

SATCOM & TELEMETRY

MILITARY, GOVERNMENT AGENCY, TACTICAL RADIOS, NETWORKS



Critical technologies and capabilities required for this application

Empower RF Systems provides power amplifier solutions in the UHF, L Band, S Band, and C Band to 6 GHz. Applications include Fixed and Mobile Satcom Uplinks, Telemetry, Air Traffic Control Radar, Shipboard and Land-Based SIGINT/ELINT, Navigation, Threat Simulation, and Global Positioning Systems. Our diverse product offering includes both compact linear modules, as well as high-power rack mount systems with unparalleled power density.

High Power, Rack-Mount Systems

Empower's Next Generation high power platforms provide Kilowatt power in an industry-leading high power density chassis. These high power RF 'engines' provide the basis for ruggedized amplifier solutions which can be configured to the end user's requirements.

For these rack-mount systems in the UHF, L and S Bands, **Empower Guarantees 1 kW RF performance over full bandwidth and temperature, which can be packaged in a 5U housing.** Such power density in this form factor has led to the development of configurable High Power systems in ruggedized enclosures. These Empower Next Generation "Size Matters" amplifiers are lighter and smaller which allows for direct mounting of the amplifiers to the balance arms of the antenna, in turn serving as the counterweights for the antenna dish. This eliminates the need for RF rotary joints and increases the reliability of Ground Antenna Systems.

In addition to this, the user interface capabilities of this amplifier, which are standard with Empower next generation designs, allow the user to initiate remote management and diagnostics via an **embedded web server**, enabling network managed site status and control simply by connecting the unit's Ethernet port to a LAN. Using a web browser and the unit's IP address (IPV6) allows ease of access with the benefit of multilevel security. The control system core supports hardware encryption and runs an embedded OS (Linux).

www.EmpowerRF.com

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Lightweight Broadband and Band-Specific Modules

For lightweight mobile or airborne applications such as Land Mobile, UAV's, RPV's and aircraft, Empower has a wide variety of broadband linear and band-specific modules from UHF to 6 GHz.

For example, **SKU 1208** and **SKU 1191** operate over the 500 to 2700 MHz and 2500 to 6000 MHz respectively. Both guarantee 100 Watts of output power with related RF performance under all specified temperature and environmental conditions. These amplifiers are suitable for broadband, high power, linear applications in the UHF/L/S/C bands. The modules utilize the latest in high power GaN-on-SiC transistors and also feature built-in control and monitoring, with protection functions. The control system core has built-in non-volatile memory, for event recording and factory setup recovery features.



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MODULES

SKU	Start (MHz)	Stop (MHz)	Pout (Watt)	Gain (dB)	Size (Inch)
1163	20	520	125	54	7.0 x4.0 x1.5
1100	20	1000	80	49	6.4x3.4x1.1
1119	500	2500	50	46	7.4x3.6x1.1
1189	500	2500	100	50	7.4x3.6x1.06
1208	500	2700	100	50	8.2x3.6x1.06
1164	800	3000	50	50	6.4x3.4x1.1
1132	960	3000	160	54	12x10x1.1
1199	1000	3000	100	60	7.0x4.0x1.1
1191	2500	6000	100	60	8.0x6.5x1.0

SYSTEMS

SKU	Start (MHz)	Stop (MHz)	Pout (Watt)	Gain (dB)	Size
4059	270	400	350	56	25 x 10.3 x 7.9
2178	240	450	2000	63	R3U+R5U+R3U
2173	20	500	500	57	R3U
2126	20	500	1000	60	R5U
2192	20	1000	250	54	R3U
2162	20	1000	1000	63	R5U
2175	80	1000	500	60	R3U
2174	500	1000	500	56	R3U
2066	500	1000	1000	60	R5U
2185	960	1215	10000 Pulse	74	R3U+R3U+R3U
2167	1500	1700	2000	60	R3U+R5U
2157	1000	2000	1300	62	R3U+R5U
2171	2000	2160	1000	60	R5U
2142	1000	2500	500	56	R5U+R3U
2180	1000	2500	2000	64	R5U+R3U
4057	1900	2500	1000	60	R5U+R3U+R5U
2168	2000	2500	800	59	R5U
2125	105	3000	200	53	C19U
2194	1000	3000	250	54	R3U
2170	1000	3000	1000	63	R5U
2197	2000	6000	80	49	R3U
2179	2000	6000	250	54	R4U

Key Design Wins Capability Showcase

Empower's "Size Matters" Solid State amplifiers offer a number of possibilities for Satellite Network Communications. Systems are software upgradeable, ruggedized, designed for waterproof, harsh environments, and configurable to customer requirements. Monitoring and Control (M&C) is both Local (front panel LCD) and Remote (TCP/IP Ethernet with full SNMP).

A recent and unique SATCOM HPA solution from Empower RF Systems delivers 2 kW P1dB (CW, digital modulated signal) in L-Band and a companion product delivers 800W P1dB (CW, digital modulated signal) in S-Band. The 2 kW L-Band HPA is a GaN based design and housed in an amazingly small 5U chassis. The Amplifier Control and Power Supply unit is based separately in a 3U chassis. The 800W S-Band unit is also a GaN based design and self-contained (with power supply) in a 5U chassis.

