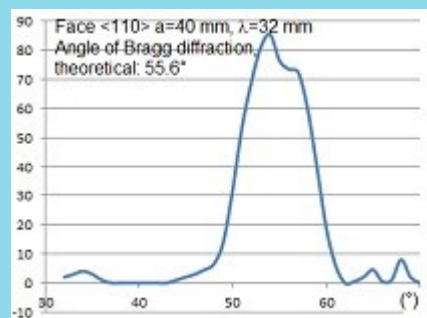
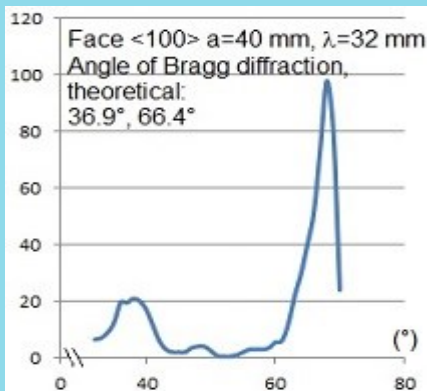
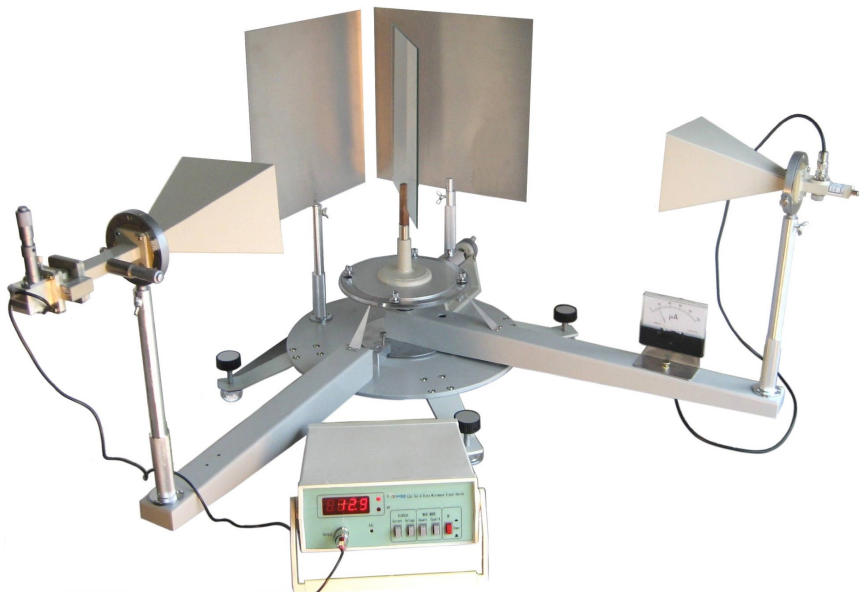


# LEEI-62 Interference, Diffraction & Polarization of Microwave - Advanced

- Serial experiments
- Quantitative measurement
- Easy to use, stable and reliable
- Affordable



Bragg diffraction



Microwave and lightwave are both electromagnetic waves. They share common phenomena of all waves, such as reflection, refraction, polarization, interference, and diffraction. However, as the wavelength of a microwave is about 4 orders of magnitude larger than that of a visible lightwave, the experimental phenomena and apparatus of microwave are different.

This LEEI-62 experimental system of microwave interference, diffraction and polarization consists of a microwave transmitter with a variable attenuator, a microwave detector with amplifier and meter display, a transmitting horn and a receiving horn, as well as other accessories such as single slit, double slits, beam splitter, crystal model, etc. It can provide quantitative measurements of a series of experiments as:

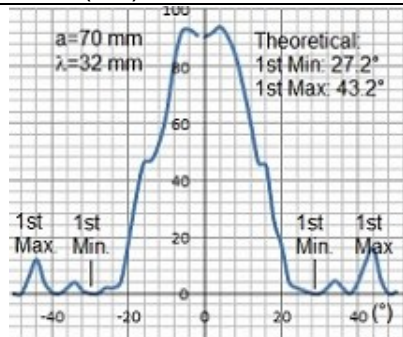
1. Verify reflection law of electromagnetic wave
2. Measure intensity distribution of single-slit diffraction
3. Measure intensity distribution of double-slit interference
4. Measure microwave wavelength through interference of Michelson interferometer
5. Study polarization and verify Malus' law
6. Verify Bragg diffraction of crystal model

## Specifications

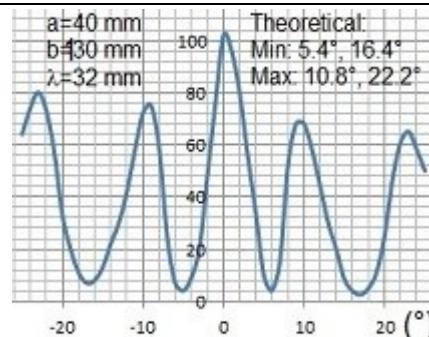
Microwave frequency	Range: 8.6~9.6 GHz; draft: $\pm 5 \times 10^{-4}$ /15-min; error: $\pm 40$ MHz
Microwave output power	>20 mW
Working voltage	DC 12 V
Wave form	Equal amplitude
Internal modulation	Square-wave at 1 kHz
Output waveguide dimensions	Inner: 22.86 mm $\times$ 10.16 mm
Standing-wave coefficient	$\leq 1.2$ (synthesis voltage)
Output microwave wavelength	$\lambda = 32.02$ mm (factory preset)
Horn antenna	Gain $\sim 20$ dB; lobe width H $20^\circ$ & E $16^\circ$

## Part List

3-cm solid state microwave signal source	1
Base	1
Indexing disk	1
Fixed arm	1
Horn antenna	2
Variable attenuator	1
Crystal detector	1
Indicator meter	1
Video cable	1
Reflection plate	1
Single-slit plate (slit width=70 mm)	1
Double-slit plate (slit width=40 mm; separation=170 mm)	1
Partial transparent plate	1
Simulated crystal with support	1
Reading mechanism	1
Support base	1
Support post	4
Module piece	1
Screws and nuts (set)	1



Microwave single slit diffraction



Microwave double slits interference