Beating Technology Noise

Measurements of Technology Noise from the RSC@Roundhouse

Nicholas Edwards

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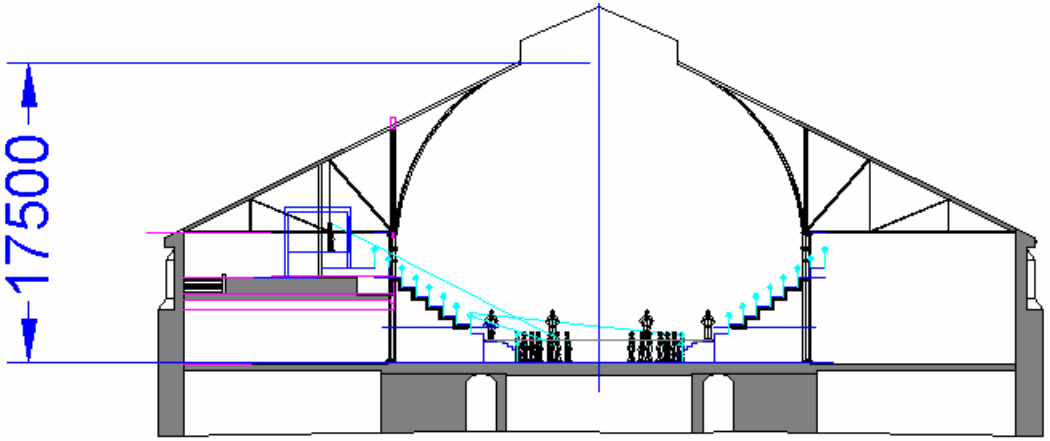
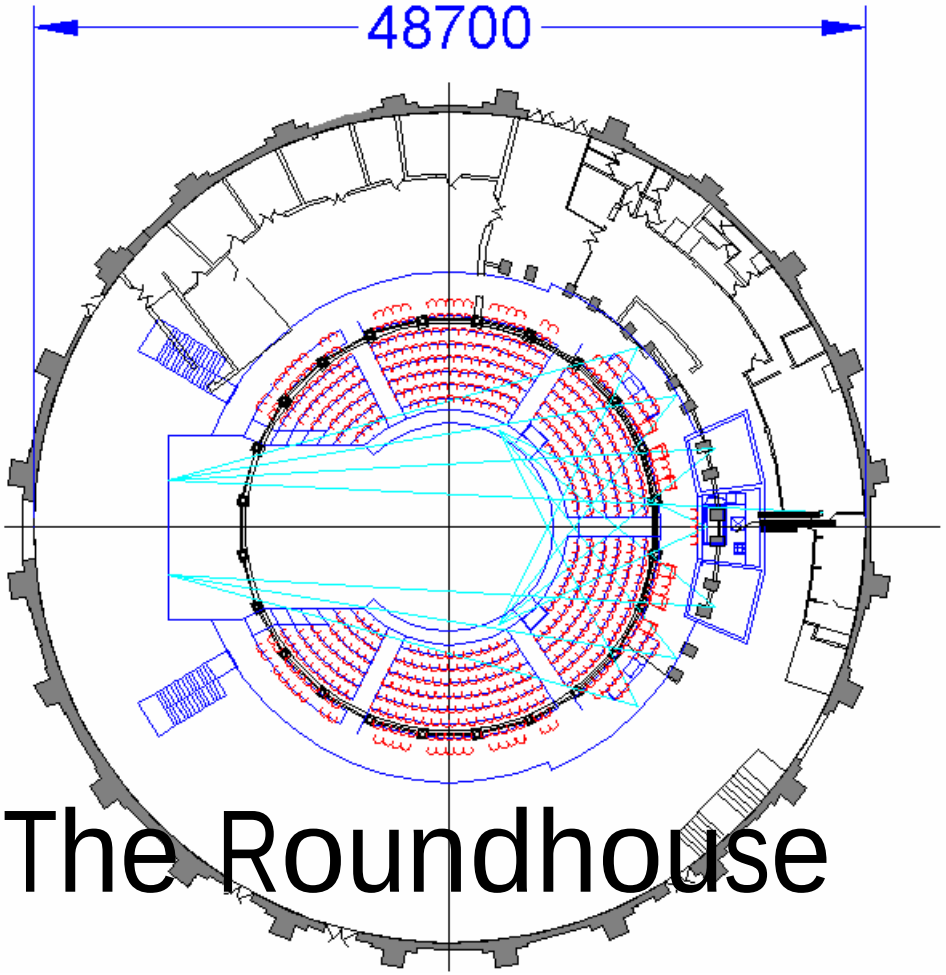
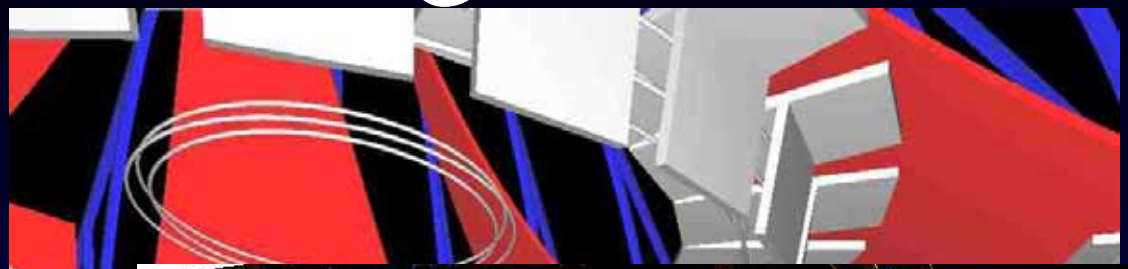




The Roundhouse


CAREYS
CAREYS
find a way or make one.

RSC @ Roundhouse



- Theatre in the round
- 600 seats
- 200+ promenade

Noise from Theatre Technology

- What noise levels should we measure?
- How does theatre technology noise compare to background noise?
- Is audible noise from theatre technology always measurable?
- What noise levels are ideal, acceptable, tolerable, or intolerable?

- Avoids f
- Does no
- Conditio
  changing
  aimed a
- Based o
  air temp
- Meets id

