

Peer Review

Review of: "Impact of Carrier Leakage on NavIC Signal Performance"

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The manuscript presents a technically detailed and mathematically structured evaluation of carrier leakage effects on NavIC signal performance, and its main strength lies in proposing an extended interference analysis framework that incorporates real-world transmitter imperfections; however, several weaknesses limit its scientific impact. First, the study relies heavily on theoretical modeling and numerical demonstrations without sufficient experimental validation, simulation benchmarking, or comparison with real satellite telemetry or receiver measurements, which weakens confidence in the applicability of the results. Second, the novelty is not clearly positioned against existing GNSS interference and carrier leakage studies, and the literature review is mostly descriptive rather than critically identifying gaps that this work uniquely addresses. Third, the manuscript contains excessive mathematical derivations and repetitive explanations that reduce clarity and accessibility, while key engineering implications and design recommendations are not sufficiently highlighted. Additionally, some assumptions (e.g., ideal channel conditions, equal coupling coefficients, and simplified receiver behavior) may oversimplify real operational environments. To improve the paper, the authors should include simulation results using recognized GNSS software tools or real receiver datasets, clearly emphasize novelty and comparative performance against prior models, streamline mathematical sections to improve readability, justify modeling assumptions, and strengthen the discussion by translating results into practical design guidelines for satellite payload and receiver engineers.

Declarations

Potential competing interests: No potential competing interests to declare.