IEEE
Advancing Technology for Humanity

DECLARATION OF GERARD P. GRENIER

I, Gerard P. Grenier, am over twenty-one (21) years of age. I have never been convicted of a felony, and I am fully competent to make this declaration. I declare the following to be true to the best of my knowledge, information and belief:

1. I am Senior Director of Publishing Technologies of The Institute of Electrical and Electronics Engineers, Incorporated ("IEEE").

2. IEEE is a neutral third party in IPR2019-00048.

3. Neither I nor IEEE itself is being compensated for this declaration.

4. Among my responsibilities as Senior Director of Publishing Technologies, I act as a custodian of certain records for IEEE.

5. I make this declaration based on my personal knowledge and information contained in the business records of IEEE.

6. As part of its ordinary course of business, IEEE publishes and makes available technical articles, proceedings and standards. These publications are made available for public download through the IEEE digital library, IEEE Xplore.

7. It is the regular practice of IEEE to publish articles and other writings including article abstracts and make them available to the public through IEEE Xplore. IEEE maintains copies of publications in the ordinary course of its regularly conducted activities.

8. The article below has been attached as Attachment A to this declaration:

A.	S. Jeon et al., "A Scalable 6-to-18 GHz Concurrent Dual-Band Quad-Beam Phased-Array Receiver in CMOS", IEEE Journal of Solid-State Circuits, Vol. 43, Issue 12, December 2008.

9. I obtained a copy of Attachment A through IEEE Xplore, where it is maintained in the ordinary course of IEEE's business. Attachment A is a true and correct copy of the Attachment, as it existed on or about May 3, 2018.

10. The article and abstract from IEEE Xplore shows the date of publication. IEEE Xplore populates this information using the metadata associated with the publication.

11. S. Jeon et al., "A Scalable 6-to-18 GHz Concurrent Dual-Band Quad-Beam Phased-Array Receiver in CMOS" was published in IEEE Journal of Solid-State Circuits,

Vol. 43, Issue 12. IEEE Journal of Solid-State Circuits, Vol. 43, Issue 12 was published in December 2008. Copies of this publication were made available no later than the last day of the publication month. The article is currently available for public download from the IEEE digital library, IEEE Xplore.

12. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

I declare under penalty of perjury that the foregoing statements are true and correct.

Executed on: 5 November - 2018

ATTACHMENT A

A Scalable 6-to-18 GHz Concurrent Dual-Band Quad-Beam Phased-Array Receiver in CMOS

7 Author(s)

Sanggeun Jeon ; Yu-Jiu Wang ; Hua Wang ; Florian Bohn ; Arun Natarajan ; Aydin Babakhani ; Ali Hajimiri

View All Authors

Abstract | Authors | Figures | References | Citations | Keywords | Metrics | Media

Abstract:
This paper reports a 6-to-18 GHz integrated phased- array receiver implemented in 130-nm CMOS. The receiver is easily scalable to build a very large-scale phased-array system. It concurrently forms four independent beams at two different frequencies from 6 to 18 GHz. The nominal conversion gain of the receiver ranges from 16 to 24 dB over the entire band while the worst-case cross-band and cross-polarization rejections are achieved 48 dB and 63 dB, respectively. Phase shifting is performed in the LO path by a digital phase rotator with the worst-case RMS phase error and amplitude variation of 0.5deg and 0.4 dB, respectively, over the entire band. A four-element phased-array receiver system is implemented based on four receiver chips. The measured array patterns agree well with the theoretical ones with a peak-to-null ratio of over 21.5 dB.

Published in: IEEE Journal of Solid-State Circuits (Volume: 43, Issue: 12, Dec. 2008)

Page(s): 2660 - 2673

INSPEC Accession Number: 10416766

Date of Publication: 12 December 2008

DOI: 10.1109/JSSC.2008.2004863

ISSN Information:

Publisher: IEEE

Sponsored by: IEEE Solid-State Circuits Society

Contents

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.