**Tutorial Micro-Doppler 1**

**An autonomous car uses a radar for assisted navigation. The radar carrier frequency is 24 GHz and it is installed in the car bumper pointing ahead of the car.**

**The car is going towards a wall at the speed of 30 km/h, what is the Doppler shift that the radar on board will measure?**

**At a traffic light (red) the autonomous car is behind a big tractor that due to the engine is vibrating at 50 Hz with an overall displacement of 2 mm in the direction of the autonomous car. Sketch the micro-Doppler of the tractor.**

**What will happen to the micro-Doppler when the traffic light will become green and the tractor is 10 km/h faster than the autonomous vehicle.**