

CDH/TPA 2016.11 Release Notes

CDH Transfer Path Analysis (TPA) software tool is developed using Matlab 2013a for Nastran-based CAE. It refers in this release note to the stand-alone compiled version. This release includes following features:

- CDH/TPA support two operating modes: GUI and batch
 - In GUI mode user interactively imports forces and transfer functions, pre-calculated from Nastran and stored in punch files, to perform path analysis
 - Batch mode is suitable for carrying out multiple TPAs for a large number of load cases without using GUI. Results are saved and can be loaded into GUI tool for plotting
- TPA for both acoustic and structural responses
- Support both translational and rotational transfer paths
- Efficient configuration for TPAs in the Nastran based CAE process for quick and fully automated implementation of TPA
- Support five hierarchy levels for describing transfer paths in vehicle structure systems, capable to aggregate contributions of grouped paths into the component or subsystem level; quick switch between different path groups to view path contribution
- GUI mode supports multiple TPA sessions, enable to compare between variants of the vehicle or different load cases
- Various plot options available for visualizing results to help the diagnosis process and for presenting results
- Rank path contribution and filter the rank by the mount hierarchy and degrees of freedom of paths
- Integration of path contribution over a user specified frequency range to investigate the contribution of the mounts or groups over a frequency range instead of a single frequency
- Target violation report – rank path contribution based on target-weight integration over the target violated frequency range

- Optionally local dynamic stiffness at your connection points can be loaded to give additional information for problem diagnosis.

Execution flow

- **Step I - Configuration of a TPA**
TPA can be configured via a configuration file, which defines
 - Transfer paths - force elements (CELAS, CBUSH)
 - Response grids (for example, driver ear position and structural grids)
 - Subcase IDs for excitations and transfer functions
 - Mounts and mount groups for TPA (front right suspension, ...)
- **Step II - Nastran calculations**
 - Full vehicle analysis - output element forces for elements defined in the configuration (punch file)
 - Trimmed body analysis – output transfer functions for defined paths (punch file)
- **Step III - Path analysis with CDH/TPA tool**
 - GUI mode or batch mode

Usage notes

- TPA batch mode – carry out TPA analyses without using the GUI and results are saved and can be loaded into GUI

Usage: run_TPA.sh [Option] [File]

Description

- b** batch mode; without it GUI is default
- c** configuration file
- r** result file name for saving
- m** result file name for loading
- n** punch file for transfer functions
- f** punch file for forces