



Case Study:

## Intercepting Communications



**There are many VHF/UHF/microwave communication systems in use around the world, many of which are highly directional point to point systems. But for security purposes there is commonly also a need for the interception of these.**

Weak 'sidelobes' from such directional point to point systems often makes remote interception difficult if not impossible, and placing active personnel in close proximity to these for close-in interception also has risks. **But the French firm of Antennares, who are part of the UK based SMC group of companies, have designed an innovative system to overcome these limitations.**

To receive the weak signals requires a high gain interception antenna system, typically an equally directional antenna. Also, due to the very wide frequency range in use around the world, a wide band system is also needed. The most efficient way of overcoming this is with a multiple band directional system employing several high-gain antennas.

Also, as interception is often required over a period of time, a remote system has enormous benefits, specifically one that can be remotely controlled and with remote access to intercepted signals, but one that can be deployed rapidly and left in place without the need for continuous local control.

The **Antennares Steerable Broadband Dish Antenna System** is housed in a rapid deployment 'flight case' arrangement, and tactical deployment of the entire system can be carried out by a three-person team in just 15 minutes. Following this the personnel can rapidly leave, thus securing safety whilst still being equally safe in the knowledge the system has been successfully deployed and is ready to intercept communications from any line-of-sight range from the installed location.



The system covers 2-40GHz on both vertical and horizontal polarities with four separate antennas, and can be remote controlled from anywhere in the world. It has a built-in electronic compass for steering and a built-in GPS for location information, so it is a simple but very effective 'deploy and run' system, literally 'thinking for itself'. The remote user only needs to enter the latitude/longitude GPS coordinates of the target communications transmitter and the system will automatically steer itself to this, it is even capable of setting the directional elevation or declination to account for topography. Alternatively manual directional remote control is available, for signal searching across an extremely wide frequency range at the remote location.

The interception antenna system offers a full 360 degree rotation in azimuth and +/-15 degrees in elevation; continuous rotation is also optionally available with resultant static control and RF feed interfaces. In addition a high torque of 140Nm allows further antennas to be added if required, such as VHF/UHF log periodic yagis. The antenna system is mounted on a heavy duty tripod with a telescopic centre section and extendable legs, all of which can be collapsed for storage and rapid transportation. For local control a joystick and keypad as well as a PC link are fitted on the rack-mountable controller, which is also fully remoteable via Ethernet. SMC can also design custom solutions to customer specific requirements, which they have been successfully doing for over 50 years. Systems for installation in fixed locations are also available, including radome enclosed units. SMC also manufacture a wide range of fixed and tactical HF antenna systems together with the Hilomast range of pneumatic masts, extendable up to 30m (100ft), high accuracy positioners, and provide radio communications solutions to commercial and government security organisations throughout the world. SMC have design and manufacturing facilities in the UK, France, and the USA.