Odeon
Room Acoustics Software

Feature Sheet

Version 19

	Basics	Industrial	Auditorium	Combined	Comments
Supported Standards					
ISO 3382-1			●	●	For performance places.
ISO 3382-2	●	●	●	●	For ordinary rooms.
ISO 3382-3	●	●	●	●	For open plan offices.
ISO 14257, IEC 60268-16	●	●	●	●	Workplaces & Speech Transmission Index (STI).
Data import					
BIM geometries (IFC format)	●	●	●	●	Direct import from REVIT and ARCHICAD.
SketchUp geometries	●	●	●	●	Using the free SU2Odeon plugin.
Geometries in common extensions	●	●	●	●	.dxf, .dwg, .stl, .obj, .3ds and other CAD files.
Material import in 1/3 Oct. bands*	●	●	●	●	The interface accepts absorption and scattering coefficients in 1/3 octave bands.
Directivity files	●	●	●	●	Used for defining loudspeakers.
Wave files			●	●	Used in auralisations (see further down).
Sound Sources					
Point sources	●	●	●	●	Used for speaking persons, musical instruments,
Line sources		●		●	Used mainly in industrial applications (e.g. pipes, traffic noise, machinery).
Surface sources		●		●	
Array sources			●	●	Used mainly for PA systems.
Simulations					
Calculation algorithms	●	●	●	●	Hybrid image source and ray radiosity methods.
Multi-point response & comparison tool for one or multiple rooms	●	●	●	●	Shows calculated parameters for multiple receivers, with comparison curves and statistics.
Noise control	●	●	●	●	Shows the contribution of each noise source at each receiver (available in multi-point response).
Transmission	●	●	●	●	For airborne sound insulation studies.
Color grid response (horizontal & vertical), instant 3D direct map		●	●	●	Coloured distribution of room acoustic parameters/direct sound. Interpolation and contours.
3D billiard visualisation		●	●	●	Visualising sound propagation as billiard balls. Helps detecting prominent acoustic problems.
Single-point response			●	●	Advanced analysis tool for individual receivers, including: decay curves, decay roses, hedgehogs, reflectograms & reflection path analysis.
Reflector coverage			●	●	Define surfaces as reflectors and study their contribution.

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Material calculator			●	●	Estimate abs. coefficients for custom structures.
3D Matrix calculations		●		●	Performs all combinations of calculations between a set of sources (eg. in open-plan offices).
Source power estimation		●		●	Estimates the sound power of sources using measured SPL at a number of receiver positions.
Room Acoustic Parameters					
Sound Pressure Level (SPL)			●	●	
SPL(A), SPL(C), SPL(Lin)	●	●	●	●	
Spatial Decay DL2	●	●	●	●	
Reverb. Times T_{20}, T_{30} & EDT	●	●	●	●	
Speech Transmission Index (STI)	●	●	●	●	
Speech Transmission Index for PA systems (STIPA)	●	●	●	●	
Modulation Transfer Index (MTI)	●	●	●	●	
Sound Strength (G, G_{early}, G_{late})			●	●	Calculated for source of 0 dB SPL on axis at 10 m.
Centre Time (T_s), Clarity (C_{80}), Definition (D_{50})			●	●	Mainly used in auditorium and concert hall acoustics.
Early Late Energy Fraction LF_{80}			●	●	
Lj parameters, IACC			●	●	
Early/Late total Support (ST)			●	●	
Editing room acoustic parameters			●	●	Modify existing parameters or add new ones.
Global parameters					
Quick estimate	●	●	●	●	Simplified calculation of RT.
Global reverberation time T_{20}, T_{30}		●	●	●	Accurate calculation of RT, using ray tracing.
Auralisation tools					
Auralisation (Streaming & offline convolutions)			●	●	Useful to demonstrate how the room "sounds" either via individual convolutions or full mixes.
360 Auralisation			●	●	Binaural auralisations with real-time head rotation.
Movie Auralisation*			●	●	Create auralisation movies on a predefined path, within the 3D render display.
Soundscape App			●	●	Exports auralisations to an interactive web app. that can be accessed outside ODEON
Audio Effects, resampling audio			●	●	For creating rich multi-source soundscapes.

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Measuring System					
Recording/processing impulse responses	●	●	●	●	
Statistical tool for a group of impulse responses	●	●	●	●	Compares selected impulse response files and produces statistics.
Importing measured data to multipoint response	●	●	●	●	
Calibration procedures for G, STI and Early Lateral Energy param.	●	●	●	●	
Frequency response	●	●	●	●	
Cepstrum, Spectrogram			●	●	
Auralisation			●	●	
Ambisonic microphone support			●	●	First order FuMa.
Building acoustics module*			●	●	Calculate the Reduction Index of partitions.
Hedgehog visualisation			●	●	3D visualisation of sound intensity.
Genetic material optimizer			●	●	Optimize materials to match simulations with measurements and target curves.
Evaluation of simulations			●	●	Investigate the No. of rays and transition order for best agreement between simulations and measurements.

*New features in ODEON 19 (released in November 2025).