

a.i.R Studio

Brief Acoustical data

Owner: Kemal Perdana

Acoustical Consultant: YP Hadi Sumoro K

**Note: Interior acoustics only, non-structural*

General Information

a.i.R Studio is located in Tangerang, Banten, Indonesia. Various works are completed in this small studio, ranging from band recording, jingles, presentation, traditional music, religious music, etc. The studio had a major renovation at the end of 2009 to enhance the acoustical performance of the rooms. a.i.R Studio features 'Batik' (Indonesian traditional cloth pattern) as wall finishes which creates a very exotic feeling.



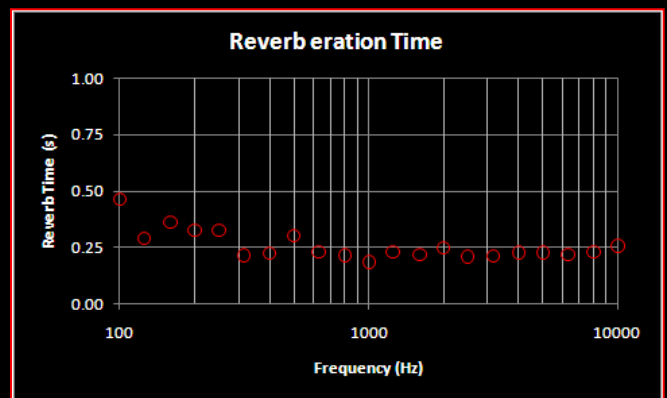
Architectural and Structural Details

Walls: Drywall and Wood. Ceiling: Drywall. Floor: Wood.
Live Room Area: $\pm 23,5\text{m}^2$. Height: $\pm 3,1\text{m}$.

Acoustical Data

Reverberation time: 0.25s (500-4000Hz).

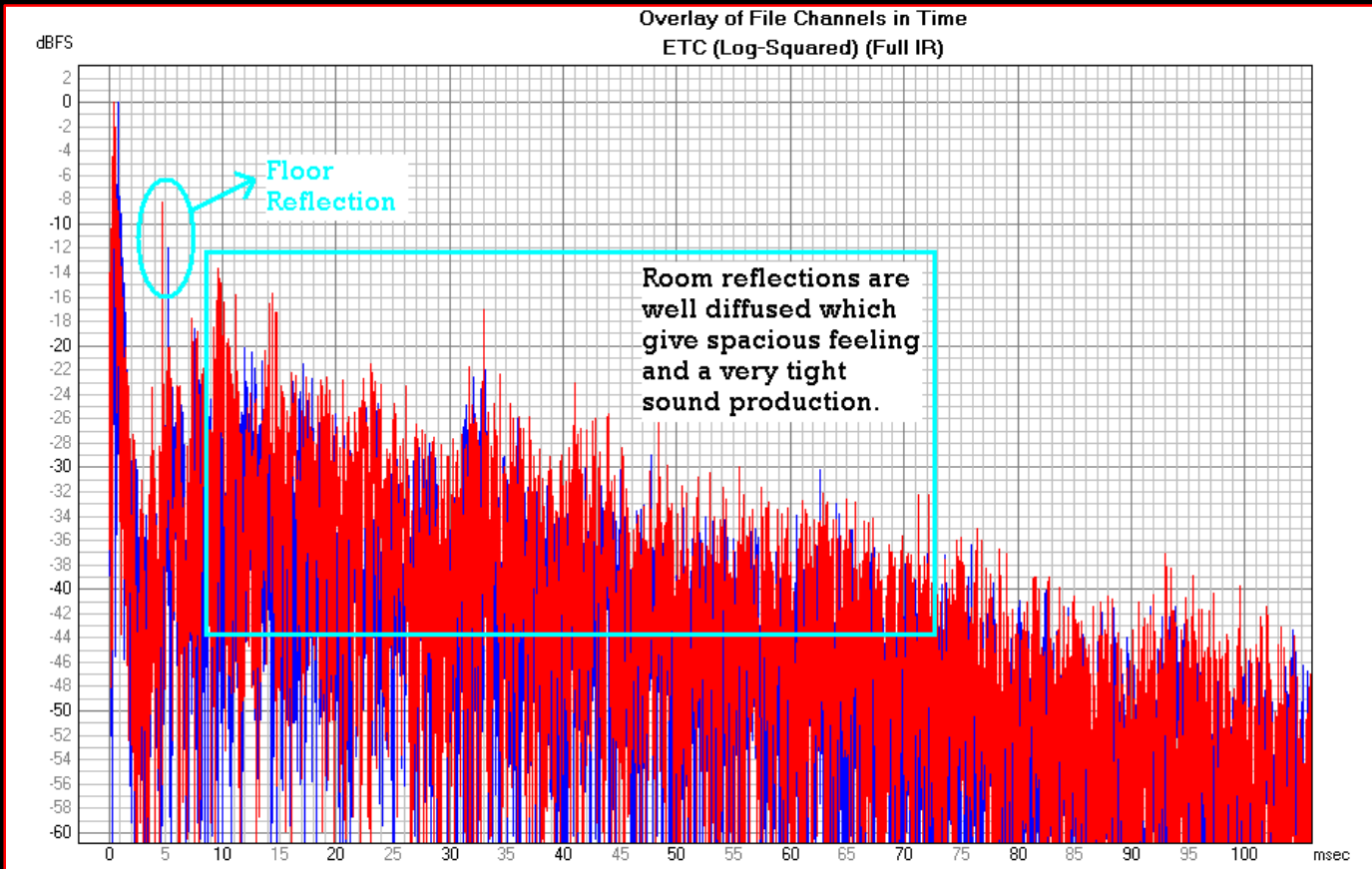
Note: Additional measurements and information can be found on the next page.



