

Acoustical behaviour of ETTLIN/lux® Decolux

Description of the acoustical impedance measurements with ETTLIN/lux® Decolux

The acoustical impedance measurement determines a material's degree of sound absorption. This degree indicates which part of the incident sound energy is absorbed by the tested material. The sound absorption level is measured between 0 and 1 (0 = no absorption; 1 = total absorption).

In the measurements carried out the structure of an acoustic box had been simulated, which is suitable for the integration of light effects via the arrangement of the rear panel and Decolux fabric. In this setup the Decolux fabric is at a certain distance (7 cm) in front of an acoustically effective rear panel.

Two measurements of acoustical impedance were made:

- large impedance measuring tube (Ø 100mm): frequency range 50 Hz to 1,6 kHz
- small impedance measuring tube (Ø 29 mm): frequency range 500 Hz to 6,4 kHz

The following measuring setup types were tested in both impedance measuring tubes:

- acoustically effective rear panel without fabric in front
- acoustically effective rear panel with Decolux 2301 fabric in front (distance: 7 cm)
- acoustically effective rear panel with Decolux 2102 fabric in front (distance: 7 cm)

Both products Decolux 2301 and Decolux 2102 had been selected for being the fabrics that show the greatest differences within the Decolux range. The two chosen fabrics are supposed to reflect the entire spectrum of the Decolux collection as well as possible.

Conclusion of acoustical behavior of ETTLIN/lux® Decolux

In conclusion, the ETTLIN/lux® Decolux fabrics are suitable for the use in front of acoustically effective rear panels.

The impact on the rear panel is very small depending on the frequency ranges. The acoustical effectiveness of the sheer ETTLIN/lux® Decolux fabrics is in most frequency ranges rather low.

This means ETTLIN/lux® Decolux is suitable for 3D-lightdesign in acoustical issues. For example sound absorbing modules for modern offices will not be disturbed in their effectiveness and also the use of ETTLIN/lux® Decolux in speakers is possible.

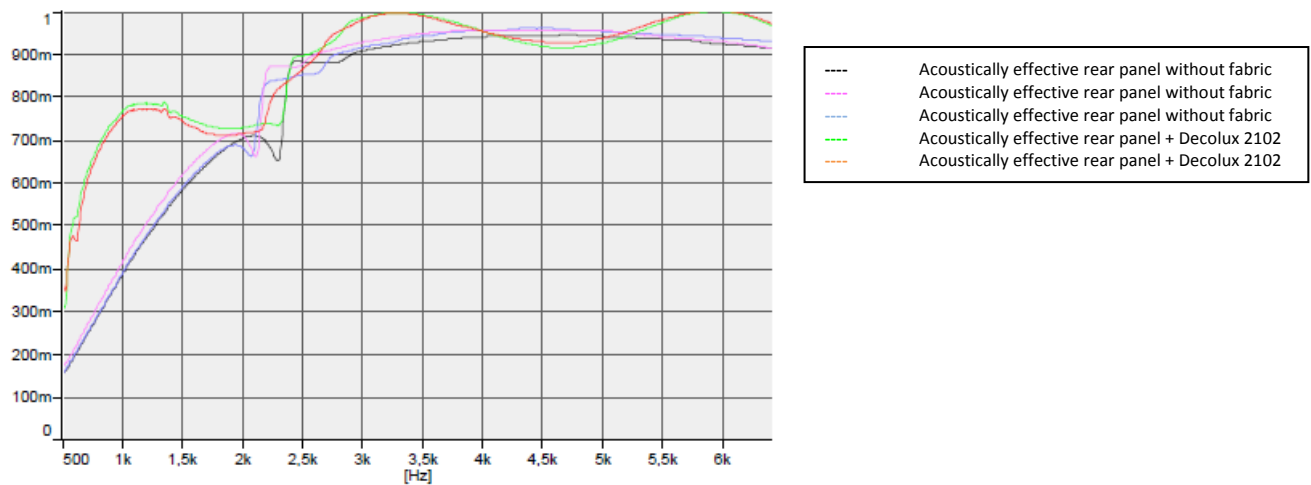
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Measurement and results in detail

