

Test results of a novel vehicle radar

Well performing environment perception is a crucial capability for autonomous mobile workmachines and vehicles, and highly beneficial for remotely operated machines. The so called 4D radars are new, interesting and emerging sensing technologies. These sensors are based on the radar principle, but can provide few orders of magnitude larger amount of detected points with higher resolution, than the radars of the previous technology generation.

In order to get practical insight, what these novel sensors enable and what challenges are still left, one 4D radar product was acquired for tests. The selection was based on high performance and good availability.



Figure 1 Radar point cloud data marked as blue dots measured at the height of 1 meter pointing 0° downwards, and targets in different coloured dots, whose meaning is explained in the Legend.

The tests included situations that used to be challenging for automotive radars, like indoor and container yard environment. Forest environment was explored as a potential new application area. The wall of a building -test turned out to reveal peculiarities of radar sensing. The stationary open field tests were visualising the accuracy and sensitivity of the radar, as seen in the figure above.

A complementary effort outside the agreed test set was to apply also a legacy radar in two of the test cases: Open field tests, and container yard tests. The idea was to provide reference material as perspective from the past to the results of the novel 4D radar.