Abstracts

A new satellite repeater amplifier characterization system for large bandwidth NPR and modulated signals measurements

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Power consumption and dissipation of satellite payloads for space telecommunication systems are mainly due to power amplifiers. To increase system capacity with limited bandwidth, multicarrier operations are required. Linearity is specified to limit the signal distortion by the nonlinear power amplifiers. In order to minimize power consumption under those linearity requirements, accurate measurements have to be performed. The NPR is well known as the figure of merit for the intermodulation distortion performance of amplifiers in telecommunications. In this paper, the development of an accurate large bandwidth NPR measurement system is presented. It enables characterizations up to Ka band (17-21 GHz and 27-31 GHz for space telecommunications applications with typically 250 MHz bandwidth). Measurements made on power amplifiers have been used to optimize operating conditions.

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