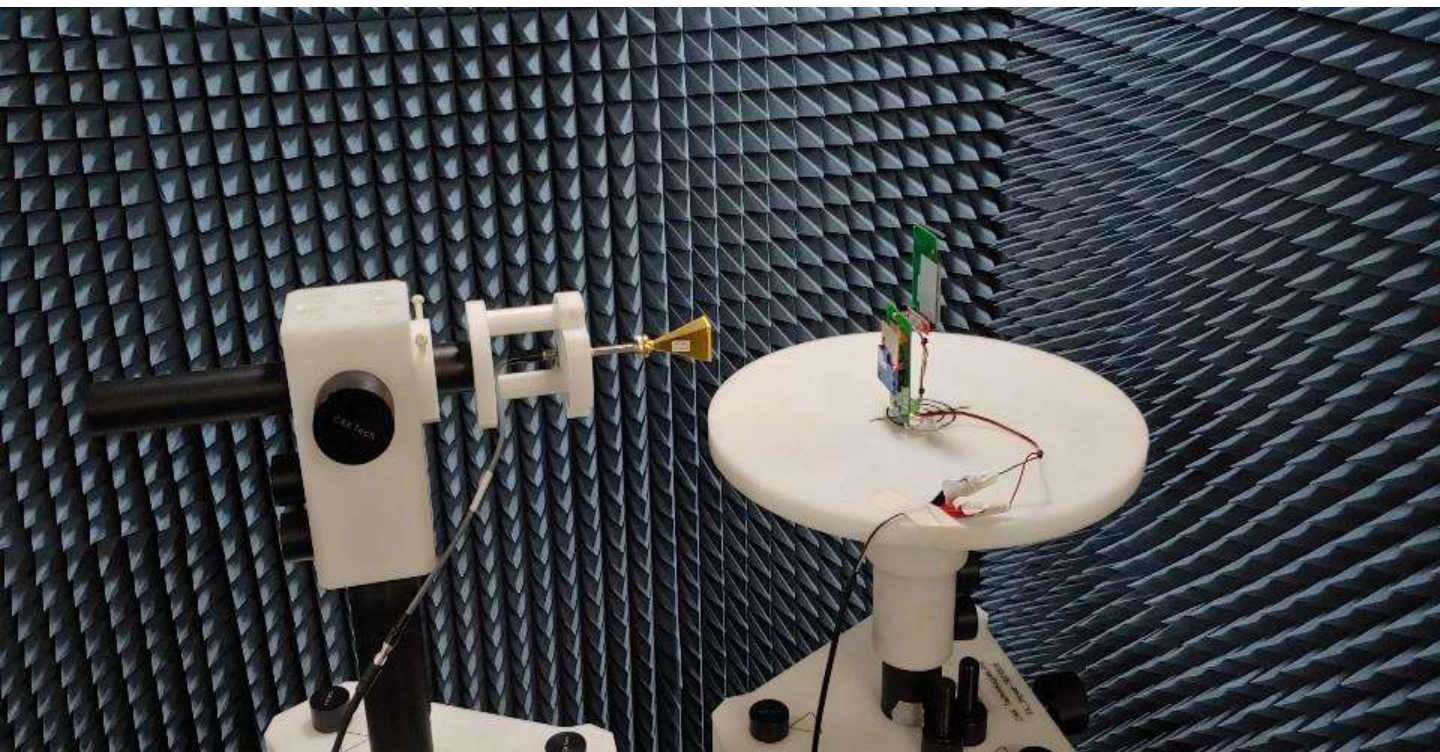


KNJ-MMW60G

60GHz mmWave RADAR Sensor



mmWave RADAR Sensor Module	KNJ-MMW60G-103 KNJ-MMW60G-104
447MHz RFM	KJM-AD0360-MMW
Interface Board	KNJ-MMW60G-IFBRD
PC Simulator	KNJ-MMW60G-SIMUL

mmWave RADAR Sensor

mmWave RADAR Sensor KNJ-MMW60G-103



Description

KNJ-MMW60G-103 is a FMWC radar sensor module with a mid-range antenna of 60GHz band. It can sense and trace objects within 30m distance on a plane in 2D / 3D, and can be used as object detection sensors in medium-size residential or commercial areas

Applicable Areas

Intrusion detections, people counters, automatic door/lighting controllers, bio-signal detectors, robotics, etc.

