

# SAE J2889-1 Status

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# Text Status

- Intent
  - Measurement of minimum vehicle noise
  - Not trying to determine safety
- Status
  - Vehicle measurements with dB(A)
  - Stationary and low speed (10 kph)

# Further Work

- Recognition aspects: Research needs – What characteristics of the sound convey the information? Human factors research experiments to answer questions.
  - Spectral components
  - Frequency shift with speed
  - Amplitude shift with speed
  - Other patterns (modulation, fluctuation)
  - Correlation to detection distance; what is necessary detection distance
  - Detection in various ambient environments (55, 65 dB Leq ?); detection distance (time)
  - Is sound necessary when vehicle is stationary, but in operation?
  - Is different sound necessary when vehicle is backing?
  - Other? (Values, Test Method, TBD from Japan)
- Possible metric to use:
  - dB(A)
  - Spectral components and/or 1/3 octave
  - % Frequency shift with speed
  - % Amplitude shift with speed
  - Other pattern information
- Tools to assess requirements.
  - Total vehicle measurements
  - Subsystem measurements

# Key Elements

1. Information Content – Or what are we trying to convey?
  - Do we need to know vehicle presence in all conditions? Do we need to know what is the vehicle doing? Speed, distance, acceleration/deceleration? Direction of travel?
2. Signal Characteristics
  - Spectral components
  - Frequency shift with speed
  - Amplitude shift with speed
  - Other patterns (modulation, fluctuation)
3. Signal Detection
  - Correlation to detection distance; what is necessary detection distance
  - Detection in various ambient environments (55, 65 dB Leq ?); detection distance (time)
  - Localization
4. Other Considerations
  - Environmental Impact
  - Driver deactivation

# Questions for QRTV group

- What, if anything, is needed in terms of standard measurement tools?
- What are operating conditions where system is needed?
  - Stationary?
  - Moving?

# Objectives

1. Recommend to GRB the requirements for an acoustic system that will notify pedestrians to the presence and operational mode of road transport vehicles
2. Determine parameters that govern the detectability of the acoustic signals
3. Determine the suitable acoustic signals that convey information to pedestrians in order for them to make decisions
4. Determine the environmental impact of the acoustic signals on vehicle occupants (driver and passengers) and third parties (people outside the car)