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Self-Powered Wireless Optical Transmission of Mechanical Agitation Signals

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Abstract:

The ubiquitous sensors have accelerated the realization of Internet of Things (IoT) but also raised challenges to the current overcrowding radio frequency (RF) based communications. The optical wireless communications (OWC) that utilize the wide optic bandwidth can well solve the spectrum crisis and is an appealing complementary solution to the IoT applications. However, the additional direct current (DC) power supply and complicated modulating and power management circuits may limit the large-scale deployment of OWC systems. In this paper, by integrating with triboelectric nanogenerators (TENGs), the light-emitting diode (LED) could be directly transformed into a wireless transmitter that conveys the information associated with mechanical stimuli without additional power supply. With the customized

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