Thermal Comfort

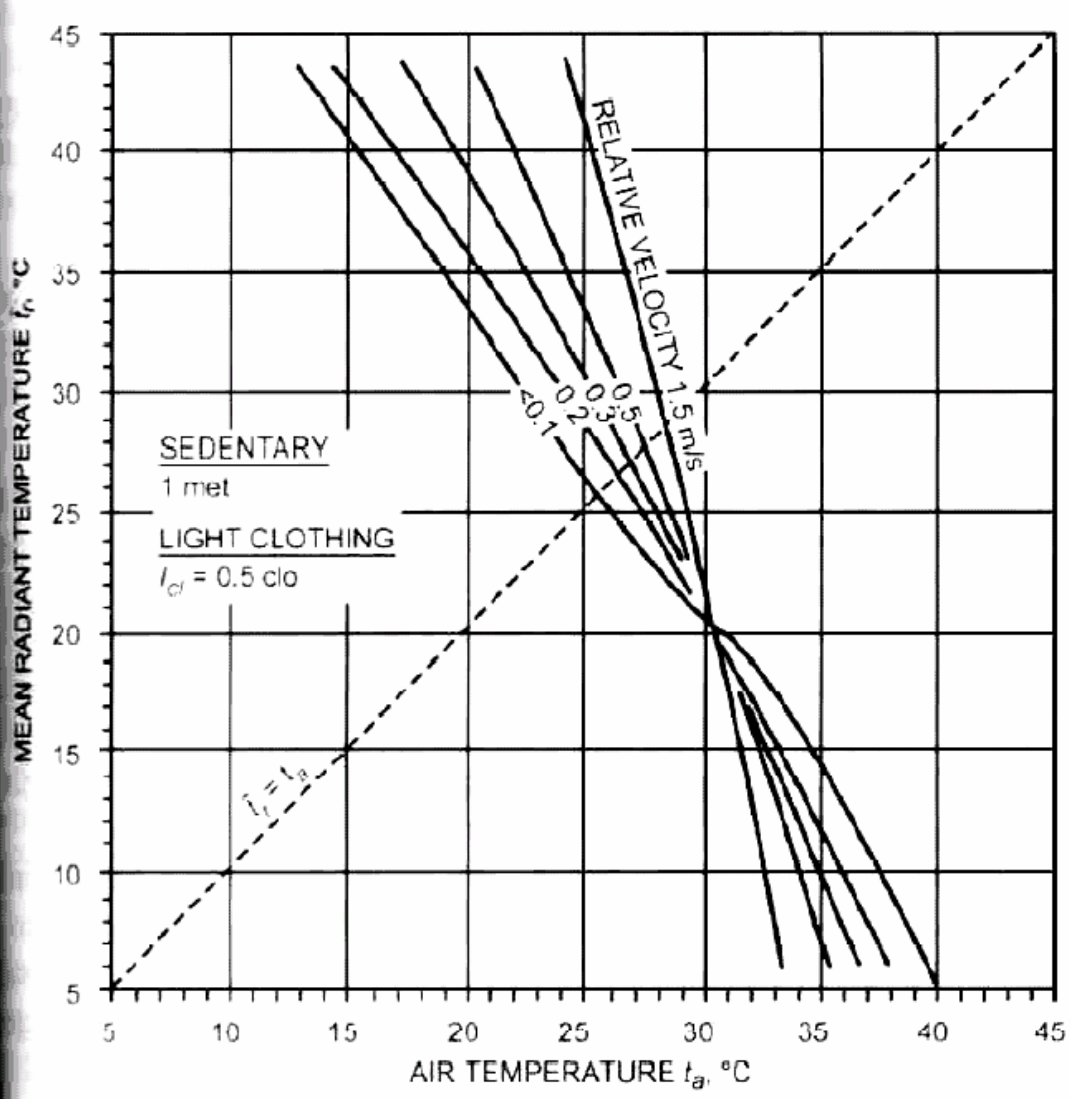
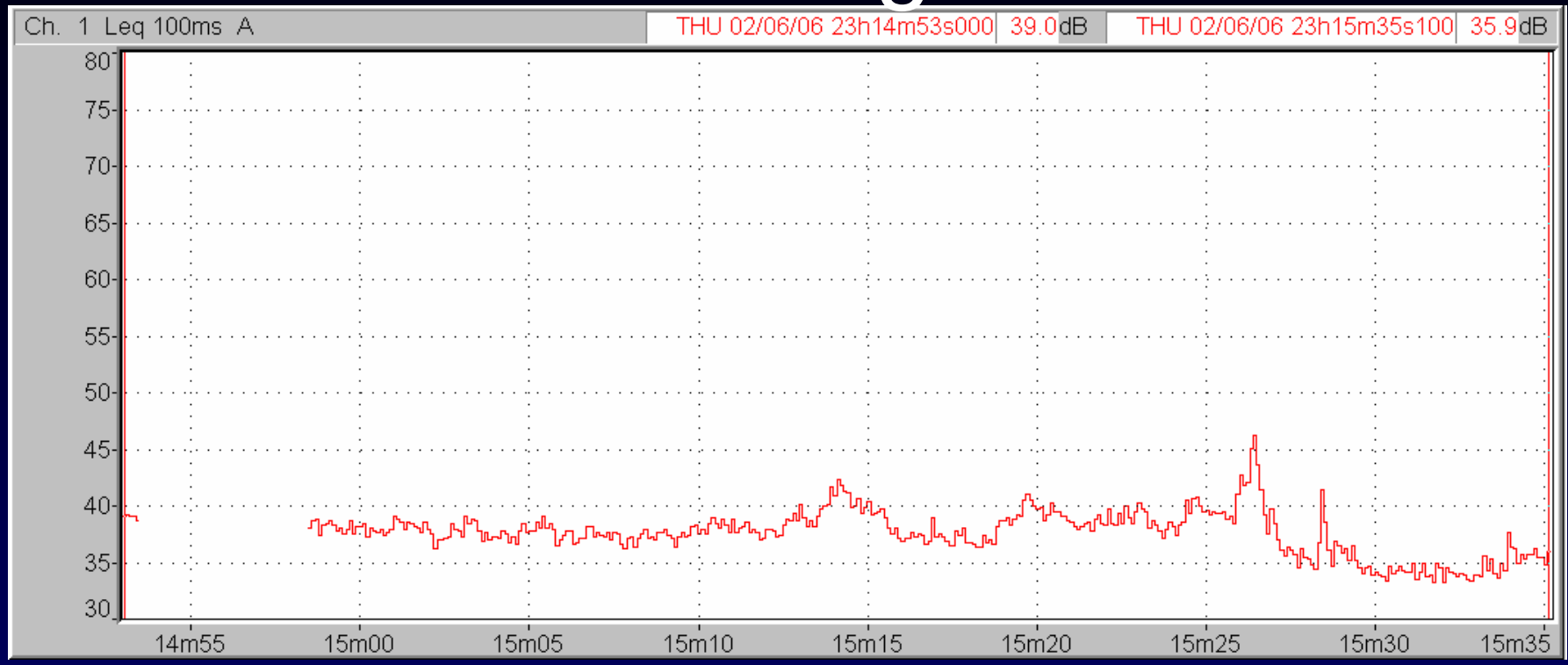


Fig. 12 Air Temperatures and Mean Radiant Temperatures Necessary for Comfort (PMV = 0) of Sedentary Persons in Summer Clothing at 50% rh

