Passive Wideband Interferometer Enabled Error Feedback Transmitter

Tech ID: 27442 / UC Case 2014-998-0

ABSTRACT

Researchers at the University of California, Davis have designed a high spectral purity error feedback transmitter.

FULL DESCRIPTION

Increasing data rates in wireless communications requires a wider, more efficient spectrum. Feedback loops improve the linearity of a signal but increase the linearity requirements for the feedback. Current communication systems use complex modulation schemes that, due to the indirect correlation between signal gain and distortion, result in a high signal peak-to-average power ratios and stringent noise emission requirements. Therefore, there is a need to design a circuit that can cancel the feedback signal and leave high spectral purity feedback information.

Researchers at the University of California, Davis have developed a passive wideband interferometer enabled error feedback transmitter with high spectral purity. The passive wideband interferometer allows for suppression of signal distortion while maintaining signal gain capabilities, preserving linearity in a feedback loop. This design also suppresses noise created by the loop gain and can suppress a signal before it is fed into the circuit.

APPLICATIONS

- Error feedback transmitter

FEATURES/BENEFITS

- Decouple signal gain from error suppression
- Suppress noise
- Suppress nonlinearity with a higher gain
- Support high linear output power

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,205,473	02/12/2019	2014-998

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- High-Efficiency Broadband Doubler
- Hybrid SPST Switch Delivers High Isolation Over an Ultra-wide Bandwidth
- Nonlinearity Factorization for Up-Conversion Mixer Linearity Analysis

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OTHER INFORMATION

KEYWORDS

feedback transmitter, passive wideband interferometer, noise suppression, linearity

CATEGORIZED AS

- **Communications**
  - Other
  - Wireless
- **Sensors & Instrumentation**
  - Other

RELATED CASES

2014-998-0

- Passive Coupling Balance Scheme for Long Traveling Complex Differential Signals
- Frequency Discriminator-based Phase Noise Filter (PNF) for Ultra-Clean LO/Clock

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