1.5.19-15 Interference of two identical ultrasonic transmitters

What you can learn about ...

- ➔ Longitudinal waves
- ➔ Sound pressure
- ➔ Huygens' principle
- ➔ Interference
- ➔ Fraunhofer and Fresnel diffraction

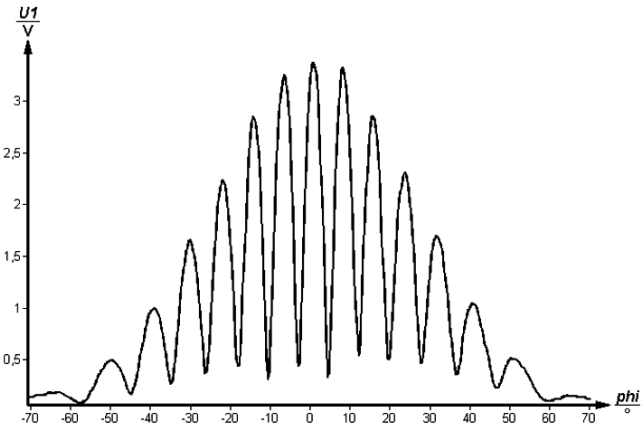
Principle:

Ultrasonic waves of the same frequence, amplitude and direction of propagation are generated by two sources positioned parallel to each other. The sources can vibrate both in-phase and out-of phase. The angular distribution of the intensity of the waves, which interfere with each other, is automatically recorded using a motor-driven ultrasonic detector and a PC.

What you need:

Goniometer with reflecting mirror	13903.00	1
Goniometer Operation Unit	13903.99	1
Ultrasound operation unit	13900.00	1
Power supply 5 VDC/2.4 A with DC-socket 2.1 mm	13900.99	1
Ultrasonic transmitter	13901.00	2
Ultrasonic receiver on stem	13902.00	1
Barrel base -PASS-	02006.55	2
Data cable 2 x SUB-D, plug/socket, 9 pole	14602.00	1
Measuring tape, *l* = 2 m	09936.00	1
Screened cable, BNC, *l* = 750 mm	07542.11	1
Adapter BNC socket/4 mm plug pair	07542.27	1
Software Goniometer	14523.61	1
PC, Windows® 95 or higher		

Complete Equipment Set, Manual on CD-ROM included
Interference of two indentical ultrasonic transmitters P2151915



Angular distribution of the intensity of two interfering ultrasonic waves having the same phase, amplitude, frequency and direction of propagation.

Tasks:

1. Determine the angular distribution of the sound pressure of two ultrasonic transmitters vibrating in-phase.
2. Determine the angular positions of the interference minima and compare the values found with those theoretically expected.
3. Repeat the measurements with the two ultrasonic transmitters vibrating out-of-phase.
4. Repeat the first measurement and additionally determine with the angular distribution of the sound pressure of each single transmitter.