Trimming the power consumption of domestic Wi-Fi networks: How much power does your router need?

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Abstract:

This work is part of a project where the goals are: designing energetically-optimum domestic WiFi routers; obtaining real and accurate consumed power models as a function of router configuration, and providing the community with an active power waveforms database, useful for considering power consumption as a part of WiFi networks design and optimization.
In particular, in this paper we started by measuring the active power consumption of a standard router under several scenarios. These take into account physical transmission rates, operation modes (transmitting/receiving), transmi ssion powers, compatibility modes, type of traffic, packet sizes, encryption, ethernet connections, ...
The paper reports the setup and measurement method, and the first results and conclusions where the impact of the AC/DC converter on the consumed power is also considered.