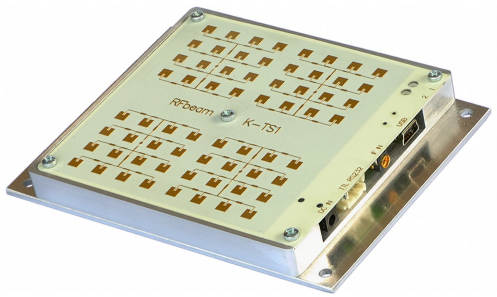
K-TS1 RADAR TESTSYSTEM

Product Information

Features

- Multifunctional K-Band Testsystem
- CW VCO Transmitter 23...25GHz, 20dBm
- Received Signal Frequency Measurement
- Received Signal Power Meter
- Active Doppler Target Simulator
- Auxiliary IF Power Meter
- Standalone Operation or Hosted Operation
- USB and Serial Interface to Hostcomputer
- Extremely Compact and Rugged Construction



Applications

- Radarmodule Testsystems
- Production Final Inspection
- System Tuning and Adjustment
- Automatic Microwave Test Equipment

Description

K-TS1 is a fully integrated radarmodule test-system for K-band transmitters, receivers and transceivers. It consists of a digitally controlled synthesizer and transmitter, a selective re-ceiver with power indicator and a synthetic doppler target simulator.
Its extremely compact construction makes it an ideal component for production and quality control systems. The "all-in-one" approach of K-TS1 simplifies geometrical adjustment of the unit under test because it has to be targeted only once for all tests.
K-TS1 may be connected to a simple terminal software as well as to a high sophisticated measurement and analysis software.
Streaming or singleshot operation modes pro-vide high flexibility.
With only a few keystrokes, you get high per-formance measurement results.

Functional Overview

Antenna and Connector Arrangement

<table>
<tr><td rowspan="3">Target Rx Antenna</td><td rowspan="3">Transmitter Antenna</td><td>LED 1
LED 2</td><td>Operational Indicators</td></tr>
<tr><td></td><td></td></tr>
<tr><td>USB</td><td>Host Software (Terminal, LabVIEW etc)</td></tr>
<tr><td rowspan="3">Target Tx Antenna</td><td rowspan="3">Receiver Antenna</td><td>TTL I/O</td><td>Digital I/O Port</td></tr>
<tr><td>RF In</td><td>RF power measurement for evaluating UUT system sensitivity</td></tr>
<tr><td>DC In</td><td>Power supply 15 ... 24V</td></tr>
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Fig. 1: Antenna and Connector Arrangement

K-TS1 Subsystems

The K-TS1 testsystem consists of 3 RF subsystems and 2 infrastructure subsystems:

1 Target Simulator: This subsystem simulates a moving object generating a stereo doppler signal.
It receives the 24GHz carrier signal of a K-band doppler module and sends back a signal corresponding to an approaching target with a programmable frequency of -9999Hz to 9999Hz, where the sign simulates the direction of the target.

2 Measuring System: This subsystem may be used for measuring RF characteristics of K-band receivers, transmitters and transceivers.
It sends a programmable, highly stable carrier frequency from 23...25GHz to a 4x4 path array antenna. At the same time, the RF generator is used as LO for the receiver.
The receiver part allows measuring incoming RF power at a separate patch antenna. It also delivers signals for a high precision frequency determination of the incoming RF signal.

3 AUX RF Power Meter: This subsystems measures the input power arriving at an RF connector.
It may be used e.g. for measuring the system sensitivity of external receivers, antenna test stands etc.

4 Microcontroller System: This subsystem controls all RF systems and builds the interface to hostsystems. It may be configured to operate K-TS1 as standalone system as well as under full host control.
The TTL I/O is used to communicate with external hardware.
The USB host interface assures a universal communication either with terminal emulation program or with high sophisticated, automated test stands.

5 Power Supply: K-TS1 may be operated from simple 15V..24VDC adaptors.

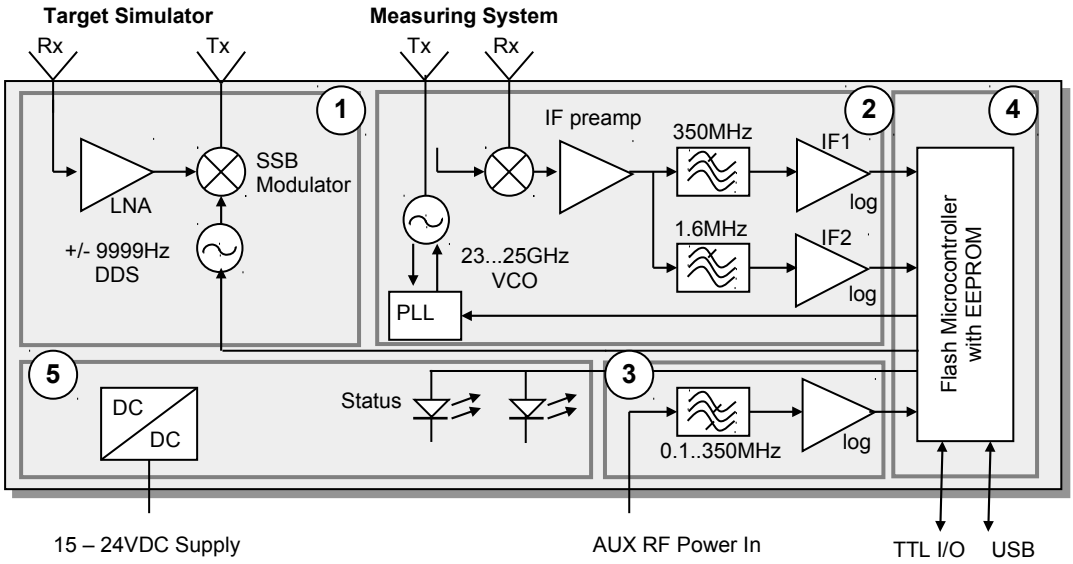

Fig. 2: Block Diagram