Gang Dong, Wei Xiong, Zhao-yao Wu, Yin-tang Yang, 2016. Antenna-in-package system integrated with meander line antenna based on LTCC technology. *Frontiers of Information Technology & Electronic Engineering*, **17**(1):67-73. http://dx.doi.org/10.1631/FITEE.1500167

Front Inform Technol & Electron Eng

Antenna-in-package system integrated with meander line antenna based on LTCC technology

Key words: Antenna-in-package (AiP), Meander line antenna, Multi-chip module (MCM), Low temperature co-fired ceramic (LTCC)

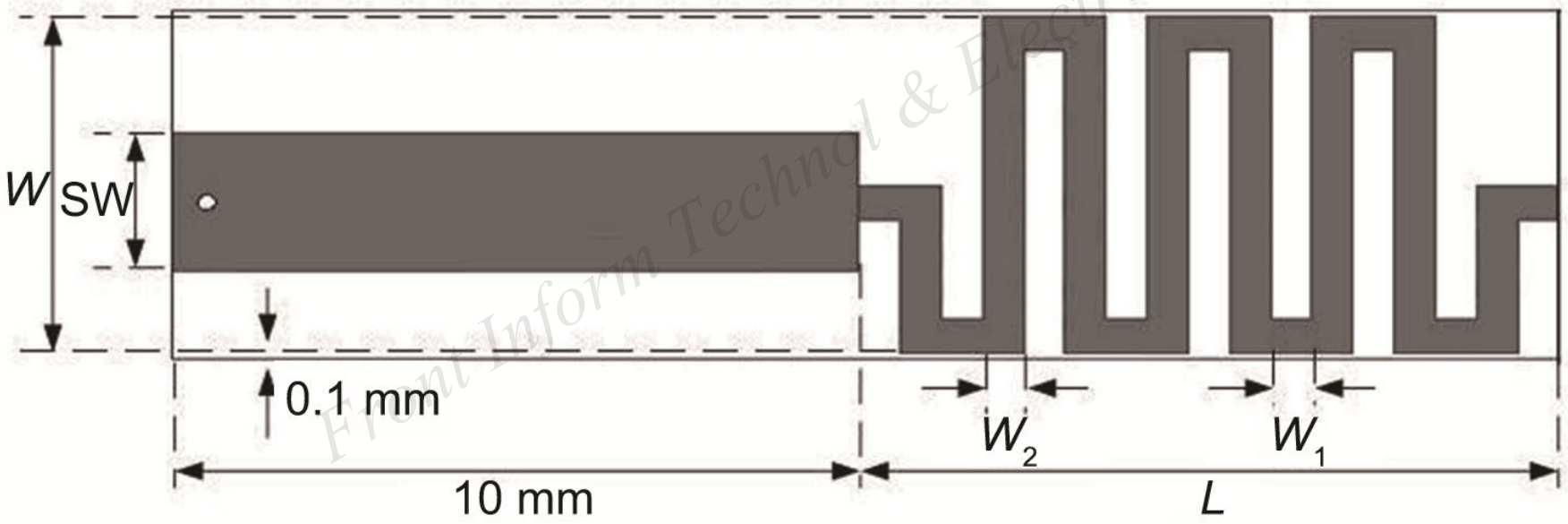
Contact: Gang Dong
E-mail: gdong@mail.xidian.edu.cn
ORCID: http://orcid.org/0000-0001-6557-2286

Introduction

- Antennas and integrated circuit (IC) chips can be easily integrated in a compact system by using a standard low temperature co-fired ceramic (LTCC) process. This method is called antenna-in-package (AiP).
- To make the system lighter, multi-purpose, better in performance, and lower in cost, multi-chip module (MCM) technology has been developed for high density assembly.
- An antenna-in-package system integrated with a meander line antenna based on LTCC technology has been presented in this work.

