

JAMMING CODE DEVELOPMENT BENCH

What it is and how it works

- The Jamming Code Development Bench (JCDB) is specialised system that supports the characterisation, exploitation and evaluation of infrared (IR)-guided man-portable air defence system (MANPADS) seekers in laboratory and in-flight environments.
- The JCDB consists of the roll emulator (RE) and missile control station (MCS) subsystems, which form part of a broader system designed to support the development and testing of countermeasures (i.e., jamming codes) against MANPADS.
- The seeker or unit under test (UUT) is mounted on the RE, which spins the seeker to accurately replicate in-flight roll behaviour. The RE is controlled by the MCS, providing the user with full command through an intuitive graphical user interface (GUI).
- During a jamming code test, a source simulator is employed to present an IR scene to the seeker.
- The jamming code is then introduced into the scene to simulate a false target or otherwise deceive the seeker.
- By using the RE and MCS to capture and analyse the seeker's response, the effectiveness of the jamming code can be evaluated.

Key features

- The MCS controls the RE and the UUT (seeker) via Ethernet link.
- A video image from either a tracker video feed or a test-monitoring camera is overlaid with seeker status information and selected output signals.
- The MCS captures and displays seeker signal and video data in real time, while simultaneously recording the data for comprehensive post-flight test analysis and performance evaluation.
- The MCS incorporates a built-in data analysis module that enables efficient navigation through recorded datasets, with synchronised visualisation of seeker signals and video data to support comprehensive analysis and interpretation.

Current configuration and customisation

- The RE measures approximately 1 450 mm in length, 356 mm in height, and 280 mm in width, with an approximate weight of 50 kg.



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- The MCS hardware consists of a rack-mounted personal computer chassis and a fold-in rack-mounted keyboard, video and mouse console, installed in a 6U 19 inch x 610 mm rack housed within a shockproof Amazon flight case. The complete system has a total weight of 35 kg. Alternatively, the MCS software can be installed on a ruggedised laptop.
 - The system has an IP55 rating and is primarily intended for laboratory use. Outdoor operation is possible, provided additional physical protection measures are implemented.
 - Safety is paramount. All moving parts within the RE are enclosed by carbon-fibre covers fitted with an interlock system that is activated if a cover is removed.
 - Training is included with the purchase of the system, and a comprehensive user manual is provided.
 - The MCS is supplied with a custom-designed software package. Additional user-defined features and GUI enhancements can be implemented on request.
 - JCDB has been tested and validated against multiple first-, second- and third-generation MANPADS missiles, which remain widely available and continue to pose a significant threat to slow-moving aircraft.
 - Seekers, coolant, the source scene simulator, jamming code generator and scene-monitoring cameras are considered to customer furnished equipment.
 - Seeker dismantling and conversion for new seeker types are included as part of the system purchase.
- Seeker conversion is required to ensure that the selected seeker can be integrated with the RE mechanical interface and that all seeker signals are correctly conditioned to simulate missile operation.



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