AUDITORIUM

Ease Simulation Report

COMPANY NAME

Prepared for:

[redacted]

Prepared by:

LOU GARCIA
Electronics & Engineering Singapore

Contents

Note:

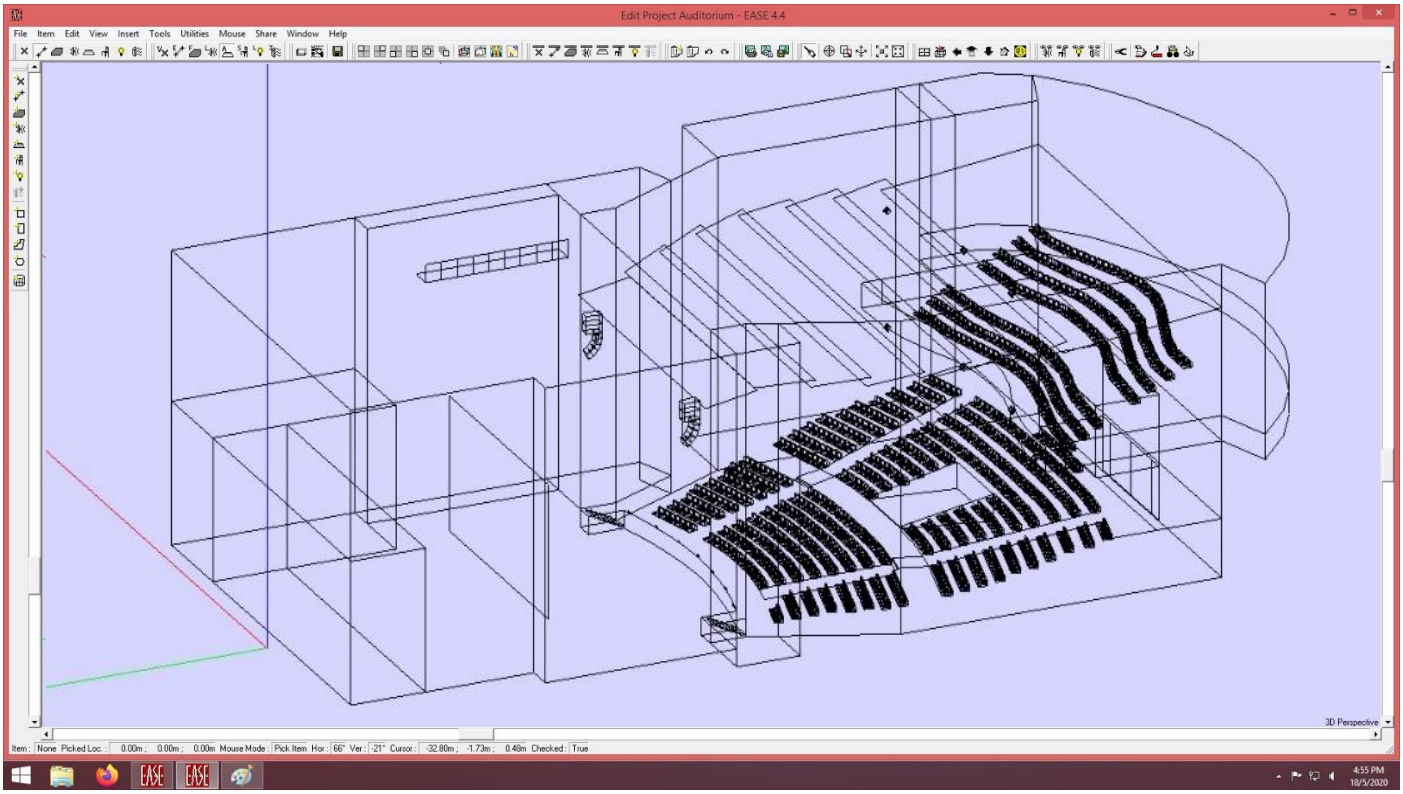
All simulations are for reference purposes only and are based on the given data information at the time of plotting. All simulations are based on total SPL A-weighted and direct sound, predicted room RT and simulated STIPA based on the given data of EASE and are subjected to change on later revisions.

EASE PLOTS REPORT DRAWN & SIMULATED BY:

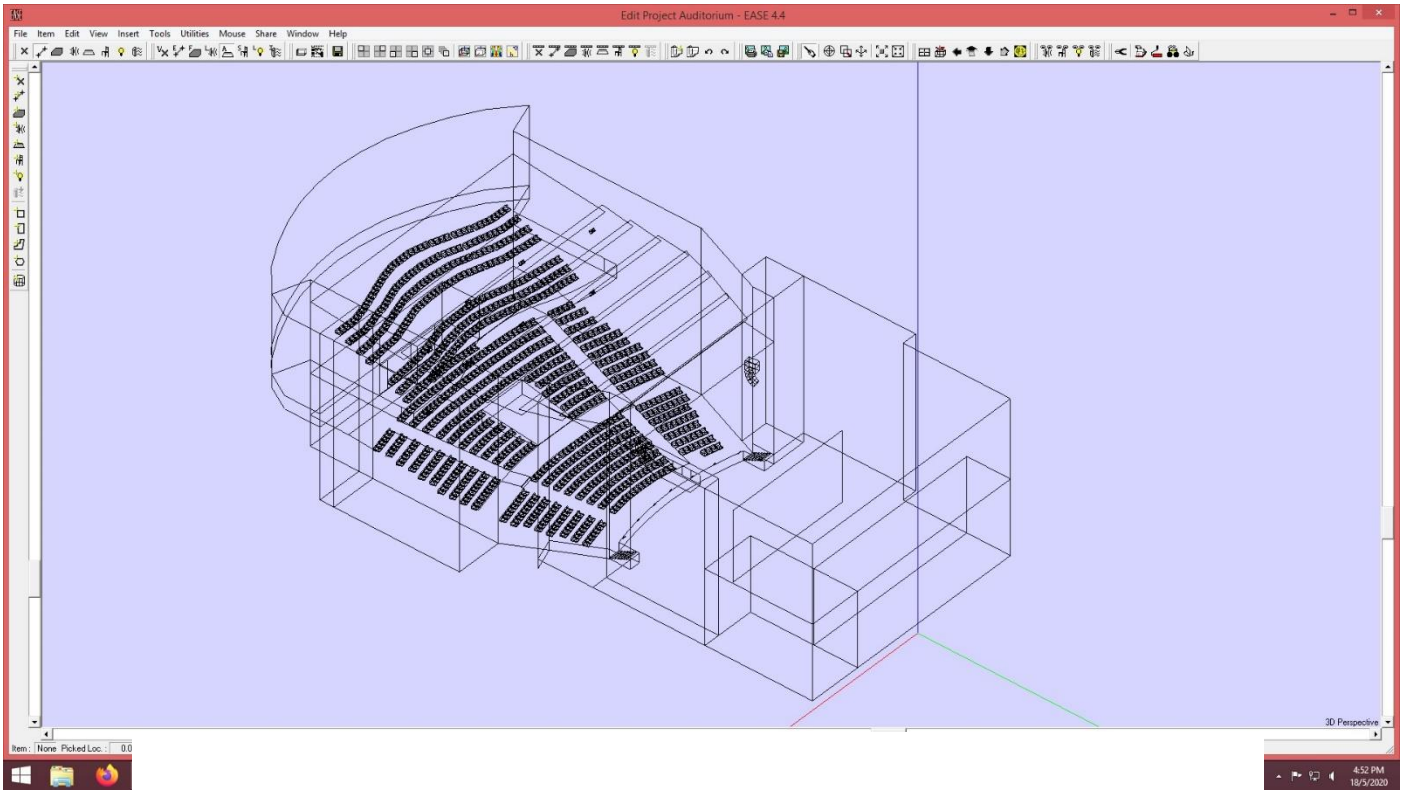
LOU GARCIA | Senior Systems Application Engineer
Electronics & Engineering Singapore

