

SPACE-QUALIFIED MIXERS

MITEQ is a leading supplier of RF and microwave components, equipment, and systems for both commercial and defense applications, including; satellite, avionics, reconnaissance, surveillance, radar, and electronic countermeasure systems. Our continued advancements in the state-of-the-art and unique capability have led to wide acceptance of our company as a forerunner in the field of mixer technology for space applications. We are confident that based on our experience we can offer you the following:

- Mature technology with heritage on space flight platforms.
- An organization dedicated to developing and manufacturing the very best mixer products for space use.
- A staff of experts with state-of-the-art experience in both space and military type mixer products.

- Cost competitive products.
- Low risk (both technical and schedule), through an extensive inventory of standard designs.
- Very high reliability.

MITEQ's Space-Qualified Quality Assurance Plan establishes the actions and controls necessary to provide confidence that the end-item will meet the quality, reliability, and electrical performance required for space qualified applications. This plan includes the use of parts, materials, process controls, product screening, traceability, configuration control, and destructive physical analysis. Please contact MITEQ for a copy of our Space-Qualified Quality Assurance Plan.

CONFORMANCE TO CUSTOMER QUALITY REQUIREMENTS

MITEQ's involvement in various high-reliability space programs represents a spectrum of programmatic and quality requirements ranging from **MIL-STD-883 Class B** for cost sensitive programs, to requirements based on **Class S** and **MIL-PRF-38534 Class H** and **K**.

All open-die, thin-film products are manufactured and tested within MITEQ's clean rooms (FED-STD-209, Class 100,000 and Class 10,000) according to program requirements.

In addition to compliance to stringent manufacturing controls, MITEQ possesses the capabilities to support the **program management** and extensive **documentation requirements** of your space contracts including:

- Configuration Control
- Design Reviews
- Traceability
- Design Analysis
- FMECA
- MTBF
- WCA
- Thermal Analysis
- Parts Derating
- Parts, Processes Materials
- Dynamic Stress
- Process Documentation
- EMI/EMC

All analysis and support provided is based upon individual custom requirements as set forth in the customer Statement of Work and/or Specifications. MITEQ has established controls, procedures and a philosophy with the customer in mind. **Conformance to customer requirements** has been paramount in all the programs we have supported throughout our history. It is this philosophy that had secured our successes in the past, and will guarantee our success in the future.

SPACE HERITAGE

MITEQ has supplied hardware for space-flight missions for over twenty-three years. Our emphasis is predominantly in technically challenging requirements, particularly in the area of:

- Low-noise amplifiers
- High-performance microwave mixers
- Frequency synthesizers
- Custom designed assemblies

For many years MITEQ's primary space products have been low-noise amplifiers. However, MITEQ has been able to provide a wide spectrum of designs and custom assemblies by utilizing mature technology delivered on other high-reliability programs. With our extensive space experience, we have been able to use qualification data from our existing designs while delivering custom-engineered units, thereby offering reduced cost and shorter delivery times to our customers.

Below is a list of previous and existing space programs which MITEQ has supported:

MITEQ CUSTOMER	END USER	PROGRAM
Alcatel Space	German DOD	SAR-LUPE
Dornier	DLR	TerraSAR X
Max Plank Inst.	ESA	HERSCHEL
Technologica	CSA	HERSCHEL
SRON	ESA	HERSCHEL
U of Bordeaux	ESA	HERSCHEL
Alcatel Space	JPL	Jason-2
General Dynamics	Lockheed Martin	P-02
Jet Propulsion Lab	NASA	EOS-MLS
Assurance Technology Corp.	U.S. Navy	WINDSAT
Motorola	Lockheed Martin	P-99
Aerojet	NASA	EOS-MLS
Jet Propulsion Lab	NASA	MIRO
Sandia National Lab	-	-
Matra Marconi Space	-	-
Aerojet	NASA	SSMIS
Sandia National Lab	-	-
Johns Hopkins Applied Physics Lab	U.S. Navy	ETB
Matra Marconi Space	Eumetsat	MHS
Motorola Government Systems	Lockheed Martin	P-94/P-97
Northrop-Grumman	-	-
E-Systems	JPL	SEAWINDS
Matra Marconi Space	ESA	MWR
E-Systems	JPL	GEOSAT
Aerojet	NASA	SSMIS
Millitech	U.S. Air Force	SSMIS
Lockheed	U.S. Air Force	STS-54
Aerojet	NASA	AMSU-B
Johns Hopkins Applied Physics Lab	U.S. Navy	TOPEX
Johns Hopkins Applied Physics Lab	U.S. Navy	SPINSAT
Johns Hopkins Applied Physics Lab	U.S. Navy	SEASAT
Jet Propulsion Lab	NASA	EOS-MLS