tubes are control grid modulated and also incorporate a shadow grid to assist in the suppression of grid emission and grid intercept current.
2. The A4 designation attached to the L-4922 denotes the addition of a 2-liter/second vac-ion appendage pump to the vacuum envelope. Incorporation of this pump, or any other, on the Litton TWTs is available if required to satisfy customer requirements.
3. All Litton TWTs are inherently capable of dual-stage collector depression should it be necessary to fulfill a particular system requirement.
4. A mod anode connection is provided on all TWTs and may be utilized to accommodate system sensing circuits and also reduce the potential damage incurrred by cathode-to-anode high-voltage arcs. This protection is accomplished through the incorporation of an external anode-to-ground resistance of two kilohms.
5. All cathode and collector voltages are referenced to ground.

EXTENDED RF PARAMETERS

TYPE	SMALL SIGNAL GAIN dB	AM NOISE dB	PM NOISE dB	NOISE POWER OUTPUT dBm/MHz	SECOND HARMONIC dBc	INSERTION LOSS dB	RF PULSE WIDTH microsec	MAXIMUM DRIVE POWER Watts
L-4920	40	-80	-80	-107	-26	90	2000	25
L-4922	40	-80	-80	-107	-26	90	70	5
L-4922A4	40	-80	-80	-107	-26	90	70	5
L-4923	40	-80	-80	-107	-26	90	2000	2
L-4950	40	-80	-80	-107	-26	90	500	2
L-4966	40	-80	-80	-107	-26	90	70	5
L-4995	40	-80	-80	-103	-26	90	300	10

PHYSICAL DESCRIPTION

TYPE	RF INPUT CONNECTION	RF OUTPUT CONFIGURATION	OVERALL LENGTH inches	BODY DIAMETER inches	WEIGHT lbs.	RF OUTPUT PRESSURIZATION psia	COOLANT CONNECTIONS
L-4920	SC	3-1/8 COAX	140	12	350	15	QUICK DISCONNECT
L-4922	N	WR650	76	10	240	20	QUICK DISCONNECT
L-4922A4	N	WR650	76	10	245	20	QUICK DISCONNECT
L-4923	N	WR650-HALF HEIGHT	68	9	110	15	QUICK DISCONNECT
L-4950	N	WR284	55	10	120	20	QUICK DISCONNECT
L-4966	SC	WR650	76	10	240	25	QUICK DISCONNECT
L-4995	SC	WR975-HALF HEIGHT	76	10	235	25	QUICK DISCONNECT

Litton Electron Devices now manufactures traveling-wave tubes, the most recent addition to the Williamsport facility's extensive line of microwave power tubes, which includes magnetrons, crossed-field amplifiers, klystrons, and thyratrons.

In the design and production of TWTs, Litton continues to maintain the user-proven performance standards established during 20 years of manufacturing by the recently acquired Raytheon Microwave Power Tube Division.

Key sites now supported by Litton's TWT production include:

- FPS-108: Cobra Dane Radar, Shemya Island, Alaska
- FPQ-16: PARCS—Perimeter Array Radar, Cavalier, North Dakota
- FPS-17: Princilik, Turkey
- Altair Radar, Kwajalein, Marshall Islands
- European-based LW-O8 long-range radar systems
- Numerous airport surveillance radars around the world

The basic TWT design incorporates "ring-bar" slow wave circuit technology, which provides the user with very high power capabilities and wide bandwidths to help meet modern system requirements.

The standard TWT is readily available as described or with one or more design modifications, such as dual-stage collector depression, appendage vac-ion pump, and customer selection of RF and DC interface connections. The chosen method of beam focusing is solenoid and results in beam transmissions of up to 98.8 percent.

Litton engineers welcome the challenge of custom designing TWTs to state-of-the-art system specifications. For more information or detailed performance data, contact your local Litton representative or the Williamsport Sales Department of Litton Electron Devices.

SALES OFFICES

NORTHEAST
P.O. Box 382
Westford, Massachusetts 01886
(508) 692-6220

SOUTHEAST
1600 Watson Boulevard
Suite #05
P.O. Box 5040
Warner Robins, Georgia 31099-5040
(912) 923-3397

MID-ATLANTIC
P.O. Box 516
Springfield, New Jersey 07081-0516
(201) 379-3131

SOUTHWEST
15150 Preston Road
Suite 300
Dallas, Texas 75248
(214) 991-0822

EAST
9515 Deereco Road
Suite #500
Timonium, Maryland 21093
(410) 560-0364
FAX (410) 561-9944

WEST
960 Industrial Road
San Carlos, California 94070
(415) 591-8411 x 2228
FAX (415) 591-5623

MIDWEST
4130 Linden Avenue #232
Dayton, Ohio 45432
(513) 256-6969
FAX (513) 256-6993

INTERNATIONAL

Litton Precision Products International

AUSTRALIA
414 Gardeners Road
P.O. Box 253
Rosebery, N.S.W. 2018, Australia
61-2-669-6111
FAX 61-2-693-5048

ENGLAND
6 First Avenue
Globe Park, Marlow
Buckinghamshire, SL7 1YA,
United Kingdom
44-1-628-486060
FAX 44-1-628-472438

FRANCE
58 rue Pottier
78150 Le Chesnay, France
33-1-39-552104
FAX 33-1-39-555068

GERMANY
Oberföhringe Strasse 8
D-81679 München, Germany
49-89-92204
FAX 089-92204-113

ITALY S.p.A
Viale Fulvio Testi, 126
I-20092 Cinisello Balsamo
Milan, Italy
39-2-2440421
FAX 39-2-2440669

THE NETHERLANDS
Benelux Office
Griendstraat 10
NL-2921 La Krimpen a/d Yssel,
The Netherlands
31-1807-18555
FAX 31-1807-16624

SPAIN
Condes del Val 8
28036 Madrid, Spain
34-1-344-0144
FAX 34-1-344-0102

SWEDEN
Hellosvagen - 1C
Box 92146
S-120-8
Stockholm, Sweden
46-8-7430585
FAX 46-8-6435220

SWITZERLAND
Gubelstrasse 28
8050 Zurich, Switzerland
41-1-313-1001
FAX 41-1-313-1255

INDIA
Blue Star Limited
Blue Star House
11-A Magarath Road
Bangalorr 560 025
80-558-9653
FAX 80-558-4599

PAKISTAN
Consolidated Logistics Corp.
P.O. Box 13549
Suite 1009-1010 Uni Centre
I.I. Chundrigar Road
Karachi-74000, Pakistan
21-243-7363
FAX 21-243-7364

CANADA
Victrix Limited
P.O. Box 1807
Guelph, Ontario, Canada N1H 7A1
(519) 836-1480
FAX (519) 836-4693

ISRAEL
MTI Engineering Ltd.
P.O. Box 43066
Tel Aviv 61430, Israel
972-3-492101
FAX 972-364-87930

JAPAN
Litton-Westrex Company, Japan
2-1-2, Marunouchi
Chiyoda-ku, Tokyo 100
Japan
(81) 3-3211-6791
FAX (81) 3-3211-6797

KOREA
Stellar International SA.
CPO Box 8736
Seoul 100-687
Korea
82-2-713-1777
FAX 82-2-717-5656

REPUBLIC OF CHINA
Comtech Systems Corporation
12th floor, 166, Fu-Hsing North Road
Taipei, Taiwan 10440, Republic of China
(883) 2-713-3713/(886) 2-712-3591
FAX (886) 2-718-8036

Litton

Electron Devices

1035 Westminster Drive
Williamsport, PA 17701
Phone (717) 326-3561 or TLX 84-1430
FAX (717) 326-2903