Venue Views Frame

Frame View REF 001

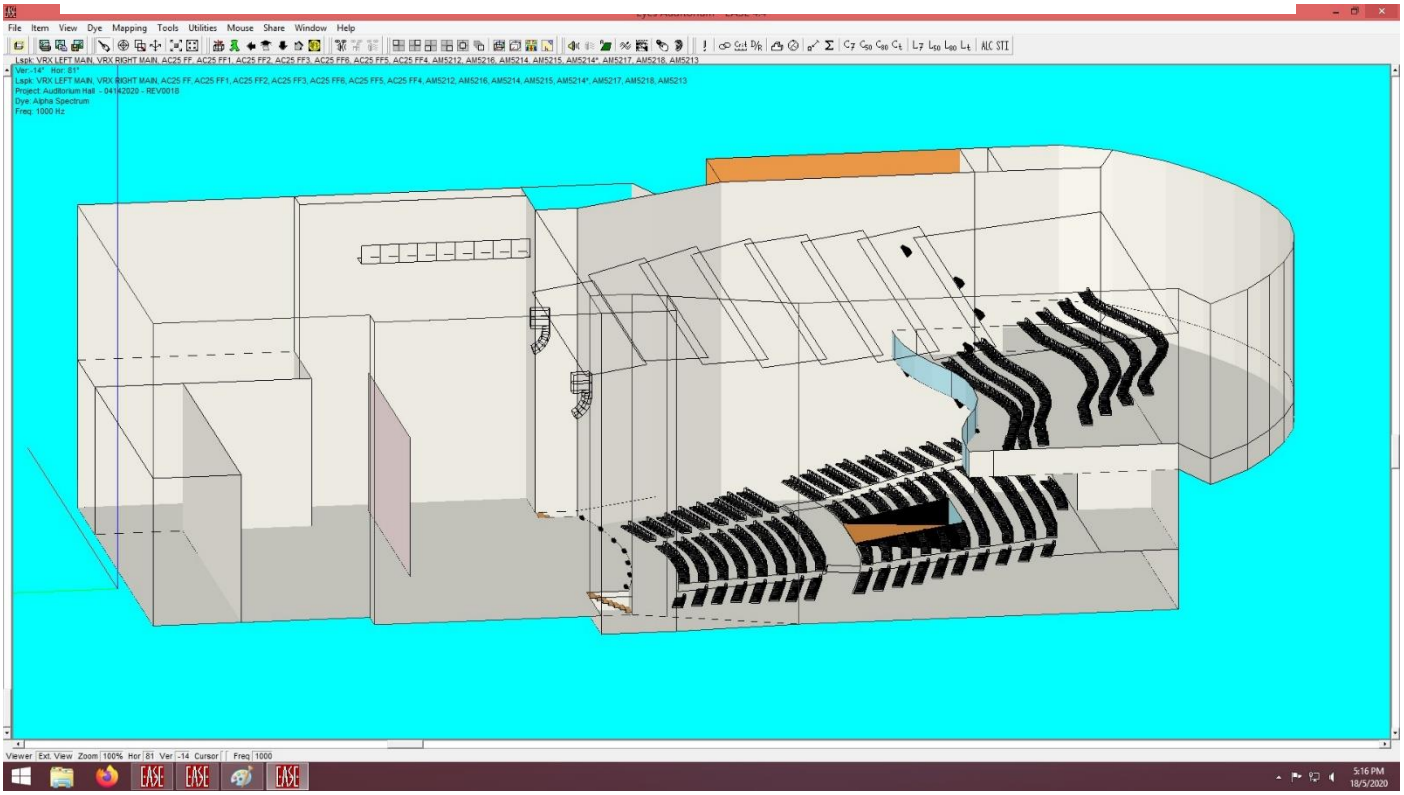


Frame View REF 002

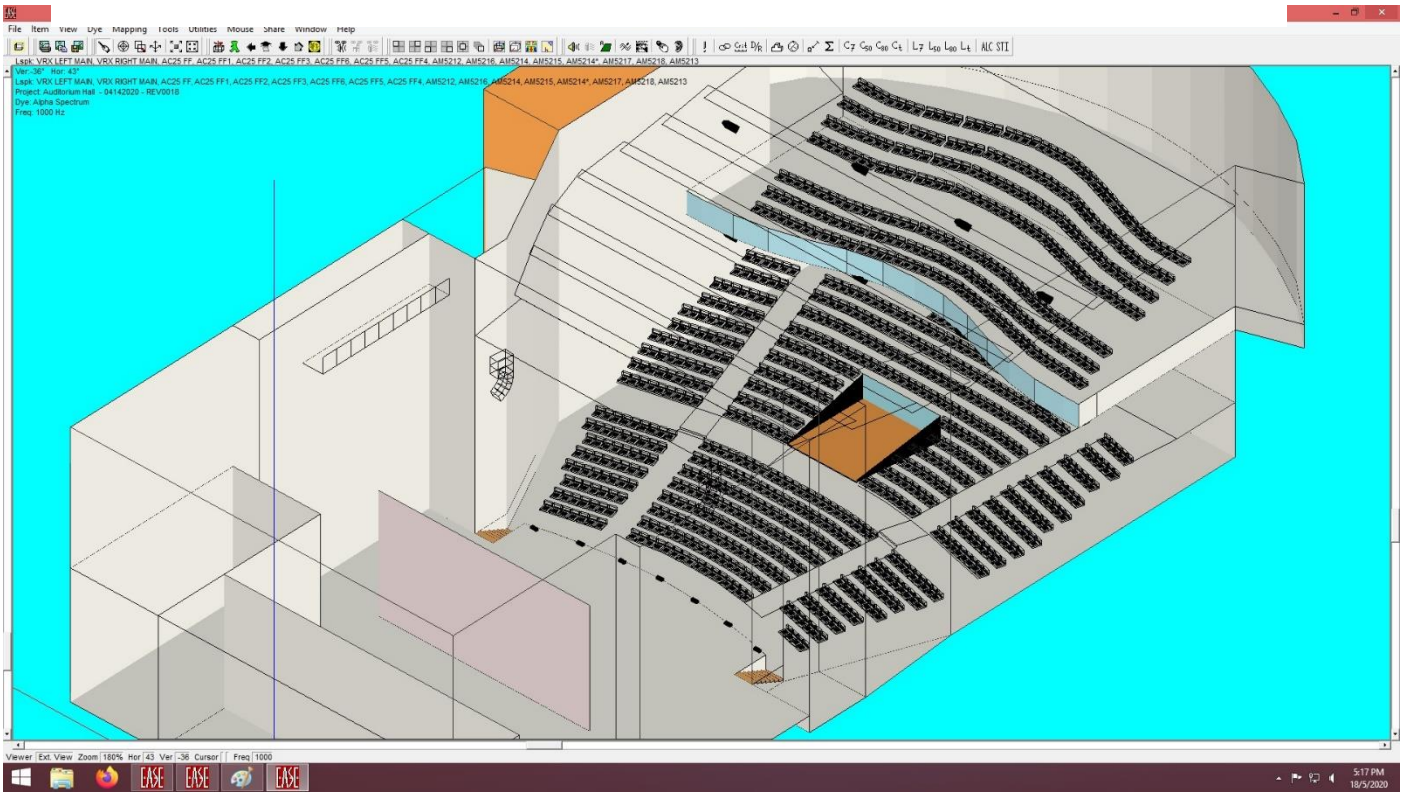


Venue Views 3D

3D View REF 003



3D View REF 004



SPL Simulations

TOTAL SPL Max: 115.18 dBA

EASE 3D Simulation with Area Mapping

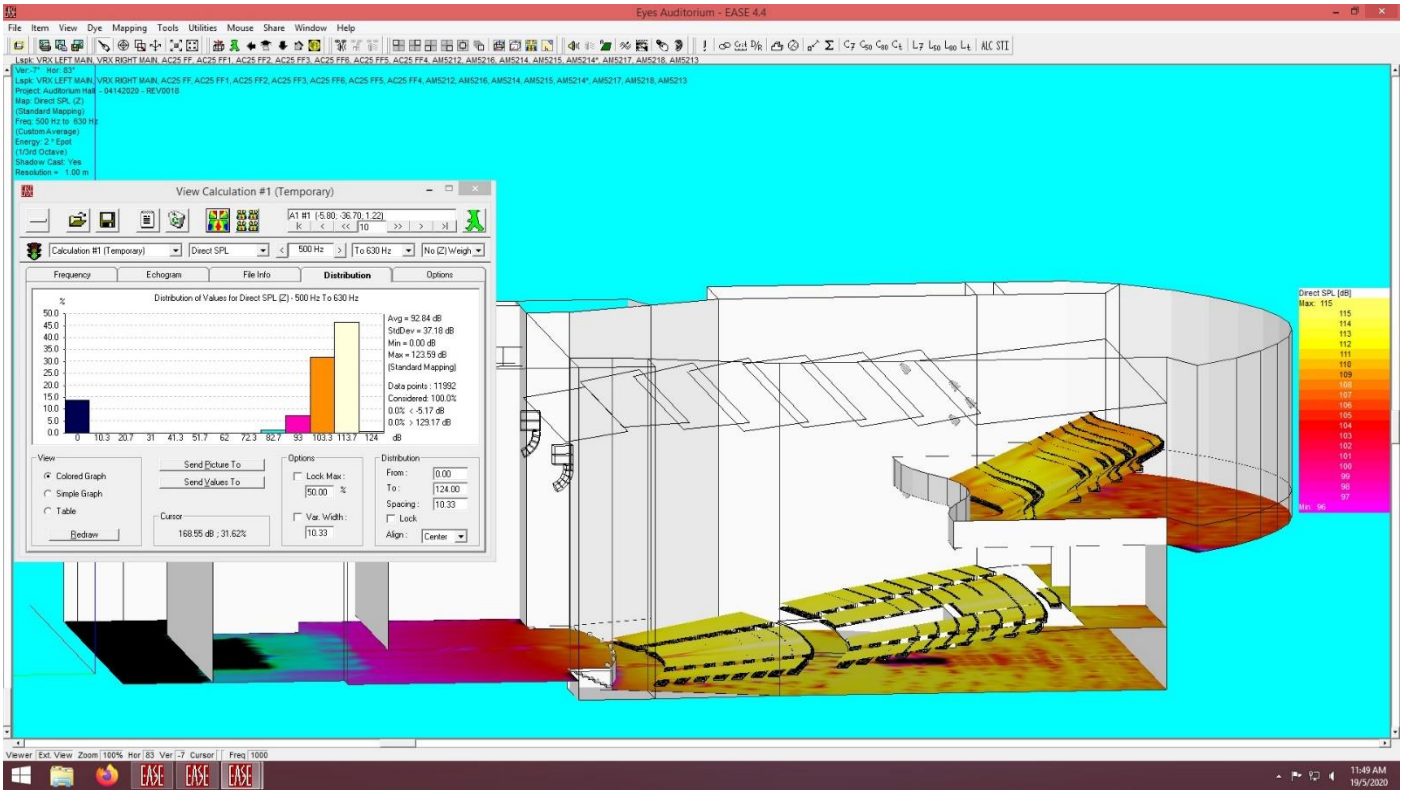
SPL simulation shows the coverage across the audience area within around +/- 3 dB of deviation and a maximum achieved data dBA SPL in about 90 percent of the coverage area.

The A-weighted (dBA) is used in this simulation. It has a frequency curve that reflects the loudness perceived by the human ear.

