

# Patent Application

## A method for acoustic antenna

### Description

Acoustic radiation is traditionally produced through the vibration of diaphragms or solid flat surfaces which can then be transferred to solids, gases and liquids by a variety of means but which are all based on some type of acoustic coupling. The acoustic source is always produced at a source point, be it a diaphragm, crystal or surface and this source, and when coupled through a coupling medium, it will radiate from a relatively small point to the often large surrounding environment and in some preferred direction, which is dependent on the position and orientation of the vibration source. When permitted, this will be into a gaseous, fluid or solid medium. Due to this very broad and mainly cone shape form, vibrational power dissipates relatively quickly with propagation distance. So as to better focus and direct acoustic radiation for many applications, a "Horn" configuration is applied so as to focus the vibrational energy from the source point to within a certain angle or defined cone direction.

When attempting to cause evenly distributed vibration specifically in long 1D or wide 2D areas or large 3D volumes, all traditional acoustic emitters today have a relatively low efficiency of acoustic power transfer into the required area or volume for the reasons described above. Uni-directional type acoustic emitters are all associated with problems of relatively restricted area or volume coverage which can further be detrimentally effected by unrelated movements within the gaseous or fluidic environment under investigation, through flow, waves and other such unforeseen movements / force.

A method which could create uniform distribution of acoustic energy in gases, liquids and solids within well-defined space in 1D, 2D and 3D is highly desired.