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Prepared for	: John Doe
YOL	JR LOGO
Reside	Sample ential Studio
Low Ana	Frequency Iysis (LFA)
Specu Ana	lar Reflection lysis (SRA)
NIF	RO <sup>™</sup>
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## Glossary

- Frequency Response: the output to input relationship of a system. Mathematically, it is the Fourier transform of the output divided by the Fourier transform of the input. Represents how the room behaves to a known input signal.
- Schroeder Frequency: it is the transition frequency in which the room modes start overlapping and become proportional to the reverberation time. It will be used to determine the upper limit of our analysis. The expected reverberation time and the room volume are used to estimate it.
- Sound Pressure Level: it is a representation of the sound pressure in decibels, a logarithm of the ratio of given sound pressure to the reference sound pressure.
- Impulse Response: the way a system responds to an impulse. For example, the reverberation of a room can also be thought of as its impulse response. It's the time equivalent of the frequency response.
- **Decay Spectrum**: the decay of the impulse response over time. The decay of the room modes is directly related to their reverberation time.
- **Boundary Element Method:** method used to calculate the sound pressure inside the room. Accounts for the direct sound and the reflected sound at the receiving positions.
- Acoustical Center: it's the point chosen to properly represent the acoustical source. According to the IEC standard, it is the point where one can observe diverging spherical wavefronts. It is dependent on the frequency of analysis the higher the frequency the closer the point will be to the face of the speaker cabinet.





## **Project Layout** Floorplan and Section

#### Mix position: (as suggested below)

Centered, X.XX [m] | X.XX ft from rear, X.XX [m] | X.XX ft high

#### Speaker position:

#### Subs: (as suggested below)

X.XX [m] | X.XX ft from center, X.XX [m] | X.XX ft from the rear, X.XX [m] | X.XX ft high

#### ✤ Mains: (as suggested below)

X.XX [m] | X.XX ft from center, X.XX [m] | X.XX ft from the rear, X.XX [m] | X.XX ft high

#### Boundary: (no change)

Height in rear of room: X.XX [m] | X.XX ft



#### **Project notes:**

Listeners Mains Subs

- Can move listener position and speakers
- Can't change room boundary and dimensions

#### Room spectral properties:

- First resonant frequency  $\approx$  19 [Hz]
- Schroeder frequency:  $\approx 82$  [Hz] •

Section





speaker acoustical center is indicated by the dot in front of the speaker cabinet.

The room spectral properties are given by the room dimensions. The minimum frequency relates to the biggest wavelength that the biggest dimension in the room supports. The Schroeder frequency determines were the modal region ends.

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#### I. Project Layout www.rediacoustics.com 2. Treatment Recommendation Prepared for: John Doe Treatment 4: XXX Manufacturer Panel YOUR LOGO X.XX [m] | X.XX' from the rear Dimensions (LxWxD): X.XX x X.XX x X.XX [m] X.XX' x X.XX ' x X.XX ' Plan and section view of the room – Speaker and • X.XX [m] | X.XX' from the floor listener positions are marked and listed. Dimensions (LxWxD): The treatment locations are X.XX x X.XX x X.XX [m] marked on the drawings as X.XX' x X.XX ' x X.XX ' a reference. Each treatment is placed in the high-pressure area of their • X.XX [m] | X.XX' from the floor target frequency. Dimensions (LxWxD): X.XX x X.XX x X.XX [m] X.XX' x X.XX ' x X.XX ' Date: January 01, 20XX Author: **REDI** Acoustics Review: **REDI** Acoustics Page: 11 \* or equivalent









# II.Treatment Recommendations2. Specular Reflection Analysis

By using the Image-Source Model, we can trace the reflections to the mix position and their origin. This provides information to determine if there are any reflections going to the mix position that we cannot treat with absorption and the locations where we can apply it.

The Figures in this page indicate the 1<sup>st</sup> and 2<sup>nd</sup> order reflections coming from the **main speakers** that arrive at the mix position. The next pages will show a separate analysis of 1<sup>st</sup> and 2<sup>nd</sup> order reflections for ease of visualization.







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## Low Frequency Analysis Frequency Response at Mix position - Subs



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## Low Frequency Analysis Frequency Response at Mix position - Mains















































