HEAD acoustics

ArtemiS SUITE
PRoject

Code 50220

APR 220
Standardized Test Project

The Standardized Test Project of ArtemiS SUITE allows to define test conditions in order to measure objects in different operating conditions, to further process them individually, and to present the results in a report, automatically.

OVERVIEW

APR 220 Standardized Test Project

Code 50220

A Standardized Test Project enables the specification of test conditions of a test object for which automatically corresponding recordings with the Recorder (APR 040 is required), specific post-processing, and the presentation of the results in a report (APR 020 is required) can be performed.

The Standardized Test Project converts the specified test conditions into a Recorder Task List for the Recorder. After all recordings have been acquired with the Recorder, users can load the test data set in the Standardized Test Project to execute all sequences (analyses, filters, etc.) automatically. The results can be presented in a report.

KEY FEATURES

Defining conditions for standardized test of
› different test objects
› test objects with construction conditions

Specifying test conditions to be measured by means of variations (e.g., 1st gear, 2nd gear, etc.)

Automatic generation of a structured Recorder Task List for data acquisition with the Recorder (APR 040 is required)
› Automated processing of each recording
› Comparative representation of several test data sets
› Clearly, visual control of all required recordings in the Recorder by means of the Task List

Configuring sequences with a specific post-processing of the recordings
› Cutting marks, filters, analyses, single values, statistics, ..., post-processing operations (tolerance check, smoothing etc.), export
› Parallel calculation of paths or sequences using sequence bundles
› Automatic compatibility check

Creating reports (APR 020 is required) by using a standardized, comparable report template for all tests of a test series
› Export to PowerPoint or in the PDF format

APPLICATIONS

› Comfortable and time-saving recording and evaluating of standardized test series according to defined test conditions
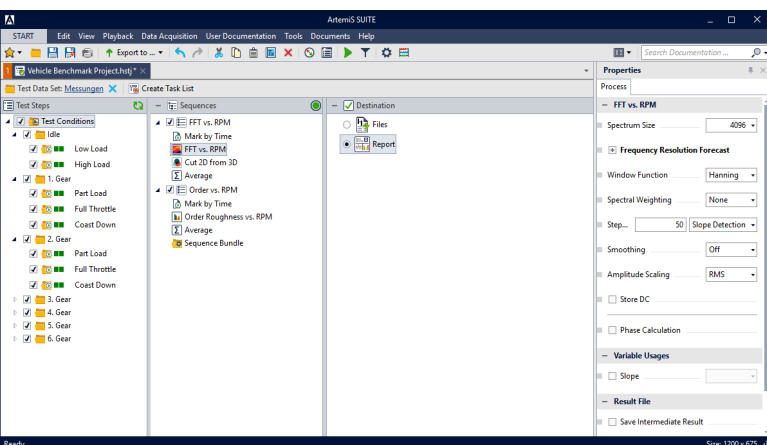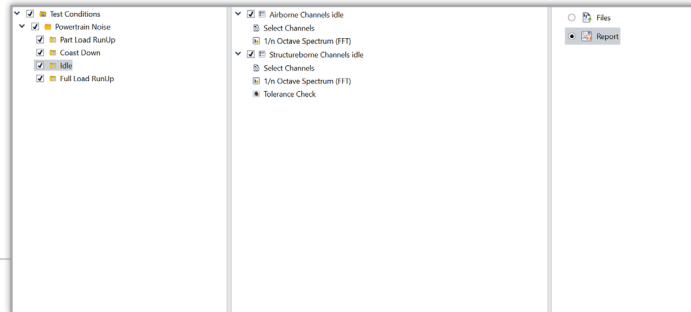
OPTIONS
ALL OPTIONS NOT INCLUDED IN APR 220 OR APR 000 MUST BE SEPARATELY LICENSED

SOURCES POOL

› Time data for the subsequent processing
  › HDF
  › ATFX

DESTINATION POOL

› Report (APR 020)
  › Basic Report
› Files
  › Storing the results in the file format available after the last processing step

SEQUENCES POOL

› Basic Analysis (ASP 001)
  › FFT vs. Time, ...
  › 1/n Octave Spectrum (FFT), ...
  › Level vs. Time, ...
  › Power Spectral Density, ...
  › Single Value: Level
  › ...
› Basic Analysis vs. Control Ch. (ASP 002)
  › Analyses from ASP 001 vs. Control Ch.
› Advanced Analysis (ASP 003)
  › VFR, ...
  › HSA, ...
  › Gated DFT, ...
  › Wavelet
  › ...
› Advanced Analysis vs. Control Ch. (ASP 004)
  › Analyses from ASP 003 vs. Control Ch.
› Modulation Analysis (ASP 005)
  › Modulation analyses vs. Time, vs. RPM, vs. Band, ...
› Order Analysis (ASP 006)
  › Order Spectrum vs. Time, vs. RPM, ...
  › Time Signal vs. Rotation
› Octave Analysis (ASP 007)
  › 1/n Octave Spectrum (Filter) vs. Time, vs. RPM, ...