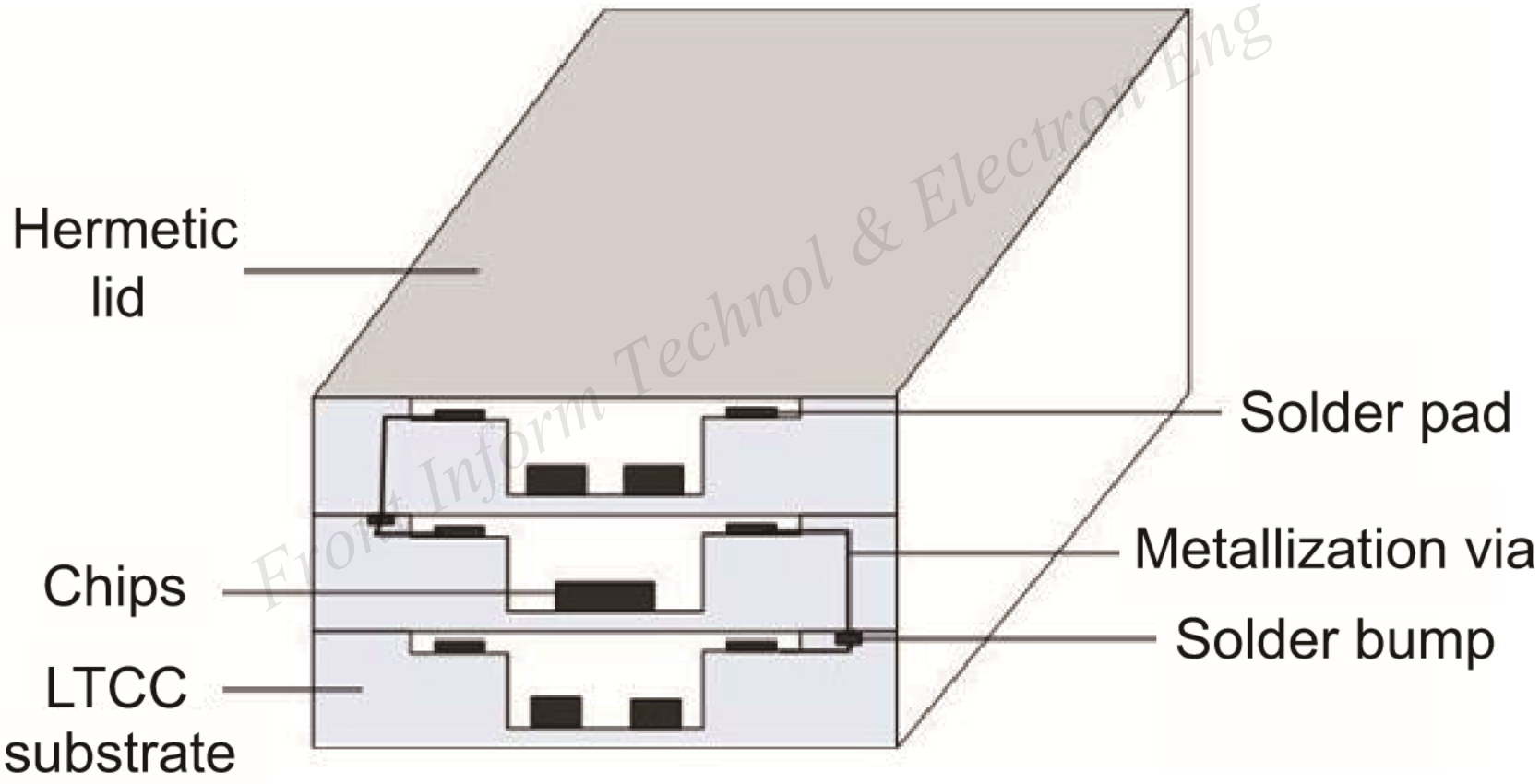
Front Inform Technol & Electron Eng

Design of the meander line antenna



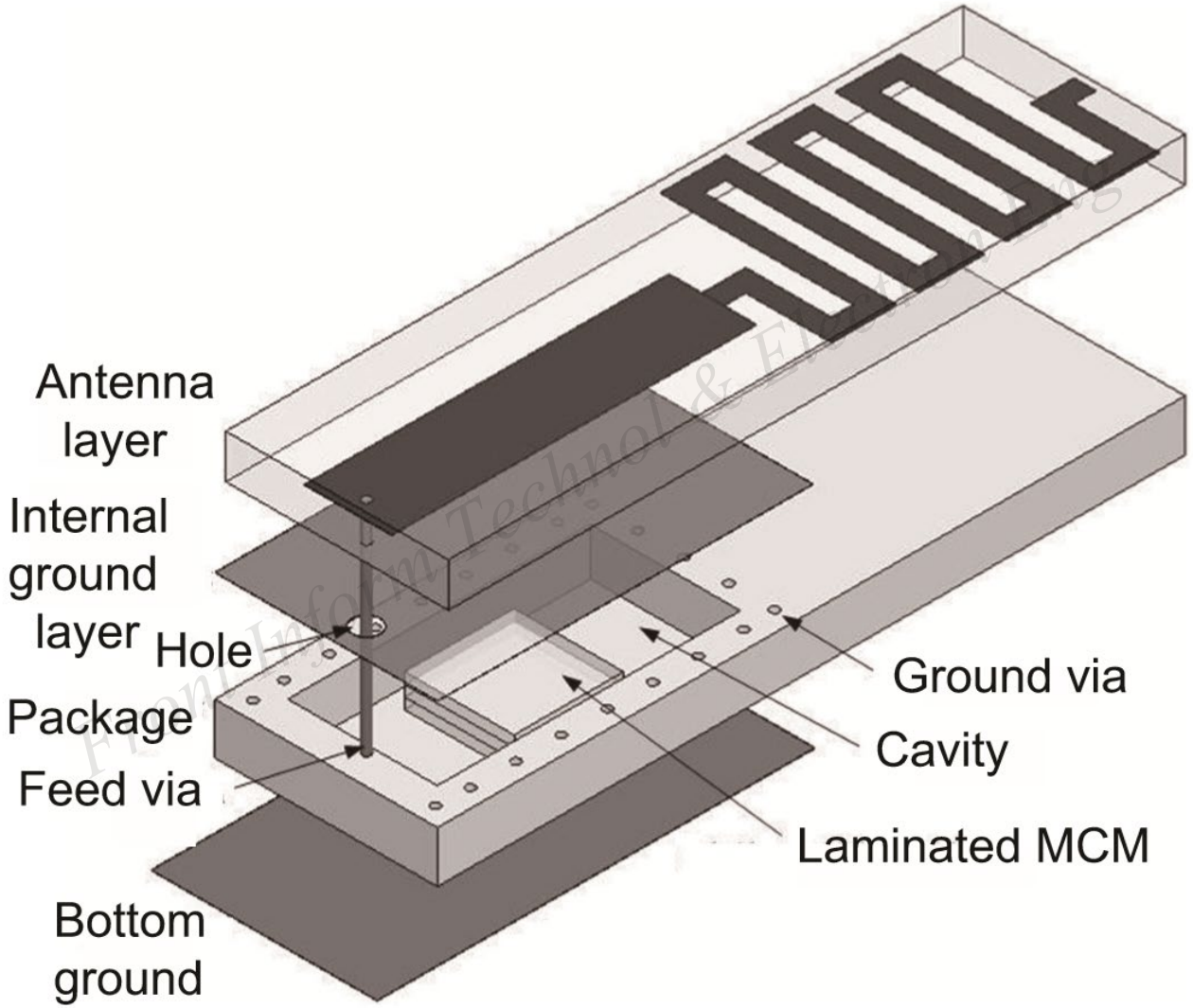
Front Inform Technol & Electron Eng

Illustration of the laminated LTCC MCM

