

Modelling, designing and commissioning offices using ISO 3382-3

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Introduction

One of the most common problems in acoustic consultancy is the need to explain numerical assessments in simple terms. This is particularly apparent in office fit-outs where the client often has no technical understanding or interest in acoustics. The main aim is to enable the client to make business decisions in the design process, such as provision of sound absorption or masking systems.

ISO 3382-3 can give a useful framework for explaining open plan office assessments, but testing is rarely included contractually. Testing to 3382-3 can be onerous and this paper presents a potential simplified method.

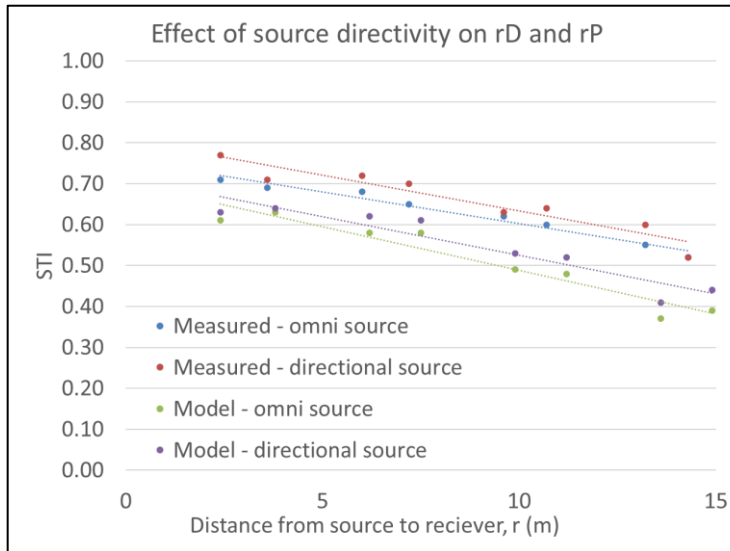
Designing and modelling

The use of distraction distance (r_D) and privacy distance (r_P) have proven to be an effective tool in enabling clients to make informed design decisions. Other parameters presented in 3382-3 ($D_{2,S}$ and $L_{p,A,S,4m}$) tend to be too complex and abstract.

Acoustic modelling of the STI across an open plan office indicating r_D and r_P has proved a simple and robust method to demonstrate the relative differences between treatments. Such images have proved much more effective than audio demonstrations. Simplifying this to the number of workstations affected make it easy for clients to understand the impact of different design choices.

The proximity to large reflecting surfaces (eg, internal walls/facade) also affect speech distraction and privacy in real world scenarios, yet this is specifically excluded in 3382-3.

To gain a good comparison between the model and the commissioning, the source directivity must be the same in both cases. i.e. omni-directional sources in a model will give significant variance to commissioning with a directional speaker in a shortened test method.



Commissioning

One of the main factors which prevent the widespread adoption of 3382-3 commissioning is the test procedure. This can be time-consuming and requires more equipment (in terms of quantity and cost) than other aspects of office commissioning measurements. Under the time constraints of site work, non-contractual tests are unlikely to be undertaken.

Abbreviated test methods can provide similar results to the full method with the key differences being the use of a directional source.

Very rarely are performance criteria in UK open plan offices set as contractual requirements, yet it is crucial to worker satisfaction. Whether a shorter test procedure to encourage more adoption of 3382-3 style commissioning and whether distraction and privacy distances should be included in contractual requirements are worthwhile considerations.

There is a need to present assessments to lay clients using a simple and robust method

Use of r_D and r_P as presented in 3382-3 provides this through modelling and measurements

Simplified test methods can be used, which could lead to wider adoption of this type of commissioning

