

The VERICOM VC4000 system opens up the arena of collision testing and gives us access to applications, previously only available through scientific procedures.

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Rod Shephard is the principal investigator with Accident Investigation Training Services (AiTS) and is a former police officer with the Devon and Cornwall Accident and Collisions Investigations Unit. When Rod retired from the force he was offered the job at AiTS because of his wealth of experience and expertise in crash scene investigation. Rod is currently studying for his PhD in the field of motorcycle dynamics. Rod is an expert in the use and interpretation of accelerometer data and uses this knowledge and understanding to teach police officers throughout the country how to use the VERICOM VC4000 and more importantly how to effectively interpret the data it supplies. Rod recently outlined his thoughts about the VERICOM VC4000 and how it had transformed the field of collision investigation.

The VERICOM VC4000 is the latest range of GPS-enabled instruments to be adopted by the Police to aid its collision investigations. These instruments are used for measuring and recording deceleration, co-efficient-of-friction and Skid-to-Stop testing. A total of 18 of the Police Forces in England, Wales and Ireland now use these instruments and more will no doubt follow. VERICOM instruments offer several advantages over more traditional skid testers and decelerometers that have previously been used by Police Collision Investigators (PCIs). Because VERICOM instruments have Dual and Tri-axis accelerometers built-in, they are able to measure not just the vehicle Skid-to Stop and Road Friction co-efficient, but also vehicle accelerations to set speeds, between set speeds and also over-time and over-distances which are set by the user. The feature-rich VERICOM incorporates many additional functions like forward and lateral acceleration measurement, instant viewing of the test results and a large data memory.

How has the VERICOM VC4000 changed accident investigation?

"The VERICOM VC4000 system is an accelerometer which can do many things. It can work out how quickly a car brakes: in other words it will allow you to work out what's called a co-efficient of friction on the road surface. Essentially what it does is work out a gravity force-type value, and from that you work out how much braking and friction there is on the road. With this information you can then calculate how quickly a car should be able to stop."

"It will do acceleration tests. It's a similar sort of function that ultimately works out a G value. It's all about force. What you're trying to do is work out how quickly a car can accelerate. So imagine you've got a car in a side road, waiting to pull out into a major road: we can work out the feasibility of how quickly that car could pull out of the junction on to the major road. From that we can therefore determine whether the car travelling on the main road would have hit it or not. What it means essentially is that in any incident of this type the accelerometer enables you to work out the speeds of the vehicles involved and determine whether the manoeuvres undertaken were safe or not."

So has this 'new' technology made your job easier?

"It's not new technology: the VERICOM system is a new piece of 'equipment', but using existing technology. What makes it different is that it presents the information in a way that's more useful and usable to people like me and other non-scientists. It was developed by VERICOM computers in the States for collision investigation using technology that been around for centuries – ie gravity. There already was another piece of equipment, developed in Yorkshire, called Skidman which did the same sort of thing: the problem was it wasn't easy to use, and interpreting data was complex. VERICOM has developed this piece of equipment which gave you all the information you'd ever need, but made it user-friendly. What's more they've managed to put in accelerometers in all 3 axes: the X axis, longitudinal to the vehicle, the Y axis, sideways to the vehicle and the Z axis, vertical to the vehicle. So what we've now got is a three-dimensional accelerometer."

"What this means is that we can use it in lots of different ways and scenarios. It's no longer just for use on a car, but can be used on motorcycles, lorries, coaches and all different types of transport. Here's an example for you: Grannie is sat on the front seat of a bus travelling from home to the shops. The driver brakes suddenly and Grannie slides off the seat and is injured. When we investigate the incident, we'd need to know whether the braking force applied was excessive. By putting the accelerometer onto the bus, we can work out where she was before the driver applied the brake, and determine whether the driver's use of the brake was reasonable in the circumstances or too heavy footed. The VERICOM VC4000 system opens up the arena of collision testing and gives us access to a multitude of applications that were only previously available through scientific procedures."

What do police officers learn about the VERICOM VC4000?

"This piece of kit is very good, in that it allows police officers with a minimum of training to capture data which would at one time have been almost impossible to capture without a mass of equipment and technical knowledge of some specialised procedures. All the information they need is there on screen. However, it's the interpretation of this data that takes a little more knowledge and experience. Police officers need to be able to understand what the information is telling them. It's easy for scientists because they can come along with all their equipment and analyse the data without a problem; but for anyone who isn't a specialist, it's more complicated and involved. What the VERICOM does is capture a huge amount of data more simplistically and easily and give out basic readings. The interpretation of the data is where AITS and other training organisations come into the equation. We teach the police officers what this data is, what it means and how to interpret it."