› APR Framework (APR 000)
  › Single Values, ...
  › Select Channels, ...
  › Documentation Tools, ...
  › Find and Select Tools, ...
  › Tolerance Check
  › ...

› Batch RPM Generator (ASP 304)

› Offline Filters (ASP 301)
  › IIR Filter, FIR Filter
  › Differentiate, Integrate, Resample
  › Unit Conversion
  › ...

› Statistics (ASP 303)
  › Min, Max, Sum, ...
  › Distribution (Recording, Analysis), ...
  › Difference (Channel, File), ...
  › Statistic (File, Channel), ...
  › ...

› Psychoacoustics - Basic Analysis (ASP 101)
  › (Specific) Loudness, ...
  › (Specific) Sharpness, ...
  › Tonality DIN 45681, ...
  › Specific Fluctuation Strength, ...
  › ...
› Psychoacoustics - Basic Analysis vs. Control Ch. (ASP 102)
  › Analyses from ASP 101 vs. Control Ch.
› Psychoacoustics - Adv. Analysis (ASP 103)
  › (Specific) Loudness (Hearing Model)
  › (Specific) Roughness (Hearing Model), ...
  › (Specific) Tonality (Hearing Model), ...
  › (Specific) Impulsiveness (Hearing Model), ...
  › Spectrum (Hearing Model)
  › Relative Approach, ...
  › ...
› Psychoacoustics - Adv. Analysis vs. Control Ch. (ASP 104)
  › Analyses from ASP 103 vs. Control Ch.
› Speech Intelligibility Analysis (ASP 106)
  › Speech Intelligibility Index vs. Time, ...
  › ...

› MDF4 Export (ASP 703)
  › ASAM Measurement Data Format (MF4)
› MTS-RPC Conversion (ASP 704)
  › MTS-RPC (RSP)
› UFF Conversion (ASP 705)
  › Universal File Format (UFF)
› Free (no license required)
  › ATFX, MP3, WAV, XLSX, ASC
› Basic Decoder (ASP 801)
  › Decoder CAN, OBD, FlexRay, Pulse, Trigger, GPS, Direction Angle, Resolver

› System Analysis (ASP 201)
  › Transfer Function, ...
  › Impulse Response, ...
  › (Multiple, Partial) Coherence, ...
  › (Cross, Auto) Correlation, ...
  › (Cross, Auto) Spectrum, ...
  › Harmonic Distortion, ...
  › ...
› System Analysis vs. Control Ch. (ASP 202)
  › Analyses from ASP 201 vs. Control Ch.
› Sound Power Analysis (ASP 203)
  › Sound Power vs. Time, ...
  › Noise Spectrum
  › Sound Power K2 Environmental Correction Spectrum
› Data Preparation (ASP 302)
  › Mark by Time, RPM, Start/Stop Trigger, ...
  › Concatenate, Merge Channels
  › Mark by Time, RPM, Trigger, Fragment Mark, ...
  › Spectrum, ...
  › Reset Abscissa
  › Cut 2D from 3D, ...
  › Linear Smoothing
  › Spectral Smoothing
  › Data Reduction, ...
  › ...
› ASX 06 (Data Processing Add-In API)
  › Analysis Add-In 3D
  › Export-Merge Add-In
  › Filter Add-In
 › Post-Analysis Add-In 2D, 3D

DETAILS

Using Standardized Test Project, frequently repeated test procedures can be presented in various Standardized Test Projects.

Defining the test conditions

In order to detect the acoustic characteristics of a product, it is often necessary to measure many test conditions of a test object and examine them in different ways. In doing so, different test conditions can be considered and analyzed individually. A test condition consists of variations of a criterion or several criteria.

For example (see picture on the right), when developing a vehicle, the criterion "gear" is to be measured in three variations (1st, 2nd, and 3rd gear). For each gear, the criterion "load" has to be measured in three variations: full load (FL), partial load (PL), and coasting.

