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Broad Shield
Wideband System

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Broad Shield Wideband System

The WBS 2500 is a new, compact, state-of-the-art, single unit jamming system covering the 25-2500MHz range. This frequency range is continuous, with no gaps or blind spots, allowing the system to apply jamming to any target in any part of the 25-2500MHz spectrum. This ensures maximum versatility and adaptability to future threats and avoids the limitations of "banded" jamming equipments that are tied to only today's specific threat bands.

In addition to its frequency versatility, the WBS 2500 contains 24 x parallel, software-controlled DDS signal generators, each independently programmable and capable of generating a wide variety of jamming signals and waveforms, ranging from spot frequencies to broadband (25MHz) jamming. The signals can be targeted in separate parts of the spectrum or they can be grouped together for wideband, barrage jamming.

One of the key benefits of the WBS 2500 is its ability to generate multiple simultaneous jamming signals, each user-programmed for optimal effectiveness against a given target, positioned as required across the 25-2500MHz spectrum.

As with all Broad Shield equipment, the WBS 2500 is fully fieldprogrammable and can be rapidly reconfigured, using a serial connection, USB or IRDA port from a PDA or laptop to change its jamming waveforms, target frequencies, and operating parameters.
Underpinning this development programme is the concept of reusing and developing common software and hardware modules across the whole family of products. The WBS product builds upon TRL Technology's successful family of CES equipment.

Broad Shield WBS 2500 - Key Features

The modular design and expansion capability of the Broad Shield WBS 2500 lends itself to a variety of applications and deployments, including Vehicular and Carry-Forward. The key features of the system are common in any role:

- Continuous coverage in 25-2500MHz range;
- Power Output (Vehicle) 100W (25-512MHz) & 40W (500- 2500MHz)
- Power Output (Carry-Forward) 10W (25-512MHz) & 10W (500- 2500MHz)
- 24 parallel DDS-based jamming signal generators, each software programmable, to generate multiple, simultaneous jamming signals.
- Dual antenna ports (25-512MHz and 500-2500MHz) to allow use of optimized antennas.
- Fully field-reprogrammable.
- Comprehensive built-in test (BIT) and diagnostic features to monitor the equipment's health, detect fault or alarm conditions and alert the operator using a piercing sounder which will penetrate high ambient noise and protective clothing.
- Remote Interface to allow the connection of a remote control box (e.g. mounted in a driver's cab or to allow control by a secondary operator)
- External receiver input to permit responsive jamming
- Local communications interface with RS232 & USB facilities.
- Integral IRDA interface on the front panel to allow wire free control & programming.
- Internal GPS antenna together with provision for an external
- signal (from an active antenna).
- A full suite of auxiliary signals is provided to interface to external control/timing equipment. The 24 signal sources are grouped in 6 bands and the banded outputs are available to drive external PAs.
- Emergency Beacon, and local & remote zeroise functions.
- The unit may be powered either from a vehicle supply (20-32V DC) or an external battery pack (24V nominal).
- A separate mounting tray is available for installation in vehicles.
- The unit may require periodic maintenance and re-calibration and it has been designed to allow this to be performed without removing covers and with the minimum of test equipment. No STTE or tools are needed. Daily maintenance is minimal and limited to mainly visual checks. All external bolts are captive to reduce the possibility of loss should any repair action be necessary. Dust caps are provided on all connectors.

WBS 2500 Carry Forward Application (WBS 2500CF)

The Carry Forward version (WBS 2500CF) satisfies an EOD Carry Forward role where a rapidly programmable solution is required to address threats from across the spectrum. During the EOD Operator's initial questioning and threat assessment, he/she is often able to gain a description from the witness as to the possible construction of the device. The rapid programmability of the WBS 2500CF will allow the EOD Operator the opportunity to optimize his Mission Configuration File to give the best possible coverage during any subsequent manual approach.

