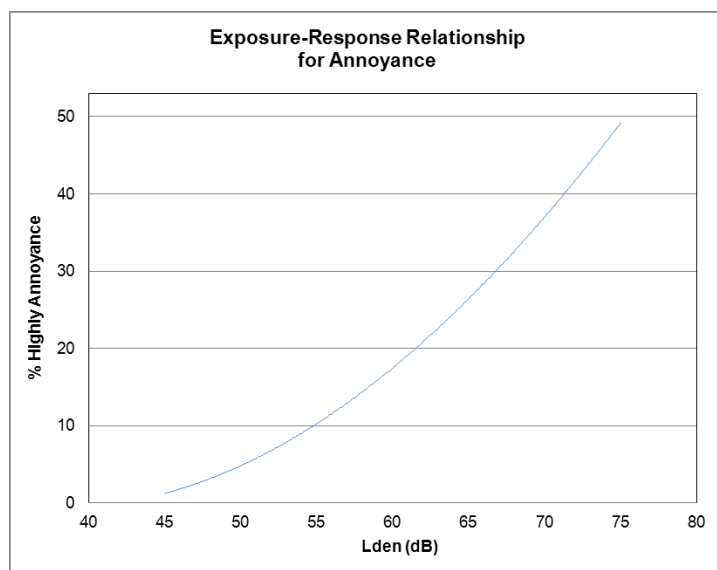


APPENDIX 17.3.3: HIA EXPOSURE-RESPONSE RELATIONSHIPS

Annoyance

Percentage of Population of Highly Annoyed (%HA)

$$\%HA = -9.199 \cdot 10^{-5}(L_{den} - 42)^3 + 3.932 \cdot 10^{-2}(L_{den} - 42)^2 + 0.2939 \cdot (L_{den} - 42)$$

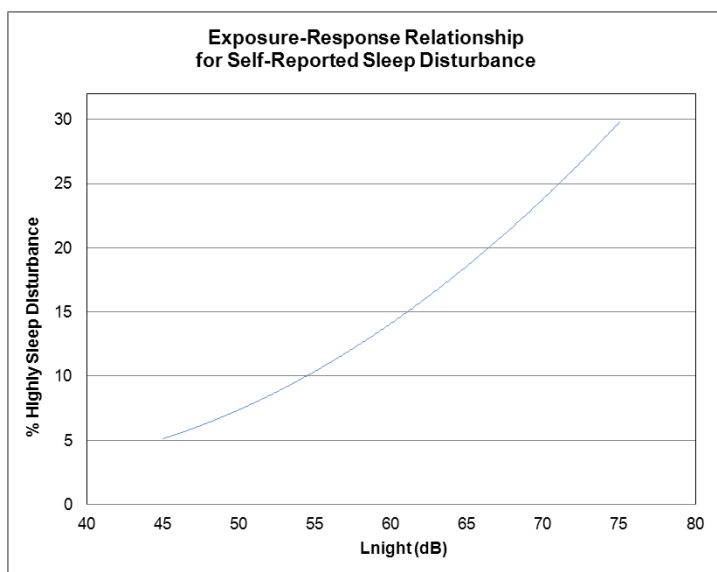


Self-Reported Sleep Disturbance

Percentage of Population Highly Sleep Disturbed (%HSD)

$$\%HSD = 18.147 - 0.956 \cdot L_{night} + 0.01482 \cdot (L_{night})^2$$

L_{night} : 8-hour time period is 23:00 to 07:00 local time.



References

- "Good Practice Guide on Noise Exposure and Potential Health Effects", EEA Technical Report No. 11/2010
- "Annoyance from Transportation Noise: Relationships with Exposure Metrics DNL and DENL and Their Confidence Intervals", Miedema and Oudshoorn, 2001
- WHO Regional Office for Europe, 2009. "Night Noise Guidelines for Europe"