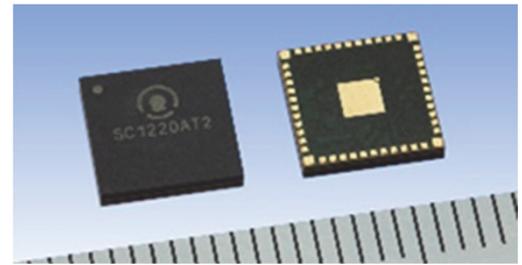


# 60GHz Radio-wave ranging sensor 3D Detection model SC1220AT2



SC1220AT2 is a low power CMOS 60GHz radar sensor device and available for 3D motion sensing.



SC1220AT2

## ■ Features

### ● 3Suited for 3D motion sensing

- 2 Tx and 2 x 2 Rx antennas detect azimuth / elevation angle, velocity and distance
- Wide bandwidth (6.8GHz max.) and high-accuracy linear chirp FMCW radar
- Sensing area example: up to 0.5m\*<sup>1</sup> with < 1cm\*<sup>2</sup> resolution (in case of palm gesture)

### ● Highly integrated device enabling easy hardware design

- Integrating antennas, radio, ADC, FIFO and SPI interface
- Enable to use reasonable PCB, less BOM and easy assembly
- Small package (7.0mm x 7.0mm, LGA package)

### ● Low power consumption

- 4-Level operation states (Shutdown, Deep Sleep, Light Sleep, Sensing)
- Intelligent power control sequencer managing flexible duty cycle operation
- 2.5mW average power consumption at palm gesture sensing\*<sup>3</sup>

\*1: Depending on sensor configuration and environmental conditions

\*2: To be changed according to further study

\*3: In case of conditions that Socionext assumed

## ■ Applications



Detection of people at the front door  
(use in a doorbell)



Detection of people to switch the liquid crystal  
display of smart home appliances on and off

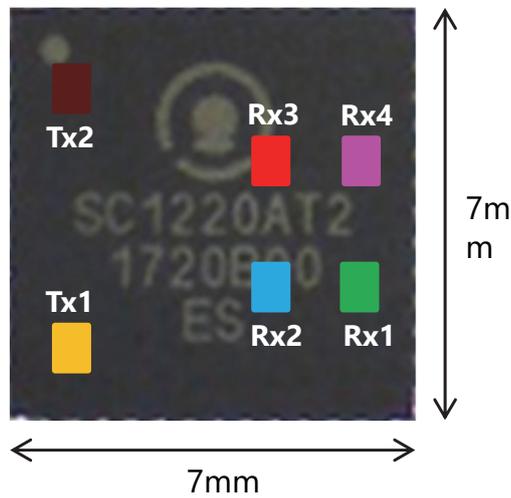


Gesture operations

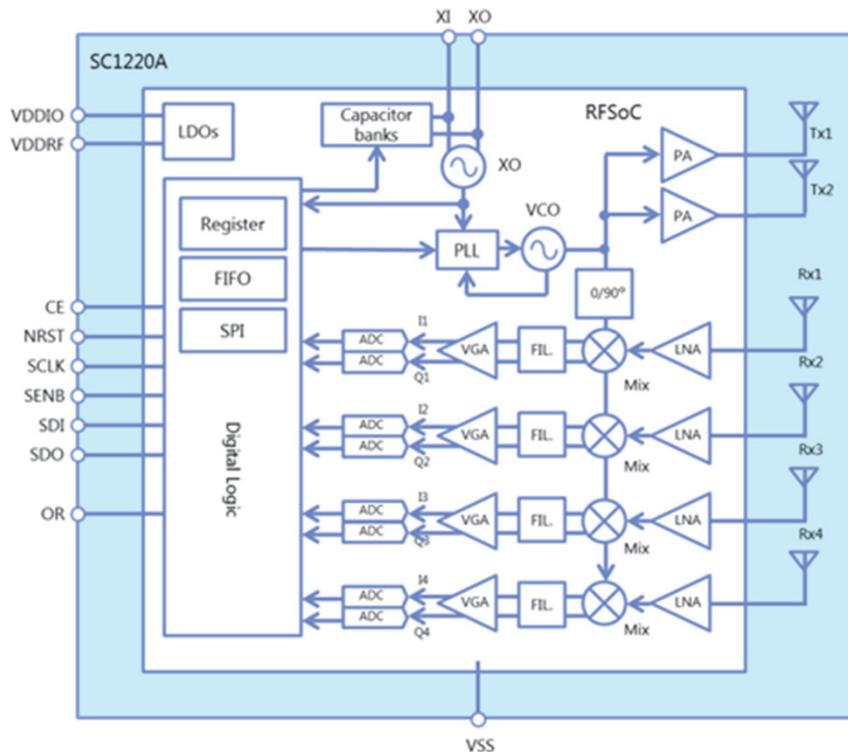


Detection of people in rooms such as the  
living room(use in a smart thermostat)

## ■ Antenna Configuration



## ■ Block Diagram



## ■ Specifications

<b>Radar mode</b>	FMCW/FSKCW/CW
<b>Power Supply</b>	1.5V - 1.8V (core) / 1.8 - 3.3V (I/O)
<b>Power Consumption</b>	308mW (Peak power consumption) 2.5mW (0.5% duty cycle operation using Deep sleep)
<b>Transmitter</b>	Frequency: 57.1 - 63.9GHz (6.8GHz bandwidth) EIRP: -7dBm
<b>Receiver</b>	Noise Figure: 12dB
<b>Digital block</b>	ADC (11bit 10MHz), FIFO (32KB), SPI/I/F (≤50MHz)
<b>Temperature</b>	-40 to 85°C

## ■ Deliverables of the Evaluation kit

- SC1220AT2 evaluation kit hardware with USB cable
- Sensor driver/ library and 3D location sensing evaluation software (GUI)
- Related documents
  - Evaluation software (GUI) operation manual
  - API specification of control API
  - Application note (MATLAB and Sample C source for API)

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### Socionext Inc.

Nomura Shin-Yokohama Bldg.,  
2-10-23 Shin-Yokohama,  
Kohoku-ku, Yokohama, Kanagawa, 222-0033, Japan  
Tel. +81-45-568-1015  
<https://socionext.com>