Below are the extracted frequencies on Un-weighted simulations

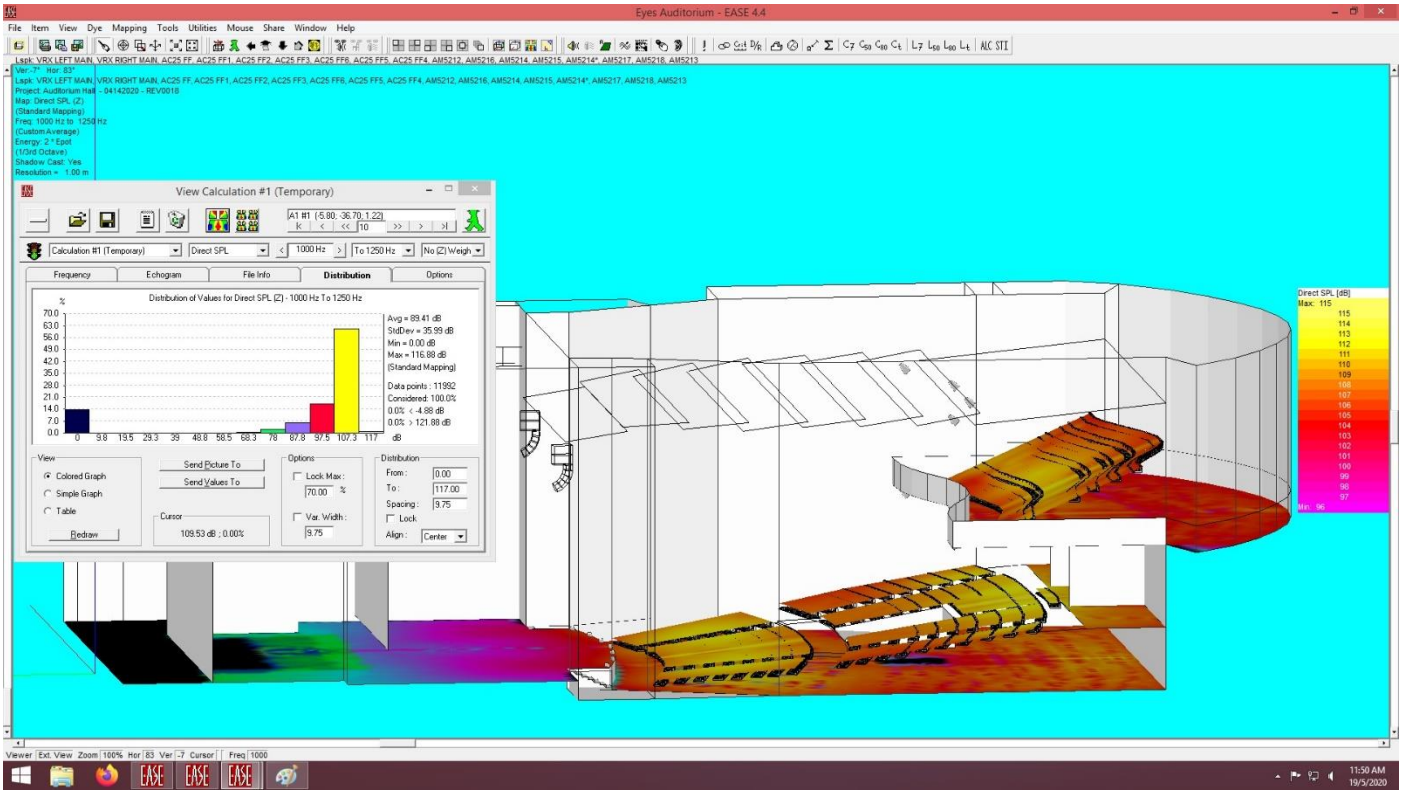
500Hz

(Un-weighted ; REF 005)



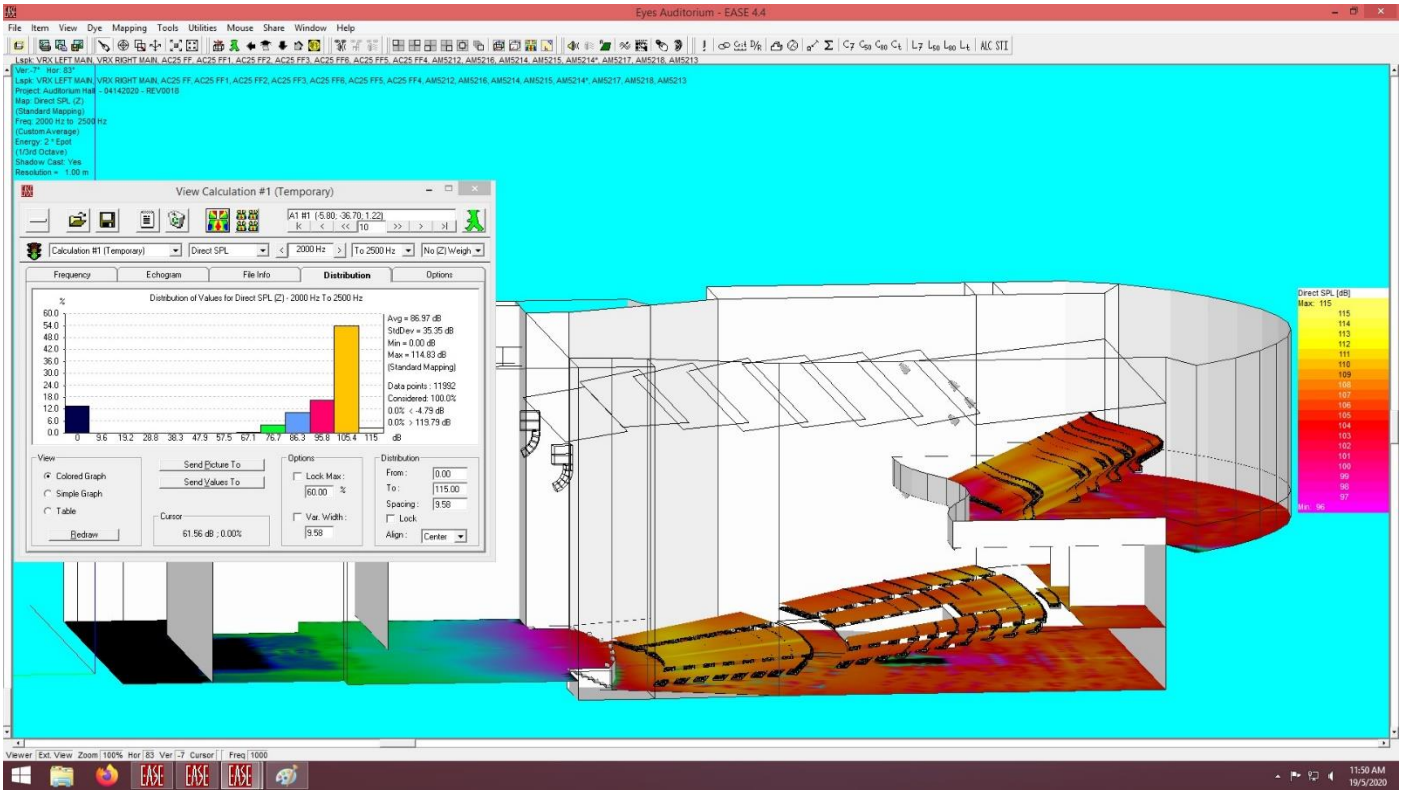
1000Hz

(Un-weighted; REF 006)



