

Optimising Home Cinema Audio



CINEMA ACOUSTIC TREATMENT SYSTEM

PACKS





C-ATS PACKS INTRO

C-ATS Packs are a unique acoustical treatment designed to offer high performance with the minimal loss of space for frequencies above 125Hz.

C-ATS Packs bring many of the benefits of the high end **C-ATS Complete** to a much wider market.

Whilst many budget acoustic treatment systems exist, none combine the ease of specification and high performance result delivered by C-ATS whilst minimising the loss of valuable wall space.

C-ATS Packs have been designed to specifically address the “three Rs of acoustics” - Resonance, Reverberation and Reflection.

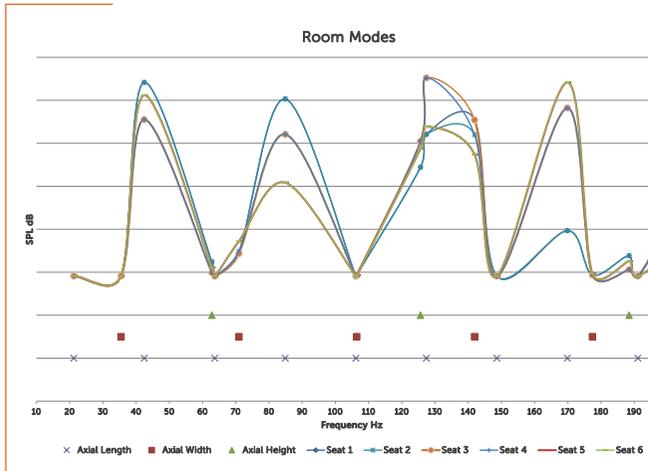
Resonance is tackled by careful placement of subwoofers and reverberation and reflection are targeted by dedicated **C-ATS Packs** components. All components have a depth of just 50mm.

C-ATS is already the critical component of many of the highest performing home cinema systems.

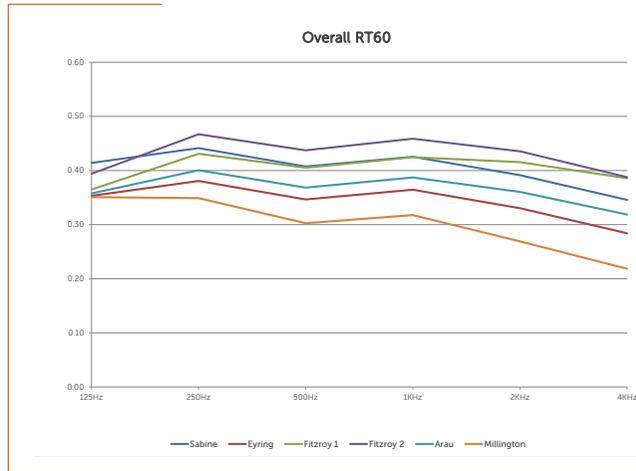
We are delighted that you are considering **C-ATS Packs** for your own home cinema where it will maximise the performance of your chosen audio solution for years to come.



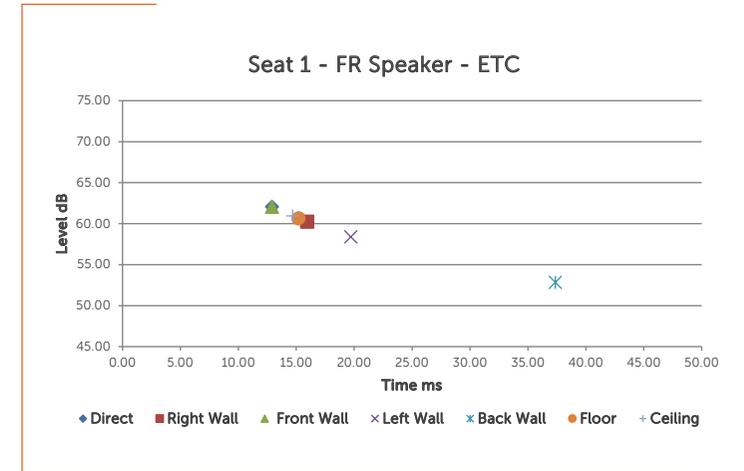
Resonance



Reverberation



Reflections



THE THREE R'S OF ACOUSTICS

Resonance

Low frequency sounds have a very long wave length, up to 20m in home cinema. As these waves are so long, they are bounced back on themselves by the room boundaries resulting in many of the most noticeable acoustic artefacts. The effect of sound waves bouncing repeatedly between the room boundaries is called resonance.