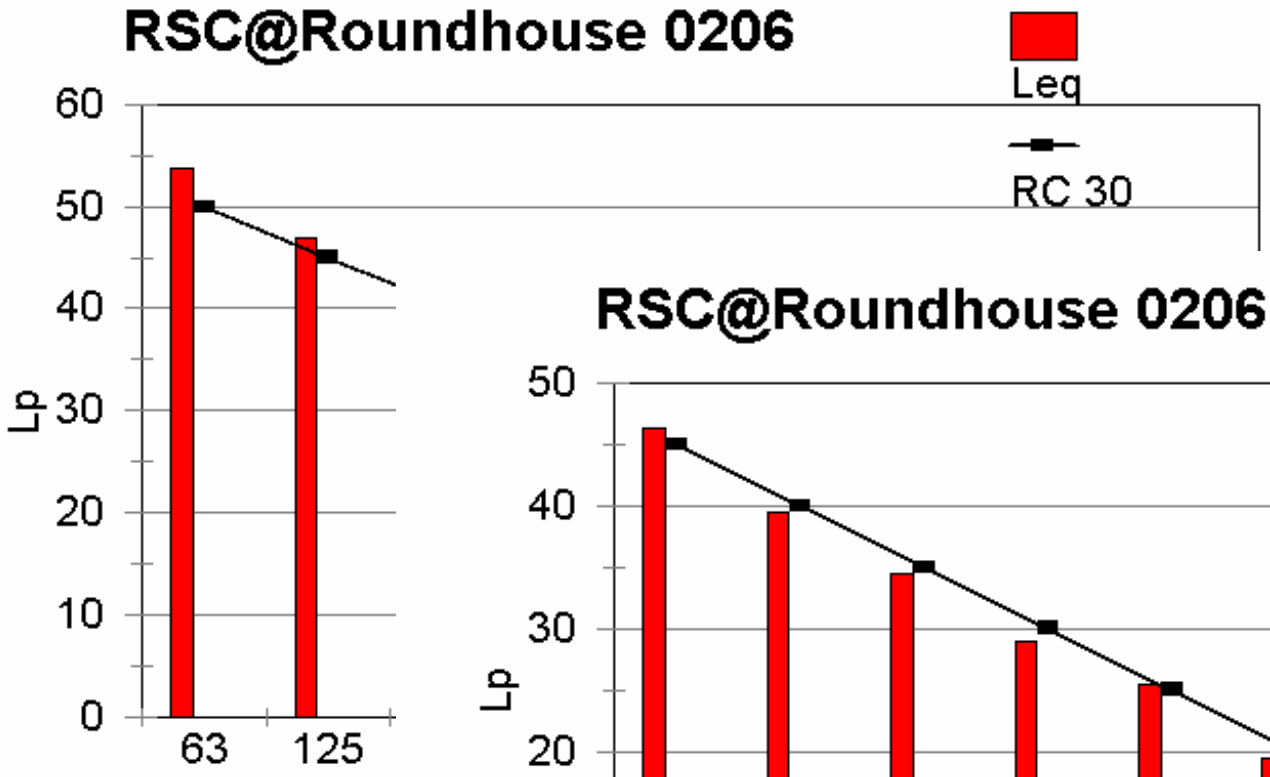
Silent heating system

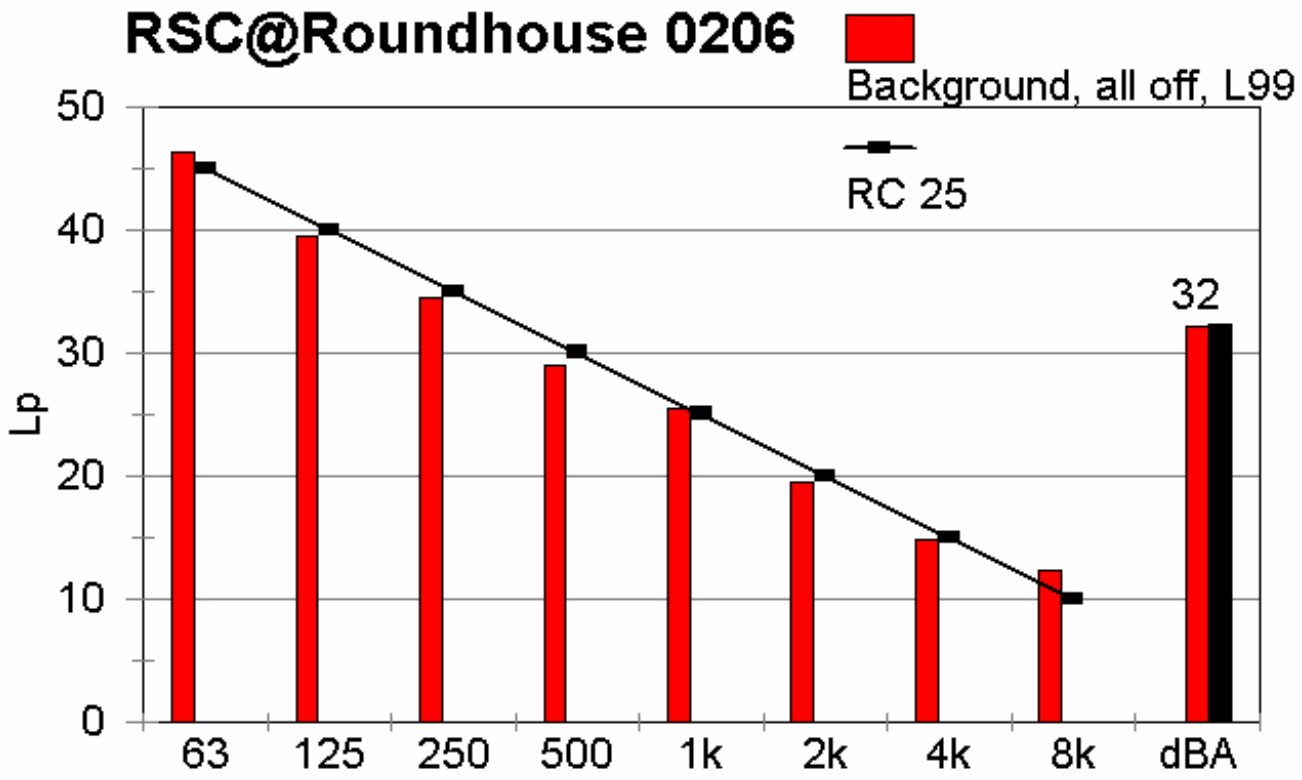
Roundhouse Background Noise



- The noise is almost entirely break-in traffic noise. The heating system is silent.
- The Roundhouse has been fitted with sound and light locks on the external doors.
- The sound-absorbing drapes reduce the background noise

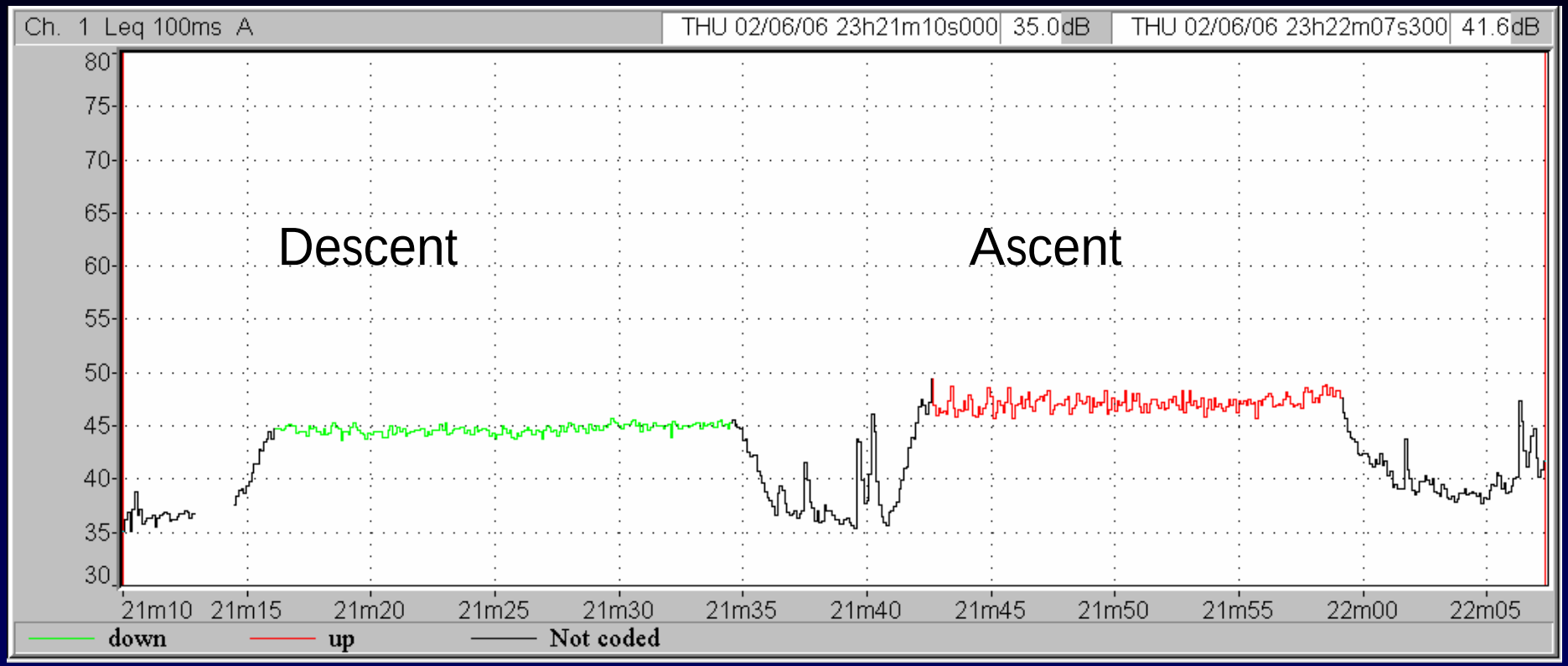
Background Noise





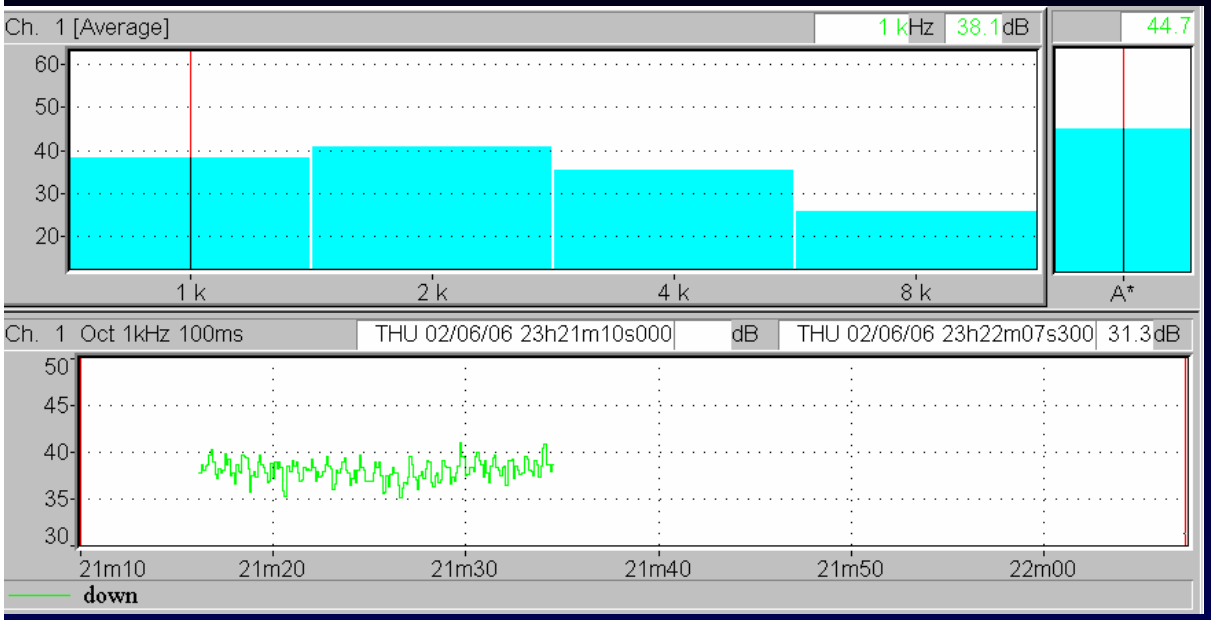
- The Leq (
  match th
  seems m
- Subjective impression from outside noise is closer to that of the L99 than the Leq

Big Tow Hoist



- Hoist used during speech-only parts of drama is audible, but was tolerable.
- Noise from ascent and descent is different
- Noise control: rack enclosed