The visualization of each test condition in a tree helps the user to keep track of the largest projects, too. The variations can be duplicated as often as desired and restructured via copy-and-paste or with the mouse.
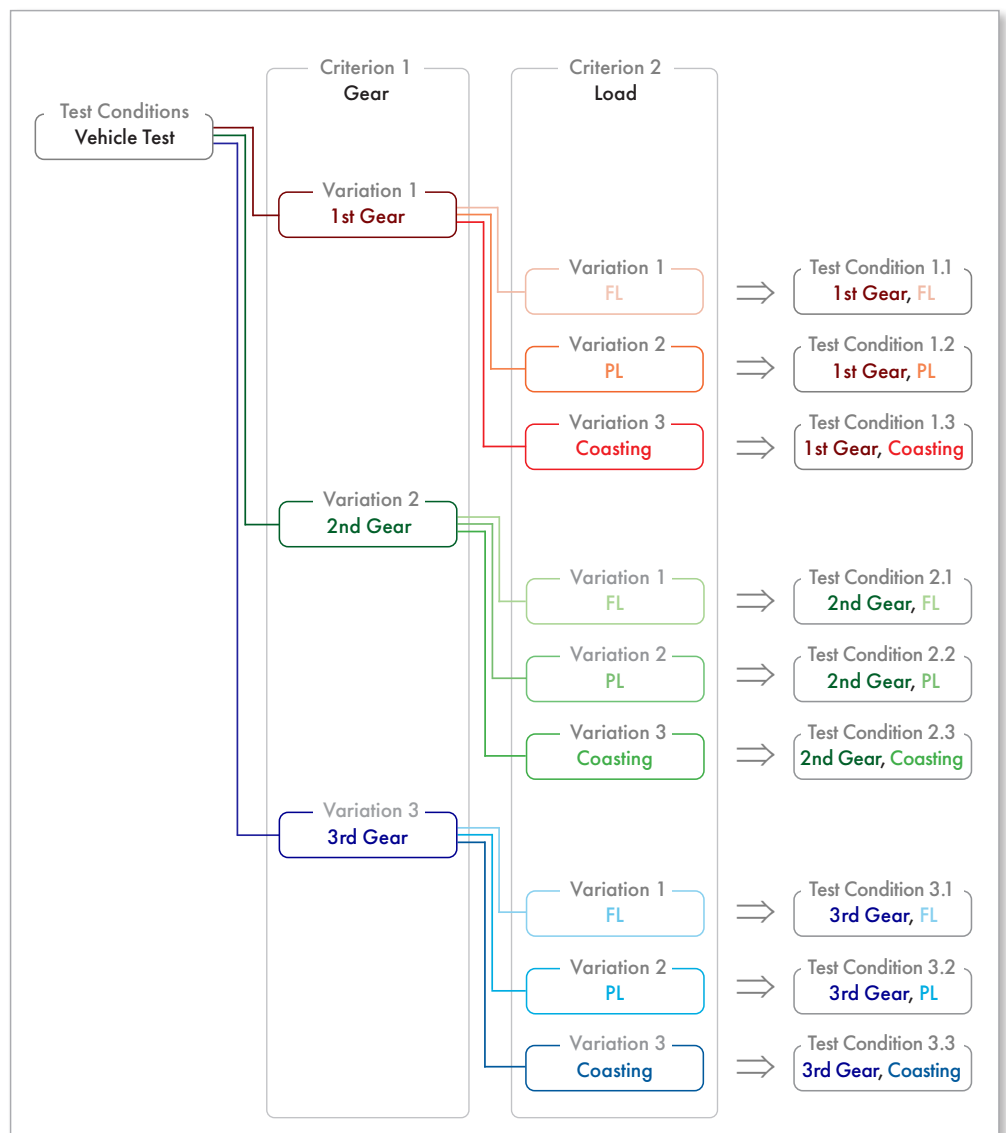
Example of a Standardized Test Project visualized in a tree. A total of 9 different test conditions are measured.
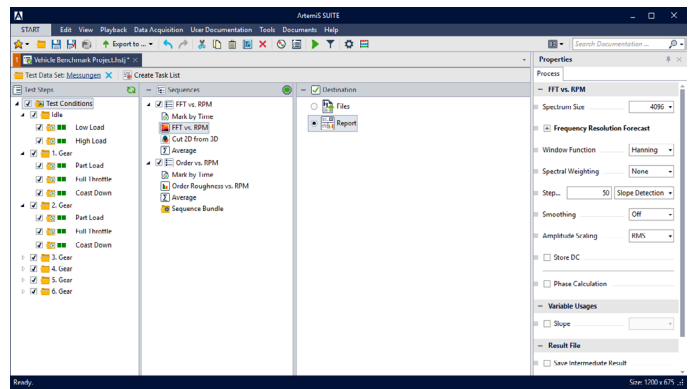
Configuring the sequences for post-processing operations

