Transportation Related Environmental Noise Standards

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USA “National” Acoustical Standards

• American National Standards Institute (ANSI)
  – Acoustical Society of America (ASA)
• Society of Automotive Engineers (SAE)
• ASTM
• Others
  – ARI, ASHRA, Power Tool Industry
International

- International Organization For Standardization (ISO)
  - ANSI S12 Committee
    (Acoustical Society of America--Technical Advisory Group--TAG)
    - SAE (Liaison)
    - ASTM (Liaison)
Active Liaisons

- SAE
  - Motor Vehicle Noise
  - ConAg
  - Aircraft
  - Small-engine equipment
- ASTM-E33
- Power tools
Transportation Related Standards--Mainly ISO

- Noise Barriers--also ANSI
- Vehicle Emission (road vehicles, trains, watercraft)
- Vehicle Immission (received sound--road vehicles, trains, watercraft, aircraft)
- Roads (surface, sound absorption)
- Tires (noise emissions)
Emissions

• ISO 362--Motor vehicles accelerating--being revised
• ISO 5130--Stationary motor vehicles
• ISO 7188--Passenger cars--urban driving
• ISO 2922--Boats--newly revised
• ISO 3095--Rail-bound vehicles--CEN revising
• ISO 10844--Test track specification--being looked at
• ISO 10847--In situ barrier measurement
• ANSI S12.8-1998
• ISO New: 11819-1--Methods for measuring the influence of road surface on traffic noise--Part 1: The statistical pass-by method--
• ISO 11819-2--Part 2 Close proximity method being developed
Emissions Continued

- ISO 13473-1—New: Characterization of pavement texture by using surface profiles—Parts 2, 3, 4, and 5 in development
### Inside Vehicles

- ISO 2923--On board vessels
- ISO 3381--Inside rail-bound vehicles--(Under CEN revision)
- ISO 5128--Inside motor vehicles
- ISO 5129--Inside aircraft (newly revised)
In The Community

- ISO 1996--Measurement and assessment of community noise--under revision
- ANSI S12.9--Measurement and assessment of community noise
- New ISO--Continuous airport noise monitoring--in development
Thrusts

- More representative vehicle noise measurement--lower community levels
- Improved community noise assessment
- "Quiet" roads
- Quieter tires
Example

- ISO 11819-2-- Methods for measuring the influence of road surface on traffic noise--Part 2: Close proximity method
  - In development
  - Measure tires on a STANDARD road
  - Measure road surface noise using STANDARD tires
  - Measure tire/road combination

This is just an example of a CPX measuring system
Inside View of the CPX Trailer
CPX Used to Measure Tire Noise
ISO/TC 43/SC 1/WG 33


This is just an example of an SPB measuring system
ISO/TC 43/SC 1/WG 39

ISO 13473-1: Characterization of pavement texture by use of surface profiles - Part 1: Determination of Mean Profile Depth

\[
\text{Mean Profile Depth (MPD)} = \frac{\text{Peak level (1st)} + \text{Peak level (2nd)}}{2} - \text{Average level}
\]

Estimated Texture Depth (ETD)
\[
\text{ETD} = 0.2 + 0.8 \times \text{MPD}
\]
ISO/TC 43/SC 1/WG 39
ISO/FDIS 13473-3:

Characterization of pavement texture by use of surface profiles - Part 3: Specifications and classification of profilometers
Conclusions

• ISO is the name of the game
• Mainly being pushed by the EU
• Expect
  – lower vehicle limits
  – tire limits
  – quieter road surfaces
• US DOT doing some road and tire work
• US manufacturers participating