DALI ALTECO

WHITEPAPER



IN ADMIRATION OF MUSIC

INTRODUCTION

DALI ALTECO C-1 is truly a ‘Jack of all trades’, but also master to all. The wedge shaped ALTECO C-1 is a perfect fit for several difficult audio situations, and the dual sound modes helps it adjust to even more.





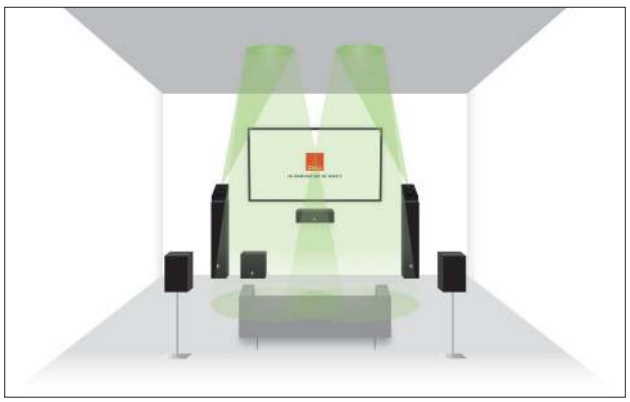
HEIGHT SPEAKERS

Movies with a Dolby Atmos, DTS:X or Auro-3D sound track are becoming more and more the standard. To enjoy the extra elevated audio information extra speakers in or around the ceiling are required. The ALTECO C-1 offers the user two options to deliver the height information in a surround setup.

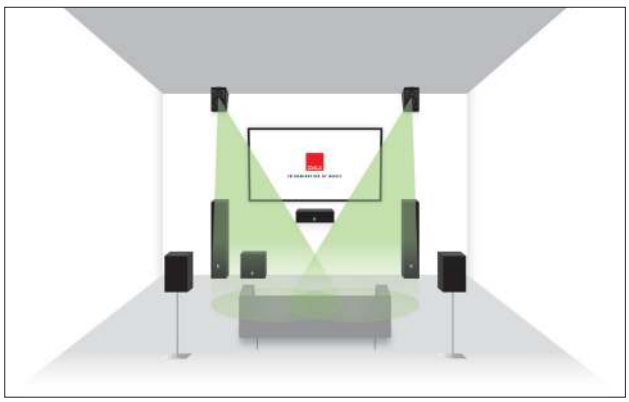
Either:

- Placed on top of the front speakers, and/or the rear speakers, firing up onto the ceiling, they generate the elevated sound stage by reflecting the audio off the ceiling area. The audio signal is beamed towards the ceiling at a 21-degree angle, and due to the recessed front baffle and the foam padding around the woofer, audio leakage directly towards the listening position is minimized. This allows the height information to reflect off the ceiling and reach the listener without being mixed with potential audio information directly from the ALTECO C-1, delivering a very believable elevated sound stage.

- Mounted high on the wall right below the ceiling, the angle of the ALTECO C-1 ensures that the audio is delivered toward the listening position to form the optimum elevated sound stage. The recessed front baffle and the foam padding ensure that the audio is delivered directly at the listener, optimising the position effect of the elevated sound scape.



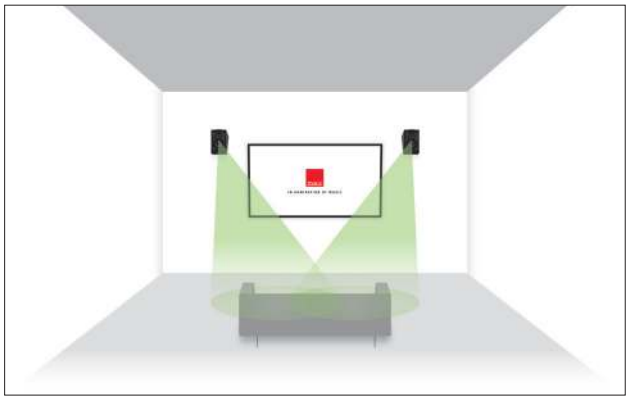
DALI ALTECO C-1 as an up-firing speaker on top of the front speaker in a 5.1.2 surround system for height information.