Reverberation

Sound waves can be long and travel at surprisingly low speed. As the sound waves bounce off the room boundaries they lose some energy but do not disappear completely. We can hear these repeated sounds for some amount of time after the original sound is over. The effect of sound waves taking some to decay to silence is called reverberation.

Reflection

Sound waves travel in straight lines and when they hit a boundary they are bounced back in a very specific direction. This is very much like the behaviour of a pool ball bouncing off the cushion. Our auditory system uses these spatial cues to work out where sounds are coming from so they are very important to our experience. The effect of sound waves bouncing off a boundary is called reflection.



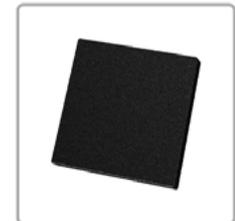
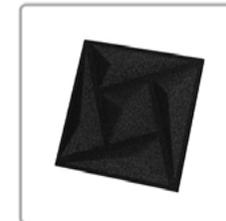


The Foamsorber panels should be applied around the side surround speaker starting flush with the top of the speaker and keeping tight to the sides.

The Scattering panels should be applied either side of the surround speaker. **Note that perfect alignment is not a technical requirement for this part of the process.**

Remaining Foamsorber panels should be installed in a chequerboard pattern on either side of Scattering panels.

Distance from lowest Scattering panel to floor should not exceed 30% of room height.



C-ATS PACKS PERFORMANCE STAGES

C-ATS Packs is a pre packaged treatment solution that can be implemented in four stages. Each stage brings increased performance.

Stage 1 - Side walls

Scattering panels are applied to the side wall reflection points to enhance and control reflection and Foamsorber panels are used to control reverberation for the prime seating position.

Stage 2 – Rear wall

Scattering panels are applied behind the seated head locations to enhance and control reflection

and Foamsorber panels are used to control reverberation and resonance for all seating positions.