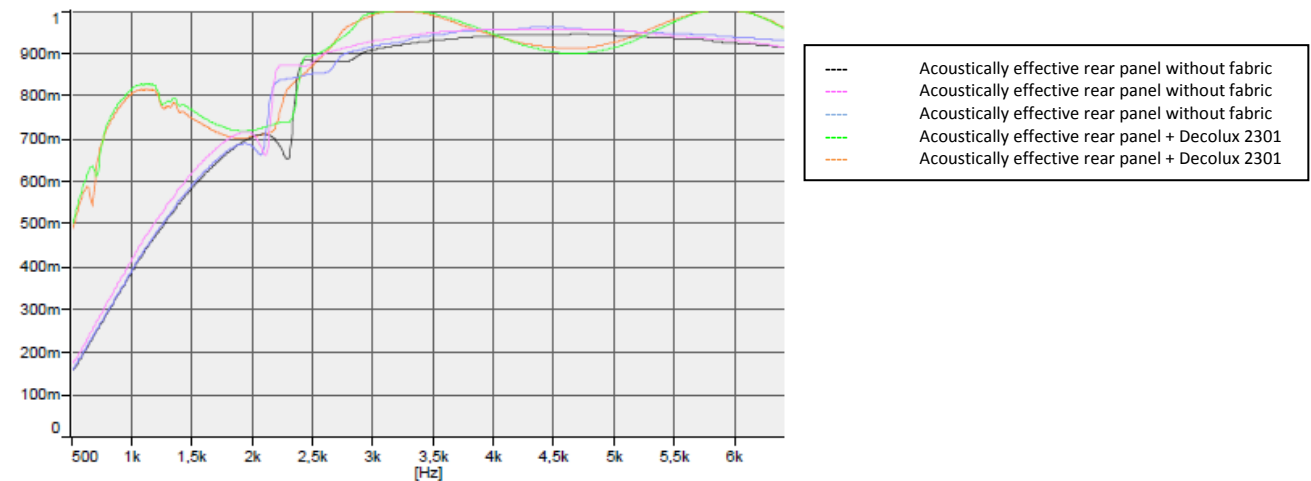
The differences between the two fabrics Decolux 2301 and Decolux 2102 are so small that the results of the measurements are representative for the entire collection.

In a few frequency ranges the sound absorption level slightly deteriorates (in the range from 2 to 2,5 kHz by about 15 % plus in the range from 4 to 5,5 kHz by about 5 %).

Small impedance measuring tube: Decolux 2102



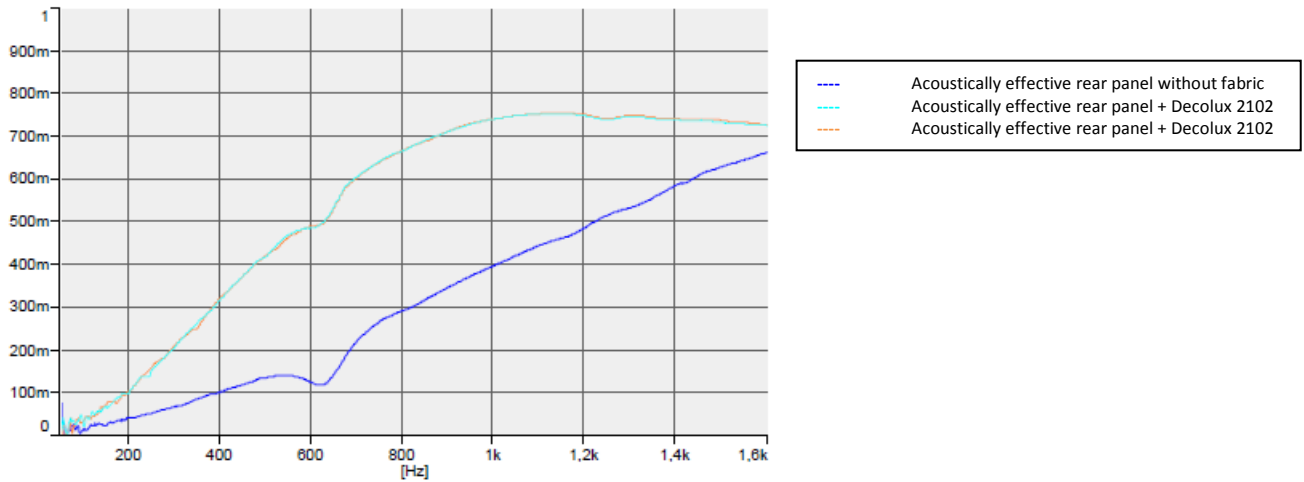
Small impedance measuring tube: Decolux 2301



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In contrast sound absorption level in the remaining frequency ranges increases. The largest improvement occurs in the range from 200 Hz to 1,6 kHz with an increase by up to 120 % at 800 Hz.

Large impedance measuring tube: Decolux 2102



Large impedance measuring tube: Decolux 2301