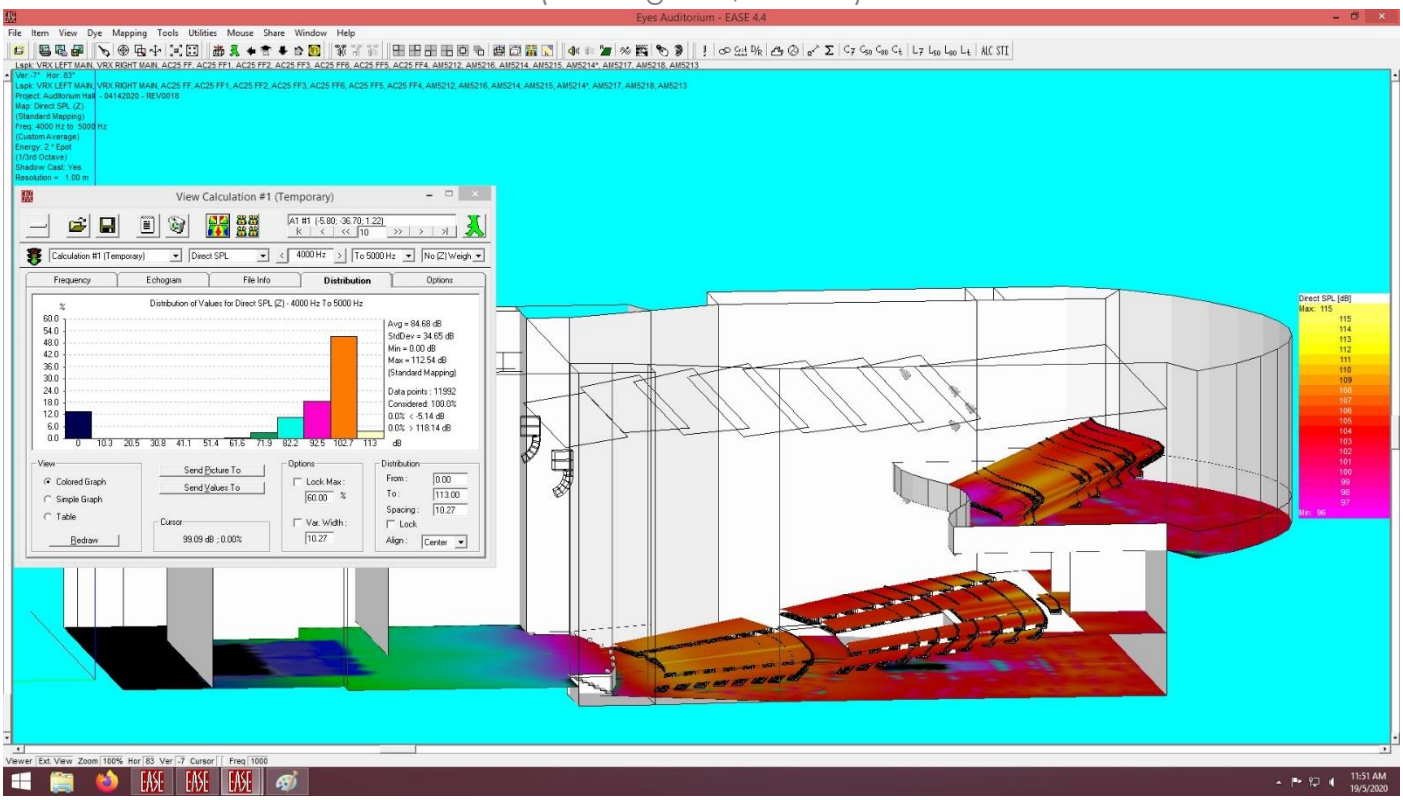
2000Hz

(Un-weighted; REF 007)



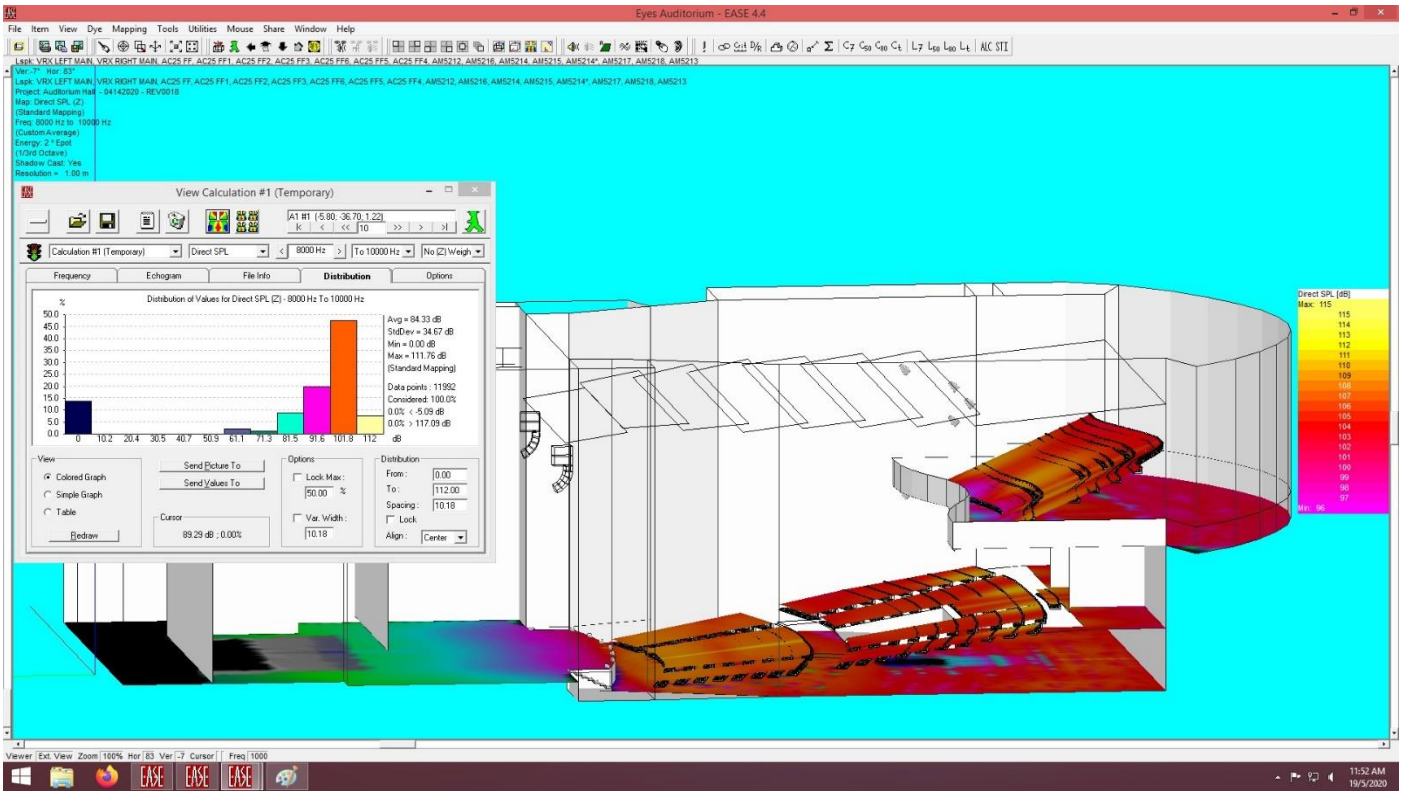
4000Hz

(Un-weighted; REF 008)



