Field Operations in the fast lane

In March, Melbourne's Albert Park Lake precinct was once again transformed into a thriving hub of activity for the Australian Formula 1 Grand Prix. This year marked the 14th year in a row Field Operations officers from the ACMA have worked at the Grand Prix to manage the many and varied interference issues that arise during the event. Here, the team reflects on their time at the track in 2010.

The ACMA has been supporting the Grand Prix for 14 years and much work goes into ensuring a successful event each year. Planning begins many months in advance when applications start to arrive for more than 850 extra frequency allocations from organisers, media and logistics support. When the race week begins, field officers from the ACMA gather at the track and work alongside staff from the ACMA's Interference Management and Monitoring Section and a group of frequency assigners from Canberra to ensure everything runs smoothly throughout the week.

The official Formula 1 Communications body employs more than 150 technical staff during the Grand Prix to set up 46 kilometres of optic fibre cable, over 130 fixed and mobile TV cameras, 25 shipping containers of computer racks, timing equipment and TV monitors combined with multiple radio and telemetry links. Incredibly, at the same time, a complete second set of equipment is being unloaded in Kuala Lumpur and set up for the Malaysian Grand Prix, which begins 10 days after the Melbourne event.

In addition to Formula 1 Communications, each Formula 1 team has their own impressive array of complex technical equipment. Each racing car is fitted with more than 150 separate sensors, which transmit engine and performance data back to the team control. Reminiscent of NASA at Cape Canaveral, a team of engineers sits behind an array of computer monitors, constantly observing tyre pressure, engine revs and fuel loading.

The ACMA team set up their on-site office on the Monday morning, nearly a week before the main race the following weekend. This allows ample time for systems to be fully checked and most interference issues to be identified and dealt with. A variety of sophisticated fixed and portable monitoring equipment is used during the event. Several field vehicles are also deployed including a van with a 10-metre hydraulic mast fitted with directional antennas. A golf buggy allows staff to respond rapidly within the confines of the venue.

Problems usually begin early on the Thursday morning when a range of unauthorised equipment, generally imported by overseas media, is switched on for testing. The ACMA on-site coordination office tries to get a fix on the source of the issues and simultaneously despatches teams around the course for closer inspection. Another problem faced by field officers is the lack of good engineering and installation practices employed by various groups at the event.

Thanks to this ongoing support from the ACMA, the Australian Grand Prix leads all other Grand Prix events around the world for effective frequency coordination and on-site interference management.

Field officers tracking down interference above the track.

Antennas are simply clamped on to any structure available without consideration for vertical or horizontal separation.

By late Saturday, any outstanding interference issues had been resolved and everything was in place for the main Formula 1 Grand Prix race the following day.

This year, two hours before the race, the head of Technical Services for Team Ferrari advised the Field Operations team that their vital vehicle telemetry system was being wiped out by interference. The ACMA team moved into action and identified a bearing on the source from the on-site field office.

A team was also sent to Ferrari where the interference was tracked down to an unauthorised broadband bidirectional amplifier installed by an international media crew that morning. Rather than simply instructing the equipment to be shutdown, the team worked with the owners to quickly resolve the problem, replacing the equipment with another unit on set frequencies.

The race was conducted without any further reports of radio interference. Thanks to this ongoing support from the ACMA, the Australian Grand Prix leads all other Grand Prix events around the world for effective frequency coordination and on-site interference management.

Tracking down that interference.

Ferrari's head of Technical Services drops by to show his appreciation.