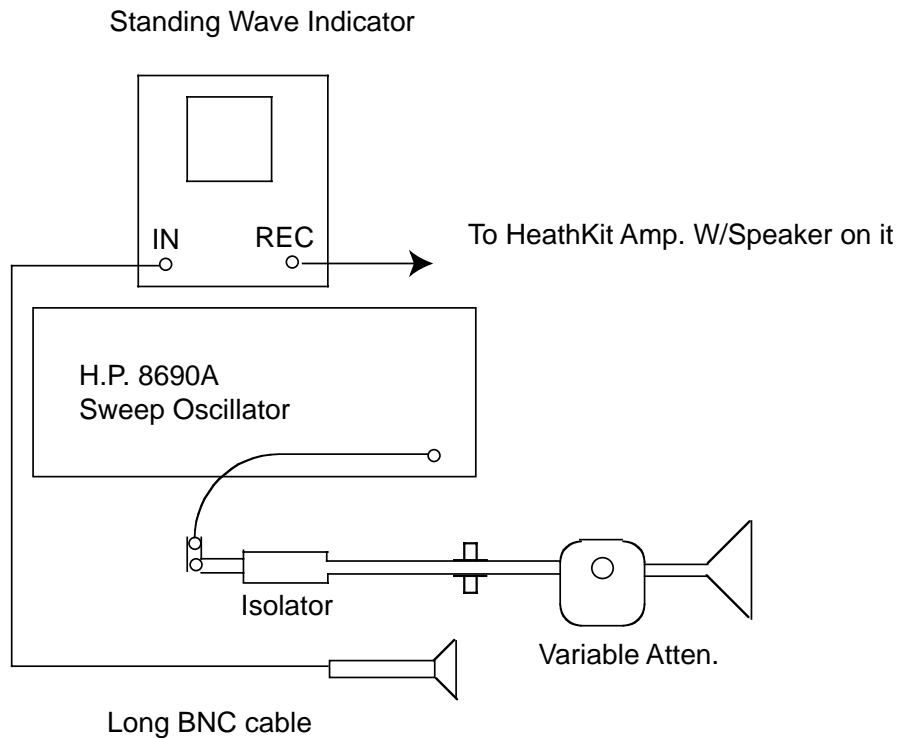


# Waveguide

## Setup:



## Procedure:

1. Teflon with rectangular cross section:

No matter the Teflon is straight, bent, or twisted, the horn will make sound, i.e. the wave can be guided by the Teflon.

Place the parallel metal plates with the Teflon inside. The horn will not make sound because the operating frequency is below the cutoff frequency of the  $TE_1$  mode. On the contrary, the horn makes the sound for TM mode because the cutoff frequency for  $TM_0$  mode is zero.

2. polystyrene with right angle shape: The horn makes sound even the polystyrene is in right angle shape, i.e. the wave is guided by the polystyrene.