

## Example of Video Text for Course 300: Snd Reinforcement for Designers

### Listen, Measure, Predict: Outline and Lesson Text

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2. A System Design Process
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### 300\_10a Listen, Measure, Predict - Clip 1

1. Introduction - 00:09

Listen, Measure and Predict - it's the mantra of the sound system designer.

The listening process is vital to system design. Our built-in 2-channel analyzer is the best tool we have for evaluating the performance of a system. Since listening is subjective, and neither calibrated nor consistent, it can be complimented by measurements to quantify what is being heard. Listening and measuring go hand-in-hand, and when used together they allow the performance of a system to be fully characterized.

2. A System Design Process - 00:56

Sound system design is an effort to predict the performance of a loudspeaker in a room, without actually placing it there. The predictions may include sound pressure level, coverage, and most importantly sound clarity.

These performance measures for a sound system range from relatively simple to sophisticated. Sound pressure level, coverage and clarity can be assessed subjectively, or measured and documented using instrumentation. Ultimately we wish to predict these at the drawing board. Let's look at how that works.

1. Axial SPL Calculation - This is a calculated performance measure that takes the 1 m sensitivity and extrapolates it to a greater distance. The calculation can also factor in the maximum allowable voltage to the loudspeaker to determine the maximum achievable SPL at a given distance. This design step answers the questions "Will the sound system be loud enough at the most distant listener position?" and "What size amplifier will be required to achieve the target SPL?" It also allows the designer to assess whether the loudspeaker might be thermally damaged by the electrical power required to achieve the target SPL. This calculation is often the "first stab" at qualifying a loudspeaker for a design. It can be done with the SynAudCon Click-Rule, which is included with this course. ...