# Wide-band Receiver Based on Josephson Junction Arrays

Tech ID: 25463 / UC Case 2013-284-0

## TECHNOLOGY DESCRIPTION

There are broad research efforts to develop physically and electrically small receivers with wide bandwidth to replace receivers operating in communication systems at different frequencies with a single compact unit. Such receivers would substantially increase the communication abilities of aircraft and small mobile platforms. The leading technology involves using arrays of superconducting quantum interference devices (SQUIDs). Great progress has been made in the realization of SQUID-based receivers but they are difficult to fabricate because non-uniformity in junction parameters quickly degrade performance.

University researchers have developed an alternative device based on Josephson junction arrays that are simpler, have greater signal to noise, can provide better performance and are also easier to manufacture. In addition, the device simplifies the support electronics necessary for the implementation in various applications. Proof-of-concept devices have been fabricated.

This technology has patent pending and is available for sponsored research and/or licensing.

## RELATED MATERIALS

- Electrically-Small Superconducting Wide-Bandwidth Receiver Based on Series Arrays of Nano-Josephson Junctions - 01/15/2015

## PATENT STATUS

| Country | Type | Number | Dated | Case |
|---|---|---|---|---|
| United States Of America | Issued Patent | 10,205,081 | 02/12/2019 | 2013-284 |
| United States Of America | Published Application | 2019/028817 | 09/19/2019 | 2013-284 |

## CONTACT

University of California, San Diego
Office of Innovation and Commercialization
innovation@ucsd.edu
tel: 858.534.5815.




## OTHER INFORMATION

### KEYWORDS

Josephson Junction, SQUID, wide-band receiver, communications

### CATEGORIZED AS

- **Communications**
  - Wireless
- **Nanotechnology**
  - Electronics

### RELATED CASES

2013-284-0



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