Specifications

ITEM	SPECIFICATIONS
Frequency	60~64GHz (ISM Band)
mmWave RADAR Chipset	TI IWR6843
Beam Peak	6.8dB @62GHz
Azimuth Beam Width (@-3dB)	82° @62GHz
Elevation Beam Width (@-3dB)	32° @62GHz
Azimuth Angular Resolution	18°
Elevation Angular Resolution	17°
Max Expected Distance(Human)	30m
Input Power	5 VDC / 2A
Size	43 x 51 x 10 mm ³
I/O	2 UARTs, 3 GPIOs, JTAG, PMIC EN, 2 RESETs

mmWave RADAR Sensor

mmWave RADAR Sensor KNJ-MMW60G-104



Description

KNJ-MMW60G-104 is a FMWC radar sensor module with a long-distance of 60GHz band. It can sense and trace objects within 50m of distance on a plane in 2D / 3D, and can be used as object detection sensors in larger residential or commercial areas.

Applicable Areas

positioning devices, intrusion detections, people counters, level measuring systems, traffic monitoring, etc.

...

Specifications

ITEM	SPECIFICATION
Frequency	60~64GHz (ISM Band)
mmWave RADAR Chipset	TI IWR6843
Beam Peak	8.7 dB @62GHz
Azimuth Beam Width (@-3dB)	78° @62GHz
Elevation Beam Width (@-3dB)	26° @62GHz
Azimuth Angular Resolution	18°
Elevation Angular Resolution	17°
Max Expected Distance(Human)	50m
Input Power	5 VDC / 2°
Module Size	43 x 51 x 10 mm ³
I/O	2 UARTs, 3 GPIOs, JTAG, PMIC EN, 2 RESETs

447MHz RF Module

RF Module

KJM-AD0360-MMW



* ODM Product

Description

KJM-AD0360 is a 447MHz RF Module with diversity antenna. It can control the KNJ-MMW60G radar sensor to collect sensor data and transmit it over wireless communication.

Applicable Areas

security system, home automation, wireless logging, short distance communication, etc.

Specifications

ITEM	SPECIFICATION
Frequency	447.2625~447.5625MHz
Antenna	Diversity
Modulation Type	GFSK
Channel Space	12.5kHz
TX Power	10dBm
RX Sensitivity	-120dBm
Data rate	1200bps (Manchester)
Interface (Radar Sensor)	115200 8N1 UART (CFG Port)
	921600 8N1 UART (DATA Port)
Maximum Current	60mA
Operating Voltage	3.0~3.6V

SIMULATION TOOLS

mmWave RADAR Sensor I/F Board KNJ-MMW60G-IFBRD



Description

KNJ-MMW60G-IFBRD is an interface board add-on which allows the K&J radar sensor module communicating through USB (or UART) port and/or 447MHz RF. Users can tweak and control the radar sensor module, and send the sensing results to PC through KNJ-MMW60G-SIMUL program

Specifications

- 1 Micro USB connector ⁽¹⁾
- 2 UART connector ⁽¹⁾
- 1 JTAG
- 5.0V power jack
- 4 GPIO connector
- 1 RESET button

⁽¹⁾ can not be used simultaneously

mmWave RADAR Sensor Simulation Program KNJ-MMW60G-SIMUL



Description

KNJ-MMW60G-SIMUL is a software utility which allows the testing of K&J radar sensor modules on PCs.

Features

- K&J radar sensor setup / control
- Point Cloud indicator
- Object Tracking indicator
- Traffic / Event Counter indicator
- Area Scanner result indicator

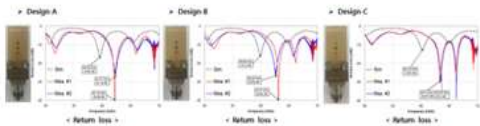
Security and disaster radar system

I Project outline and objective


- Development of 60GHz PCB Antenna optimized in sensor detection.
- Development of mmWave RADAR Sensor applicable in disaster monitoring for constructions.
- Development of a sensor detecting intruders or casualties from a disaster
- Development of sensor networks for remote monitoring of intruders or casualties

I Research and Development Overview

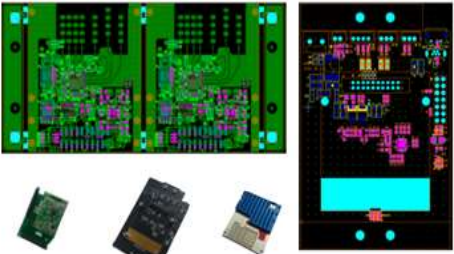
- Microstrip Patch Antenna
- Antenna Feeding Structure
- Array Antenna
- PC Board for mmWave



- people counting / tracking algorithm
- server communication simulation
- radar sensor simulation



- H/W & F/W for mm Wave sensor modules
- 447MHz RFM for security / disaster monitoring
- I/F board for mmWave sensors and RFM



❖An application using KNJ-MMW60G-103 as a People Counter of detection range within 10m, and an area scanner of KNJ-MMW60G-104 for long distance detection with detection range of 40m.

I System Layout