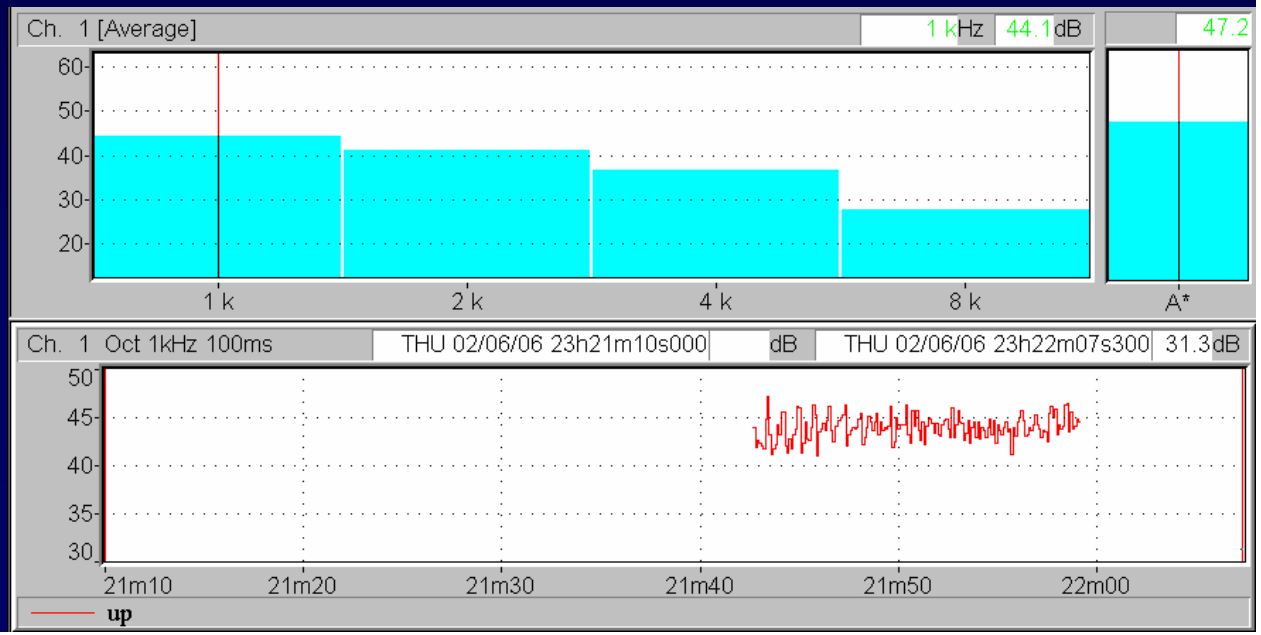
Big Tow Hoist



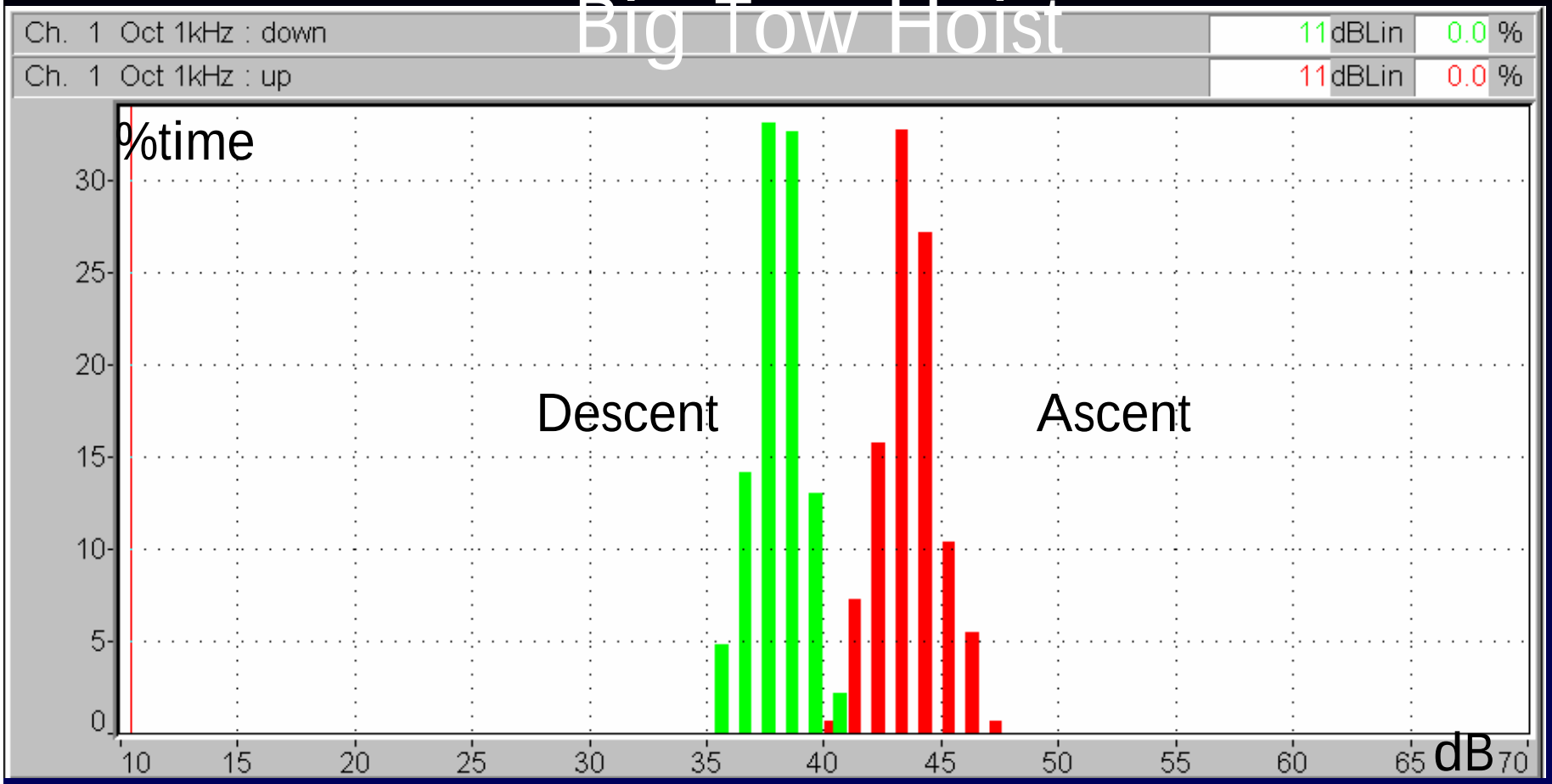
Noise below 1kHz was not measurable

descent

ascent

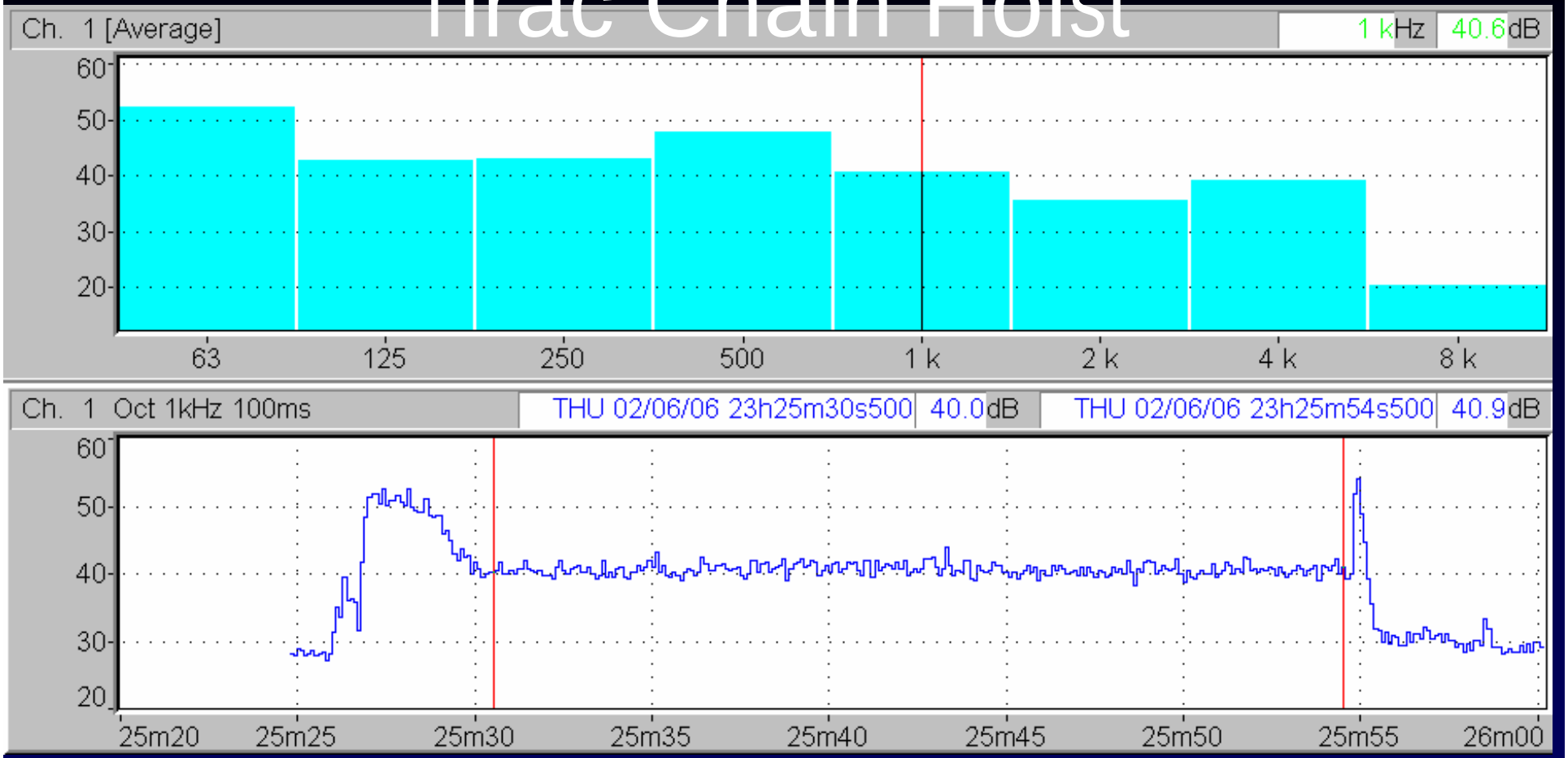


Big Tow Hoist



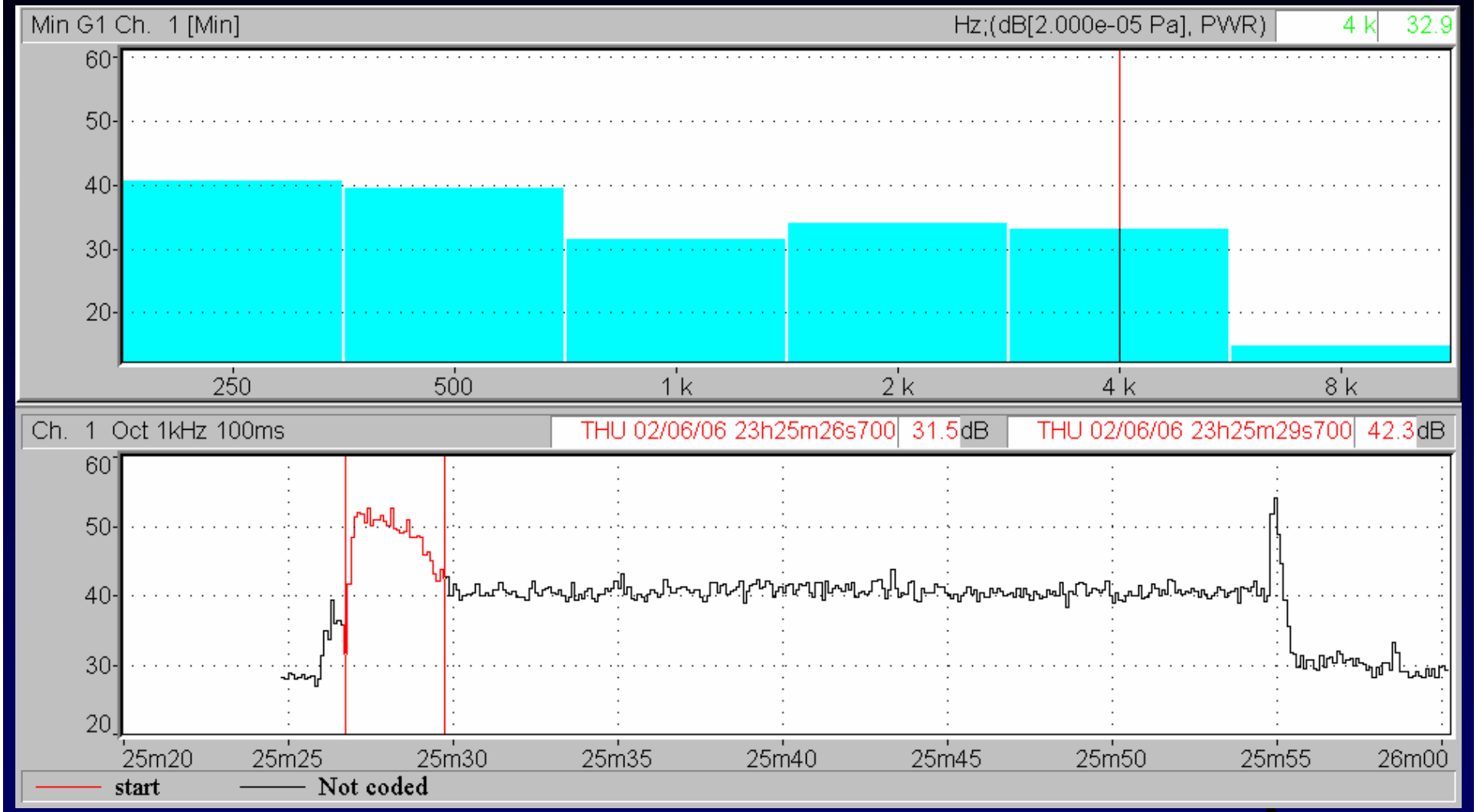
- By analyzing noise level distributions, the change in the