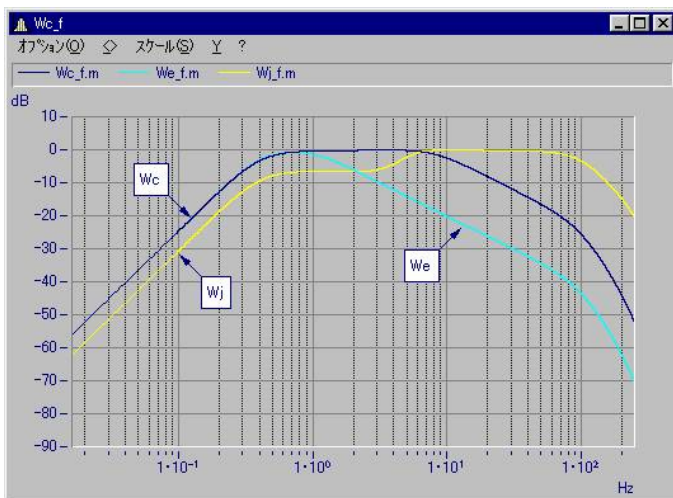
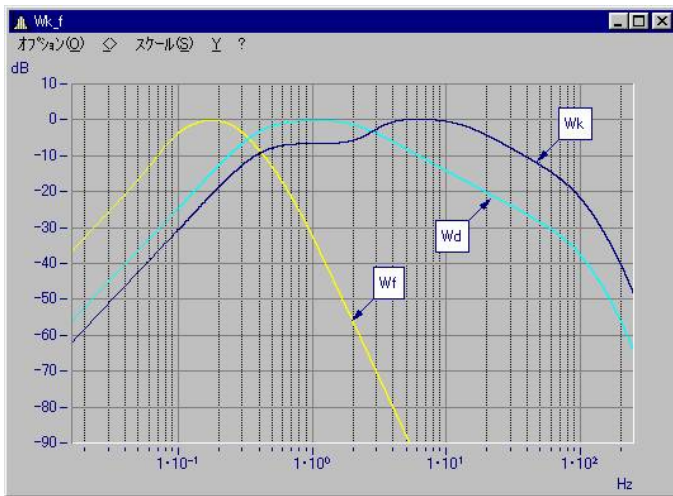


For many drivers (and consumers), comfort and ride feel are the most important criteria when selecting a car. Understandably, with each new design cycle, automotive manufacturers spend increasing amounts of time and resources on understanding and improving this, often subjective, aspect of a car's design.

The Suspension Design and Development Group at Honda's main R&D facility in Japan was eager to improve and automate ride feeling and comfort testing and reporting previously based on a standard Human Response Vibration Meter.

Utilizing **imc** instrumentation and software, such as the optional **Spectral Kit** of the signal analysis software **imc FAMOS**, Honda was able to realize a multi-purpose system that automatically carries out evaluation tests ranging from road surface testing to comprehensive evaluation, and determination of the so-called Ride Index.



Frequency Characteristic of Human Response Vibration Filter

The Human Response Vibration Filter as defined in ISO 2631 stipulates vibration evaluations in terms of carsickness and comfort (and excludes impacts, such as car crashes) within specific frequency bands as shown above:

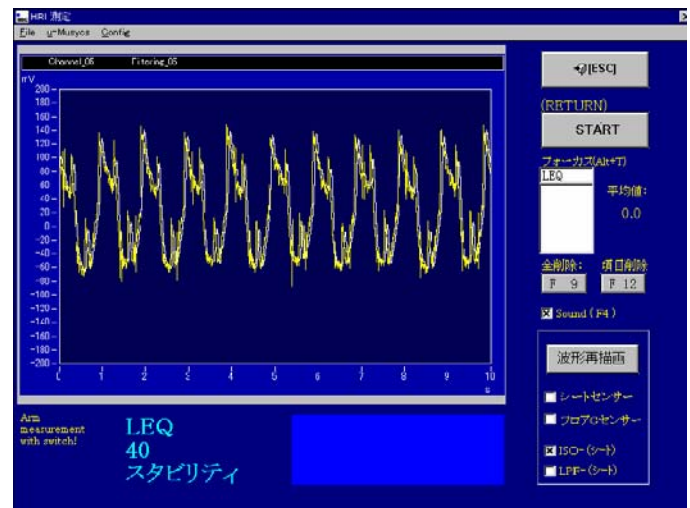
Comfort - 0.5-80Hz

Carsickness - 0.1-0.5Hz

In response to their requirements, **imc** developed and implemented, with the help of Japanese partner Toyo Corporation and the **imc COM** development library, a PC program that automates the data collection and test evaluation process. The data acquisition hardware consists of the **imc μ-MUSYCS** system, already used by Honda R&D for vehicle dynamics testing of drivability & stability.

This application, "Honda Ride Index," unites the real-time processing of the built-in DSP, with recalculation for immediate test results by the PC. Thus, users may define and carry out automatic and repeated test routines, immediately determining the effects of changing test conditions, e.g. vehicle speed, weight distribution, and road surface.

This possibility of real-time calculation, and simultaneous display of measured and calculated "virtual" channels is easily accessed in all of **imc** instrumentation through the easy-to-use **Online FAMOS** interface.



Human Ride Feeling/ Comfort Test Software

Test data can be saved for later re-analysis using **imc FAMOS**, the versatile data analysis and evaluation package, and its built-in scripting language with more than 300 mathematical, analytical, and statistical functions.

Whether or not additional analysis is necessary, Honda engineers can automatically create, print and save their final test results and documentation using the **imc Report Generator**, a document generation tool integrated with all **imc** software. ☺