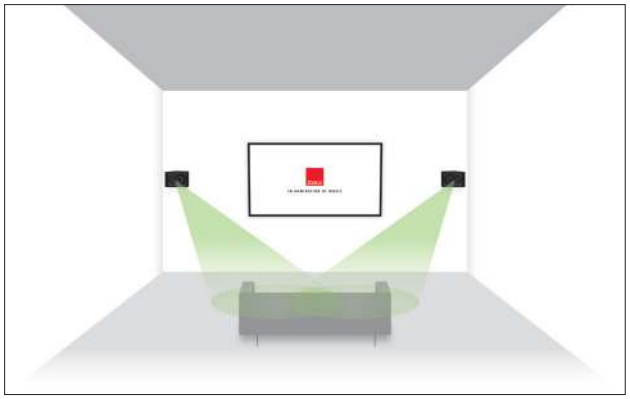
DALI ALTECO C-1 placed high on the front wall in a 5.1.2 surround system for height information.

STEREO SPEAKERS

Wanting to maximize the possible user scenarios for the ALTECO C-1, the voicing of the speaker was done according to DALI's sound principles. This means that they are perfect for use as stereo speakers as well as in surround setups.



DALI ALTECO C-1 as stereo speakers placed high on front wall.



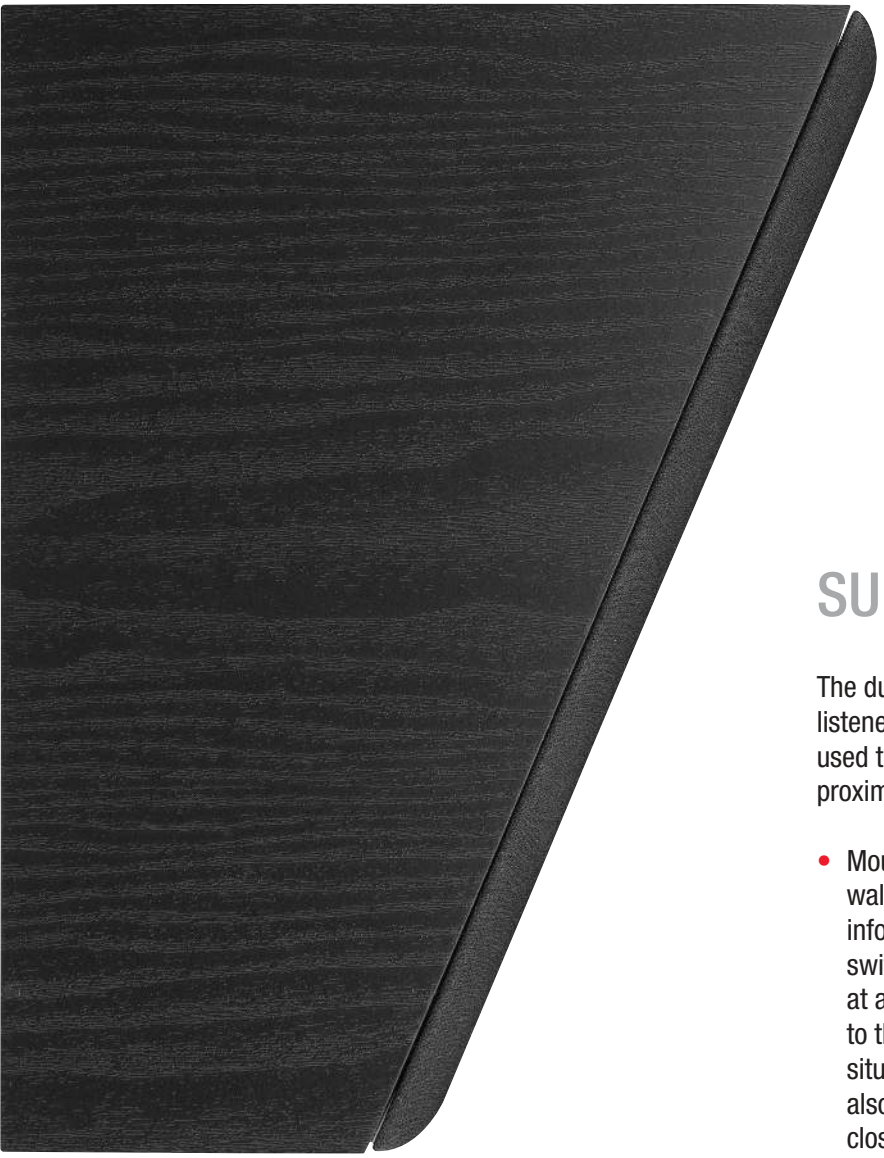
DALI ALTECO C-1 used as stereo speakers placed horizontal and wide on front wall.



