

Model number: 271001-5029 (Millimeter-wave radar)

Outline

This radar is one of the important factors for safe driving assistance systems.

It detects imminent danger like a stationary object, oncoming car to this vehicle and sends data to passenger protection system.

The purpose of the operation

For testing and evaluation for compliance with customer technical requirement

Radar transmitter specification

Output Power: 0.006 W (max)

Center Frequency: 76.5 GHz

Modulation

Switched FM-CW and uses triangular frequency chirp at 570.72 Hz.

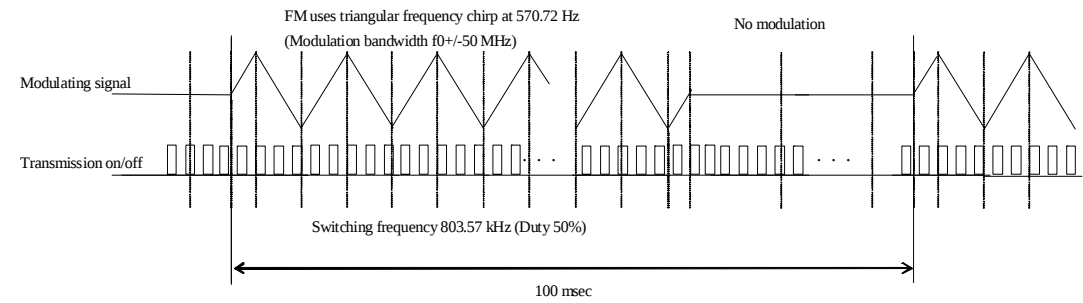
To provide range information;

a) Switching frequency: 803.57 kHz or 7.5 MHz.(Duty 50%)

b) Modulation bandwidth: $f_0 \pm 50$ MHz

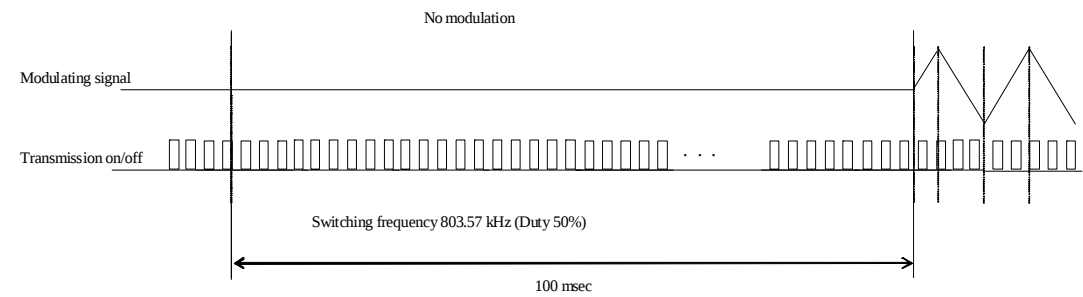
Transmitter mode

1. Mode A: Measurement of distance and relative velocity



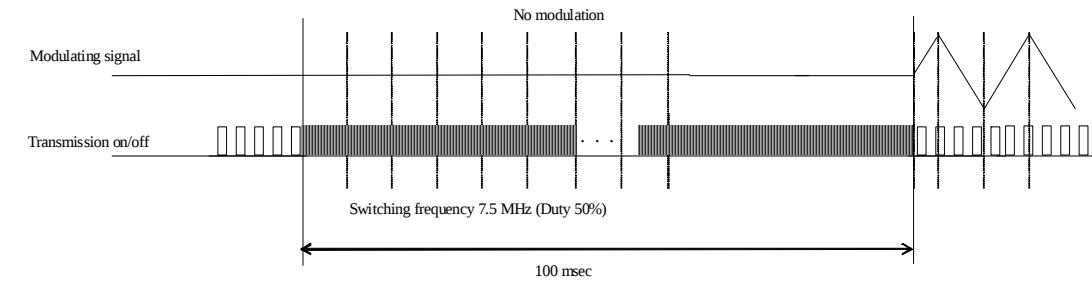
Modulation frequency is changed over from 570.72 Hz → 551.04 Hz → 570.72 Hz → 551.04 Hz → every 100ms.
Switching frequency is changed over from 803.57 kHz → 775.86 kHz → 803.57 kHz → 775.86 kHz → every 100ms

2. Mode B: Diagnosis process 1

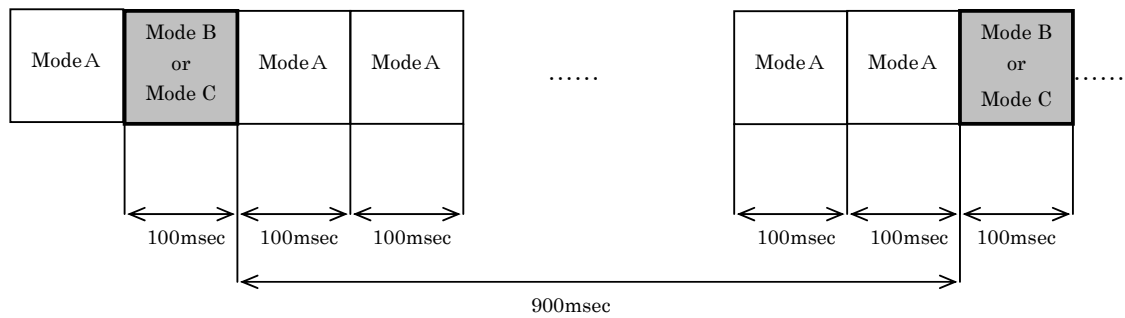


Switching frequency is changed over from 803.57 kHz → 775.86 kHz → 803.57 kHz → 775.86 kHz → every 100ms.

3. Mode C: Diagnosis process 2



Mode change over timing



Vehicle speed < 18.75 mph : Mode B
Vehicle speed >= 18.75 mph : Mode C