HIGH FIDELITY & UTILITY FOR STRUCTURAL LOUDSPEAKERS

The ceiling-structural loudspeaker should produce sound only in the room desired. Unlike a flush mounted light, the conventional open back structural loudspeaker distributes its energy behind the ceiling as well as in the desired room volume. This structure borne energy prevents the use of the conventional ceiling loudspeaker as a true utility product. The origins of the ceiling mounted speaker is commercial PA and was not intended for high quality sound. ETL™ acoustic technology is now available to solve this and other inherent problems.

Typically the structure borne loudspeaker is considered a compromise solution for quality sound distribution. All drivers require a specific air volume to produce its sound as free standing speakers do however this is not possible with structure borne speakers. A practical enclosure is not an option with conventional structural loudspeakers because volume is required. The structural loudspeaker is designed to conserve space and conform to the available area within walls or ceilings. The energy from the rear of the loudspeaker will use the opposing wall, ceiling or floor to resound the energy which disturbs occupants of adjacent rooms or apartments. Enclosing the speakers to prevent this further degrades their character and is not considered an option if sound quality is a concern.

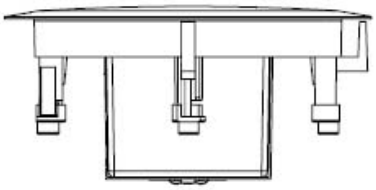
The ceiling loudspeaker is also compromised in its location relative to the surrounding walls. The fact is that a ceiling loudspeaker is supposed to be a part of the structure as any utility fixture and must accept any reflections from nearby walls as an enhancement to performance. This is not possible using existing ceiling system configurations as the driver(s) has poor dispersion and reflection properties. Typically acoustics teaches against quality sound from ceiling speakers. The ceiling loudspeaker should be useful for condominiums, hotels, apartments or homes without concern of quality variations or noise pollution.

The ceiling loudspeaker suffers from cone breakup and dispersion problems in most any driver format. The use of pivoting tweeters does not provide proper dispersion of high frequencies to multiple occupants. Ceiling loudspeakers for entertainment must produce the full range of frequencies in all directions to provide its benefit. The sound level must be distributed evenly if there is to be no location specific sound issues. The ceiling loudspeaker must use the rooms surfaces to enhance its sound quality as it must coexist with the structure.

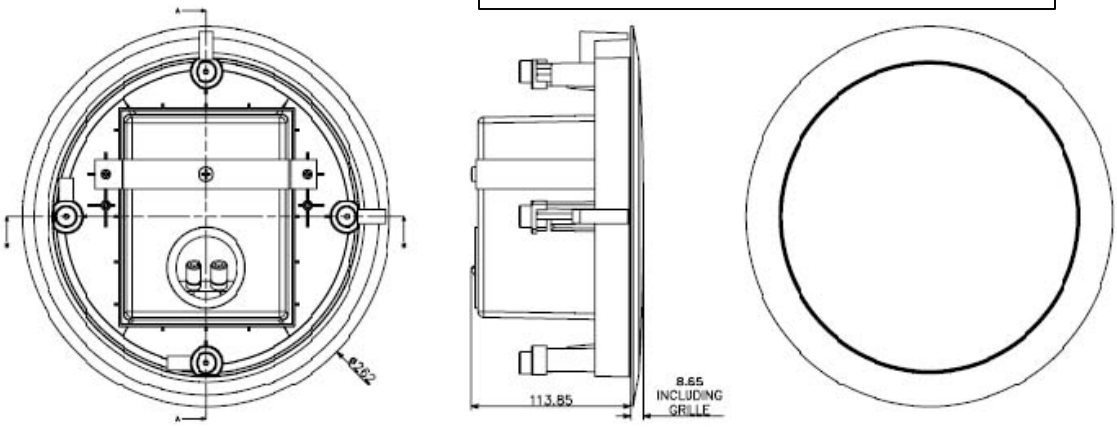
THE ETL™ BASED MAJESTIC STRUCTURAL CEILING SPEAKER

The Architectural In-Ceiling loudspeaker will be the **MD1RC** and it opens up a world of possibilities for this application. This **ETL™** based loudspeaker produces no acoustic energy in the ceiling structure and greatly reduces vibration while increasing dynamics and dispersion. Coherent back EMF improves the amplifiers operation with remote volume controls and distribution transformers. The **MD1RC** distributes all of the drivers acoustic output into the room and is not affected by nearby reflection surfaces. The single driver and elimination of diaphragm

breakup assures that the nearby wall reflections are the same as the on-axis output. The **MD1RC** ceiling speaker has the remarkable ability to respond to lower bass and higher treble frequencies simultaneously while dispersing the sound to the entire room. This level of performance eliminates the need for wall speakers with solid depth, width and height imaging achieved from the ceiling.



The MD1RC mounts easily using four integral clamps that fasten it to the ceiling. A simple circular cutout of the ceiling material using the included template is all that is required. A keyhole saw and Phillips screwdriver are the only tools needed.



The **MD1RC** can be mounted in any ceiling and if not to high right above flush mounted HDTV sets while clearly tracking the on screen sound. It makes the sound image bigger than the picture itself for truly wonderful involvement in the action. The **MD1RC** provides excellent off axis imaging providing the proper phantom for center image to all viewers. The center channel can be used in surround systems but phantom is good even for this application. With a full 40-20kHz response, this is the true solution for music and home theater integrated into a invisible system that won't transmit sound into the surrounding structures. The **MD1RC** can be specified for any ceiling location with consistent natural sound for all rooms. Subwoofers are an option with this speaker which reproduces the full range of sound in its acoustic output. The **MD-1RC** can be used with any quality amplifier or surround receiver with up to 100W. The **MD-1RC** has been measured to produce dynamic levels over 100db and with an even diffusion of the sound this results in less need for blasting it. One very important aspect of any speaker is the ability to resolve low level detail. This is the factual definition of dynamic range not how loud it gets and with the **MD-1RC** you can maintain low levels and hear all of the dynamics, vocal and detail.

The **MD1RC** requires a 8.625" (219.075mm) cutout with a 10.31" (262mm) overall bezel diameter. The depth is 4.83" (122.85mm) from the front mounting surface. The front bezel has a flush edge (<1mm) offset a maximum of .34" (8.65mm) from the surface at grille center.