DRFM – Digital Radio Frequency Memory

Electronic Self-Defence against Hostile Radar Signals
Digital Radio Frequency Memory

**DRFM Jamming Technology**

Digital Radio Frequency Memories (DRFM) have become the core of any electronic jamming system. The DRFM is a device with storage methods in which the radar signal itself is stored, modulated with jamming signals and then retransmitted to the threat.

The DRFM capability is essential for jamming pulsed Doppler radars. Most jamming techniques require precise signal measurement and RF signal storage. The DRFM stores complete radar pulses together with their modulations, e.g. intrapulse modulation; it also stores RF pulses of different pulse repetition intervals (PRIs) without losing coherence and can instantaneously follow frequency agile radars.

The HENSOLDT DRFM

HENSOLDT started the development of the first DRFM in 1990 as a key element for EW systems such as the Tornado Self-Protection Jammer (TSPJ) for the German Air Force. In 1998 the second generation of DRFM was developed for various airborne and naval applications. Currently, already the third generation is in production.

**Standard ECM Functions**

- Coherent range and velocity Pull-Off/In
- Velocity gate Pull-Off/In
- Fixed false Doppler and range targets
- Random false Doppler and range targets
- Intra-pulse modulation
- Multi-frequency false targets
- Narrow and wideband coherent noise
- Narrow and wideband non-coherent noise
- Swept frequency jamming
- CW jamming
- Frequency offset jamming, coherent and non-coherent
- Inverse amplitude techniques (with amplitude quantisation)
- Target scintillation
- Due to the programmability, other “custom-made” ECM functions can be installed. A combination of ECM techniques is possible.

**Characteristics and Performances**

- Extremely wide band, single board DRFM
- Freely configurable integrated techniques generator
- Multiple and non-coherent ECM techniques
- Extremely fast digital signal detection
- Instantaneous bandwidth: up to 2.3 GHz
- Quantisation: up to 10 Bit amplitude
- Frequency accuracy: extremely accurate
- Volume: 3 litres
- Power consumption: 50 Watt

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**Basic Structure of the third DRFM generation**

- Extremely wide band, single board DRFM
- Freely configurable integrated techniques generator
- Multi-threat capability
- Coherent and non-coherent ECM techniques
- Extremely fast digital signal detection
- Instantaneous bandwidth: up to 2.3 GHz
- Quantisation: up to 10 Bit amplitude
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- Power consumption: 50 Watt