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Investigation of the Unbiased Characteristic of Doppler Frequency to Different Antenna Array Geometries

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Abstract : Array signal processing techniques have been recently developing in a variety application of the performance enhancement of receivers by refraining the power of jamming and interference signals. In this scenario, biases induced to the antenna array receiver degrade significantly the accurate estimation of the carrier phase. Owing to the integration of frequency becomes the carrier phase, we have obtained the unbiased doppler frequency for the high precision estimation of carrier phase. The unbiased characteristic of Doppler frequency to the power jamming and the other interference signals allows achieving the highly accurate estimation of phase carrier. In this study, we have rigorously investigated the unbiased characteristic of Doppler frequency to the variation of the antenna array geometries. The simulation results have efficiently verified that the Doppler frequency remains also unbiased and accurate to the variation of antenna array geometries.

Keywords : array signal processing, unbiased doppler frequency, GNSS, carrier phase, and slowly fluctuating point target
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