

# A dual-mode mm-wave injection-locked frequency divider with greater than 18% locking range in 65nm CMOS

**Citation for published version (APA):**

Cheema, H. M., Yu, X. P., Mahmoudi, R., van Zeijl, P., & Roermund, van, A. H. M. (2010). A dual-mode mm-wave injection-locked frequency divider with greater than 18% locking range in 65nm CMOS. In *Proceedings of the International Microwave Symposium Digest (MTT), 2010 IEEE MTT-S, May 23-28 2010, Anaheim, California* (pp. WE3E-1/1). Institute of Electrical and Electronics Engineers. <https://doi.org/10.1109/MWSYM.2010.5516767>

**DOI:**

[10.1109/MWSYM.2010.5516767](https://doi.org/10.1109/MWSYM.2010.5516767)

**Document status and date:**

Published: 01/01/2010

**Document Version:**

Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

**Please check the document version of this publication:**

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
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Wednesday 26 May 2010

Time 13:20 - 14:40

Room: 207D

**Chair:** Brad Nelson, RFMD

**Co-Chair:** Bert Henderson, *Cobham Sensor Systems*

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WE3E-2

1:40 PM

**A Dual-Mode mm-Wave Injection-Locked Frequency Divider with Greater than 18% Locking Range in 65nm CMOS**

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A dual-mode mm-wave injection locked frequency divider operating at 39.5 and 59.5 GHz is presented. Achieving a locking range of 18% and 20% in divide-by-2 and 3 modes, it consumes 4 mW from a 0.8 V supply. Implemented in a bulk CMOS 65nm technology, it occupies a core area of 0.03mm<sup>2</sup>. The dual-mode operation is enabled by differential direct injection and Miller capacitance de-tuning. Two new figure-of-merits for proper comparison of ILFDs are also presented.