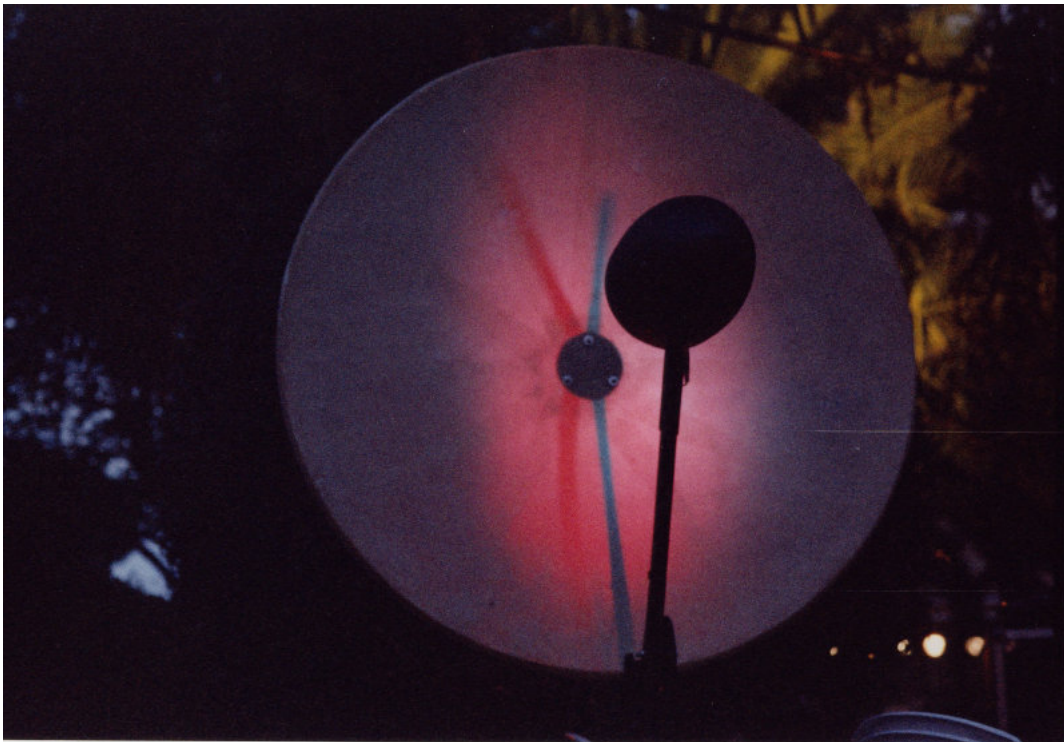


Concept and design: Michelangelo Lupone

First presentation: *Musica infinita* – MusicaScienza, Gardens of Accademia Filarmonica Romana, Roma, 2000



Multiphonic sound emission systems, based on plane wave propagation, designed to realize a high control on sound movement and sculpture of the wave front. Like real sound projectors, Holophones represent the first prototype of a multiphonic sound diffusion system characterized by high controllability, which allows making modulations on the wave front. Sculpturing of the wave front is obtained by appropriate regulation of the phase, amplitude and frequency of the musical signal.

A special feature of Holophones is the wave plane radiation.

This type of acoustic propagation permits the construction of highly coherent sound radiation lobes which can traverse space with minimal energy dissipation compared to diffusion with

traditional loudspeakers.

Holophones consist of a paraboloidal system with, in its focal point, a limited band loudspeakers controlled in its radiation angle amplitude.

The dynamic controls for sculpturing the wave front are managed by a computerized system for the control of the processes of approach, separation, localization, velocity, raising and lowering of the wave front with respect to the listener

The studies carried out by CRM on plane wave emission originated in the artistic necessity for introducing space as a compositional parameter which could be controlled and modified on the basis of the characteristics of the concert hall and on the characteristics of the instrumental or electronic sound materials.

The composer has the possibility of defining a particular spatial characteristic for each region of the frequency spectrum and can dynamically process the modalities with which sounds are conveyed to the listener.