



Background

# Construction of Comfortable Interior Space in Consideration of Transient Sound and Vibration at the Shifting Time of the Vehicle

## Transient phenomenon of vehicle travel

- Get over the stone
- Joints on the freeway
- Defects of the road (hole etc...)
- Sift change in manual moad



Intermittent impact is transmitted

## Problem

- Decline of ride quality due to impacts
- The sensitivity is higher than steady phenomenon
- Engine sound, road surface vibration etc...

Concern about driving influence

Need a finer design

- Understanding the balance between steady and transient phenomenon
- Construction of the comfortable driving environment in the vehicle interior

## Contents

Focus on the sound and vibration generated by shift change

Implementation of measurement experiments and analysis

Recognition of shifting sound by single stimulus using a driving simulator

Recognition of shifting sound by combined stimulus using a driving simulator

Measurement

- Bench
- Vehicle

Analysis

- Time characteristics
- Frequency characteristic
- Transmittance
- Masked spectrum

Single stimulus

- EG sound
- shifting sound

Parameters

- Accelerator position
- EG type
- Sound pressure
- Frequency characteristic

Combined stimulus

- shifting shock

Parameters

- Sound pressure
- Frequency characteristic
- Acceleration G

Understanding acoustic and vibration characteristics

Derivation of comfort conditions that affects recognition of shifting sound

Derivation of comfort conditions that affects recognition of shifting sound by combined stimulus

