

Lane Departure Warning (LDW) and Lane Keep Assist (LKA) testing



When testing LDW and LKA systems, it is necessary to accurately survey the lane lines. This lane data can be used to build up a precise map of the lanes to compare the vehicle position to. It is also necessary to know the precise location, speed, heading, acceleration and yaw rate of the Vehicle Under Test (VUT) throughout the test.

Testing systems such as LDW and LKA can be performed with the test vehicle on any track with the lane markings and the recommended systems on the right. However, precisely controlling the yaw rate and lateral velocity may require the use of steering or other driving robots.

The RT Range solution can be used with a number of driving robots.

We recommend using the following systems:



Vehicle Under Test

- / RT3000 with RT
- / Range-S Hunter V2L option
- / RT Strut



Additional Equipment

- / Survey Trolley with RT3000
- / RT-Base-S
- / RT-Range Suite software

Required measurement	Euro NCAP required accuracy	RT3000 v3 accuracy
Position	0.3 m	0.01 m*
VUT Velocity	0.1 km/h	0.05 km/h
Yaw Rate	0.1 °/s	0.075 °/s
Longitudinal Acceleration	0.1 m/s ²	0.015 m/s ²
Heading Accuracy	0.1 °	0.1 °

* with RTK base station

The set up process

1. Begin setup

- / Set up base station and switch on to commence position averaging

2. Install RT3000 on survey trolley

- / Use NAVconfig to load survey configuration from C:\Program Files (x86)\RT-Range\Survey Trolley
- / Initialise the system by pushing the trolley forward over 1m/s and then perform some turns and brake/accelerations to warm up the IMU

3. Open Lane Survey program within RT Range

- / Position right front wheel of trolley on the edge of the lane to be surveyed and select "Add Point Here"
- / Further points can be added manually or automatically by configuring "Adjust Auto Add" and turning on
- / Push the survey trolley along the lane until the full length has been surveyed
- / Save the lane file and repeat for all required lanes

4. Open Map creation Program within RT Range

- / Select "Add New Line" and select a previously saved line file
- / Add further lines as required
- / Select the desired starting point of the line, right click and set start lines
- / Save and Quit

5. Install RT3000 on RT Strut in Vehicle Under Test

- / Power the system on and use NAVconfig to configure
- / Initialise and then warm up RT3000 using NAVAssist template in NAVDisplay
- / Apply improved settings after warmup
- / Apply improved configurations when complete

6. Start logging and testing

- / Configure Lane Measurements page by measuring the distance to the centre of the car (point A) and the outside edge of the left front tyre (points B) and right front tyre (point C)
- / Load configuration to RT3000

7. Start logging

- / Configure RT Range display page with the required measurements
- / Select "Start logging" and commence your testing