noise level for up and down movement becomes readily apparent

Tirac Chain Hoist



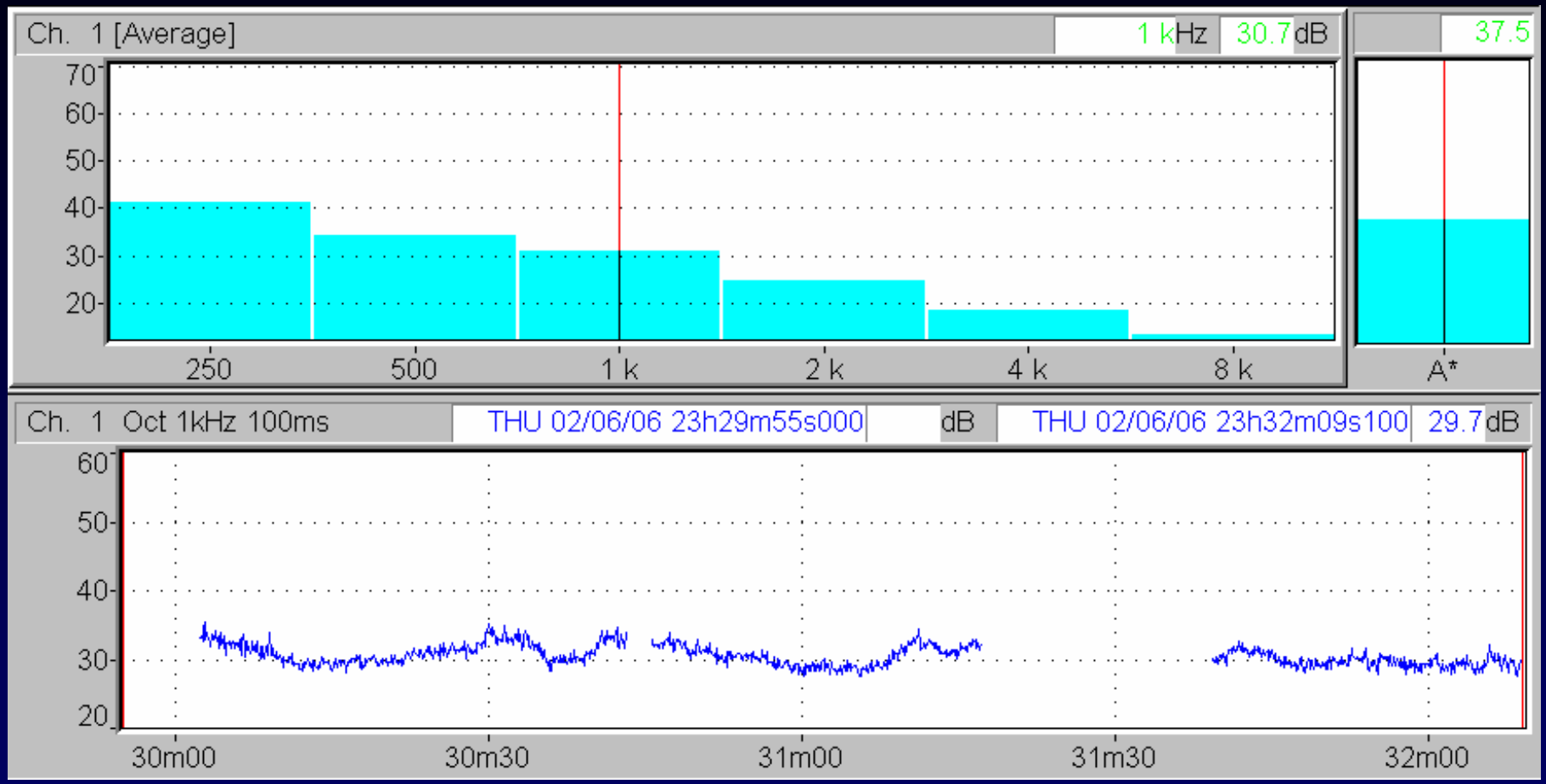
- This was considered too noisy to use during the performance except when masked by loud music
- The noise is generally 10dBA above background
- With large starting and stopping transients

