Check your Odeon model

Projectname: **Project #.:**

Made by:	**Date:**
QA by:	**Date:**
Approved by:	**Date:**

Object	Odeon command	What to look for	Self control	Quality assurance
Geometry	Room information/ dimensions	Are the max x, y, z dimensions the right ones?		
	3D Geometry debugger	Avoid any warped surfaces. Warped surfaces can lead to large errors in results.		
		There should not be overlap of surfaces. Smaller or partly overlaps can in some cases be accepted. But avoid overlaps as far a possible. If there is an overlap, an easy way to repair it is to assign the material 0 (transparent) from the material list to one of the overlapping surfaces.		
	3D Investigate ray tracing	Are there holes in the model where there should not be (shown as several rays braking through walls). Are there any blocked passages.		
	3D OpenGL	Look around inside the room. Surfaces changing colours when changing view could indicate overlapping surfaces. Black surfaces or holes could be signs of openings to the outskirts		

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		of the model. Also look at the room from outside to see if anything lacks.		
Materials	Material List/Quick estimate	Look at the Alfa menu in quick estimate to see if the right absorption coefficients are used. If in doubt of the exact absorption coefficient is available, do not use extremely high or low absorption. If uncertain keep the absorption coefficients between e.g. 0,05 and 0,9.		
	3D OpenGL	Look at the colours in the room, are the right materials placed in the right positions?		
Sources	3D Source Receiver View	Are the sources placed correct? And are the right sources turned on in each job. (press J to change between jobs).		
	3D OpenGL + J 3D Billard	Make the same check in Open GL and 3D Billiard also to check if part of the source is placed outside the room.		
	Source Receiver List/ Point source editor	Check the Gain. If the source is a loudspeaker the gain should resemble the wanted TAP. If the room acoustical parameter Strength (G i ISO 3382) is wanted use an omni source with Gain = 31 dB. Look at the source direction from the source by pressing at OpenGL from the Point source editor.		

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Receiver points	3D Source Receiver View	Are the receivers placed correct?		
Calculation setup	Room setup/Calculation parameters	In most cases the ”Engineering” setup is good to use as a basis. ”Precision” will normally not be necessary and it gives a considerably longer calculation time for just a little more precise results.		
	Number of rays	”Number of rays” should perhaps be larger if it is found that the reflection density is not sufficient (see ”Point response”).		
	Impulse response length	”Impulse response length” should always be around the actual reverberation time and not below 2/3 of the longest reverberation time (usually at 63 Hz, because T30 in a room is usually longer at low frequencies).		
	Transition order / TO	”Transition order” in a room with relatively simple geometry should be around 2 or 3 (not very critical). But If the room has lots of details compared to the size due to e.g. a lot of furniture or if the geometry is very complex or has many coupling effects, it is recommended to set TO = 0 or 1.		
	Decimate late rays	”Decimate late rays” can normally be turned on. The exception is very complex coupled rooms (buildings with open connections between different rooms)		
	Desired late reflection density	”Desired late reflection density” for a normal room		

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		should be set to 100 / ms or more. In very complex coupled rooms the value should be much higher to achieve a reflection density in the ”Point Response” of minimum 100 / ms for critical source receiver combinations. The reason the reflection density should be higher for critical positions is that fever rays get through to the critical places.		
Background noise for STI calculation	Room setup/Background noise	Check that the level is correct? Check that both dB(A) and octave band values fit.		
Single point response	Decay curves Reflection density BRIR	Do the curves look nice and smooth? Also in one octave bands? (Ctrl +A shortcut). If there is uncertainty, try to repeat the calculation with a higher number of rays and/or a higher ”Desired late reflection density” Check that it is above approximately 50 / ms. For critical positions it should be above 100 / ms Does the impulse response look realistic? Zoom the first part; If this part looks very thin (not dense), try to repeat the calculation with a higher number of rays and/or a higher ”Desired late reflection density”.		
Grid response	Define Grid	Are the receiver grids placed in the right height? Is the scale of different parameters in the grid as it should be? For optimized presentation choose manual scale See the second page “Set manually scaled grid”. It is also possible to use a standard scale (Load preferences, Ctrl + O) or to customise		

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		your own (Save preferences, Ctrl + S).		
	Analyse Grid	Look at T30 grid response; Are there points inside the room, where T30 is missing or is around 0 s? This could be caused by long reverberation times, therefore choose a longer ”Impulse Response Length” in ”Room setup”. Look at the statistics of your parameters to see if there are any outliers, and try to analyse why. Also compare the global estimate with the mean reverberation time in the grid response. If these are very different perhaps there is too few receiver points in your simulation. If there are grid-points hidden under furniture or outside the room it is possible to skip these in the statistical calculation: Choose ”Exclude under range receivers from grids” in ”Options/Program setup/Grid colours”. Compare the reverberation time in your grid response with the Sabine calculation in the material list. These two calculations normally have differences because the Sabine formula does not consider the effects from room geometry and position of absorption material. Try to analyse reasons for the difference by looking at room geometry and impulse responses.		

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Auralisation	Auralisation setup	The normal setup in auralisation is for headphones, but loudspeaker presentation is also possible. You can choose which type in the auralisation setup. If you only want to look at the impulse response? Choose HRTF = unity, this gives the impulse response with an omni directional microphone. Delete the text contents in the Headphone input box (it turns red which is ok in this case); finally set the phase approximation to random. This will produce a BRIR where both channels are equal. If you want to present the auralisation over loudspeakers: do not choose binaural, but 2D surround. For standard stereo presentations choose 2.1, but without subwoofer. The binaural impulse response can be disabled to save calculation time.		
Make archive	File/Zip/Create archive	This option saves in one single file everything needed in order to open the room again later. Choose ”Room and result files” to save grids, auralisations, and other calculation results; in this way you need not to recalculate when the room is opened again.		
Tidy up directory	File/Tidy directory File/Delete files/All files	Deletes temporary calculation files, which can be pretty large. Deletes all files belonging to the open room. (NB: the ZipArchive file should be placed somewhere else).		