The Pros and Cons of Community Noise Equivalent Level (CNEL)

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Cons of CNEL

- Not a level you hear!

- Complicated.

  \[ \text{SEL} + 10 \times \log_{10}(N) - 10 \times \log_{10}(86400) \]

- An “average”?

  - Based on average daily events, runway utilization, track utilization, etc.
Pros of CNEL

- Accounts for the way our ears hear
  - A-weighting
- Is based on measured single events (even the modeling!)
- Accounts for when events occur
  - Evening and nighttime penalties
- Accounts for the numbers of events
  - 3 dB per doubling/halving
- Accounts for our cumulative exposure during a 24-hour period
- Does not contain the word ‘average’ in its name
- Simpler than the metrics it replaced – CNR, NEF
- And…
What do you think is the CNEL of this?
66.5 dB CNEL!
What do you think is the CNEL of this?
66 dB CNEL

- CNEL tends toward the ‘loudest’ single events (thanks to the logarithmic math)