

# Integration of A-GPS and IEEE 802.15.4a Chirp Spread Spectrum for Seamless Positioning

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## ABSTRACT

In this paper, the author will describe a new approach to improve the performance of seamless positioning, the integration of A-GPS and IEEE 802.15.4a Chirp Spread Spectrum. By receiving aiding information through the IEEE 802.15.4a data-link, it is expected that seamless positioning service can be provided in any transition region without replacing existing A-GPS receivers. It is necessary to verify how the IEEE 802.15.4a system can complement the existing A-GPS positioning. Also, the authors present the detail of experimental investigations and the results of the fundamental verification for seamless positioning using integration of A-GPS and IEEE 802.15.4a system.

Finally, this paper shows that the accuracy and efficiency of integrating A-GPS and IEEE 802.15.4a system through the static positioning experiment and compare with the performance of existing A-GPS receiver.

[3] TR45, Position Determination Service Standard for Dual Mode Spread Spectrum Systems, TIA/EIA/IS-801-1, March, 2001

[4] IEEE Std 802.15.4a™-2007, Part 15.4: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low-Rate Wireless Personal Area Networks (WPANs)

## INTRODUCTION

**Data Transmission using IEEE 802.15.4a Data-link**

**Integration of A-GPS and IEEE 802.15.4a**

**A-GPS Receiver using IEEE 802.15.4a Data-link**

**Performance of A-GPS using IEEE 802.15.4a Data-link**

**Conclusion**

## REFERENCES

[1] Elliott D. Kaplan, Understanding GPS Principles and Applications, Artech House, London, 1996.

[2] Parkinson, B. W., Spilker, J., Jr., Axelrad, P., (eds.), The Global Positioning System: Theory and Applications, Volume 1, AIAA, Washington, DC, 1996