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Vehicle NVH development methodology

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Wehicle noise and vibration becomes highly important due to increasing the customer expectations and competitive market trends. In addition, stricter exterior noise regulation in light and heavy commercial vehicles requires more acoustically refined vehicles. Modern vehicle noise and vibration development involves delivering good customer satisfaction with well-defined quality metrics. The quality metrics identifies voice of customer, specific performance targets, measurable process towards the targets and metrics to represent the customer's needs into the product design. These functions contribute to drive comfort, performance feeling, and acoustic excitement. To identify the customer needs; customer profiles, market trends, demographic trends, economic trends and important features should explored. Performance of vehicle noise and vibration is an important vehicle design standard in terms of contribution to the brand image. In this paper, the objectives of vehicle NVH development approach and the relationship to the design development and quality process examined. Competitor benchmark, vehicle & system level target sets and cascade process, NVH virtual series development, hardware applications, vehicle target verification on physical prototype and problem solving approach is described. Vehicle interior noise lie mainly on of powertrain, road and wind noise. Increasing competitiveness on low weight and powerful vehicles, cause to be the powerful sound characteristics of powertrains. Vehicle NVH development approach provides systematic way to ease these challenges.

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