



ChallengeX

ChallengeX is a multiple year collegiate design competition between 17 universities. Teams are given a 2005 Chevrolet Equinox to modify into a hybrid vehicle. A "thru the road" bio-deisel/electric motor configuration was used. When the vehicle arrives at the competition, it should be 99% production ready.

Motivation

In order for the hybrid Equinox to be 99% ready for the consumer, its noise and vibration levels must be comparable to its gasoline internal combustion counterpart. At the onset, noise and vibration levels of the hybrid were elevated from most consumer cars. These problems primarily stemmed from the engine and motor compartments as well as road noise.

QuietCar®

The most common way to reduce noise and vibration is to add insulation material to the vehicle. This is usually done by applying asphalt mats to deaden sound. The UT Challenge X NVH team chose to use a different material called QuietCar®. QuietCar® is a viscoelastic polymer coating for wide range of applications, but primarily designed for the automotive industry. It comes as a water based liquid that can be applied by brushing, rolling, or spraying.

Implementation



Before



After



Cabin Floor



Rear Wheel Well

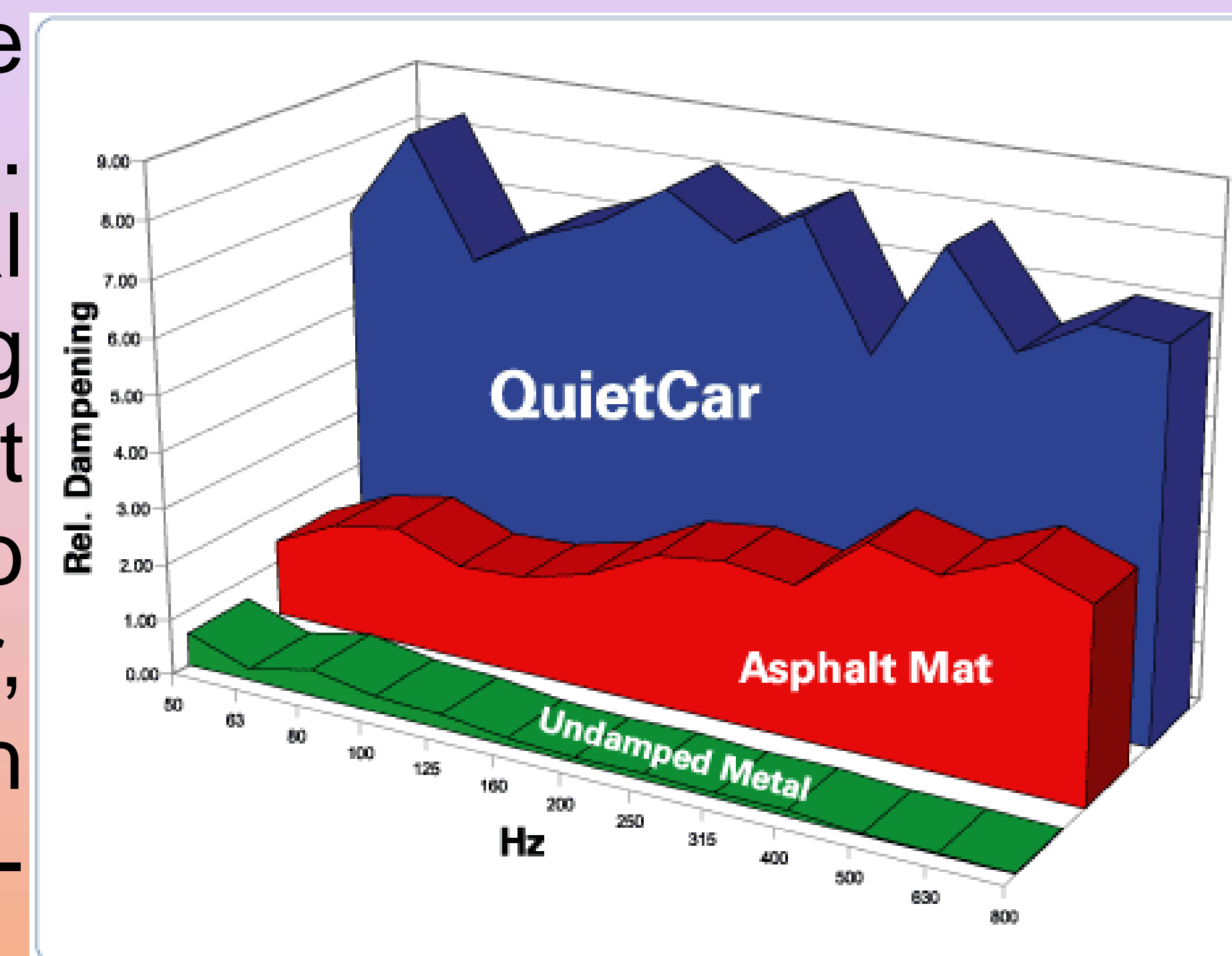


Door Panel



Why QuietCar®?

The UT Challenge X NVH team decided that QuietCar® had many advantages over traditional mat sound dampeners. The total weight of the car is one factor that is regulated by the design competition. When using traditional sound dampening mats, a significant weight will be added to the vehicle. However, QuietCar® is much lighter weight than asphalt mats after application.



QuietCar® compared to Asphalt Mats

Also, QuietCar® has been proven to dampen noise better than traditional mats.

Finally, QuietCar® could be applied in more locations with greater ease. For example, QuietCar® was not only suitable to apply on the interior of the car, but in the wheel wells and underside of the hood as well.