Tirac Chain Hoist



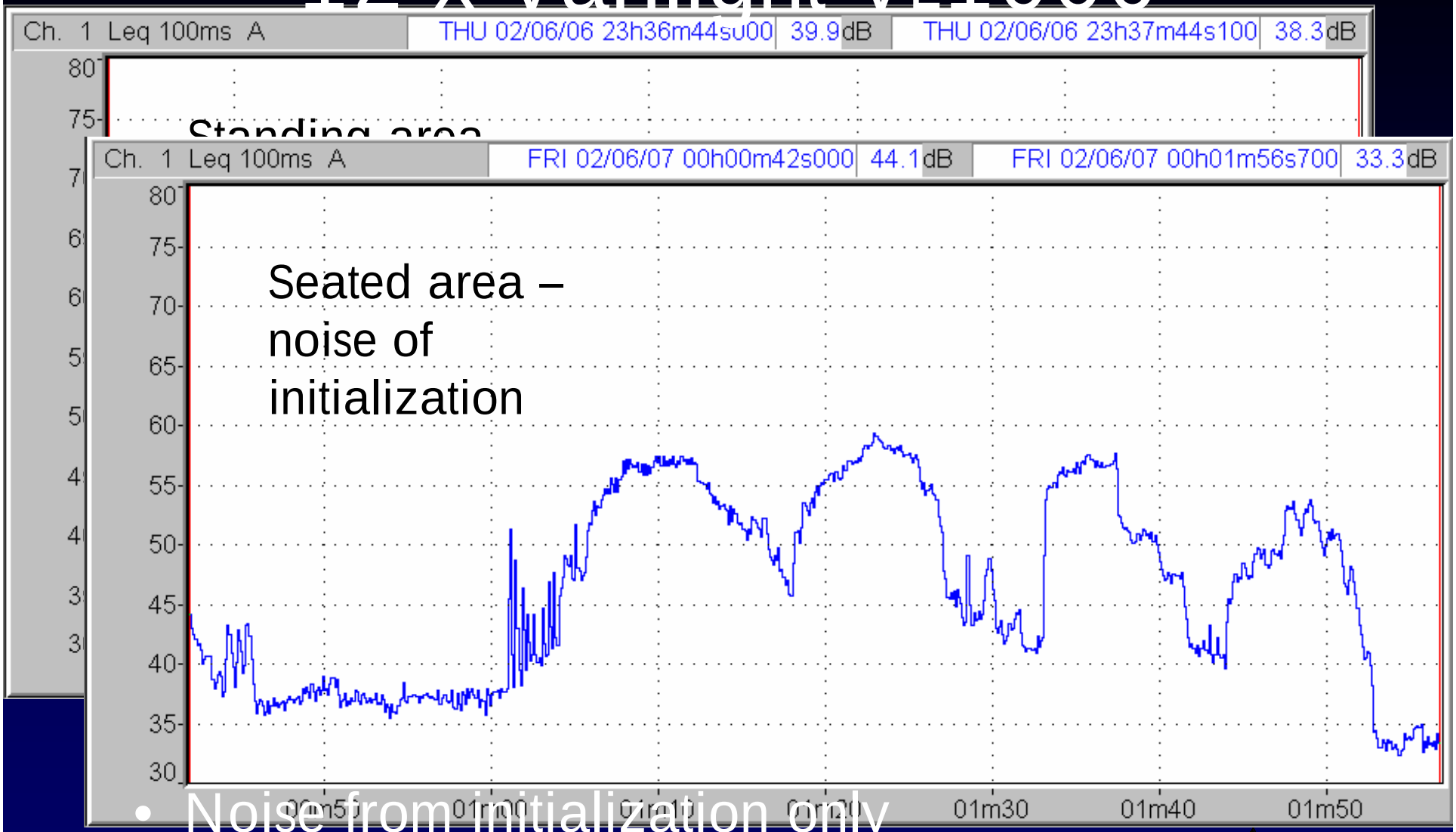
- Spectrum and levels of staring transient
- Only a short-term Leq will show this aspect of noise

Hydraulic Power Pack



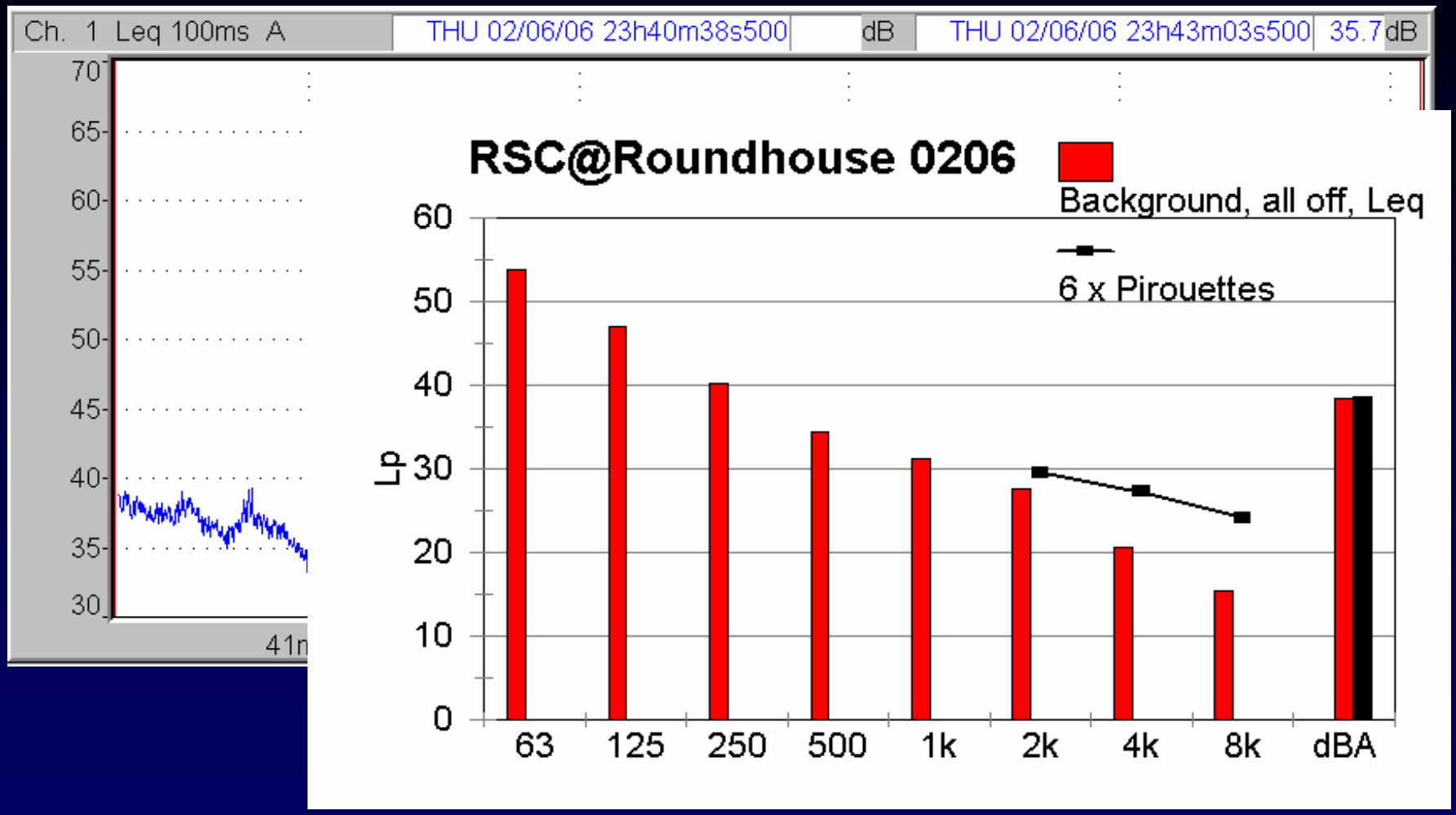
- Located in an enclosed room off stage.
- Audible but not measurable

