

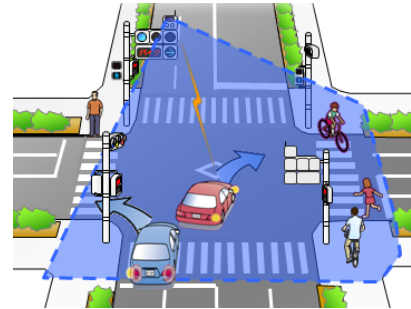
# Abstract

**TITLE:** Advanced Research on 79GHz-band Radar Systems

**Speaker:** Panasonic Corporation

## Objective

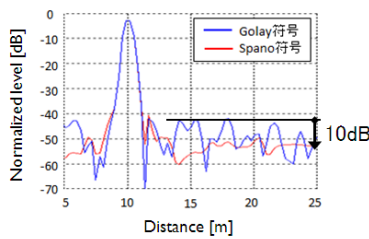
To separately detect pedestrians by using new 79GHz-band high-resolution radar technologies – it helps reduce driver's burden and traffic accidents at intersections



Target application

## R&D issues and results

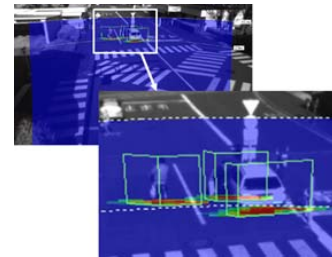
- **High resolution and wide scanning radar technique**
  - Pulse radar method for pedestrian detection and adaptive array antenna with wide-view



Novel coded pulse modulation

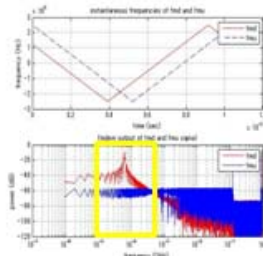


Picture of equipment

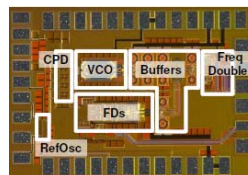


Wide-view pedestrian detection

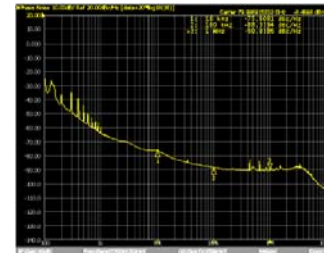
- **Interference avoidance technique between radar systems**
  - Quantification of interference phenomena and development of wide-band PLL synthesizer



Result on interference suppression

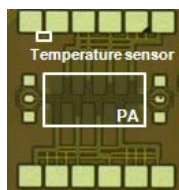


PLL synthesizer

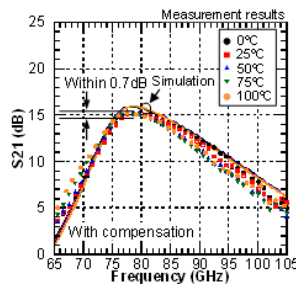


Phase noise characteristic

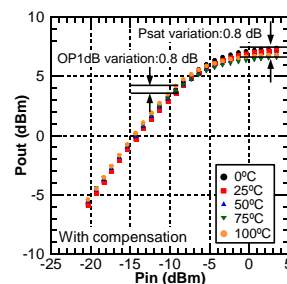
- **Temperature compensation technique on CMOS integrated circuit**
  - 79GHz-band CMOS device modeling up to 100°C and development of power amplifier chip



Picture of CMOS chip



Small-signal gain



Input-output characteristics