24 GHz Radar Sensor Platform Evaluation Kit

The EVK02401/00 is a complete 24 GHz radar, intended as a platform for the development of customer specific sensing solutions. It integrates an analog front-end, MCU and antenna along with signal processing software into an easy to use package, allowing customers to create high performance systems using radar as the sensing technology. It provides both FMCW and Doppler functionality for distance and speed measurement out of the box.

Radar sensing technology has several advantages:
- Functions well in many types of weather and atmospheric conditions
- High resolution distance measurement
- Good range compared to other non-radio technologies
- Can be mounted invisibly (behind radome)
- Can penetrate variety of non-metallic materials

Features
- 24 GHz Radar Front-end (ISM band) with integrated antenna
- ARM M7 MCU board with radar firmware
- Serial over USB connectivity
- Low power consumption
- Option to use external antenna
- Easy to use GUI, including distance and speed
- Raw data logging

Specifications

<table>
<thead>
<tr>
<th>Range</th>
<th>Accuracy</th>
<th>Update rate</th>
<th>Beam width</th>
<th>Speed</th>
<th>Target size</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 m</td>
<td>1 mm</td>
<td>1 Hz</td>
<td>2° (ext. ant.)</td>
<td>~0</td>
<td>1 m²</td>
</tr>
<tr>
<td>25 m</td>
<td>1 cm</td>
<td>10 Hz</td>
<td>20°</td>
<td>~0°</td>
<td>1 m²</td>
</tr>
<tr>
<td>10 m</td>
<td>10 cm</td>
<td>100 Hz</td>
<td>90°</td>
<td>&lt;10km/h</td>
<td>1 m²</td>
</tr>
<tr>
<td>25 m</td>
<td>0.5 m</td>
<td>500 Hz</td>
<td>90°</td>
<td>&lt;25km/h</td>
<td>0.01 m²</td>
</tr>
</tbody>
</table>

Signal processing

Entry-level applications
- Presence and movement detection
- 1D distance measurements
- 1D speed measurements

Antenna pattern @ 24 GHz and default configuration