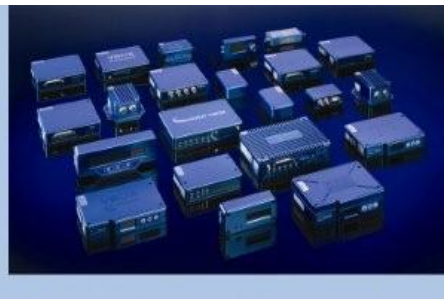


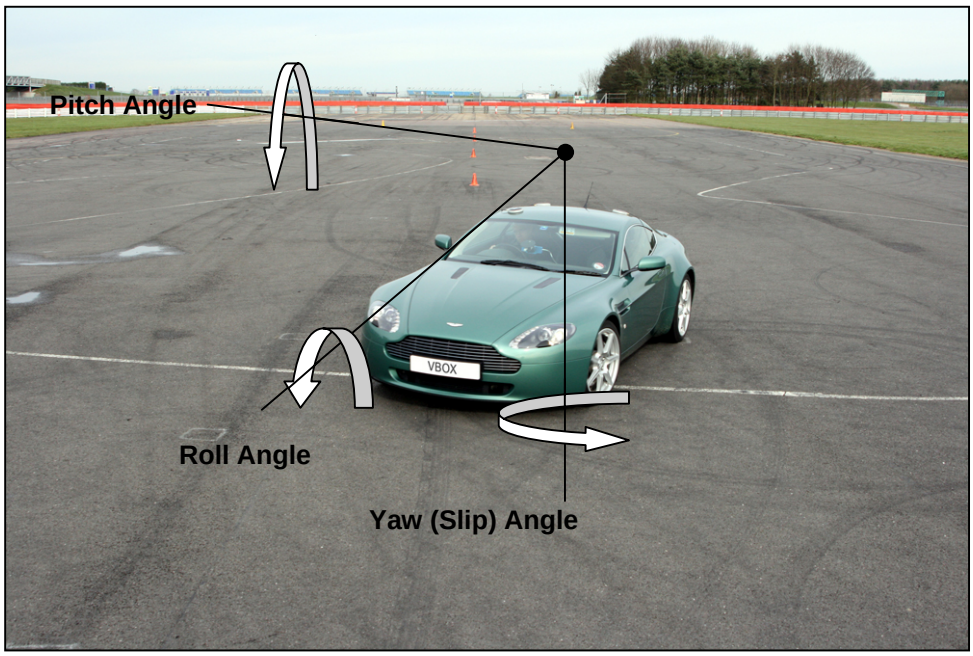
Using the VB20SL3 for Pitch, Roll and Yaw Angle measurement

Accurate measurement of Pitch, Roll and Yaw (or slip) Angles is very important in vehicle dynamics testing. Traditionally this has been done by using inertial platforms, which are expensive and difficult to set up and suffer from drift caused by the necessity of integrating the rate sensors to compute angles. Road camber can also cause problems for these kinds of setups, which take time to fit to the vehicle, and require calibration.

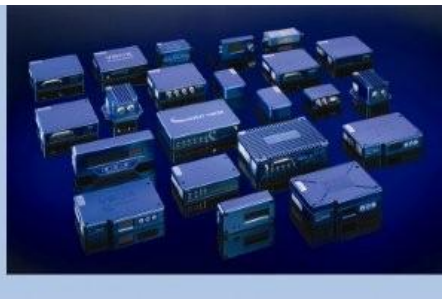
Up till now, the only method of actually measuring these angles directly, is to use Laser ride height sensors, which are tricky to fit and set up.

Racelogic's new VB20SL3 measures the Pitch, Roll and Yaw angles directly using three antennas placed on the roof of the vehicle. The Pitch and Roll measurements are made by comparing the relative heights of each pair of antennas (measured to within millimetres), and the Slip angle is measured by comparing the heading of the vehicle with the heading of the front/back pair of antennas.