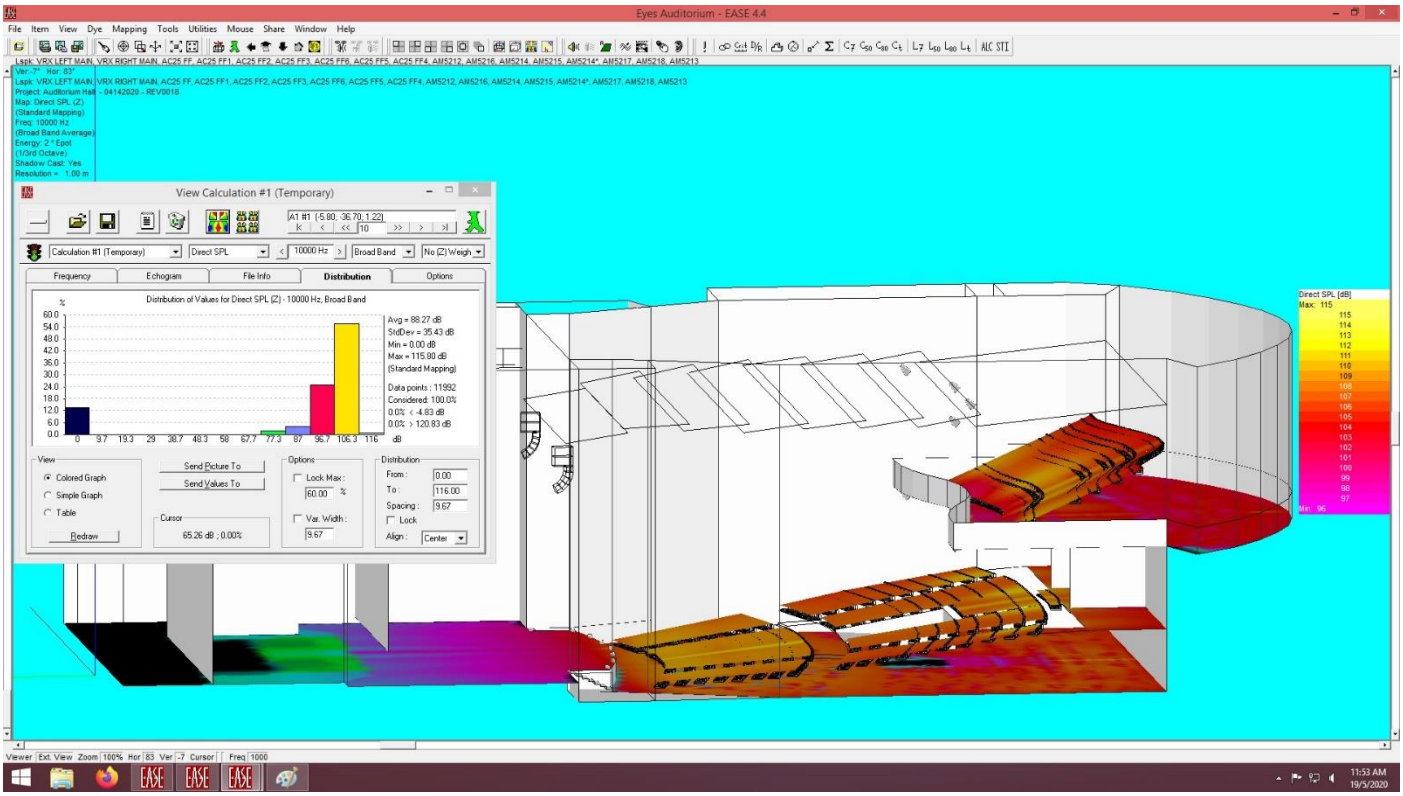
8000Hz

(Un-weighted; REF 009)



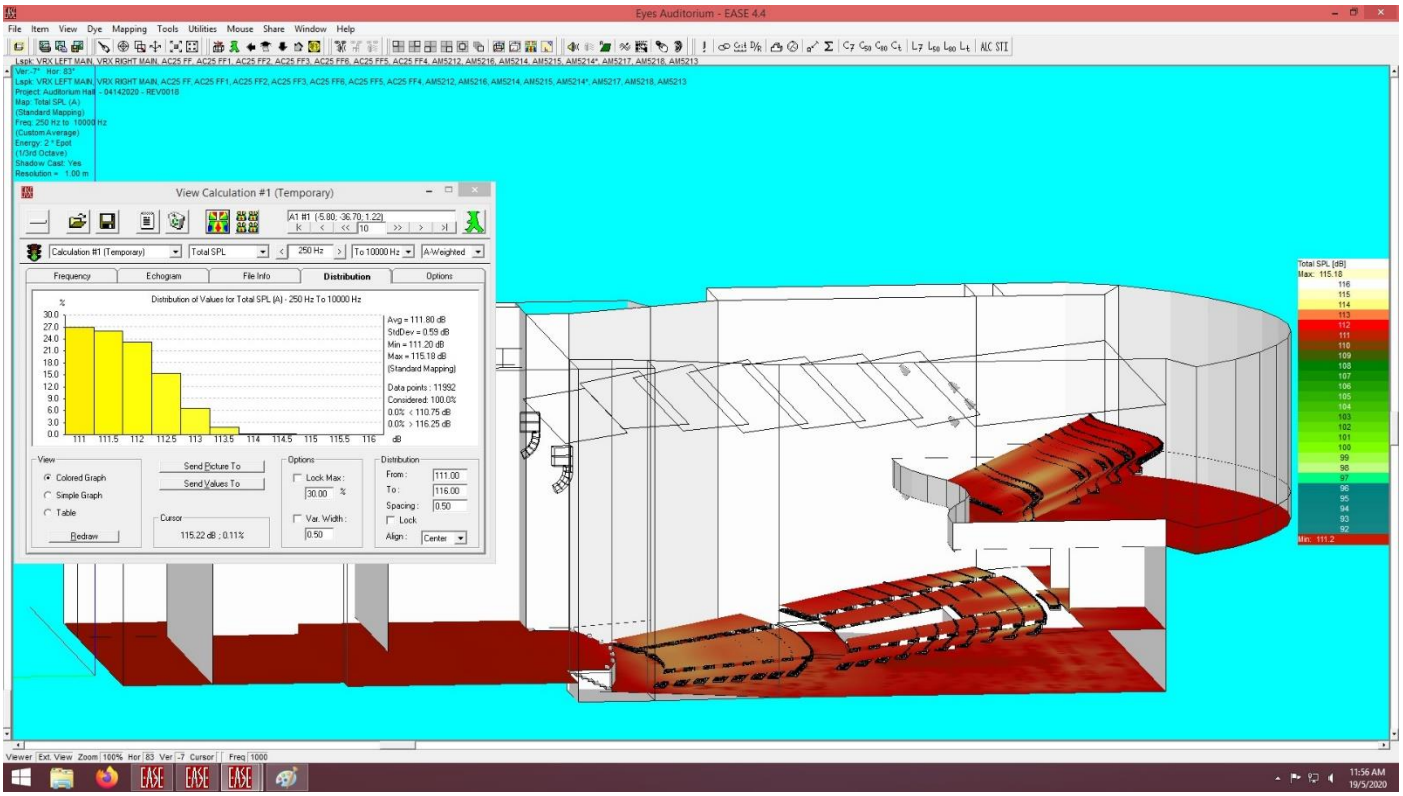
10000Hz

(Un-weighted; REF 010)



