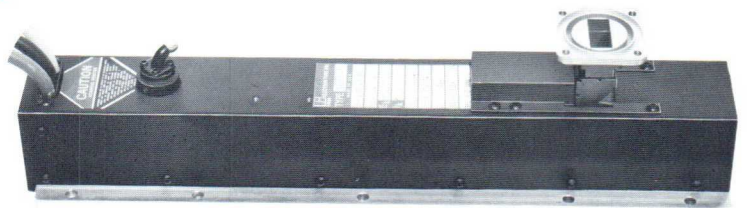


# LITTON RING-LOOP TRAVELING WAVE TUBES

Multi-Kilowatt Pulsed  
TWT's from D- through  
J-bands



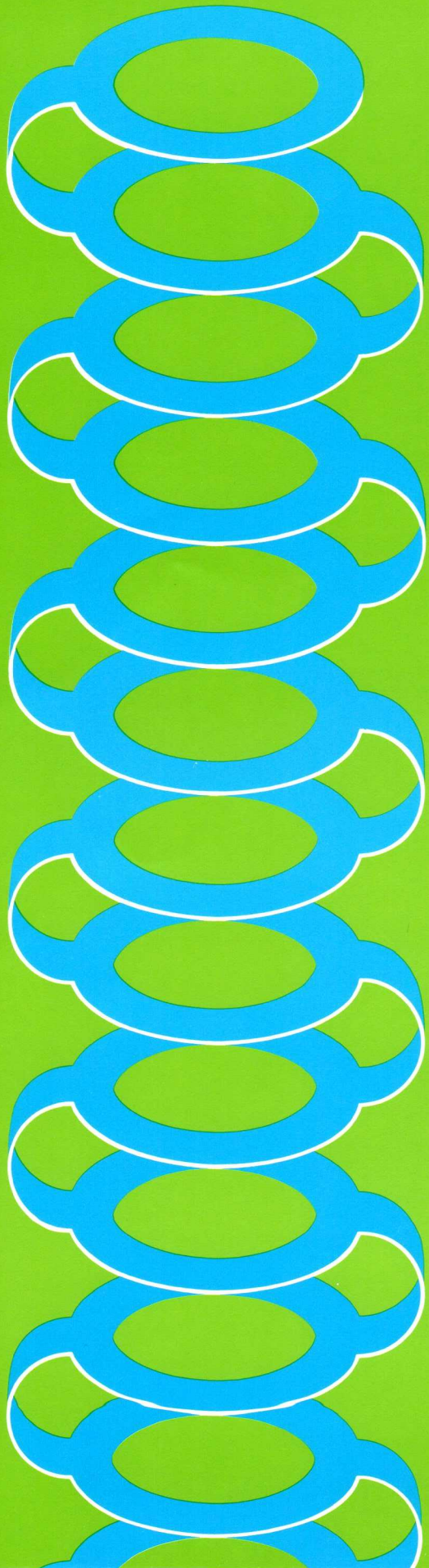
## Features

Small Size  
Light Weight  
High Efficiency  
Low Harmonic Output  
Excellent Stability



## LITTON PRECISION PRODUCTS

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## Description

Litton Ring-Loop Traveling Wave Tubes produce multi-kilowatt, pulsed microwave power for radar, ECM, and linear accelerator applications. They are available in discrete frequency ranges from D- through J-bands with peak power outputs ranging from 1 to 24 kilowatts, and bandwidths from 7% to 20%.

By utilizing a ring-loop type of interaction circuit in this family of TWT's, Litton is able to offer high power and high efficiency in an exceptionally small, light weight package. As an additional benefit, the ring-loop circuit gives the systems designer the flexibility to select a tube which is custom tailored to his specific frequency range with minimum engineering cost.

## Applications

Specific applications for Litton Ring-Loop TWT's include use in high resolution radar systems as drivers or output tubes, and in distributed arrays. They are also employed in threat-oriented ECM systems and as drivers in linear accelerators.

## The Ring-Loop Circuit

The ring-loop circuit shown at the left is the highest impedance, most stable, and most versatile member of the "ring bar" family of rf interaction circuits. This circuit provides a signal having a unique level of spectral purity, with harmonic power down 25 dB to 35 dB below the fundamental. It exhibits complete freedom from the backward wave oscillation problems which commonly occur with conventional helix circuits.

The high circuit impedance provides exceptionally high gain per wavelength which translates directly into TWT's with high efficiency, small size, light weight, and outstanding phase characteristics.

The ring-loop circuit is an extremely versatile design. By adjusting the ring-to-ring spacing on any one of Litton's six basic circuits, a tube can be produced at the exact frequency band, peak power, and gain specified. This means that a Ring-Loop TWT can be created for a specific requirement with minimum engineering cost, time delay, and technical risk.

## Typical Performance

Typical of Litton's family of Ring-Loop Traveling Wave Tubes is the L-5476. The L-5476 provides 6 kilowatts peak power and 250 watts of average power output over the frequency range of 1.2 to 1.4 GHz, with 30 dB saturated gain at more than 30% rf efficiency. The tube is less than 19 inches long. Its total weight is only 6 pounds, while most traveling wave tubes having similar specifications would weigh more than 20 pounds. The chart on page 4 describes additional production tubes currently available in the Ring-Loop family.