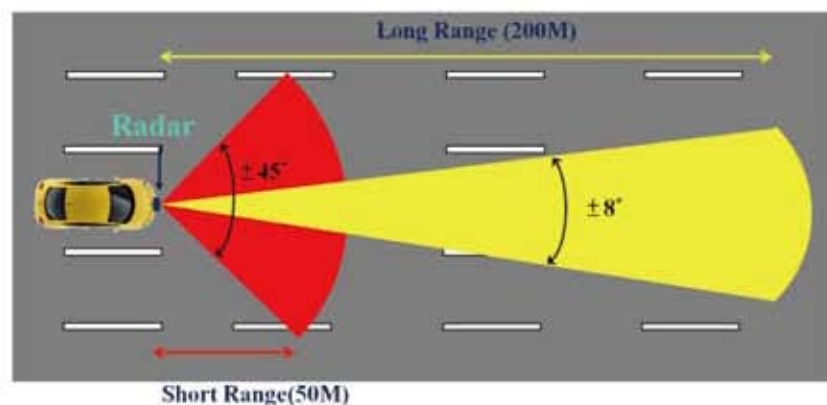


## II. Dual-Mode Millimeter-Wave CMOS Vehicle Radar System

- **Project Duration:** Three Years, from Dec 2011 to Nov 2014
- **Sponsor:** Ministry of Economic Affairs
- **Principal Investigator:** Shyh-Jong Chung, Professor, National Chiao Tung University
- **Project Strategy and Planning Direction:**

The proposed dual-mode millimeter-wave CMOS vehicle radar system is the next generation of vehicle collision avoidance system. The radar system possesses six key technologies, which are miniaturized dual-mode radar system topology, high resolution multi-mode antenna, highly integrated multi-channel CMOS chip, high frequency system packaging, FMCW digital signal processing and algorithm, target tracking and noise elimination technique. The dual-mode radar integrates the short range and long range antennas in a single radar system. The field of view is  $\pm 45^\circ$  and  $\pm 8^\circ$  degree in short range and long range mode, respectively. The technical team includes National Chiao-Tung University and National Taiwan University, which possess not only technologies but also experiences in vehicle radar system in Taiwan. The dual-mode millimeter-wave CMOS vehicle radar system is a promising technology for next generation vehicle collision avoidance system which will enhance competitiveness in active vehicle safety system market for Taiwan.



Field of view and key technologies of the dual-mode millimeter-wave vehicle radar system