

Hyundai Motor India Engineering NVH System Checkrun & Report Generation Tool

End-to-end solution for the examination of
structural modes of NVH Systems

The inspection of a ready-to-run model involves examining its structural modes. To get the structural modes, engineers have to spend ample amount of time on deck preparation. This involves the creation and application of boundary conditions and deck header.

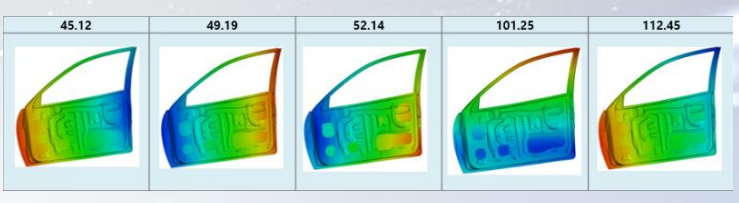
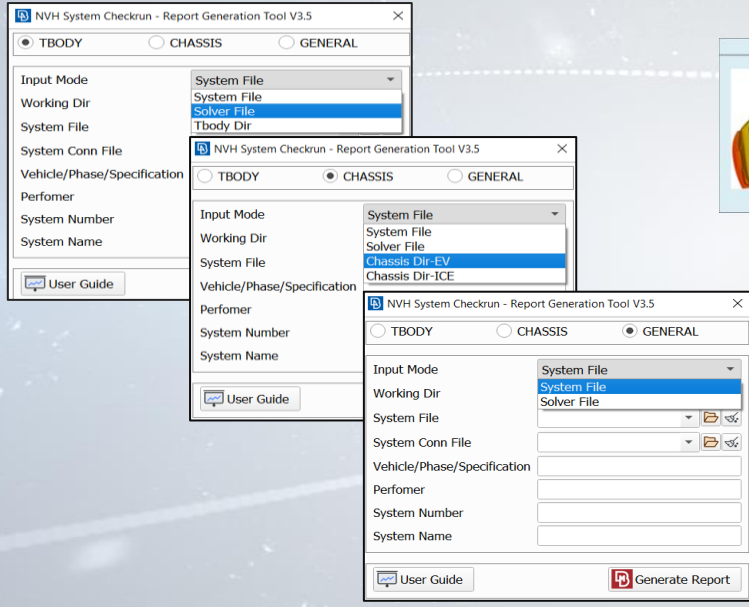
After deck preparation the model is solved and the solver outputs the results. Then, analysis has to be carried out to examine and interpret the results through the reports generated in standard formats.

All these steps involve significant manual effort making it a time-consuming and error-prone process.

Since most of the steps involved are repetitive in nature, there is a huge scope for time and effort benefits through automation, utilizing the robust capabilities of the BETA CAE Systems software suite.

“This automation Tool is designed to generate reports with minimal input. BETA CAE Systems has developed a flexible solution that allows us to generate reports with a single click.”

Vinay Kanukuntla
Hyundai Motor India Engineering



Mode No.	Frequency(Hz)	Mode Name
1	1.199E-04	
2	1.281E-04	
3	2.065E-04	
4	3.947E-03	
5	4.842E-03	
6	5.340E-02	Last Rigid Mode
7	x	
8	x	
9	x	
10	x	

Challenge

The central aim to achieve significant time reduction in generating the numerous lengthy reports using minimum input.

The list of challenges involved the following:

- Compatibility of input files.
- Full automation of deck preparation process, for multiple cases and runs.
- Automatic sourcing and applying of style and format of standard report template for each run.
- Addressing solver license queuing by using EPILYSIS solver.

Approach

The versatile comment reading capabilities of ANSA helped us get the proper input files. With the standardized ids the boundary conditions were easily created and applied using the inbuilt ANSA Python automation APIs. Subsystem and Assembly-wise headers were created separately.

The EPILYSIS FEA solver was used to solve the prepared files achieving a 99.9% parity to industry standards. Solving within the ANSA environment overcomes solver queuing.

The output files generated by EPILYSIS were used for the report generation using the .pptx Report Composer of META.

From within the ANSA environment, META was invoked. The information required for

the report generation was passed to META and through the session and script capability, the report was generated in the required format and template.

The steps involving solving and report generation were performed in no-GUI mode.

Benefits

- One-click report generation with minimum inputs.
- The tool solves one-by-one all files within a specified directory and generates reports for each of them.
- Solver files can also be used for report generation.
- Boundary conditions are automatically dealt with, upon the selection of Input Mode.

Results

With the seamless integration and compatibility of BETA CAE Systems software products, the entire process of deck preparation, solving, and report generation was automated.

Hyundai Motor India Engineering has achieved a significant amount of time reduction by using the NVH System check run report automation tool.

For more information visit BETA CAE Systems visit www.beta-cae.com