

NVH Simulator On-road Simulator Type 8601-N

NVH Simulator On-road Simulator Type 8601-N is a NVH Vehicle Simulator module that provides real-time sound creation in a car as it is being driven. Using Type 8601-N, the driver can hear both the existing sound, which is then modified by NVH Simulator On-road Simulator in real time, and the desired resultant target sound. The controls are the same as in the NVH Vehicle Simulator desktop version but implemented on the road for increased realism and contextual relevance.



Uses

- Evaluate and compare prepared target data sets in a vehicle
- Modify, while in a real vehicle, the order content of sounds heard by the driver
- Generate sounds on exterior of vehicle for electric vehicle (EV) sound design and acoustic vehicle alerting system (AVAS) sound development

Features

- Totally synchronised to the vehicle
- Plays the difference between the measured sound of the vehicle at the driver's ears and the target sound
- Same capability as desktop NVH Simulator to switch between vehicle sound models while driving
- Same capability as desktop NVH Simulator to filter sounds, turn components on/off, modify sounds while vehicle is operating
- Multi-channel output enables multiple sound generation options, including open-back headphones, noise-cancelling headphones, in-vehicle multi-speaker systems, and even speakers outside the vehicle

With Type 8601-N, you can modify the sounds at the driver's ears while driving a real vehicle. Sounds can be generated through a number of methods:

- Open back, acoustically transparent headphones
- Closed-back, noise-cancelling headphones
- Existing vehicle speaker system
- Additional speakers installed in the vehicle interior
- Exterior speakers

Vehicle sound models are created on a desktop NVH Simulator, and these models are then transferred to a laptop running the same NVH Simulator software. The NVH Simulator model running on the laptop in-vehicle is controlled via the CAN bus parameters of the vehicle, such as engine speed, vehicle speed, gear, pedal position, etc.

The On-road Simulator runs the test in an actual vehicle as it is being driven on the road. This provides the most immersive experience possible for the evaluation of NVH Simulator vehicle models.

When wearing open-back, acoustically transparent headphones, the driver can hear the sounds of the vehicle and environment, just as if no headphones were worn, and at the same time receive augmented sounds of the vehicle for a totally natural presentation of the desired vehicle sound in the current driving environment.

Fig. 1 On-road Simulator in use



For the On-road Simulator, both a vehicle driver/evaluator and an NVH Simulator operator are necessary in the car. The NVH Simulator operator has full control over the sounds generated and presented to the driver/evaluator.

Anything that can be performed on the desktop NVH Simulator can be performed in the On-road Simulator. This includes switching between several vehicle models, turning components on and off, modifying vehicle component sounds (filtering, relative level change, etc.), or any other modification possible on the desktop NVH Simulator.

It is also possible to use the On-road Simulator for generating sounds on the exterior of the vehicle during EV sound design or AVAS sound development. The real-world testing provided by the On-road Simulator can help shape the brand image of an electric or hybrid vehicle, as well offer a valid assessment of the effectiveness of an installed AVAS system.

Specifications

NVH Simulator On-road Simulator Type 8601-N is an optional module for the NVH Simulator software. Type 8601-N provides real-time sound creation in a car as it is being driven. The existing sound is modified by NVH Simulator On-road Simulator in real time, and the resultant target sound is heard by the driver. The controls are the same as in the desktop version, but implemented in a drivable car for increased realism.


During engineering, contributions from the various sources to the driver's position can be determined using [source path contribution tools](#).

Ordering Information

Software with an -x suffix are available either as a node-locked or floating licence. Please include licence type when ordering:

- N: node-locked, permanent (example: *8601-N-N*)
- FYG: annual floating lease, global (example: *8601-N-FYG*)
- FYL: annual floating lease, local site (example: *8601-N-FYL*)
- FY1: annual floating lease, Region 1, Americas (example: *8601-N-FY1*)
- FY2: annual floating lease, Region 2, Europe (example: *8601-N-FY2*)
- FY3: annual floating lease, Region 3, Asia (example: *8601-N-FY3*)

Type 8601-N-x NVH Simulator On-road Simulator

 **Please note:** The installation of NVH Simulator On-road Simulator Type 8601-N is always handled as a customer-specified project. Please contact your local Brüel & Kjær representative.

Go to bksv.com/nvhsimulator to find out more about Brüel & Kjær's NVH analysis solutions. For a full list of NVH Simulator modules and options, see the [product data](#).

PREREQUISITES

Type 8601-A-x NVH Simulator Core and Visuals

RECOMMENDED SOFTWARE

Type 8601-B-x NVH Simulator Engineering
Type 8601-P-x NVH Simulator Contribution Analyzer

OPTIONAL HARDWARE AND SOFTWARE

Type 4100 Sound Quality Head and Torso Simulator (see [BP 1436](#))
Type 4101-B Binaural Microphone (see [BP 2562](#))
ZH-0677 RME® Fireface UC Audio Interface
HT-0017 Sennheiser HD650 Headphones
Type 3663-B-080 8-ch. Sonoscout System, with LAN-XI 8-ch. input + 2-ch. CAN input module, battery module, WLAN frame, and Sonoscout licence in one portable case (see [BP 2463](#))
BZ-5950-L Sonoscout NVH Recorder, licence (see [BP 2463](#))

SUPPORT PRODUCTS

Software maintenance and support is included in all annual floating lease licences. For permanent, node-locked licences, the following software maintenance products are required:

M1-8601-N-N Software Maintenance and Support Agreement for NVH Simulator On-Road Simulator

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