

# Focus on CSIR

**Enigma** – Radar target,  
ECM and Clutter Simulator



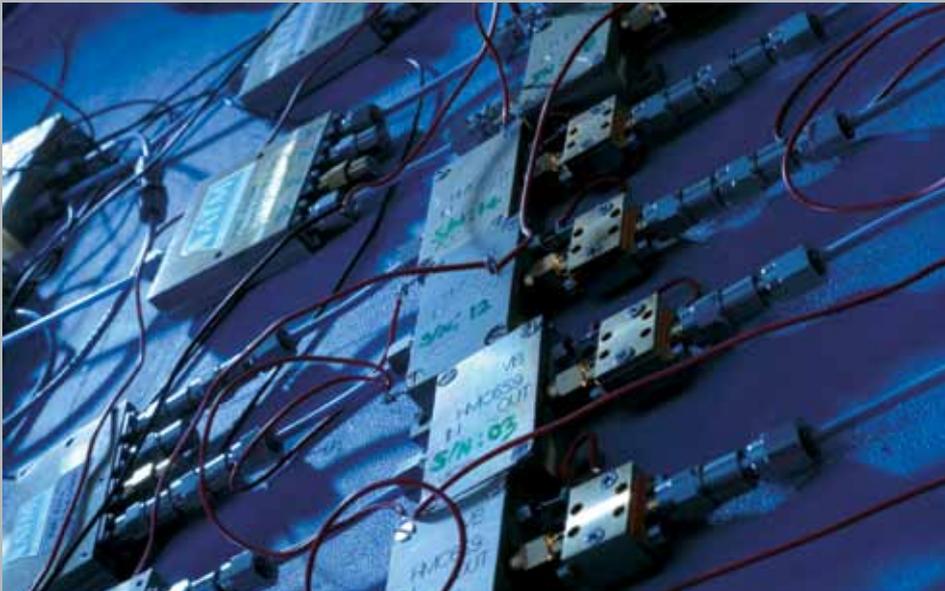
- Hardware in the loop radar evaluation
- ECM and ECCM research and development

Enigma is a Hardware In the Loop (HWIL), radar target and Electronic Counter Measure (ECM) simulator. The simulator is based on high resolution Digital Radio Frequency Memory (DRFM) technology developed at CSIR Defence, Peace, Safety and Security (DPSS).

## Usage:

### Enigma can be utilised for:

- Evaluation of operational radar robustness against jamming
- Acceptance testing of new radar
- Radar technology development (e.g. testing tracking filters and Electronic Counter-Counter Measures (ECCM) functionality)
- Research and development of advanced ECM and ECCM
- Support for training and doctrine development



### Features:

Enigma is designed to:

- Generate radar engagement scenarios including target (radar skin echo) and advanced counter measures.
- Be transportable and to easily interface with the radar under test
- Have very high programmability: provided by means of a user-friendly interface
- Operate to world class specifications in a diverse set of simulation scenarios

### Operation:

Data obtained from evaluations provide useful information on the effectiveness of the EW capabilities of operational radar and radar under development. These results prompt the more effective utilisation of current capabilities and promote the development of new advanced techniques.

Enigma forms the cornerstone of advanced Radar and Electronic Warfare (EW) research and development.

### Our track record

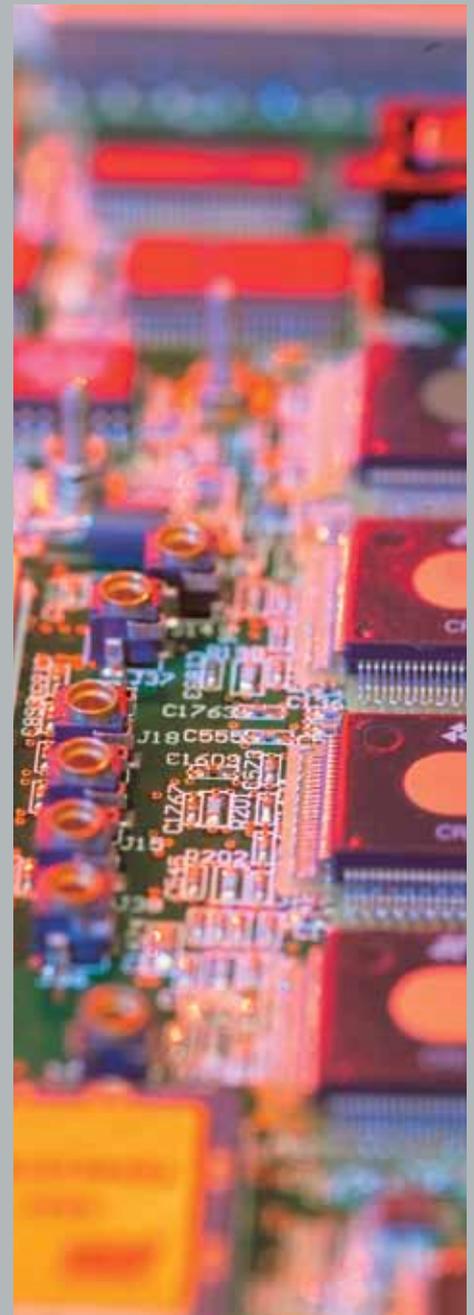
Since 1939 when radar technology was transferred to South Africa from Great Britain, we have been playing a leading role in the development and utilisation of radar technology and its applications.

We were instrumental in the development of Radio Frequency (RF) Electronic Warfare (EW) technology in South Africa from the early 1970's and in enabling the local EW industry.

In the post-1994 Democratic South Africa, we have been acknowledged by the South African Department of Defence as Electronic Defence Research and Evaluation Institute and contracted to support them to be smart buyers, smart users and ensuring strategic independence in Radar and Electronic Warfare.

Our Electronic Counter Measures (ECM) simulators, Digital Radio Frequency Memory (DRFM) kernels and radar signal processors are recognised as world class and utilised by several clients internationally.

The teaming of our Radar and Electronic Warfare specialists enables a deep understanding of systems interactions and client requirements



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