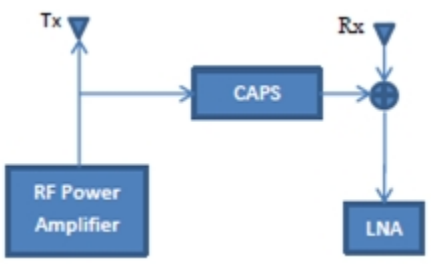
All-Analog Radio Interference Cancellation using CAPS Method

Tech ID: 24023 / UC Case 2013-901-0

BRIEF DESCRIPTION

Full duplex wireless networks offer the capability of transmitting and receiving data at the same time over the same frequency channel and doubling the efficiency of the bandwidth. However, full duplex radios have been limited due to a fundamental issue known as self-interference cancelation (SIC). For SIC, there are four stages which can be used in sequence for maximum benefit: passive interference suppression, all-analog interference cancelation, hybrid interference cancelation, and all-digital interference cancelation.

FULL DESCRIPTION



Configuration of radio interference cancelation using CAPS (cables, attenuators and power splitters), which cancels the self-interference from the transmitter to the receiver.

University of California researchers have developed a new design for all-analog radio SIC using elementary components used in a new design of cables, attenuators, and power splitters. The CAPS method uses an all-analog cancelation channel using cables, attenuators, and power splitters.

ADVANTAGES

- No requirement for use of any phase-shift.
- Handles real-time tuning in the presence of unknown distortion functions.
- Readily applicable for radio interference cancelation at cellular base stations and vehicle based radios where interference cancelation is high and physical space exists for the required hardware.
- Potential integration into a single small size unit for low power radio devices, such as smart phones.

OTHER INFORMATION

Applications

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OTHER INFORMATION

KEYWORDS

interference, cancellation, wireless, all-analog interference, self-interference cancellation

CATEGORIZED AS

- Communications
  - Internet
  - Networking
  - Wireless

RELATED CASES

2013-901-0

- ❑Multiple Input and Multiple Output (MIMO) radios

- ❑Radio interference cancelation between two or more radios

- ❑Inter-cell interference cancelation between cellular base stations.

RELATED MATERIALS

- ▶ Breaking the Barrier of Transmission Noise in Full-Duplex Radio - 05/31/2013

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,906,262	02/27/2018	2013-901

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