12 x Varilight VL1000



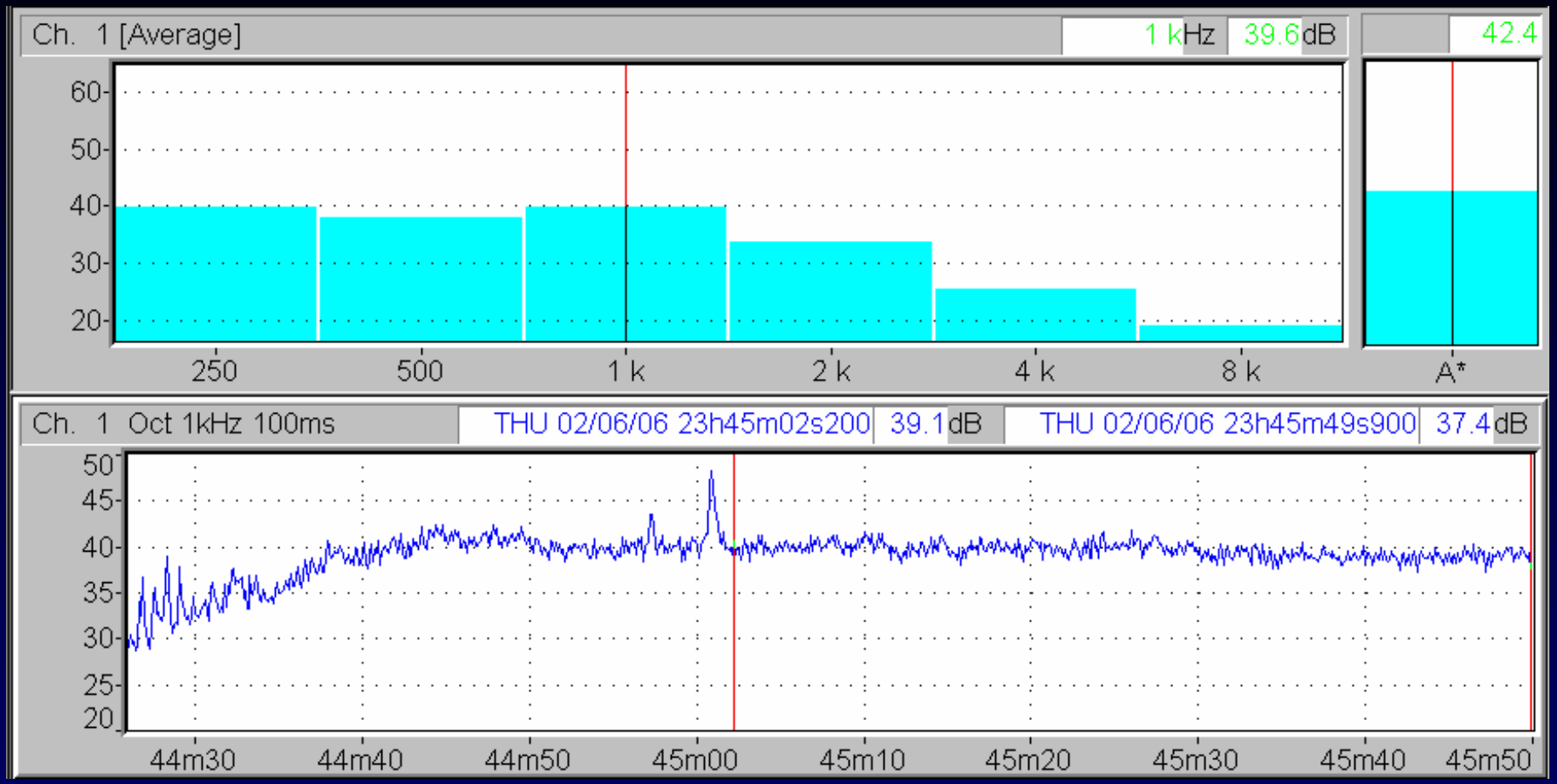
- Noise from initialization only
- VL1000 was inaudible at the Roundhouse in the promenade area or the seating area

6 x Pirouettes



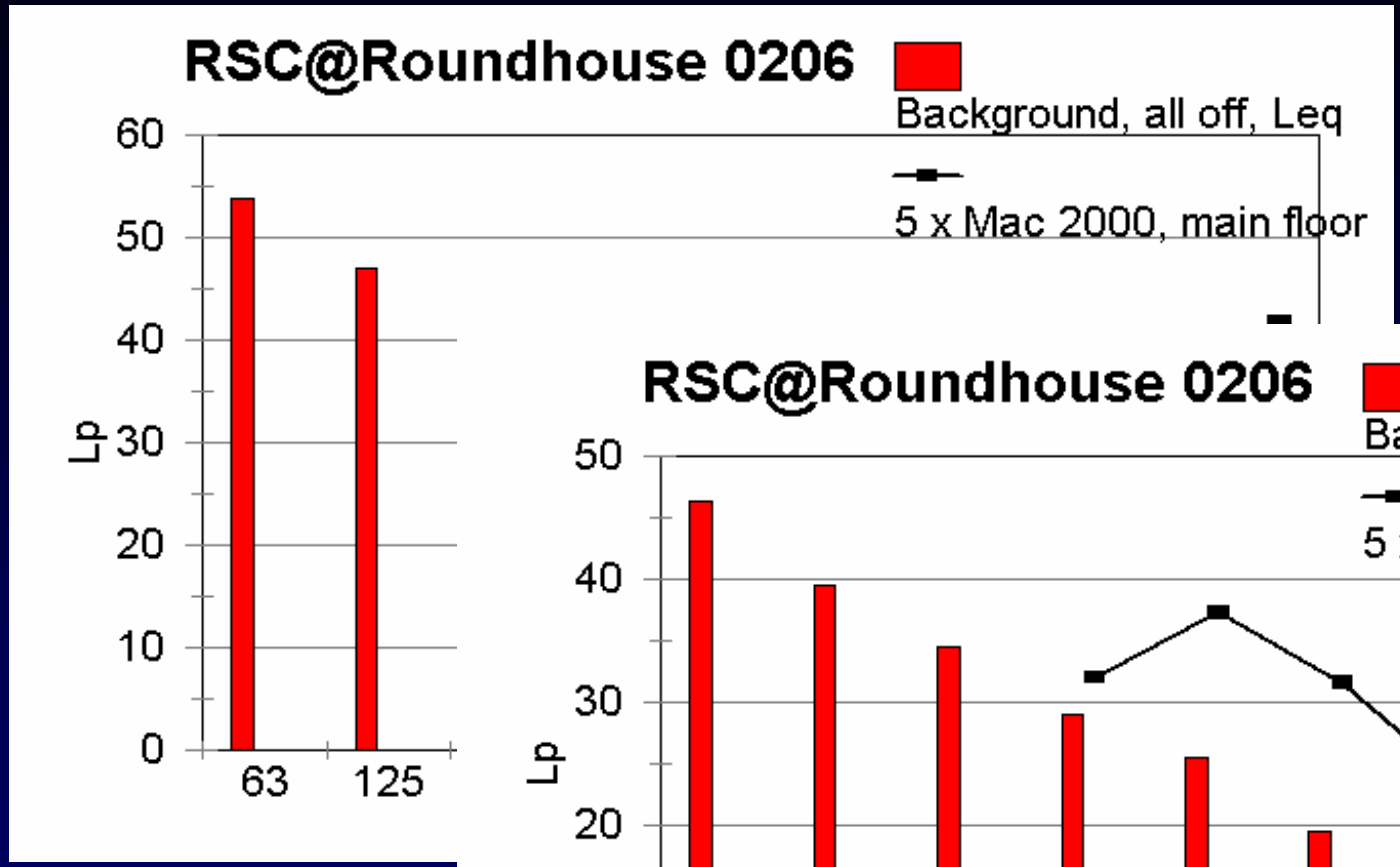
- Clearly audible, but barely measurable
- Not measurable in dBA, but measurable in octave bands

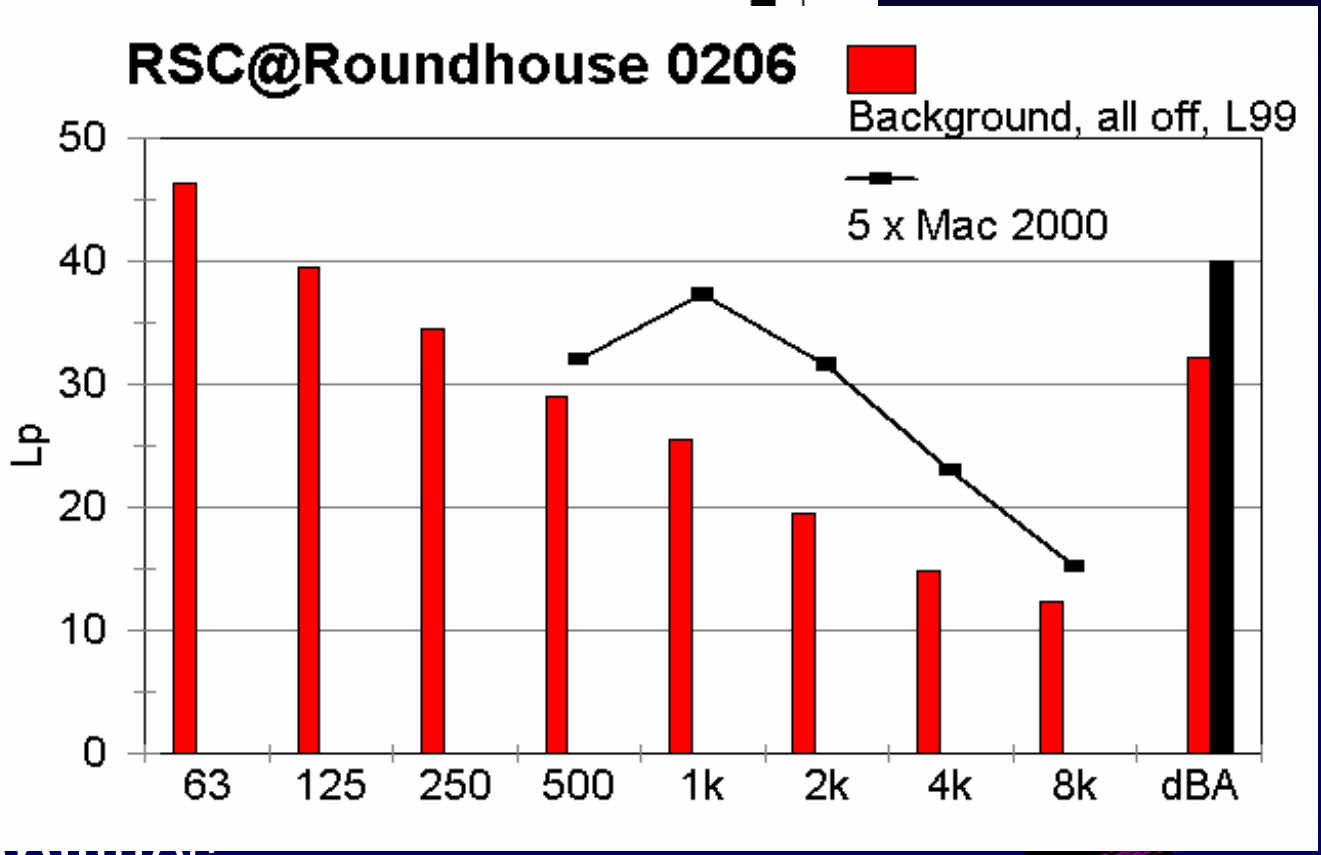
5 x Mac 2000's



- Sufficiently loud to mask speech
- Unsuitable for use in unamplified (and some amplified) performances