DALI ALTECO C-1 as stereo speakers in a near-field desktop environment.

- Mounted at about 2/3 from the floor the ALTECO C-1 is angled down directly at the listening position, letting the sound reach the listener at about ear height for the best possible audio experience. This way it is possible to have stereo sound out of direct view on the front wall.
- It is also possible to mount the ALTECO C-1 horizontally at ear level, close to the side wall, for true 'out of the way' stereo sound. The angle of the ALTECO C-1 ensures that the sound reaches the listening position and forms a solid stereo sound stage.
- The angle of the ALTECO C-1 also makes it perfect for close-up listening. Standing on the terminal side the tweeter and woofers, the speakers sound is optimally aligned for close quarters desktop listening. Even if used at a very short distance from the listener, the position switch can be used to enable very close-up listening.

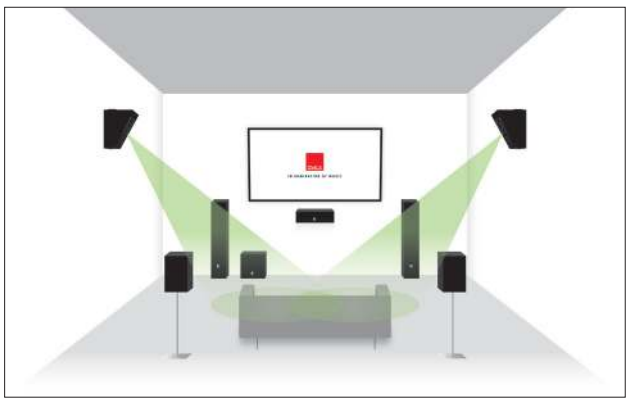




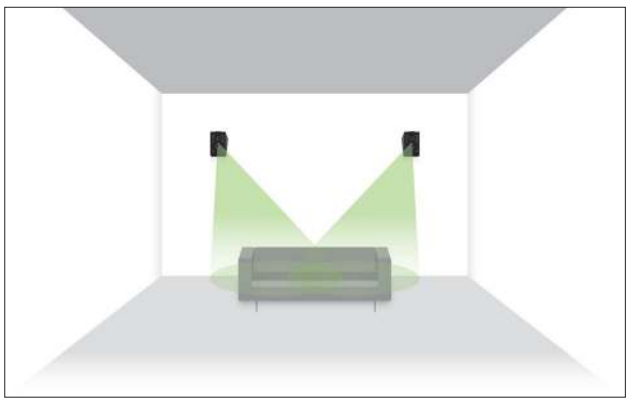
SURROUND SPEAKERS

The dual sound modes of the ALTECO C-1 allows the listener to be placed very close to the speaker. When used this way the ALTECO C-1 can be used for close proximity listening when mounted on a wall.

