Border Surveillance Systems
Blighter scanning radar and sensor solutions

Global Government
**Blighter Border Surveillance Radar**

A state-of-the-art remote sensor that will detect intruders in all weather conditions

Combining Inmarsat’s BGAN service with Blighter’s surveillance radar delivers a powerful and versatile building block for an integrated border management system.

Border security is a high priority for every government. Successful border control and protection deters and controls illegal immigration, smuggling and trafficking in drugs and arms. Borders that are not effectively secured make a country more vulnerable to terrorism and organised crime. However, many countries have land borders that extend thousands of miles, through remote and inhospitable terrain.

Inmarsat has identified the Blighter family of surveillance radars as the key component of a solution that will enable border agencies to deliver very significant improvements to the security of their borders at an affordable cost. Blighter radars are designed for remote operation and monitoring, which requires reliable high performance communications. The combination of BGAN with Blighter generates a highly capable, versatile and mobile capability which fully meets the requirement and offers excellent value for money.

The BGAN global satellite communications network is delivered using for the first time, the I-4 constellation of satellites and a comprehensive terrestrial network. BGAN delivers standard and streaming IP and ISDN through a range of small, rugged and easy-to-operate terminals. BGAN provides coverage everywhere in the world except for the extreme poles and is ideally suited to integrated border management applications.

**The Challenge**

New threats and risks to national security arise all the time. One important government response is to increase the effectiveness of border security. Advances in sensor technology and computer processing power can significantly enhance border security. Intruders can be detected using visual and thermal imaging and radar, from static, mobile or airborne platforms. Information from a range of different sources can be combined and intelligent algorithms can identify high risk targets and activities against a background of clutter and routine traffic. However, to make this possible, it is necessary to connect sensors, decision makers and actors with real-time, resilient broadband data and voice communications.

Border management and security presents particular problems for communicators. Borders are long, in terms of the range of most high capacity communications systems. Frontiers run through remote and hostile terrain, as well as more densely populated urban areas. To provide coverage using conventional terrestrial communications systems is, for many countries, prohibitively expensive. In addition, hard-wired systems are vulnerable to disruption and sabotage.

**The Solution**

Inmarsat’s BGAN broadband mobile satellite communications network provides the solution to this challenge. BGAN can be used as the primary means of communications for manned or remote sensors, for unmanned aerial vehicles, and for temporary and ad-hoc border crossing points or control headquarters, as well as mobile patrols (whether in vehicles or on foot). It is also a highly effective back-up system that can be guaranteed to provide resilient communications in the event of the accidental or deliberate disruption of a primary terrestrial communications network.

**The Future**

Inmarsat continuously invests in growing its capabilities as the demand for bandwidth increases. Our network programs meet today’s needs, while preparing to equip the government requirements of tomorrow. By enhancing our current services and expanding into the world of ka-band through our Global Xpress service we are increasing our network capability to meet your operational requirements. Inmarsat is the network of choice for today and for the future.
**Blighter Radars**

Blighter is the name of a family of modern state-of-the-art electronic scanning radars, which are designed and built to provide continuous persistent surveillance at borders, boundaries and perimeters. They detect moving targets over both land and water, covering a wide area. Both mobile and man-portable variants are available.

Blighter entered service with the United Kingdom Ministry of Defence in 2008 and is now operational in more than 10 other countries, including the USA, France, Poland, Australia, South Korea, Qatar, Saudi Arabia, the Czech Republic and Oman.

**Key Features**

- Vortex fast scan modes for improved situational awareness
- 1 second update rate
- Wide elevation beam (10 or 20 degrees)
- Excellent coverage in all types of terrain
- IP65 ingress protection
- Ruggedized to military standards
- Highly reliable
- Field-proven
- Lightweight and compact

**Electronic Scanning**

Blighter radars employ electronic rather than mechanical scanning. The elimination of mechanical scanning provides the highest possible levels of system availability and reliability. There are no “lifed items” such as drive belts and there are no moving parts or rotating joints to lubricate, replace or service.

A further advantage of electronic scanning is that the area under surveillance is scanned very rapidly and each target is illuminated at very short intervals. This increases the sensitivity to slow moving targets. Blighter can detect very slow moving targets, down to 0.4 km/h. This ensures that targets moving almost tangentially to the radar can still be detected.

**Doppler Processing**

The Doppler processing techniques employed by Blighter provide fast “time to first detect” by eliminating the requirement for scan-to-scan algorithms. It also enables the systems to distinguish very small targets (in terms of their radar cross-section) even in highly cluttered environments, and results in an extremely low false alarm rate.