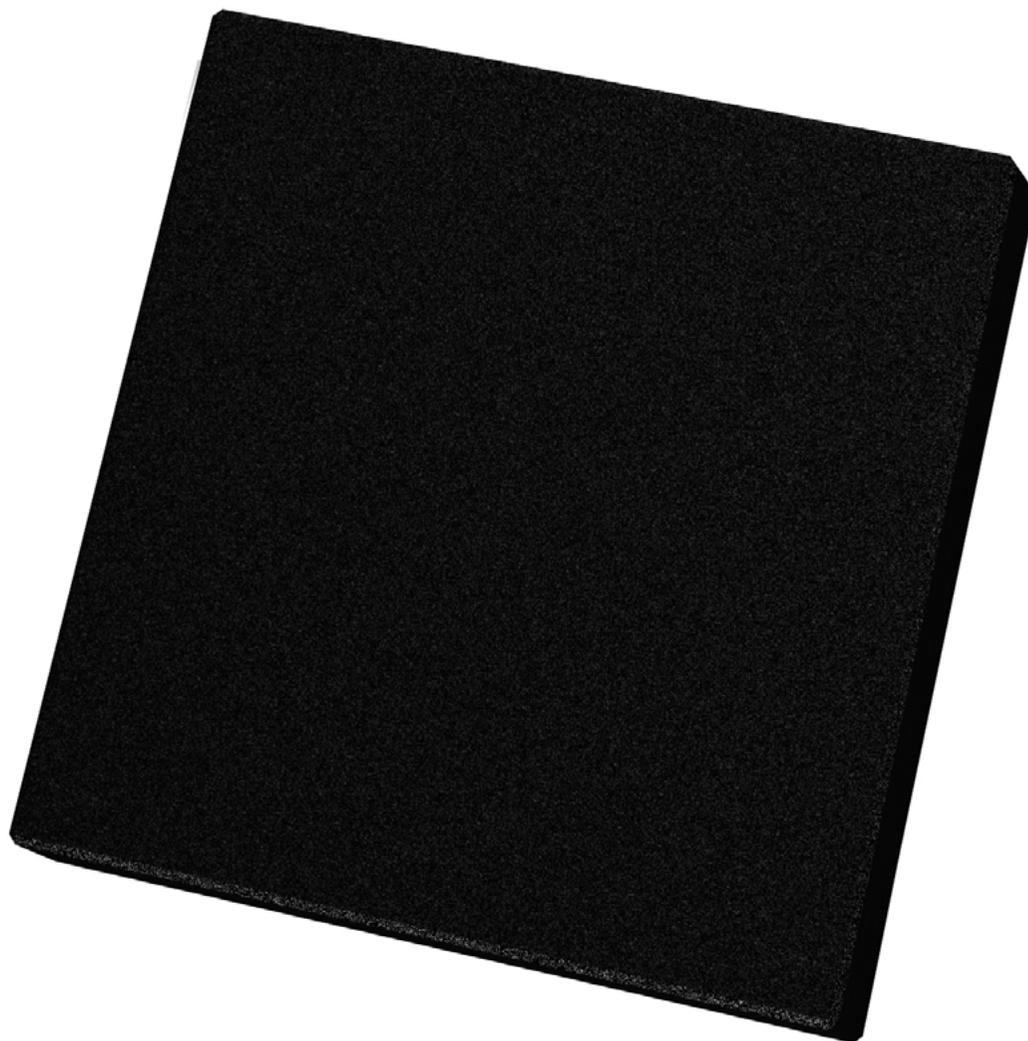
Stage 3 – Side walls

Around surround speakers Foamsorber panels are used to enhance clarity of the side surround speakers and Scattering panels are used to enhance and control reverberation throughout the seating area.

Stage 4 – Ceiling

Scattering panels are applied to the first reflection points to enhance and control reflection and Foamsorber panels are used to reduce reverberation and resonance and increase clarity throughout the seating area.





C-ATS – FOAMSORBER

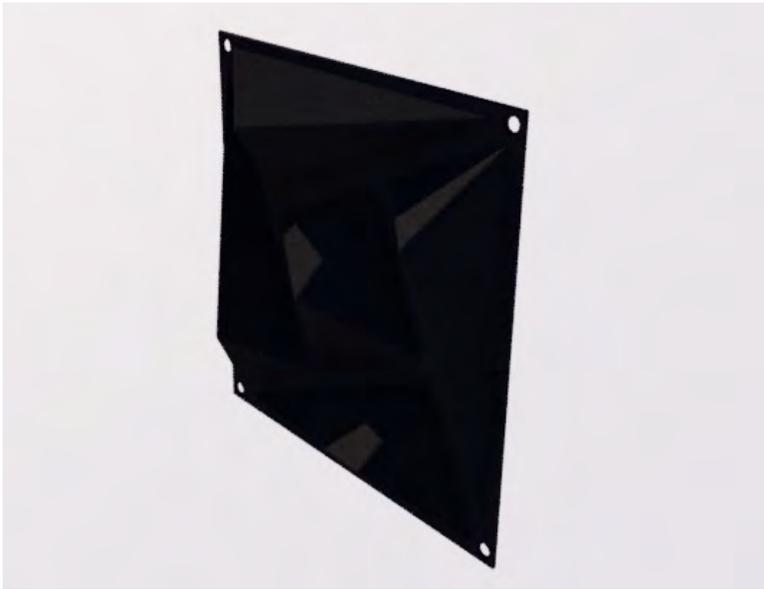
C-ATS Foamsorber is used to provide absorption to control resonance and reverberation in the room.

This panel provides effective absorption of frequencies above 200Hz for reverberation control and useful absorption of frequencies below this for resonance control.

The panel is manufactured of a dense open cell foam and has an integrated sticky backing for ease of install. The material used has a class 0 fire rating for ultimate safety.

