



WinRT60 1.0 Description

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The reverberation time, i.e. information about the sound decay in a room, is an important parameter for acoustic design. Most national building codes contain requirements for this parameter. The WinRT60 software calculates reverberation time based on knowledge of the absorbing structures in the particular room, including air absorption. These data are either taken from a user database or calculated using the software WinFLAG?. A verification of such calculations is normally performed by the use of a measurement system comprising a loudspeaker, a microphone, and a measurement system such as WinMLS?.

In WinRT60 the user chooses between three different methods, using the classical formulae of W.C. Sabine or C.F. Eyring, or a newer one by H. Arau-Puchades. For the method by Sabine only the total absorbing area and the room volume need to be known, whereas the Arau-Puchades formula demands specifications of the locations of all absorbents.

Main features

Calculates the reverberation time, usually denoted T_{60} , in rooms using the formulae given by W.C. Sabine, C.F. Eyring or H. Arau-Puchades. The latter applies strictly only to rooms of rectangular shape. The calculations are based on data for the absorption coefficient for each absorbing structure in the room. These data are based on frequency band calculations or measurements, commonly in one-third octave bands, but octave band data may be used as well. The necessary data for the absorption coefficients are either taken from a database in Microsoft Excel format, and/or from calculated results using the software WinFLAG?. The software is supplied with some examples of databases, which the user may use to set up a proper database. The absorption capability of the air in a room is often neglected, but may give an important contribution to the total absorption. This is especially true when the moisture content is low, e.g. in certain times of the year when the relative humidity is low, maybe below 20-30 %. The effect is accounted for by a calculation of the power attenuation coefficient of air, according to ISO 9613 Part 1. From this coefficient the equivalent absorption area due to the air may be calculated and added to the absorption of the other structures in the room. A report window in rich text format (.rtf file) is implemented where specifications of the room and the absorbents used, tables of results, and diagrams may easily be imported. Calculated results for the reverberation time, together with specifications of the room and the absorbents used, may also be exported to a Microsoft Excel file. The set-up for a calculation based on a certain selection of absorbents and specified data for the room may be saved in file, and later recalled for further calculations. On errors in the input data the set-up will be displayed in a separate information window.

Platforms supported: Windows 95, Windows NT, Windows 2000, Windows XP, Windows 98, Windows ME

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