TOTAL SPL (250Hz – 10kHz)

(Broadband A-Weighted; REF 0011)

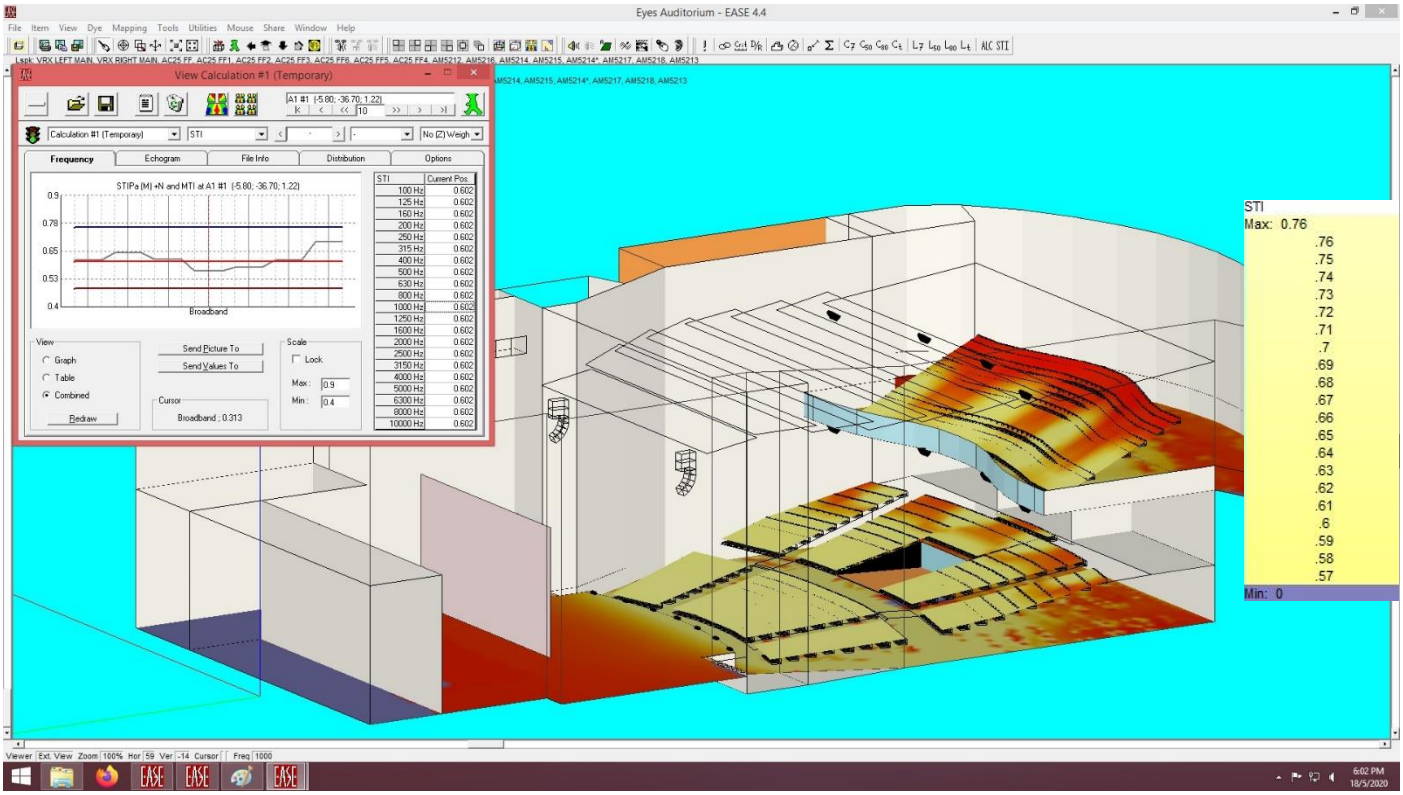


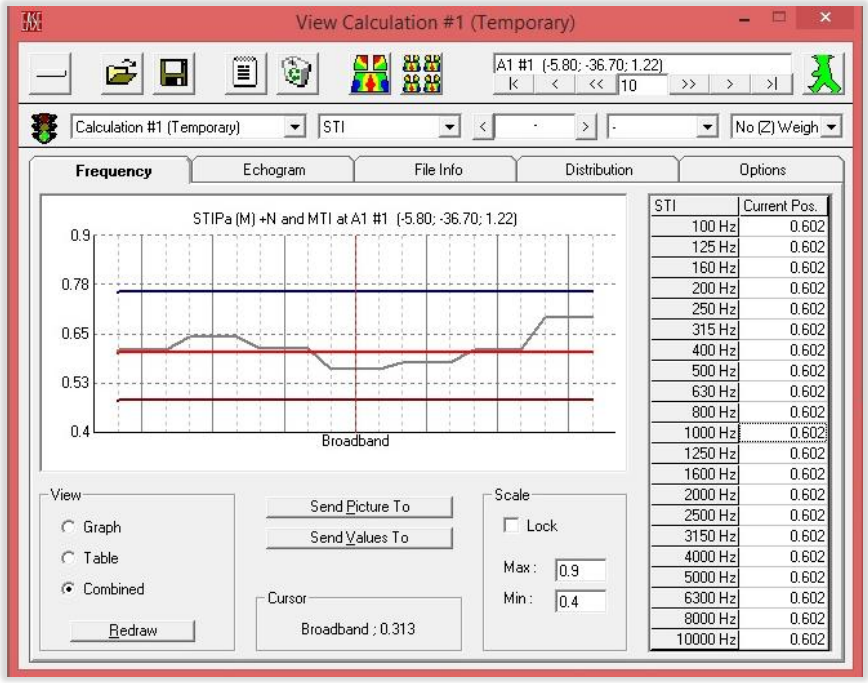
PREDICTED STI-PA

(Avg = 0.76)

