

Peer Review

Review of: "Upper Mid-Band Spectrum for 6G: Vision, Opportunity and Challenges"

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1. The manuscript addresses a highly timely topic with significant relevance to the evolution of wireless communication. The discussion around the FR3 band as a pivotal element of 6G standardization is forward-looking and well-grounded in current technological trends.
2. The authors provide an in-depth and holistic analysis of the FR3 band, covering technical aspects such as propagation characteristics, beam management, multiband sensing, massive MIMO implementations, and spectrum agility strategies. The breadth of coverage demonstrates a strong understanding of 6G wireless ecosystem requirements.
3. The manuscript is commendable for its reliance on recent and accurate empirical measurements (e.g., from NYU WIRELESS). The authors effectively bridge the gap between theoretical modeling and real-world channel behaviors, which enhances the credibility of the paper's insights.
4. The manuscript delves into nuanced concepts such as coherence time variation, RMS delay spread, angular spreads, and penetration loss, offering clarity through data tables and well-structured technical explanations.
5. Ideas such as the Waste Factor metric for energy efficiency and discussions on dynamic beamforming architectures in mMIMO provide fresh perspectives for future 6G deployment strategies.
6. The discussion on 3GPP and O-RAN standardization enhancements offers a practical path forward for researchers and policymakers. The proposed features, like agile timing advance and multiband pilot design, are particularly valuable.
7. The manuscript maintains a high standard of academic writing. It is logically organized, with precise sectioning and progression of ideas, making it accessible for industry professionals and

academic researchers.

I highly recommend this manuscript for publication. It significantly contributes to the ongoing discourse on 6G wireless communication. The authors' detailed technical evaluations and forward-thinking analysis make this work an essential reference for academic researchers and industry stakeholders developing and deploying FR3-based systems for 6G networks.

Declarations

Potential competing interests: No potential competing interests to declare.