C-ATS Foamsorber has a very broad operating range of consistent absorption making it ideal for reverberation control.





C-ATS – SCATTERING PANEL

C-ATS Scattering panel is used to provide control of reflections and to meet C-ATS reverberation targets.

This panel has been designed specifically for the **C-ATS** system and provides effective scattering to around 500Hz.

The panel is injection moulded from a very strong 3mm ABS plastic to provide the best possible performance and stability.

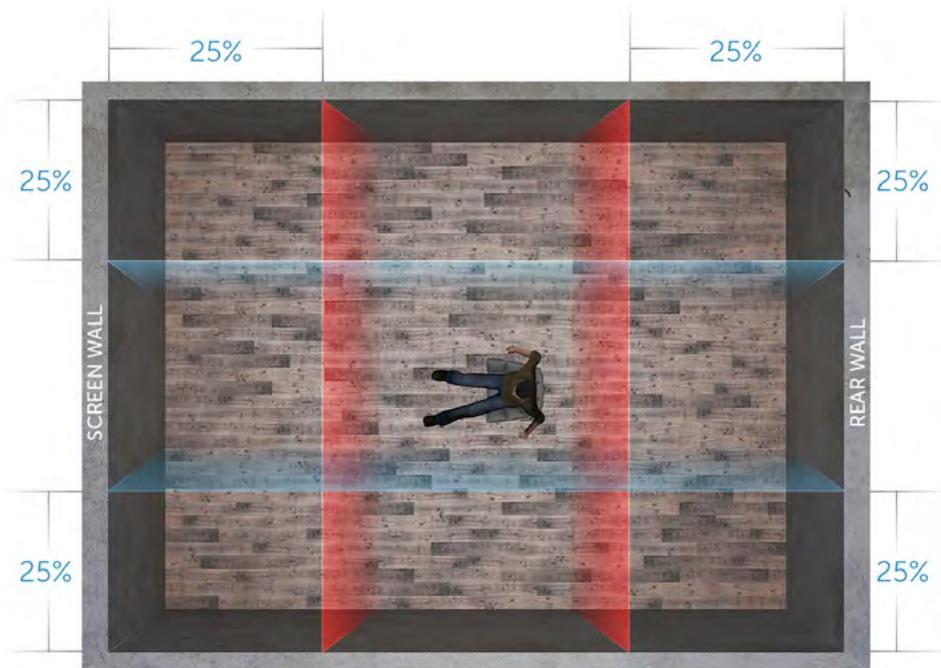
The numerous irregular shaped faces cause the sound waves to be scattered rather than directly reflected back in to the room.

These scattered waves are reduced in energy and broadly dispersed which greatly improves the sense of spaciousness in the room and reduces

the problem of reverberation.

By scattering rather than absorbing much of the sound **C-ATS** results in a very high efficiency sound transfer which can be clearly heard in the improved dynamics and clarity of the overall audio system.





C-ATS PACKS LAYOUT GUIDE

Locate subwoofers on the blue lines.

For optimal performance, use at least two subwoofers located on the screen wall. If budget allows, two more matching subwoofers should be located on the rear wall.

Subwoofers should be wired on phase and run as a mono signal from the AV Processor.

Ideally DSP should be available to individually time align and EQ each individual sub response relative the prime seating location

DO NOT locate seated head position within 50cm of the red lines.



