UEC RF-Microwave
Space Heritage and New Designs

UEC RF-Microwave brings over 20 years of proven heritage in space systems, delivering advanced RF solutions for deep space, cislunar, and Earth-orbit missions (GEO, MEO, LEO). Our expertise in designing and manufacturing critical components for commercial and defense satellites is backed by compliance with stringent standards, including MIL-PRF-38534 Class H and radiation-hardened Class K, ensuring mission assurance and long-term reliability.

Heritage (Flight Units)

Band (GHz)	Supply Voltage	Noise Figure	Power	Gain	Designator	Mission (Years)	Class
2 - 6	+5V	3.0dB	8dBm	50dB	Limiting Amp	3	H
6 - 18	+5V	3.5dB	15dBm	50dB	Limiting Amp	3	H
1.62 - 1.65	+12V	3.5dB	8.5dBm	27dB	Transmitter	3	H
5.845 - 6.725	+12V	3.5dB	21dBm	37dB	Transmitter	3	H
13.75 - 14.5	+12V	4.5dB	3dBm	22dB	Transmitter	3	H
3.4 - 4.2	+12V	4dB	20dBm	43dB	Receiver	3	H+
10.95 - 12. 75	+12V	5.3dB	17dBm	48dB	Receiver	3	H+
3.4 - 4.2	+12V	3.5dB	8dBm	38dB	LNA	12	K

MIL-PRF-38534 Requirements

Level 1 – QPL Class K

UEC delivers high-reliability RF components for life-support and mission-critical applications, meeting single-string and single-point failure requirements.

Level 2 – QPL Class H

UEC designs and manufactures RF modules for general-purpose spaceflight, fully compliant with MIL-STD-883 specifications.

Level 3 – QPL Classes G, D, E, L

UEC provides hardware built to MIL-STD requirements with streamlined qualification testing for less critical missions.

COTS – QPL Class F

For commercial space applications, UEC offers cost-effective RF components designed to meet MIL-STD requirements while maintaining COTS pricing targets.

Providing quality product with focus on customer commitment from concept through delivery
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In Development:

Band (GHz)	Supply Voltage	Noise Figure (dB)	Gain (dB)	Power (dBm)	Designator	Mission (Years)	Class
1.95 - 4	+8 V	5	40	30	Power Amp	3	H
10 - 15	+8 V	6	40	30	Power Amp	3	H
25- 31	+5 V	9	40	30	Power Amp	3	H
1.9 - 4	+8 V	5	40	30	Power Amp	5	H
18 - 31	+8 V	8	35	27	Power Amp	5	H
1.91 - 4	+8 V	3	30	14	LNA	5	H
18 - 31	+6 V	4	30	5	LNA	5	H
7.9 - 8.4	+28 V	7	35	32	Converter	3	LEO
12.25 - 12.75	+28V	1.5	30	10	Converter	3	LEO

Products

Integrated Microwave Assemblies (IMAs)

UEC leverages hybrid design capabilities to integrate multiple RF functions within a single module or incorporate IMAs into larger assemblies. Using chip-and-wire and SMT technology, we can integrate:

- Switches
- Voltage Variable Attenuators
- LDOs and more

Frequency Range: 10 MHz to 50 GHz

Low Noise, Broadband, and Power Amplifiers

UEC designs high-efficiency amplifiers for defense and radiation-hardened space applications, including:

- Ultra-low-noise LNAs
- Broadband amplifiers
- Power amplifiers with integrated limiters and filters
- Voltage variable attenuators
- Amplifiers with monitoring and control circuitry

Frequency Range: 20 MHz to 50 GHz
LNA Noise Figure: as low as 0.8 dB
Max Output Power:
Up to 2 W at 50 GHz
Up to 50 W at 6 GHz

BDC, BUC, and Translator Frequency Converters

UEC frequency converters deliver enhanced functionality beyond standard mixers, with options for:

- Upconverters
- Downconverters
- Complete uplink and downlink systems

Integration capabilities include filters, amplifiers, switches, and custom features per customer requirements.

RF: up to 50 GHz
IF: customer-defined
LO: internal or external

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