

## Successful completion:

### Linearized Q/V band amplifier

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Implementation of Q/V band for future satellite communication systems is currently in the deployment phase. A significant increase in available bandwidth, which allows for realizing higher data rates, is the primary driving force. This capability is particularly essential for next-generation high-throughput satellite systems. Providers of satellite-based broadband services are actively promoting migration to Q/V band as established Ku and Ka bands are no longer able to satisfy increasing data rate requirements. Due to the high operating frequencies used in Q/V band, parasitic effects occur more often, resulting in nonlinearities and degradations in transmission performance. Because of this, detailed linearity analyses, as well as comprehensive measurement-based investigations of all system components operating in Q/V band, are crucial. This project was comprised of the development, fabrication, and measurement-based characterization of a linearized system amplifier designed for operation in Q/V band. Due to Astyx Satcom's contributions, improved system amplifier linear transmission behavior was achieved by employing a predistortion-based linearization circuit. Measurement results demonstrate a frequency-dependent increase in linear output power in the range of 2.5 dB to 5 dB.

