From Satellites to Terminals, UEC RF-Microwave is the Link

- The growing interest in space, spanning both commercial and defense sectors, has fueled the demand for electronic component solutions that are more cost-effective.
- In certain cases, new applications may only necessitate the survivability of a component for a relatively short period, ranging from 3 to 5 years, especially in less demanding environments like a Low Earth Orbit (LEO) satellite.
- Regardless of the qualification level, whether it be through Similarity, Class H, or radiation-hardened Class K, UEC stands ready to deliver RF solutions to guarantee the survival of the mission.

Space and Defense Products

- Integrated Microwave Assemblies (IMAs)
  - custom IMAs from 20 MHz to 40 GHz
- Amplifiers
  - Low Noise Amplifiers to 40 GHz
  - Broadband Amplifiers to 50 GHz
  - Power Amplifiers to 20 Watts
  - Temperature Compensated Amplifiers
  - Limiting Amplifiers
  - AGC Amplifiers
- Frequency Converters
  - Upconverters to 31 GHz
  - Downconverters to 30 GHz

UEC RF-Microwave Capabiliti es

- **15 Years** of Space Heritage, in-orbit hardware on commercial and military programs.
- **Design & Analysis** - RF Cascade, Linear and Non-Linear simulation on, Component derating, Thermal Analysis, Mechanical 3D modeling, CTE analysis, reliability, and Radiation on Hardness.
- **Manufacturing and Test** - 10,000 sq. ft. ESD protected manufacturing, 3,600 sq. ft. Class 2 clean room space flight center Hybrid, SMT and chip-in-wire assembly, in-house machine shop, signal and power test equipment to 50 GHz.
- **Screening** - Vibration on, Hermetic c Seal, PIND temperature Cycle, Thermal shock, Constant acceleration on, Burn in, Steady state life, Humidity, Altitude and Salt Fog.

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UEC RF MICROWAVE

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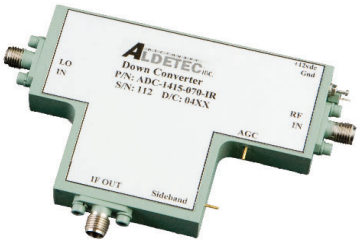
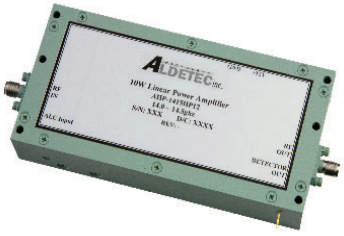
MIL-PRF-38534 Requirements

- **Level 1, QPL Class K:**
  - UEC possesses a track record in delivering essential components for life support, mission-critical situations, and meeting the needs of single-string and single-point failure requirements.
- **Level 2, QPL Class H:**
  - UEC engineers and manufactures RF modules tailored for general-purpose space flight applications, adhering to MIL-STD-883 specifications.
- **Level 3, QPL Class G, D, E, L:**
  - UEC has the capability to manufacture hardware in accordance with MIL-STD requirements, but with a streamlined qualification testing process suitable for less critical applications.

Products

- **Integrated Microwave Assemblies (IMAs)**
  - With our hybrid design capability, we can integrate multiple functions in-side a module or incorporate the IMA into a larger assembly. A short list of items that can be integrated using chip-in-wire and SMT components are: LNAs and power amplifiers, switches, upconverters, downconverters, voltage variable attenuators, LDOs, and more.
- **Amplifiers**
  - Our expertise in defense and radiation hardened space amplifiers has launched high efficiency amplifiers, ultra-low-noise LNAs, amplifiers with integrated limiters and voltage variable attenuators to 50 GHz and 20W.
- **Frequency Converters**
  - Our frequency converter designs have increased capability over a standard mixer. We integrate filters, amplifiers, switches, or any other customer requirement. The options range from an upconverter, downconverters, or a full uplink and downlink.





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