When the EOD Operator is making his manual approach, the WBS 2500CF can not only prevent the RCIED from being initiated when at the target, but it can also provide protection against secondary devices en-route to the target.
In common with the WBS 2500V, the carry-forward version incorporates two sounders that will give a piercing alarm in the event of a low-battery or fault condition and is also provides an emergency beacon facility.
The EOD operator also has the option to remotely deploy the WBS 2500CF with his robot and thereby take immediate control of the suspect RCIED away from the terrorist. This will ensure that a large device, whose explosive effects can be greater than the range of inhibition expected of any system, cannot be initiated when the EOD Operator is en route to the target.

In operational theatres, where the risk of secondary devices is very real, additional protection can be provided by utilising a standard WBS 2500V (100W/40W) fitted to the EOD vehicle. The advantageof using a combination of the WBS 2500V and up to two WBS 2500CFs is that this approach creates a corridor of inhibition, within which the EOD Operator can approach and work at the target area. The effective range of the vehicle-mounted WBS 2500 can also be enhanced by optional directional antennas. A common suite of manually deployed and vehicle mounted systems will reduce training time and guarantee interoperability while on task.

The main differences between the WBS 2500CF and WBS 2500V are:

- Reduced maximum transmit power (10W & 10W)
- External battery pack with space for up to 4 standard military batteries installed in either one or two pairs. The predicted operating time is 4 hours, using four BB-2590 rechargeable Li-Ion packs. The equipment will also accept other primary or secondary cells of the same physical pattern, e.g. BB-390, BB- 590, BB-2590, BB-5590, BA-5390, etc. Alternative battery packs can be designed to accommodate other types.
- Improved carrying straps/handles and other features demanded for hand-emplaced EOD operations.
- Flexible external mounting points for deployment on carryforward platforms such as remote robots.

Aside from the reduced transmit power, the capabilities of the WBS 2500CF are identical to the WBS 2500V.

Technical Specifications WBS 2500

Key Parameters	
Frequency Range	25-2500MHz continuous
Output Power	Carry-Forward version: 10W (25-512MHz) & 10W (500-2500MHz) Vehicle Version: 100W (25-512MHz) & 40W (500-2500MHz)
Signal Sources	24 independent software-programmable DDS-based RF signal generators
Jamming Waveforms & Modulation	Fully programmable
Interfaces	
Antennas	Two antenna ports (50 Ohms nominal): Port 1: 25-512MHz Port 2: 500-2500MHz
Power Input	20-32V external DC input (front panel) 24V DC from 2 or 4 battery packs, BB-2590 or equivalent (rear panel). Battery box is an optional accessory for the carry-forward role.
Programming	Via multi-function Comms/Fill/Remote connector – new mission parameters can be loaded into the unit from laptop or PDA via USB, IRDA or RS232 serial port @ 115Kbaud
Auxiliary	Remote Control box Receiver control input for responsive jamming 6 remote channels (comprising 4 combined signal sources per channel) 1PPS inputs & outputs Blanking input Internal & external GPS antennas
Physical & External	
Dimensions	15.0" x 14.0" x 7.5"
Unit Weight	35lbs (16kg) excluding batteries
Power Consumption	500W typical (vehicle) 200W typical (carry-forward)
Construction	Cast aluminum alloy chassis with integral force-cooled heat sink
Finish	BS381C tint 643 Black BS381C tint 285 NATO Green RAL1019 (Beige) Other Colours on request
Temperature Range	-40°C to +55°C operating -40°C to +85°C storage
Environmental	Design to withstand blowing rain, dust & sand Ruggedised to meet shock, vibration & crash hazard To be qualified to MIL-STD 810F tests.
EMC	Designed to minimize conducted and radiated emissions and for minimal susceptibility to radiated and conducted sources. To be qualified to MIL-STD 461E. Power supply designed to meet requirements of DEF-STAN 61-5 for vehicular systems.

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