

# DARTS 9040-G

## The First True 5 GHz Bandwidth Radar Target Simulator

### Highlights

- Over-the-air simulation of radar targets for 4-D radar sensors
- Echoes from less than 3 m up to 300 m with a step size of only 2.5 cm
- Instantaneous bandwidth of 5,000 MHz



### Application Areas

The dSPACE Automotive Radar Test System (DARTS) 9040-G is an industry-proven radar target simulator for testing radar sensors used in civilian vehicles. Its true 5 GHz bandwidth lets you simulate radar targets for particularly demanding automotive E-band radar sensors. Moreover, it is designed and optimized for all next-generation automotive radars, such as imaging and 4-D radars. Due to its convenient over-the-air approach, the system can be used in all major development phases, from chip design to sensor development and end-of-line testing. It is ideal for testing entire advanced driver assistance systems and autonomous vehicles. The tests can be performed during development, production, quality assurance, and approval.

### End-of-Line (EOL) Testing

The new DARTS 9040-G is available in different variants for EOL testing. The individual variants are tailored to different requirements in EOL test applications. If you have any questions, dSPACE will be happy to provide more detailed information.

### Benefits

The DARTS 9040-G uses technology that considerably simplifies the work process. For example, it is designed to instantly cover the entire 77 GHz radar band – without any synthesizer tuning. It can also stimulate short- and long-range radars without changing the center frequency.

The DARTS 9040-G is optimized for developing complex next-generation radars. It features:

- An exceptionally high spurious-free dynamic range
- An outstandingly low noise figure
- A precise, high-resolution range simulation

Accurate and flexible testing of automotive radar applications has never been easier. The convenient over-the-air method achieves an unmatched test depth and test coverage – supporting all development phases from chip design to vehicle end-of-line testing.

### Advantages

- Particularly realistic tests of ADAS/AD applications
- Validation of the entire radar transmission channel
- Very fast and thorough tests
- Simple test setups
- Short commissioning times
- Seamless integration into existing test environments
- Minimization of time to market

### At a Glance

- Radar target simulator for over-the-air testing of automotive radar sensors
- Designed and optimized for all next-generation automotive radars (e.g., imaging radars, 4-D radars)
- Simulates the reflections of one programmable object
- Simulates distance, speed, and size
- High spurious-free dynamic range
- Low noise figure
- Precise, high-resolution range simulation
- Remote operation via control interface

### Key Specification

- RF front end: 1x Rx, 1x Tx
- Concept: full MIMO
- Frequency range: 76 GHz to 81 GHz
- Instantaneous bandwidth: 5,000 MHz
- Min. range:  $\leq 2.5$  m
- Max. range: 300 m
- Range steps: 2.5 cm
- Simulation echoes: 1<sup>\*)</sup>
- Speed:  $\pm 500$  km/h
- Dynamic range:  $> 60$  dB
- Range accuracy:  $< 1$  cm

### Technology Note

The DARTS 9040-G is based on industry-proven technologies developed by miro•sys and ITS. Any use of the DARTS devices for end-of-line tests or periodical technical inspections requires regular qualification services from dSPACE, which must be ordered separately. Please contact dSPACE for further information.

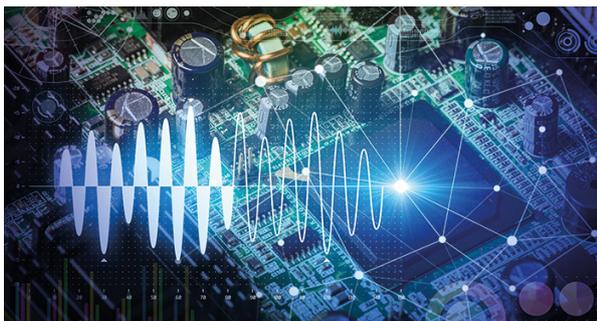
### Use Cases



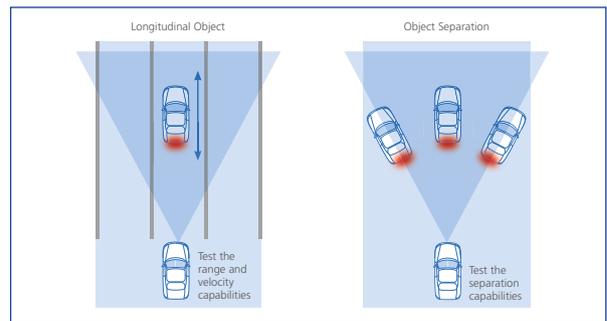
Radar sensor tests under the influence of surrounding components.



End-of-line testing of radar sensors.



Testing radar transceivers.



Performance and plausibility tests with radar sensors.

<sup>\*)</sup> Additional simulation echoes on request.