Each sequence may include an unlimited number of post-processing operations, for example cutting marks, analyses, filters, etc. A sequence, defined for an individual variation, is handed down to all sequences under it. For example, analyses which are to be performed for several recordings, must be defined only once on a superordinate variation. There is no need to attach sequences manually to each variation. Regardless of this, the lower variations can also be equipped with individual sequences, which will be applied in addition to the inherited ones.
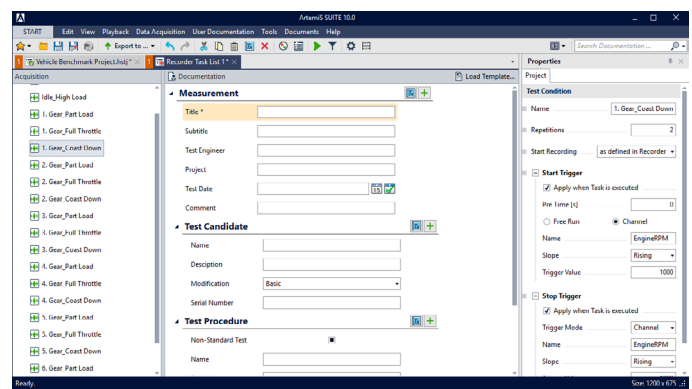
A compatibility check is performed for each element, so that users are immediately informed about incompatibilities by means of status displays.

Using variables enables sequences to be parameterized uniformly at individual points as well as accessing the documentation of the input data and automatically offsetting variables against each other. With this, users can quickly and securely make variant-dependent adjustments and considerably simplify their project maintenance.

Sequence Bundles can be used for calculating several paths or sequences in parallel. This enables, for example, to calculate an analysis only once, but to apply different statistical functions to them.
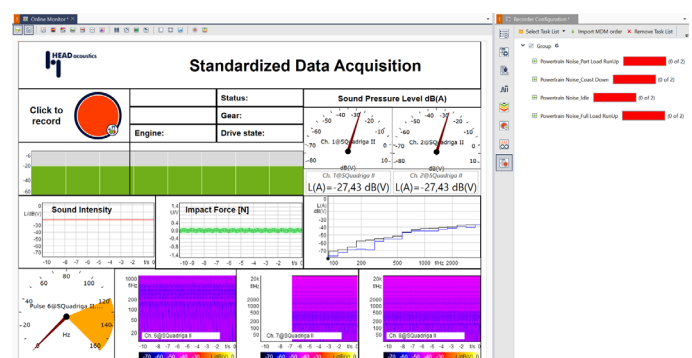
Configuring the Recorder Task List

After the test procedure is designed, the Standardized Test Project extracts all test conditions which have to be measured and creates a Recorder Task List for the Recorder.

This Recorder Task List contains the conditions for the required recordings performed by the Recorder. All list entries can be configured individually and be supplemented with triggers and repeat recordings (loops). This provides the Recorder with the information needed to perform the required measurements.

Performing the Task List

The clearly arranged window of the Recorder enables to navigate very easy through the Task List. In addition, users get a visual feedback of upcoming and already completed recordings.

A Documentation Template can be established to create documentation for each recording individually, too.


Sequences

User Documentation for the Recorder Task List

Recorder Task List

Presenting the results in a report

Users can bind the recordings of the Recorder and the results calculated from the analyses and other processing operations defined in the sequences to create an individual report template.

This report template can be used as a template for all other tests of the test series. After replacing the test data set, users receive consistent and comparable reports only by pressing a button.

Completed reports can be exported to PowerPoint or in the PDF format.
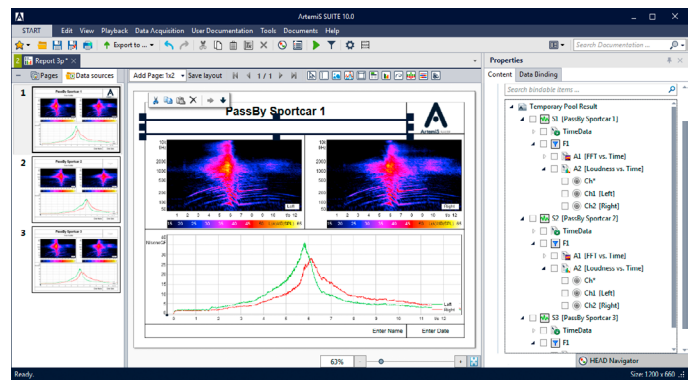
Report

The Standardized Test Project is suitable

› if users run standardized test procedures that have already been created and tested
› if a test procedure is to be repeated very often (many tests with the same test procedure)
› if a test includes many recordings (e.g., for different test conditions)
› if the recordings of a test are to be analyzed differently
› if the final report is very extensive
› if users do not want to invest manual work in a report

The Standardized Test Project provides

› support in specifying extensive test procedures.
› a secure procedure for structured data acquisition.
› a maximum overview for tests with many recordings
› individually configurable sequences for the various test conditions (automatic data routing)
› an automated processing of the recordings.
› an easy report generation for presenting the results
› PPTX and PDF export

Required: APR 000 Framework (Code 50000)

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