

Secure Automatic Dependent Surveillance-Broadcast Systems

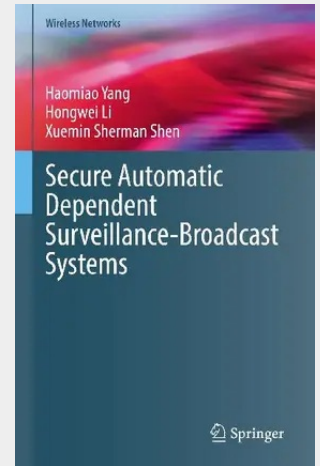
This book proposes secure schemes to address security challenges in secure automatic dependent surveillance-broadcast systems (ADS-B) from five different angles. First, the authors examine encryption schemes applied to the ADS-B environment for protecting messages confidentiality. Second, they propose an ADS-B broadcast authentication scheme with batch verification by employing an identity-based signature. Third, they present ADS-B broadcast authentication scheme based on a digital signature with message recovery, which provides a feature that the message is recoverable from the signature. Fourth, they propose a new cryptographic solution to ADS-B security. Finally, they propose an accurate and efficient cognitive aircraft location verification scheme preserving aircraft location privacy by utilizing a grid-based k-nearest neighbor algorithm. In summary, the authors show how ADS-B data links can greatly enhance flight safety by these proposed schemes without sacrificing data security.

Proposes several secure schemes to address security challenges in secure automatic dependent surveillance-broadcast systems (ADS-B);

Provides extensive experiments and evaluates the proposed schemes using real-world data;

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53,49 €

49,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783031070204

Medium: Buch

ISBN: 978-3-031-07020-4

Verlag: Springer

Erscheinungstermin: 24.08.2022

Sprache(n): Englisch

Auflage: 1. Auflage 2023

Serie: Wireless Networks

Produktform: Gebunden

Gewicht: 461 g

Seiten: 154

Format (B x H): 160 x 241 mm