- Mounted about 2/3 up from the floor on the back wall, the ALTECO C-1 can deliver rear or back channel information in a surround setup. Using the position switch's 'Down' setting, the audio signal is delivered at a downward angle of about 25 degrees in relation to the front baffle, reaching the listener even if situated very close to the back wall. This setting can also be used in a side position if the listener is very close to the side wall.



DALI ALTECO C-1 placed on side wall as surround speaker in a 7.1 surround system.



DALI ALTECO C-1 placed on back wall as rear speakers in a 5.1 surround system.

DUAL SOUND MODES

The position switch placed on the front baffle of the ALTECO C-1 enables the user to change the angle of the audio information generated by the speaker.

- In the ‘Up’ position, the audio signal is optimised for listening at a position reached in a line perpendicular to the front of the speaker. This setting is used when the sound must travel to a point the speaker is aimed at, or if reflected off the ceiling when generating height information.
- In the ‘Down’ position, the audio signal is optimised for listening at a position reached at an angle of about 25 degrees downwards from the tweeter across the woofer. This setting is used when the sound must travel to a point very close to the speaker position.



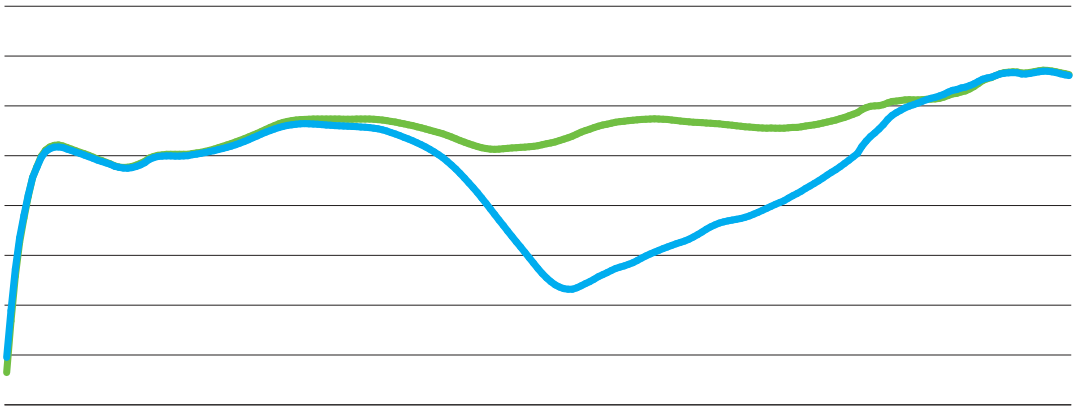
DUAL SOUND MODES

The different sound modes are obtained by regulating the phase of the tweeter. Regulating the phase of the tweeter dictates the position where the combined audio signal from the woofer and the tweeter is optimal. In the Up position, the audio signal from the woofer and the tweeter is combined like on a traditional stereo speaker, and is optimal along a line perpendicular to the front of the speaker. When in the Down position, the phase on the tweeter is inverted, and the integration between woofer and tweeter is optimal at a much lower point.



