HP MODELS 489A, 491C, 493A & 495A
Microwave power amplifiers
1 to 12.4 GHz, 1 Watt

Microwave TWT Amplifiers

Amplification of frequencies from 1 to 12.4 GHz is accomplished in four ranges by the Hewlett-Packard medium power microwave amplifiers. Each delivers at least 1 watt for a 1 milliwatt input – a gain of at least 30dB.

All four TWT amplifiers have provisions for amplitude modulation, and since the internal modulation amplifier is dc-coupled, remote programming and power leveling are possible. Sensitivity is high for large output power changes from relatively small modulation signals, obviating the need for an external modulation amplifier.

The dc amplifier has a gain of 20 dB and exhibits a passband from dc to 500 KHz when modulation index in the neighborhood of 1 dB, as might be encountered in RF leveling. When the modulating levels are high, in the region of 20 Volts, the passband will be a minimum of 100 KHz: a 20 volt change at the MOD INPUT produces a minimum of 20 dB off/on ratio.

489A – 495A Specifications

Output power: 1 watt for an input of 1 miliwatt
GAIN: 30 dB at rated output
Input/Output: Impedance 50 Ohms; Connectors: Type N female
Noise Figure: >30dB
Amplitude Modulation:
Sensitivity: modulation input of > -20V peak reduces FR output by > 20dB from dc to 50 ohms.
Freq. Response: dc to 500 KHz (3dB).
Size: 5.5"x 16.75"x18.375"
Weight: 33 Lbs.

	489A	491C	493A	495A
Frequency Range (GHz)	1-2	2-4	4-8	7-12.4
Gain variation with freq.				
At rated output	< 6 dB	< 6 dB	< 6 dB	< 6 dB
Small signal				
Across any 10% of band	< 5 dB	< 5 dB	< 5 dB	< 5 dB for 300 MHz
across full band	< 12 dB	< 12 dB	< 12 dB	< 10 dB