Microwave Multi-Function Assemblies
Frequency Range: DC to 50GHz

Elbit Systems EW & SIGINT – Elisra Ltd. is a recognized leader in sophisticated electronic systems and integrated Multi-Function Assemblies and Subassemblies for the defense and space markets (EW, radars & missiles).

Elisra has amassed over 45 years of proven experience in the design, development, and manufacture of state-of-the-art components and subassemblies for a wide variety of RF and microwave applications covering DC to 50GHz frequency range.

Among Elisra’s many customized, integrated, multi-function assemblies and subassemblies are: IFM, DFM, Frequency Discriminators, Up/Down Converters, RF Switch Matrix, COMINT Receivers, RFFE, FEA, Frequency Direct Synthesizers, DIO and Super Heterodyne Receivers, Input Front-Ends and Receivers, Multi-Function Assemblies (MFAs), and PIN Diode Control Devices.

The Elisra Advantage for Systems Suppliers
- Performance Optimization
- Cost-Performance Ratio
- Minimum Power Consumption, Weight and Volume

Technologies
- Multi-layer RF circuits
- High reliability MIC and MMIC
- MCM
- Connectorized integration
- Si, GaAs, GaN, V/UMOS components
- Thin-film & Thick-film
- Optoelectronics packaging
- RF and digital integration
Microwave Multi-Function Assemblies
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Super Heterodyne Receiver (SHR)

**Electrical Specifications**
- RF Input Frequency Range: 0.5 - 18 GHz
- Triple Down-Conversion Dynamic Range @ Input Noise Figure 7 to 0 dBm
- Switching Speed: 250 nSec
- Spurious: 45 dBc

**Applications:** EW Receiver
**Technologies:** MIC, Hermetically Sealed

Wide Band IFM Receiver

**Electrical Specifications**
- Instantaneous Frequency Coverage: 0.5-18GHz
- Channelized Receiver Architecture for Interference Protection and High Sensitivity
- Pulse Width Range: from 100nS to CW
- Wide Instantaneous Dynamic Range

**Applications:** EW Systems
**Technologies:** RF Multilayer including Micro Strip, MMIC & SMT

Up Converter

**Electrical Specifications**
- Frequency: 0.1-18 GHz
- Contains DCAs to Set the Gain
- Modulation of Signal (Phase, Amplitude, and Pulse Modulation)
- Very Fast Settling Time: 100nS
- Suppression of Unwanted Signals to prevent them from Reaching the Transmitter
- Low Overall Noise Floor
- Small Size: 3U Cut-Out: 16x10x2 cm

**Applications:** EW Systems
**Technologies:** RF Multilayer including Micro Strip, MMIC & SMT

Dual Input Front-End Receiver

**Electrical Specifications**
- Wide Band Coverage: 18 to 40 GHz
- Down-Converted: 2 to 16.5 GHz
- High Input Dynamic Range
- High Power Protection
- Internal MMW Bit Generators
- Supports Two Receiving Antennas

**Applications:** EW Systems
**Technologies:** SMT

2-6 / 6-18 GHz T/R Module

**Electrical Specifications**
- 5-Bit 360° Digitally-Controlled Phase Shifter
- 5-Bit 31 dB Digitally-Controlled Attenuator
- High-Power MMIC Amplifiers (Typical: 4 Watts)
- Low Noise MMIC Amplifiers
- High-Power Protector Switch/Limiter
- T/R Switches and Circulators

**Designated Digital Control Circuit**
**Applications:** EW Systems, Radar
**Technologies:** MMIC & SMT

Microwave Multi-Function Assemblies
Frequency Range: DC to 50GHz
**Microwave Multi-Function Assemblies**

**Frequency Range: DC to 50GHz**

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**Super Heterodyne Receiver (SHR)**

**Electrical Specifications**
- **RF Input Frequency Range:** 0.5 - 18 GHz
- **Triple Down Conversion Frequency Range:** 0.5 - 18 GHz
- **Dynamic Range:** @ Input: -70 to 0 dBm
- **Phase Tracking (Pairs):** 44°
- **Switching Speed:** 250 nSec
- **Spurious:** 45 dBc

**Applications:** EW Receiver
**Technologies:** MIC, Hermetically Sealed

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**Wide Band IFM Receiver**

**Electrical Specifications**
- **Instantaneous Frequency Coverage:** 0.5-18 GHz
- **Channelized Receiver Architecture:** Interference Protection and High Sensitivity
- **Pulse Width Range:** from 100nS to CW
- **Wide Instantaneous Dynamic Range** (Front-End Dependent)

**Video and IF Outputs to Digital Receiver**
- **Local Internal Oscillators, Synthesized with External Reference CK:**
  - **High Stability:** over Temperature Range (No Calibration Required)
- **Small Size:** 3U Cut-Out: 16x10x2 cm

**Applications:** EW Systems
**Technologies:** RF Multilayer including Micro Strip, MMIC & SMT

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**Up Converter**

**Electrical Specifications**
- **Frequency:** 0.1-18 GHz
- **Contains DCAs to Set the Gain**
- **Modulation of Signal (Phase, Amplitude, and Pulse Modulation)**
- **Very Fast Settling Time:** 100ns
- **Suppression of Unwanted Signals to prevent them from Reaching the Transmitter**

**Low Overall Noise Floor**

**Small Size:** 3U Cut-Out: 16x10x2 cm

**Applications:** EW Systems
**Technologies:** RF Multilayer including Micro Strip, MMIC & SMT

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**Dual Input Front-End Receiver**

**Electrical Specifications**
- **Wide Band Coverage:** 18 to 40 GHz
- **Down-Converted:** 2 to 16.5 GHz
- **High Input Dynamic Range**
- **High Power Protection**
- **Internal MWB Bit Generators**
- **Supports Two Receiving Antennas**

**Applications:** EW Systems
**Technologies:** SMT

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**2-6 / 6-18 GHz T/R Module**

**Electrical Specifications**
- **Instantaneous Frequency Coverage:**
  - **Wide Band:** 2-6 GHz
  - **Wide Band 2:** 50 - 630 MHz (AUX)
- **Variable Bandwidth:**
  - **BW1:** 500 MHz
  - **BW2:** 140 MHz
  - **BW3:** 40 MHz
  - **BW4:** 3 MHz

**Applications:** EW Systems
**Technologies:** MMIC & SMT

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**5-Band Transponder**

**Electrical Specifications**
- **5-Band Full Duplex**
- **High Selectivity**
- **Wide Dynamic Range, AGC (Up Converter & Down Converter)**
- **Built-in Test (BIT)**
- **Off-the-Shelf Components (Special Design: Filters, Power Amplifiers)**

**Applications:** EW Systems, Missiles
**Technologies:** SMT

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**2-6 / 6-18 GHz T/R Module**

**Electrical Specifications**
- **5-Bit 360° Digitally-Controlled Phase Shifter**
- **5-Bit 31 dB Digitally-Controlled Attenuator**
- **High-Power MMIC Amplifiers (Typical: 4 Watts)**
- **Low Noise MMIC Amplifiers**
- **High-Power Protector Switch/Limiter**
- **T/R Switches and Circulators**

**Designated Digital Control Circuit**

**Applications:** EW Systems, Radar
**Technologies:** MMIC & SMT

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**Microwave Multi-Function Assemblies**

**Frequency Range:** DC to 50GHz
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