ZA0020A Radar Target Simulator Solution

Modular radar target simulator with flexible commercial 24 to 24.25 GHz and 76 to 81 GHz band

Introduction to Radar Technology
The evolution of radar technology has brought great innovation to various industries from automotive radar system to aviation, defense, marine, meteorology, smart city surveillance systems, unmanned aerial vehicle (UAV) aerial application for agriculture, oil and gas, mining, and constructions.

All these radar technologies are developed for critical decision-making applications that need stringent performance testing through design and development stage as well as during mass production.

Radar target simulator solution
The Keysight ZA0020A radar target simulator is designed for simulating targets for radar testing. It supports both 24 to 24.25 GHz and 76 to 81 GHz frequency bands with two front-end modules with maximum 4 GHz bandwidth.

The ZA0020A is a scalable and configurable target simulator with the ability to simulate range (delay), Radar Cross Section (RCS) and Doppler effect for relative object speed from 10 meters to 350 meters in 0.2 meters resolution.

Multi target option is also available.
Hardware Components

The ZA0020A consists of the ZA0023A IF baseband, and microwave front end modules, ZA0021A and ZA0022A.

The ZA0023A IF baseband box controls delay, RCS and speed using signal conditioning process.

For the Front-End Module (FEM), you can choose either the 24 to 24.25 GHz (ZA0021A) or 76 to 81 GHz (ZA0022A) depending on your frequency band needs.

A minimum physical distance of 1 m between the ZA0020A radar target simulator and the device-under-test (DUT) is required, effectively reducing valuable manufacturing floor space.

The solution can simulate two targets independently. With a remote head, the FEM could be easily integrated to support different Angle of Arrival (AoA).

Figure 2. Front-end modules can be placed at different angles to simulate real world scenarios
The ZA0020A provides LAN API interface for remote controlling. You can use sequence methodology to build the scenarios to simulate the real motion targets.

Total solution package is available for motion target integration within anechoic chambers.

Figure 3. Motion target integration in an anechoic chamber.
Soft Front Panel Software

The ZA0020A solution comes with a soft front panel which enables you to easily configure the settings you need for your radar system.

![Soft Front Panel of ZA0020A](image)

**Figure 4. Soft Front Panel of ZA0020A**

**Ordering Guide for ZA0020A Custom Radar Target Simulator Solution Set**

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