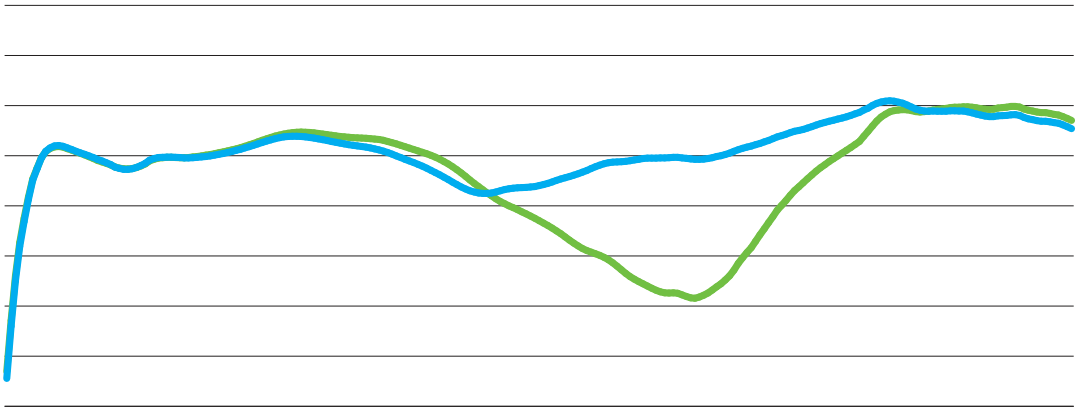
= Down = Up

Listening straight on the ALTECO C-1 the audio signal integrates best with the position switch in the 'Up' position.





Listening close to the ALTECO C-1 mounted on a wall the audio signal integrates best with the position switch in the 'Down' position.





FOAM PADDING

The recessed front baffle on the ALTECO C-1 helps ensure that audio is delivered more precisely towards the listening position. Having the woofers recessed in this way does carry the risk of unwanted sound reflections from the sides of the speaker, there by acting as a sound trap.

To remedy this possibility the ALTECO C-1 is fitted with a sound deflecting foam padding that helps break up the sound before it reflects of the sides and thereby eliminates the risk of a sound trap. The padding also helps guide the sound forward, and reduces the leakage of sound from when used as an up-firing speaker. The padding is meticulously shaped to optimise the ALTECO C-1 for all its many uses, helping the speaker sound at its best no matter where it is placed.

DRIVERS



Tweeter
The ALTECO C-1 tweeter is based on an ultra-light weight weaved fabric. Compared to most soft dome tweeters in the market, the ALTECO C-1 dome material is less than half the weight; 0.056 mg per mm2.

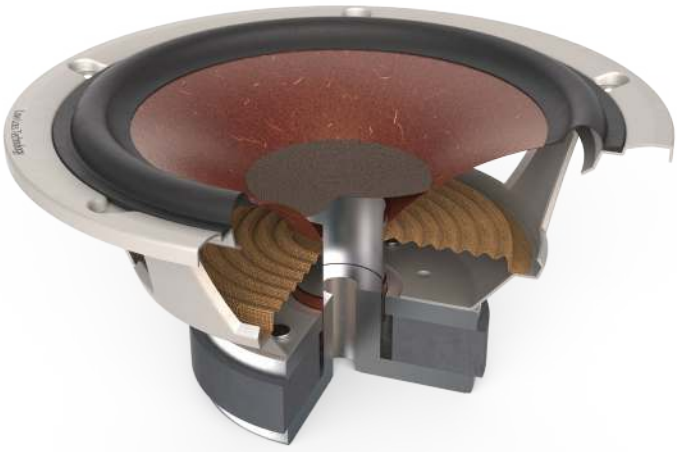
The beauty of the soft dome tweeter is its impressive ability to play even the lowest parts of the high frequency range without any break-ups. This is crucial when handling the all important hand-over from the woofer to the tweeter. Not having to push either the woofer or tweeter beyond what they do best, results in a seamless transition and preservation of every detail in the mid-range frequencies.

Woofer
The wood fibre cone structure is not only a DALI trademark, but a well proven technology. By crafting the cone membrane from a mix of fine grained paper and wood fibre pulp, the cones become very ridged, very light-weight and the unevenness of the membrane helps minimize unwanted surface resonances.

Combining the well-behaving wood fibre cone with the low-loss surround and spider suspension, results in the reproduction of even the smallest micro-detail in the signal – unfiltered and with high accuracy. Having a strong magnet motor system combined with a nimble 2-layer 25 mm voice coil, keeps the coil movements precise, well timed and powerful.



Compared to most soft dome tweeters in the market the DALI dome material is less than half the weight; 0.056 mg per mm^2.



Wood fibre cone, low-loss surround and a strong magnet motor system results in the reproduction of even the smallest details.