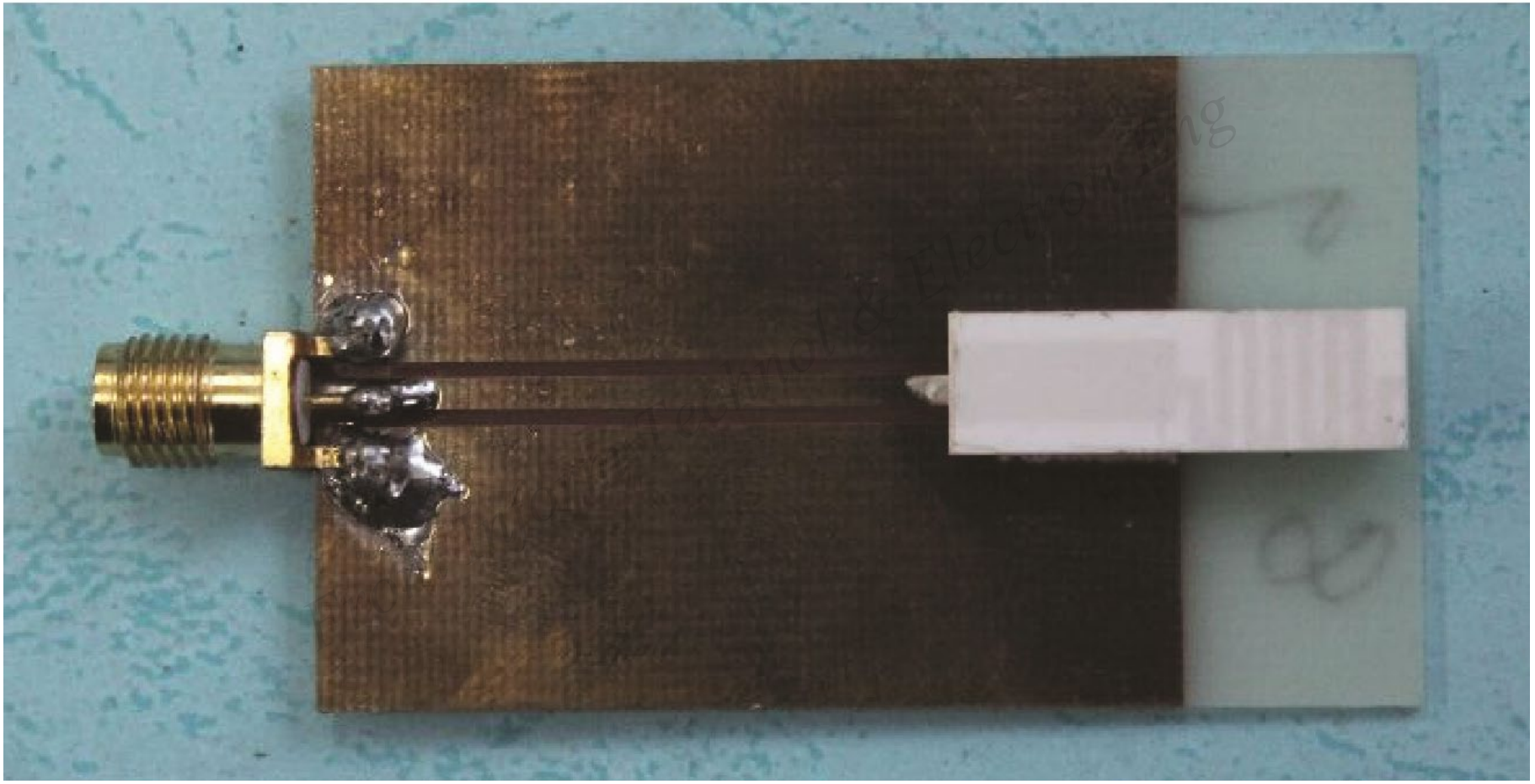


Front Inform Technol & Electron Eng

Expanded view of the proposed system



Fabricated AiP system



Measurement results

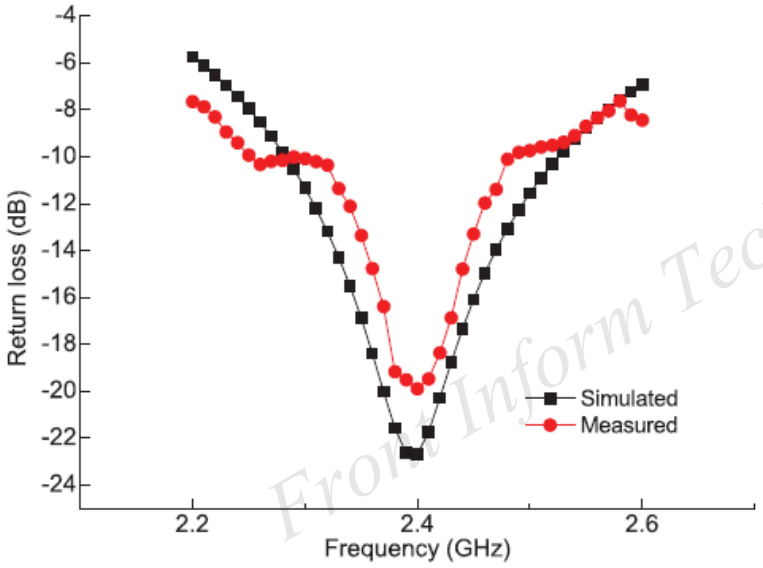


Fig. 13 Measured and simulated return loss characteristics