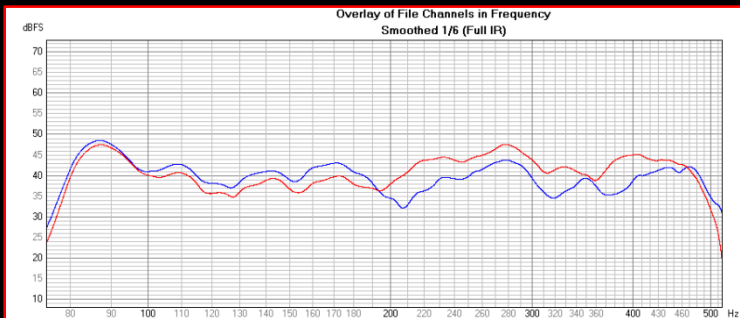
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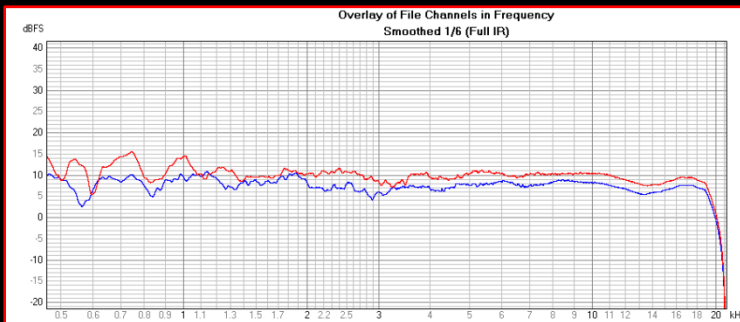
Two measurements at different locations are performed in the live room using a 6" studio monitor (ADAM A7) and Behringer ECM8000. Loudspeaker and microphone are 2m apart and roughly 1m above the floor. The first 100ms reflections can be seen below:



The frequency response of the loudspeaker used in the live room measurement can be observed below (1/6 oct):



80Hz – 500Hz (approx. $\pm 5.5\text{dB}$ [$1/6$ oct])



500-20000Hz (approx. $\pm 4\text{dB}$ [$1/6$ oct])

Note: Due to the small loudspeaker used in the measurement, there is no valid measurement below 80Hz.

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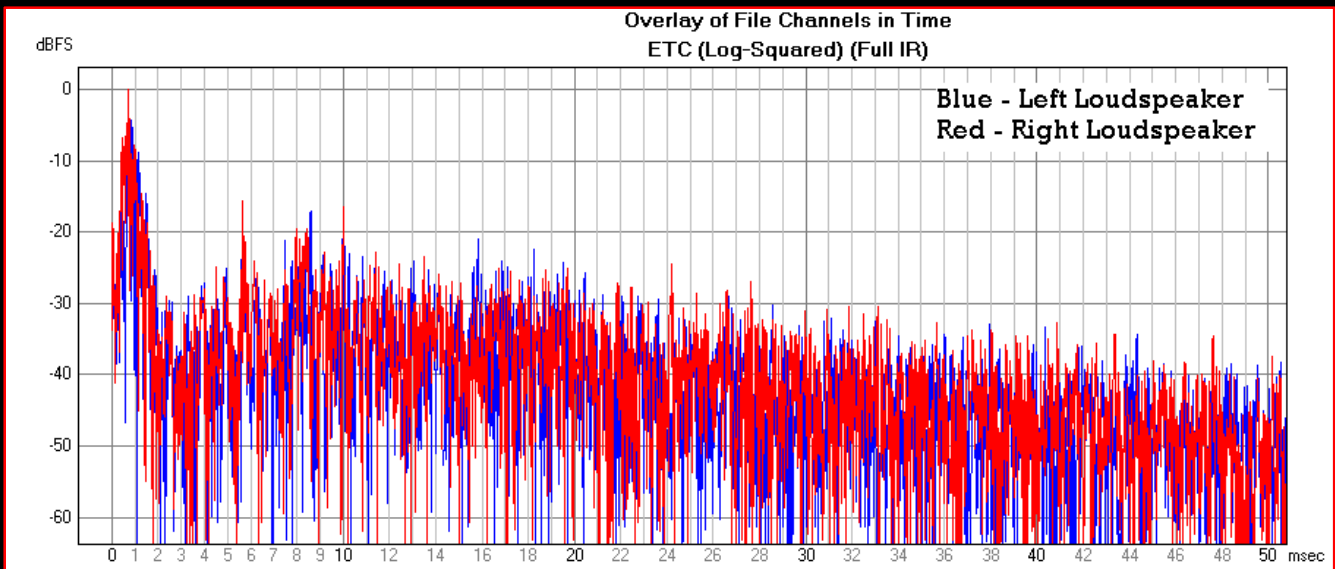
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Subjectively, the new live room is able to produce a flat and tight sound production. This can be observed with two drum recordings made before and after the renovation. The microphones used are two Behringer ECM8000 with RME Fireface 800 preamps. The location of the microphones and the drum are the same. Please find the recording in the zip file: aiR studio comparison.zip (HadiSumoro.com – Acoustics – Projects – a.i.R Studio).

Several pictures before the renovation:



The control room is designed to minimize reflections which arrived 50ms after the direct sound. The energy time curve for frequencies above 200Hz can be seen below:



The first reflections arrive at 5-10ms after the direct sound with an amplitude less than 15dB relative to the direct sound. Subjectively, the control room will introduce very minimum coloration to the sound reproduction.

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