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**A HIGH EFFICIENCY POWER AMPLIFIER AT X-BAND
FOR SATELLITE COMMUNICATION**

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ABSTRACT

Efficiency linearity trade off is an important criteria in low earth orbit (LEO) satellite transmitter. In this paper, two X-band power amplifiers, one class A power amplifier and one harmonically terminated class A amplifier, are designed with an output power of 7W, total gain of 18.5dB and bandwidth of 200MHz are designed and compared in terms of efficiency and linearity. With acceptable linearity, the former is expected to give 30% efficiency while the later is expected to give 50% efficiency at 8.2GHz with FLM7785-4F and FLM7785-12F internally matched transistors from Fujitsu Quantum Devices.