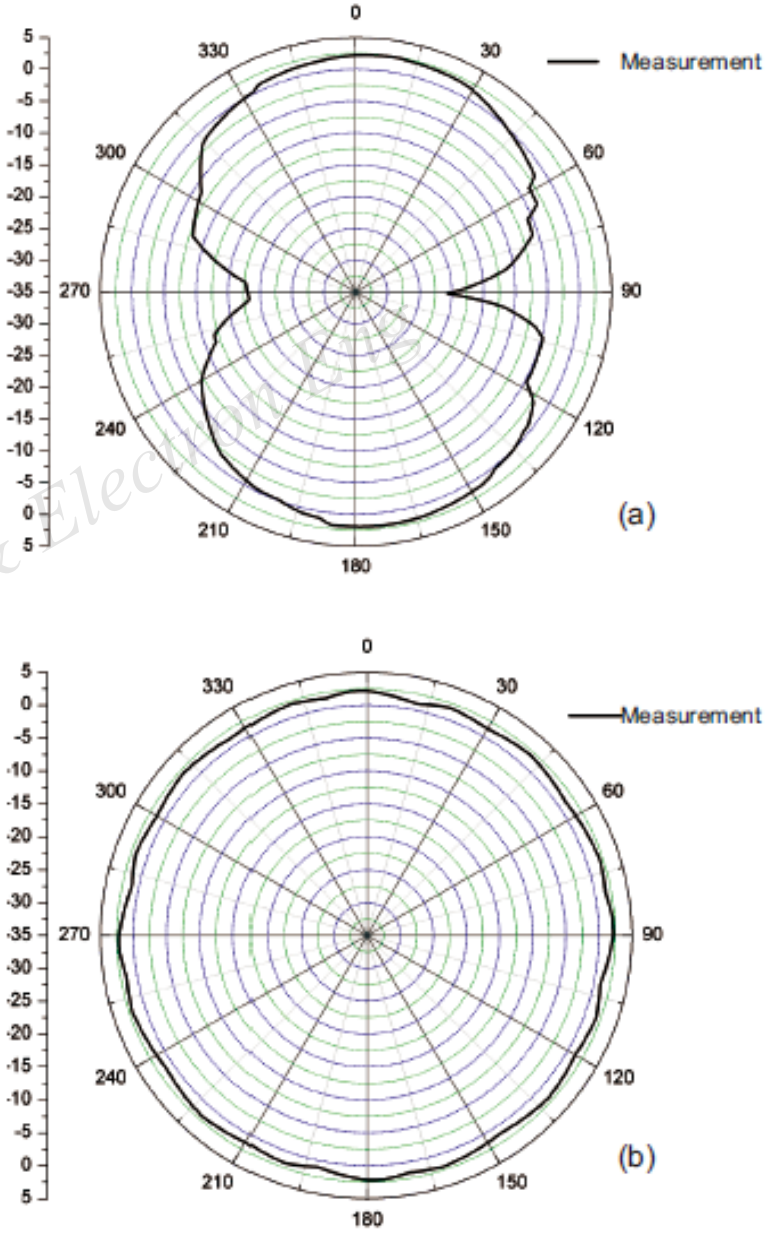


Fig. 14 Measured E-plane radiation pattern (a) and H-plane radiation pattern (b)

Front Inform Technol & Electron Eng

Conclusions

- In this paper, a compact antenna-in-package system integrated with a meander line antenna is designed and fabricated.
- The experimental results agree with the simulations, which suggests that this designed AiP system is suitable for 2.4 GHz applications.

Front Inform Technol & Electron Eng