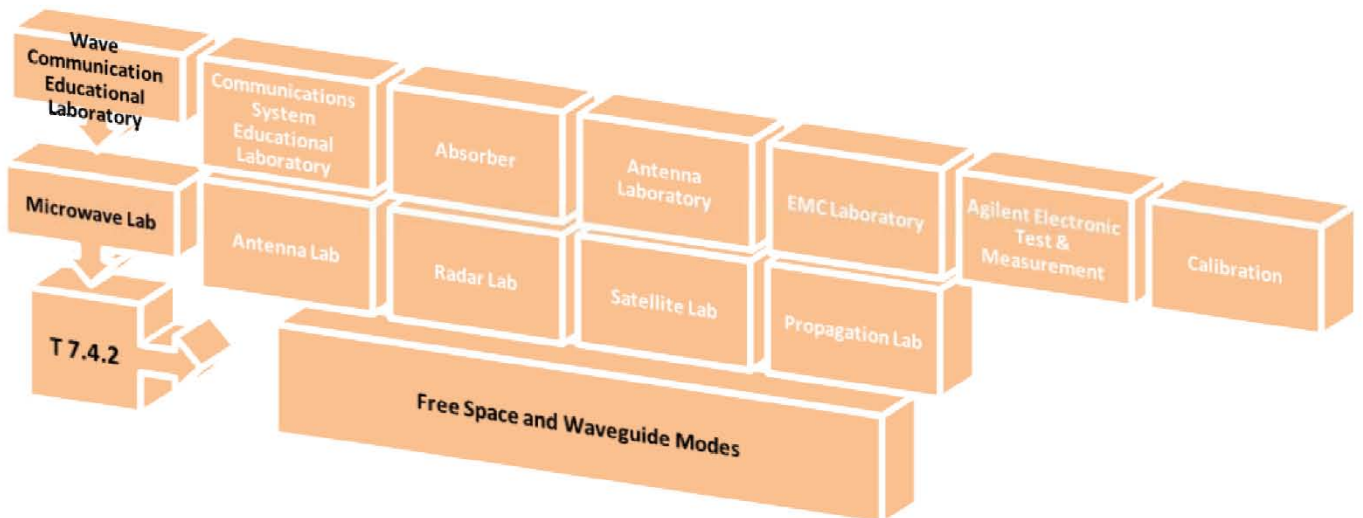


You like to experiment with the Lecher line? Then this parallel plate line will certainly be appealing to you. In addition to classic themes for 2-wire lines, here you can also investigate the special characteristics of wave propagation in waveguides.

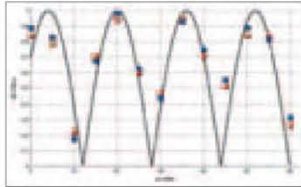
Topics

- Propagation of TEM- and TE- waves
- Standing TEM and TE- waves
- Determination of the cut off wavelength
- Absorbers
- Dissipative and reactive attenuation
- Humidity measurement



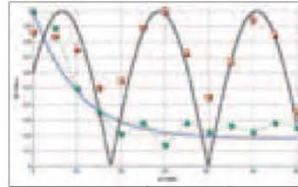
Excitation of free space and waveguide modes

Depending on the polarization of the excited microwave field, the parallel plate line shows either characteristics of a Lecher line (TEM mode) or a waveguide (TE mode). It all depends on the orientation of the Gunn oscillator (longitudinal rotation by 90°).



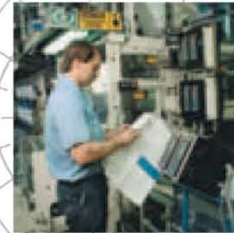
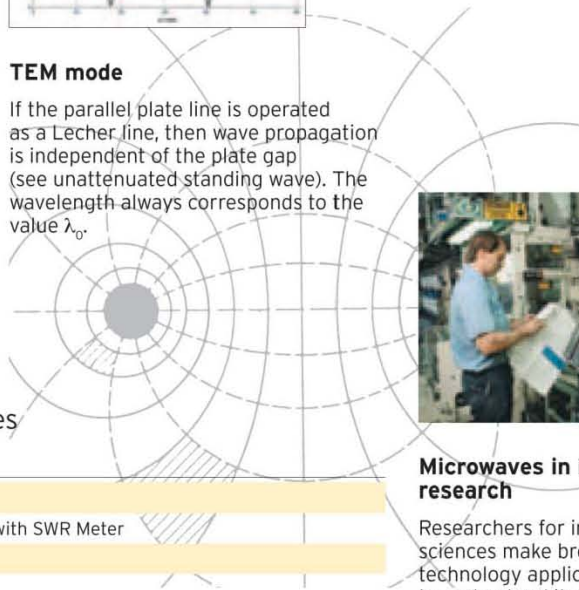
TE excitation

If the parallel plate line is operated as a waveguide, it is no longer possible for a wave to propagate between the plates when the gap is $d < \lambda_g/2$ (see exponentially decaying field trend). For $d > \lambda_g/2$ an unattenuated standing wave results again, but with a different wavelength.



TEM mode

If the parallel plate line is operated as a Lecher line, then wave propagation is independent of the plate gap (see unattenuated standing wave). The wavelength always corresponds to the value λ_0 .



Microwaves in industry and research

Researchers for industry and the sciences make broad use of RF technology applications. It is good to understand its laws!

EQUIPMENT SET LIST

Free Space and Waveguide Modes

QUANTITY	CAT. NO.	DESCRIPTION
1	737 01	Gunn Oscillator
1	737 021	Gunn Power Supply with SWR Meter
1	737 05	PIN Modulator
1	737 06	Isolator
1	737 07	Parallel Plate Line
1	737 071	Measuring Carriage for Parallel Plate Line
1	737 21	Large Horn Antenna
1	737 28	Parallel Plate Line Accessories
1	737 35	E-Field Probe
1	524 010SUSB	CASSY-Starter USB
1	568 662	Book: Parallel Plate Line

