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Booster

TECHNICAL NOTE

Booster is an eight channel RF power amplifier, providing several Watt of RF between 100MHz and 500MHz.
It is mounted in a compact 2U high 19'' chassis. It provides full interlocking and logging via a flexible ethernet-based remote interface.

Two HW versions are available: High Efficiency (standard) and High Linearity (HL), which is optimized for very low THD (Total Harmonic Distortion).

Booster HE (standard version)

General description

Booster HE is optimized for low cost and low power consumption, while providing good RF performance.

Parameters

- High efficiency: 40dB power gain (+/- 1.5dB)
- Bandwidth: 100-500MHz (3dB small-signal bandwidth: 40-600MHz)
- Maximum input power without damage: 25dBm
- User-configurable interlocks (to protect both Booster and sensitive loads connected to it from damage)
- Ethernet interface for monitoring and configuration
- Per-channel remote monitoring of: input, output forward and output reverse powers, temperatures, currents and voltages
- Remote control of individual channels via Ethernet
- Modular design with individually field-replaceable channels, for example to change the frequency band
- Open source hardware and firmware

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Booster HL
General description

Booster HL is optimized for high linearity and has very low signal distortion.

Parameters

- High linearity with 32dB power gain (+/- 1.5dB)
- Bandwidth: 100-500MHz (3dB small-signal bandwidth: 40-600MHz)
- Maximum input power without damage: 25dBm
- User-configurable interlocks (to protect both Booster and sensitive loads connected to it from damage)
- Ethernet interface for monitoring and configuration
- Per-channel remote monitoring of: input power, output forward and output reverse powers, temperatures, currents and voltages
- Remote control of individual channels via Ethernet
- Modular design with individually field-replaceable channels, for example to change the frequency band
- Open source hardware and firmware

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	Booster HE	***Booster HL***
power gain	40 dB (+/- 1.5 dB)	32 dB (+/- 1.5 dB)
Bandwidth	100-500 MHz	100-500 MHz
3dB small-signal bandwidth	40-600 MHz	40-600 MHz

Booster HE (standard version)

Booster HL (high linearity)

Linearity test with constant frequency (200 MHz)

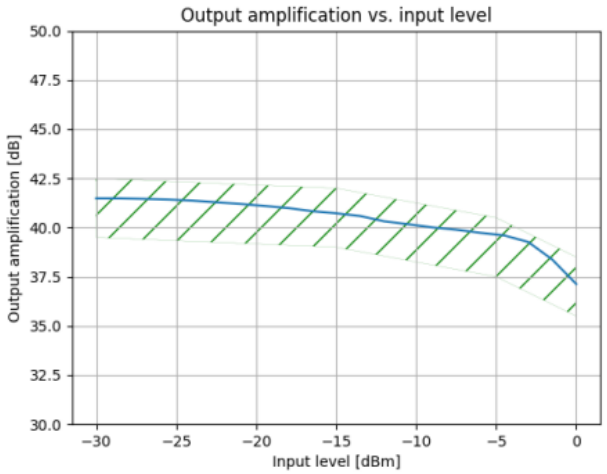

Figure 1: Output amplification vs. input level, status: OK

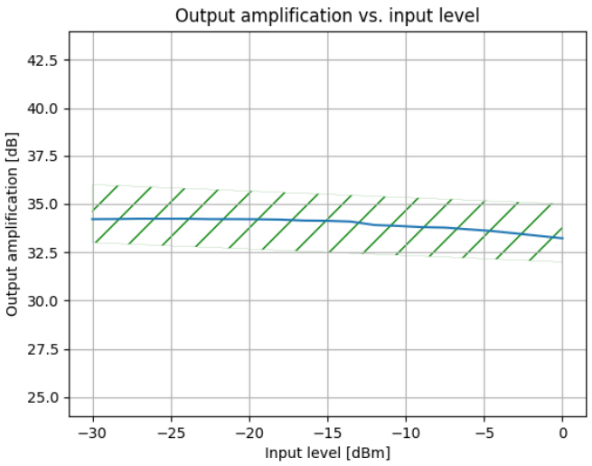

Figure 1: Output amplification vs. input level, status: OK

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Bandwidth test with constant input signal level (-15 dBm)

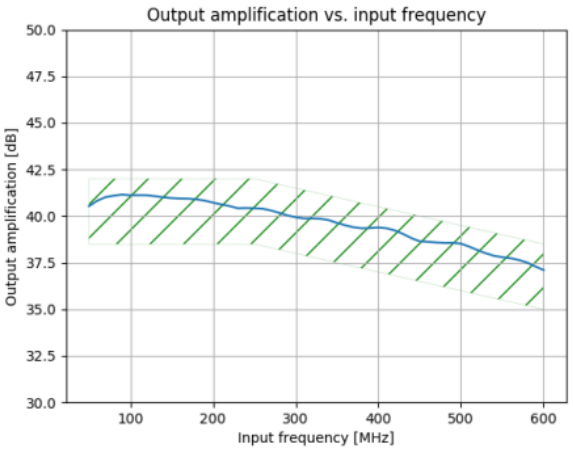

Figure 2: Output amplification vs. input frequency, status: OK

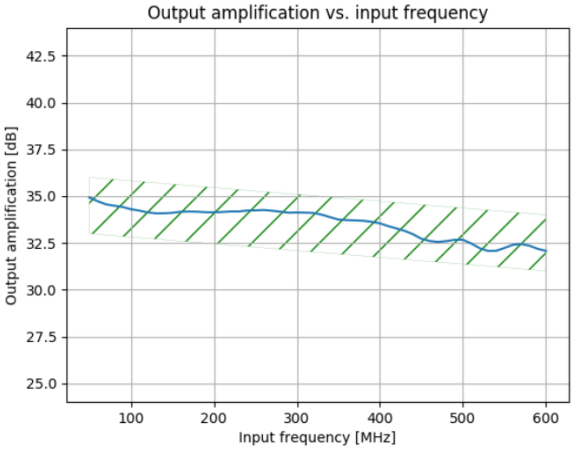

Figure 2: Output amplification vs. input frequency, status: OK

Input vs. Output power characterization, for different input frequancies