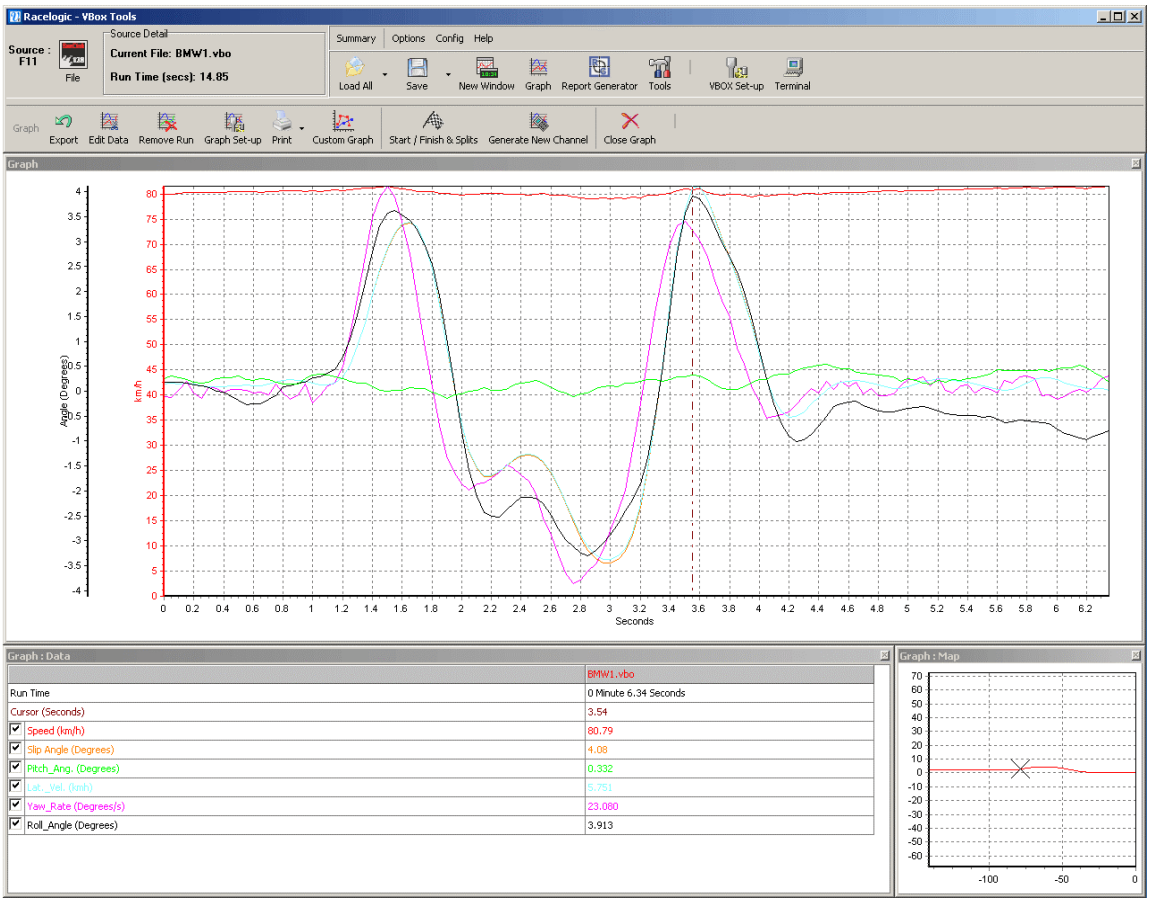
The VB20SL3 does this with ease, without the difficult and time-consuming mounting requirements of inertial-based or laser-based systems. The VB20SL3 is also able to measure standard GPS parameters such as time, latitude, longitude, speed, heading, height and vertical velocity.



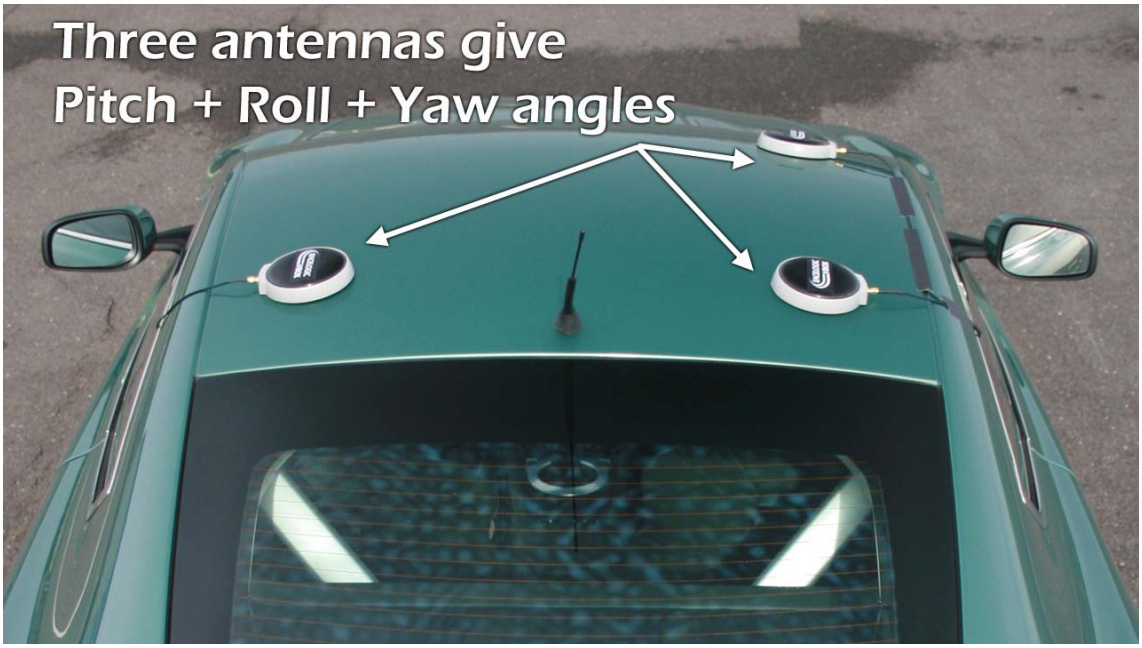
Using the VB20SL3 for Pitch, Roll and Yaw Angle measurement



The following data was recorded by a VB20SL3 mounted on a vehicle performing a lane change manoeuvre.



	BMW1.vbo
Run Time	0 Minute 6.34 Seconds
Cursor (Seconds)	3.54
Speed (km/h)	80.79
Slip Angle (Degrees)	4.08
Pitch_Ang. (Degrees)	0.332
Lat._Vel. (km/h)	5.751
Yaw_Rate (Degrees/s)	23.080
Roll_Angle (Degrees)	3.913



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