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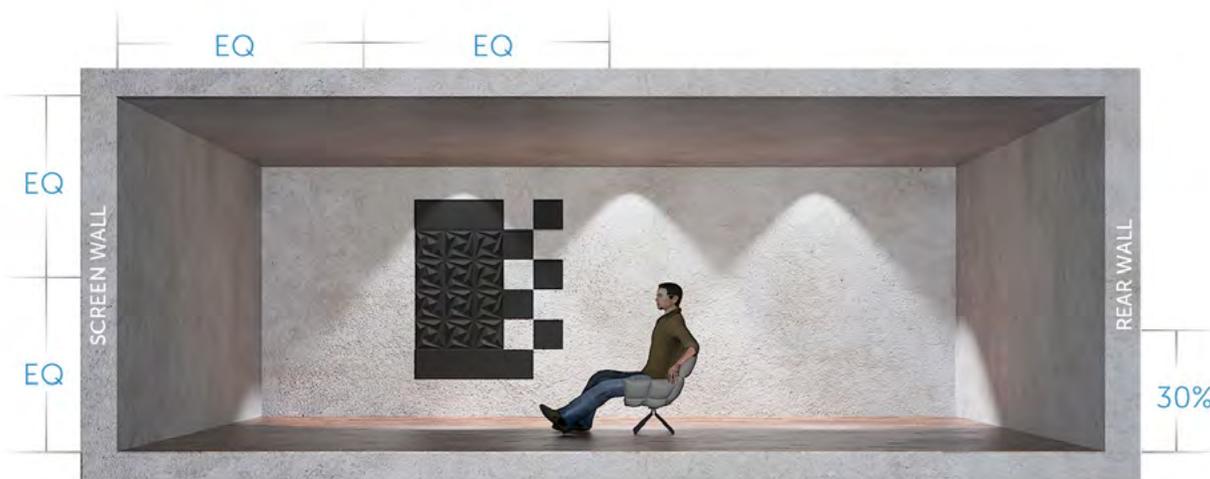
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Subwoofers should be wired on phase and run as a mono signal from the AV Processor.

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DO NOT locate seated head position within 50cm of the red lines.





C-ATS PACKS STAGE 1: SIDE WALLS

The Scattering panels should be applied in a section 4 panels high and 3 wide. Rooms taller than 3m require 2 C-ATS Packs.

These should be centered on the mid point from the screen wall to the prime seating location (shown) and from floor to ceiling.

Three Foamsorber panels should be installed above and below the Scattering panels. **Distance from lowest Scattering panel to floor should not exceed 30% of room height.**

Remaining Foamsorber panels should be installed in a checkerboard pattern on the side to the rear wall. **Reverse checkerboard on opposing wall.**



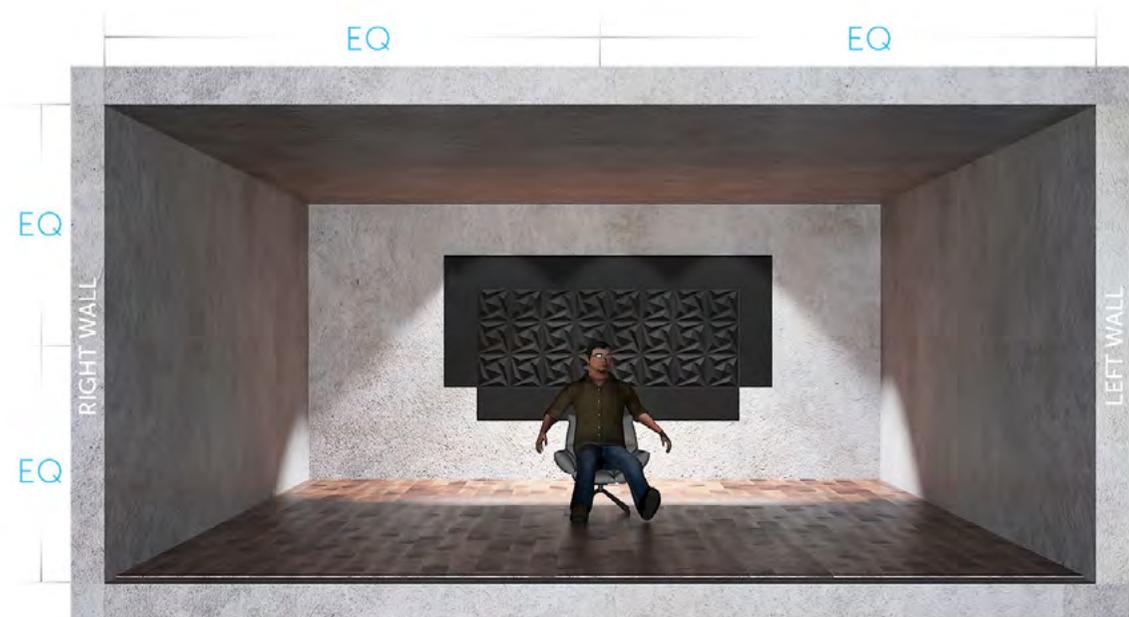
C-ATS PACKS STAGE 2: REAR WALL

The rear wall should be treated with a minimum of two C-ATS Packs. The Scattering panels should encompass the entire width of seated head locations in the room.