0	STI	0.3	0.45	0.6	0.75	1.0
	BAD		POOR	FAIR	GOOD	EXCELLENT
0	CIS	0.48	0.65	0.78	0.88	1.0

REF 012



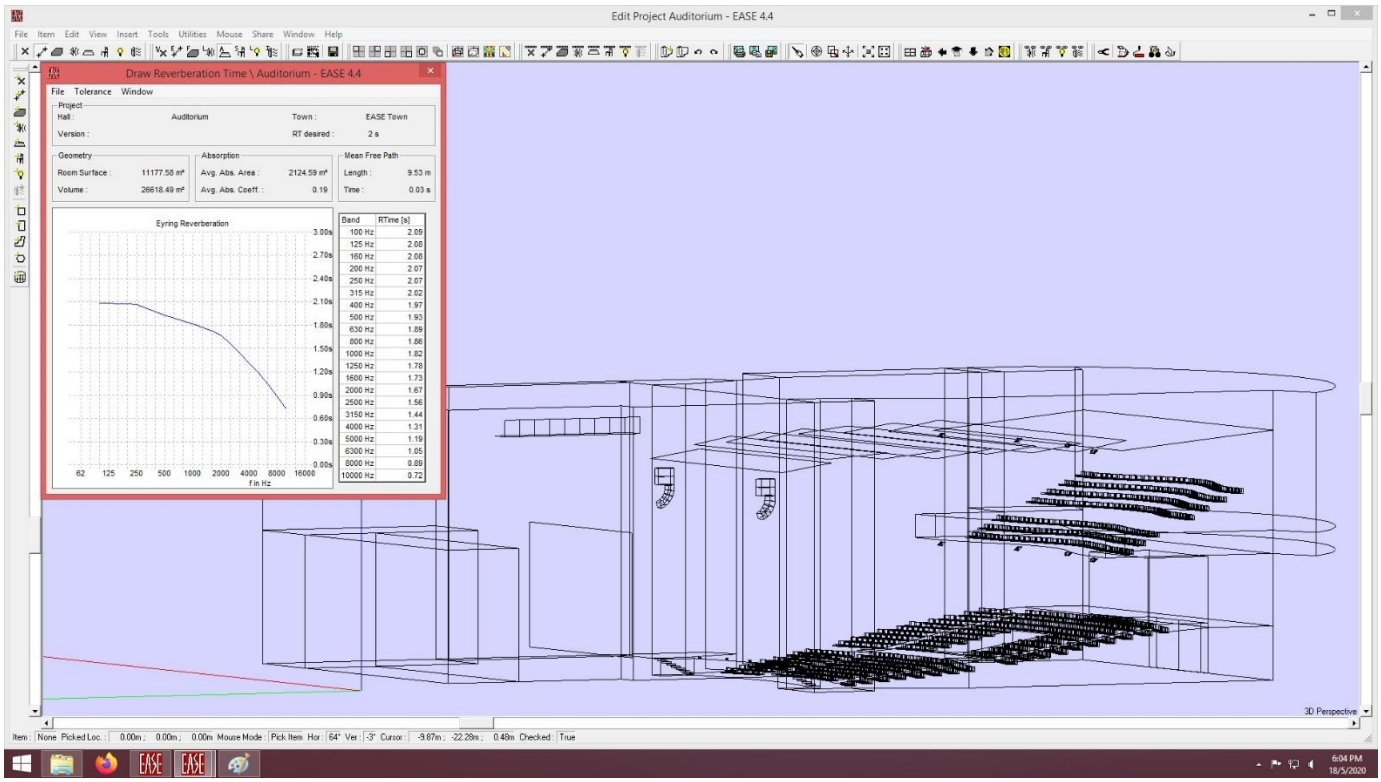


STI value	Quality according to IEC 60268-16	Intelligibility of syllables in %	Intelligibility of words in %	Intelligibility of sentences in %
0 – 0.3	bad	0 – 34	0 – 67	0 – 89
0.3 – 0.45	poor	34 – 48	67 – 78	89 – 92
0.45 – 0.6	fair	48 – 67	78 – 87	92 – 95
0.6 – 0.75	good	67 – 90	87 – 94	95 – 96
0.75 – 1	excellent	90 – 96	94 – 96	96 – 100

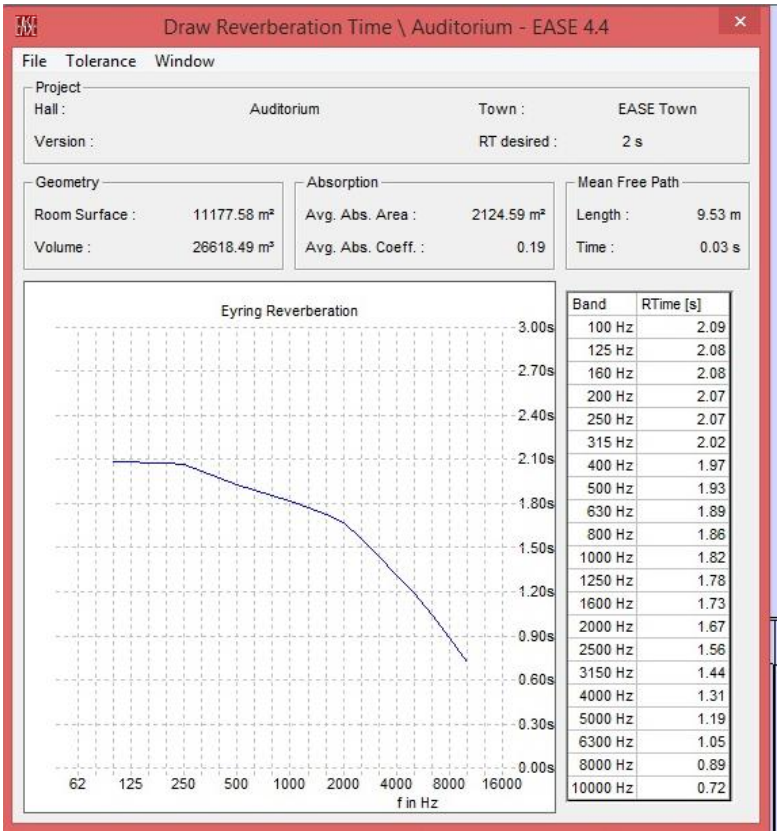
SIMULATED ROOM REVERBERATION (Optimised Room RT)

Reverberation time has been found to influence sound pressure level and its intensity in continuous source.
Interaction between room acoustics and source excitation will impact over-all total SPL
500Hz: 1.93s, 1000Hz: 1.82s, 2000Hz: 1.67s, 4000Hz: 1.31s, 8000Hz: 0.89s, 10000Hz: 0.72s

(REF 013)



Room Reverberation desired RT 2:00s



TERMINOLOGY

STI Speech Transmission Index

Another frequently used intelligibility measure is the *STI Speech Transmission Index,* which is a single number between 0 and 1. *STI* is calculated from a set of other numbers called MTF Modulation Transfer Function. It considers how the transmission from source to receiver is affected at different frequency bands and how much these frequency bands contribute to speech intelligibility.

STI value	Quality according to IEC 60268-16	Intelligibility of syllables in %	Intelligibility of words in %	Intelligibility of sentences in %
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Optimize RT is a quick and easy way to investigate what can be done to correct the room acoustics.

Room RT - designed to create a diffuse or random incidence sound field

Sound Pressure or Acoustic Pressure is the local pressure deviation from the ambient (average or equilibrium) atmospheric pressure, caused by a sound wave.

Reverberation Time RT in a room at a given frequency is the time required for the mean-square sound pressure in that room to decay from a steady state value by 60dB after the sound suddenly ceases. This is one of the most vital, though not the only, measures of a rooms acoustic properties and can be a guide to the suitability of a room for a given purpose. Sabine and Eyring equation used in Ease simulations.

-end of report-