

HOW TO...

Measure Reverberation Time using existing installed speaker systems



This document provides a practical guide on how to use professional instruments to measure Reverberation Time in venues with existing installed speaker systems used for evacuation and life safety as well as general public announcements.

What you need:

- XL2 Audio and Acoustic Analyzer
- M4261 Measurement Microphone
- Minirator MR-PRO Signal Generator
- XLR Cable



Exel System Case with XL2 Audio and Acoustic Analyzer and Minirator MR-PRO

How to measure Reverberation Time


Reverberation is one of the main acoustic characteristics of a room and influences speech intelligibility.



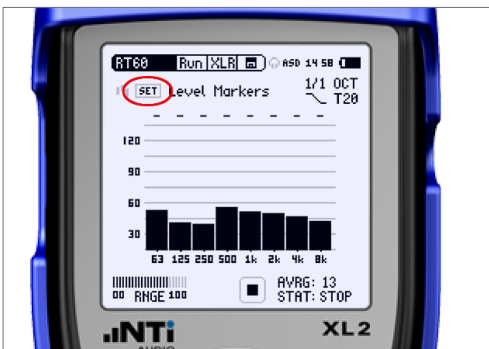
Connect the MR-PRO to a line input of your system.

Measure with the XL2 in a 6 to 12 meter grid.

1. SETUP

On the MR-PRO, select GENERATOR from the main menu, click on WAV and select PNOISE, click on MOD and select , then click on CYC and select 3/3 s. *

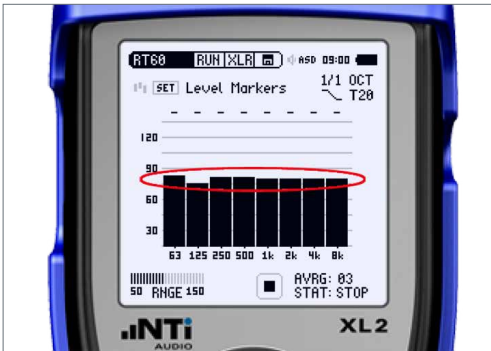
On the XL2, select RT60 from the main menu, Run from the second menu, and 1/1 OCT resolution.



When the room is quiet, click SET.

This records the noise floor and sets the Level Markers 35 dB above the noise floor in each frequency band.

* If the Reverberation Time values you measure are greater than the cycle time, increase the cycle time.

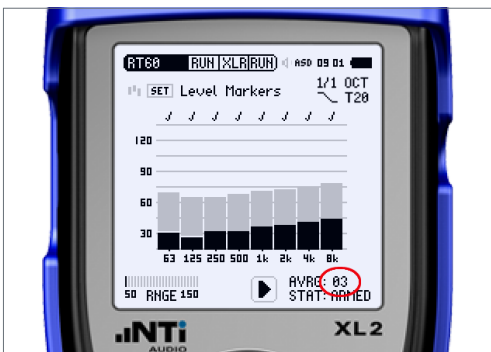


Play the cyclic PNOISE from the MR-PRO through your system. Adjust the gain of your system and your MR-PRO so that there is enough energy to reach the top of the Level markers in as many frequency bands as possible on the XL2.

It is advisory to wear hearing protection.

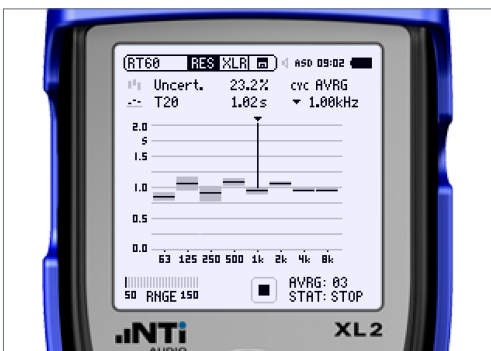
Hint: You may have to increase the bass frequencies on your system. Even so, it is often impossible to create enough energy in the 63 Hz frequency band.

2. MEASURE REVERBERATION TIME



On the XL2, press the Play button.

The status (STAT) changes to ARMED. Each time a cycle is completed by the MR-PRO, the AVRG value increments. Take at least 3 cycles ensuring that each frequency band displays a tick mark after each measurement cycle (except maybe the 63 Hz band).



On the XL2, press the Stop button.

On the MR-PRO, press the mute button.

On the XL2, select Res from the second menu. The Reverberation Time results are shown.

Select CYC to review the results of each cycle and delete cycles that are dissimilar.



Save the test.

3. CREATE A REVERBERATION TIME REPORT

- Once all of your positions have been measured, connect your XL2 to your PC via USB and select “Mass Storage” on the XL2.
- Open the Room Acoustics Reporter PC-software* and follow the Instructions.

* <https://my.nti-audio.com/support/xl2/download/XL2-Room-Acoustics-Reporter.zip>