

## Empirical multichannel power consumption model for erbium-doped fiber amplifiers - DTU Orbit (08/11/2017)

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In this paper we report on the first experimental power consumption analysis and model of single and multi-stage booster erbium-doped fiber amplifiers (EDFAs) with automatic gain control (AGC), accounting for channel number dependency. Results show that the amount of channels being amplified simultaneously contributes significantly, up to 48%, to the total power consumption due to the circuitry used for controlling the EDFA. As the number of simultaneous amplified WDM channels in high capacity long and medium reach transmission links reflects closely traffic patterns generated by end-users, it is relevant to study channel number dependent power consumption for devising EDFA power efficient control and design.

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