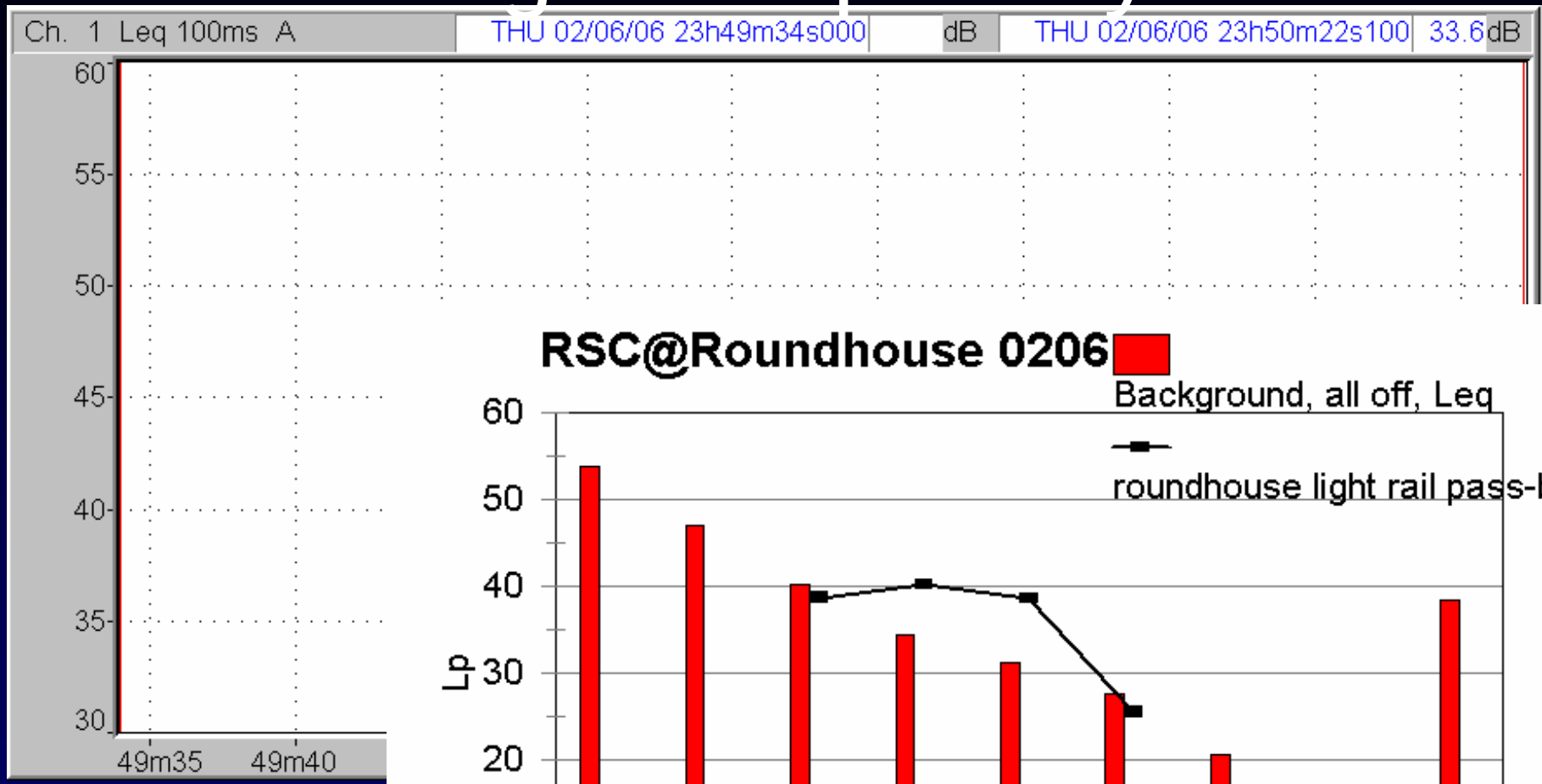
5 x Mac 2000's





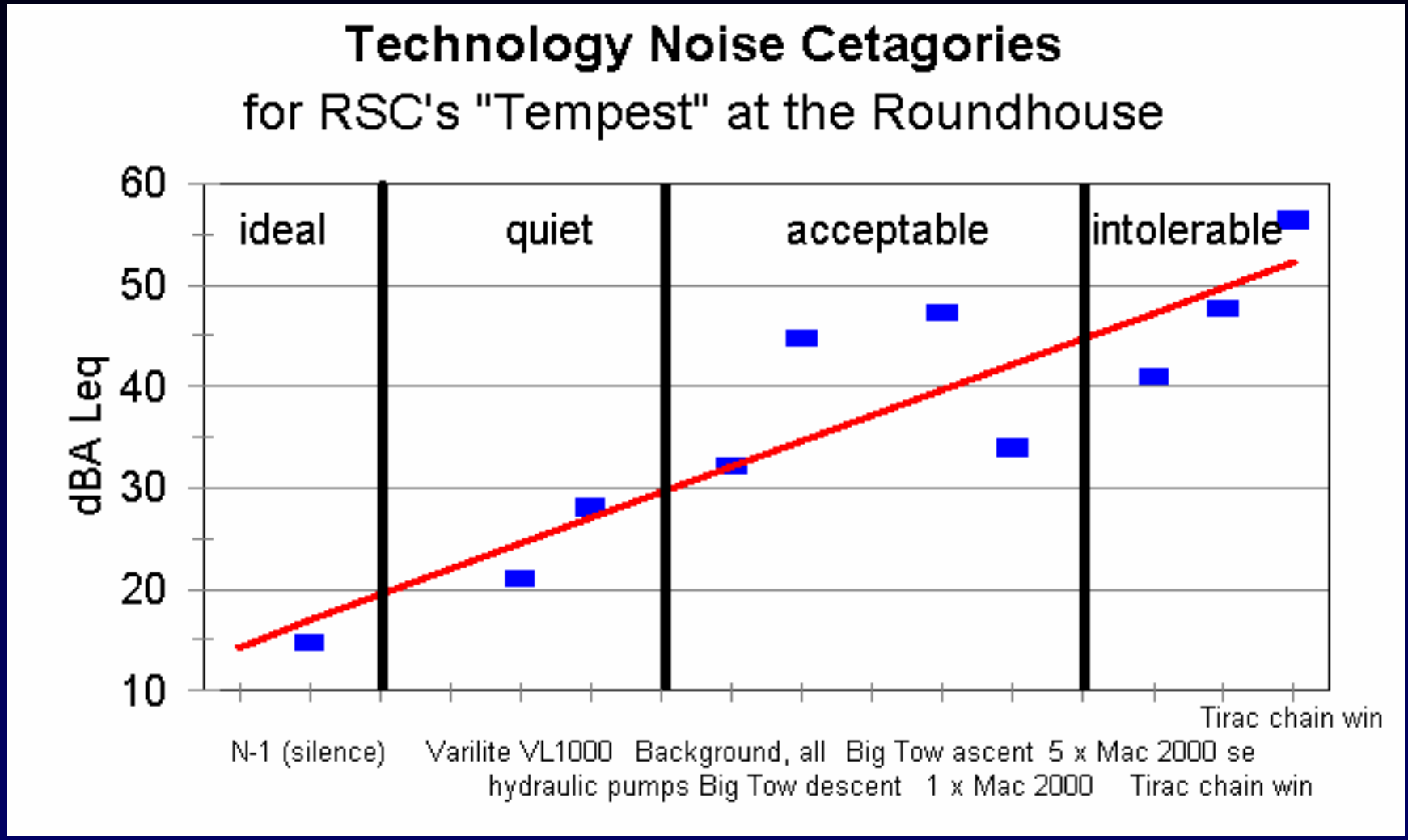
- The six Ma
  loud, and s
- One Mac w
  lighting capabilities.

Light rail pass-by



- The sound fr
  loudness as
- However the
  intelligibility because of their high-frequencies

Conclusions



- Noise measured as dBA Leq for event-duration