The Scattering panels should be applied in a section 3 panels high and at least 8 panels wide.

The Foamsorber panels should be installed around Scattering panels.

Distance from lowest Scattering panel to floor should not exceed 30% of room height.



C-ATS PACKS STAGE 3: SIDE WALLS

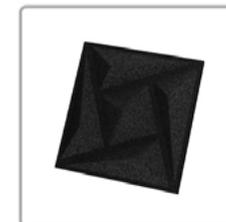


The Foamsorber panels should be applied around the side surround speaker starting flush with the top of the speaker and keeping tight to the sides.

The Scattering panels should be applied either side of the surround speaker. **Note that perfect alignment is not a technical requirement for this part of the process.**

Remaining Foamsorber panels should be installed in a checkerboard pattern on either side of Scattering panels.

Distance from lowest Scattering panel to floor should not exceed 30% of room height.

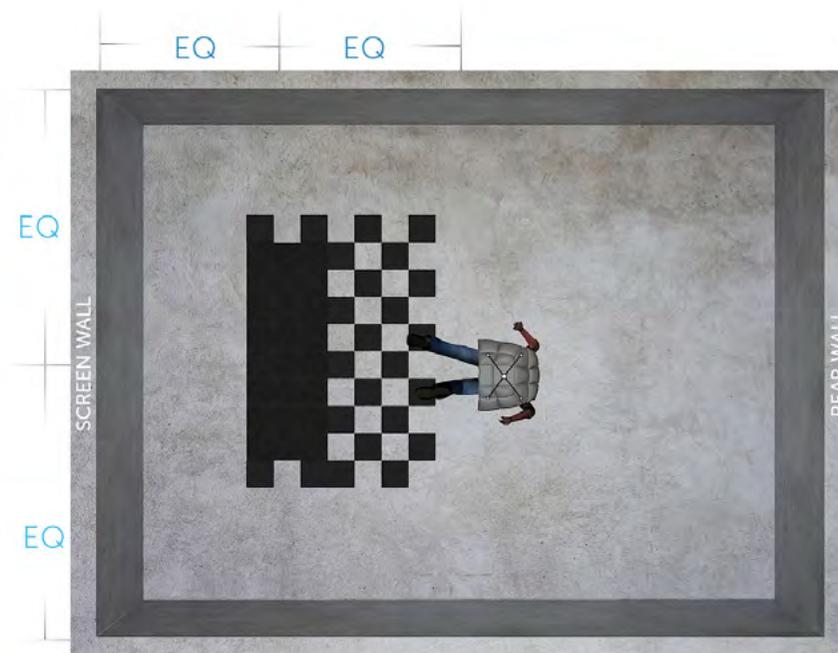


C-ATS PACKS STAGE 4: CEILING

The ceiling should be treated with a minimum of two C-ATS Packs. The Scattering panels should encompass the entire width of seated head locations in the room.

The Scattering panels should be applied in a section 3 panels high and at least 8 panels wide.

The Foamsorber panels should be installed in a chequerboard pattern starting on the rear wall edge of the Scattering panels.





C-ATS PACKS INSTALL

C-ATS Packs are designed to be extremely straight forward to install. Most acoustically isolated walls are constructed such that no special wall fixings are required to secure the panels.

Scattering panels – 30cm x 30cm x 5cm. Panels are supplied with countersunk screw fixing points as part of the mould. 4 screws per panel.

Foamsorber – 30cm x 30cm x 5cm. Panels are supplied with sticky backing allowing them to be stuck directly to the wall. In situations where the panels may have to be removed in the future it is advised to use a wall lining paper or similar mounting to allow easy removal of the Foamsorber without damaging the wall.





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