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Power consumption measurement tool for research on open 5G and beyond

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Abstract

This paper proposes a simple and inexpensive test setup that can be used to evaluate, compare and study the power consumption of different testbed configurations. The paper offers a description of the design, including safety considerations and calibration aspects. The proposed test setup has been used to experimentally test the power consumption of the fifth-generation (5G) base station component, which has been implemented on an open radio access network (RAN) server. The power consumption is measured for various RAN server operation/function modes. We found that certain modes are more power-hungry and may benefit from further optimisation.