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Letter to the Editor

Correction to "Optimally Joint Subcarrier Matching and Power Allocation in OFDM Multihop System"

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In the above paper [1], the author gives that $\partial R_{\text{tot},k}/\partial x_k$ is always greater than 0 as (15) in [1]. However, $\partial R_{\text{tot},k}/\partial x_k$ should be

$$\begin{aligned}
&\frac{\partial R_{\text{tot},k}(P_{1'}, P_{2'})}{\partial x_k} \\
&= \frac{B}{4\,\text{In}\,2} \\
&\times \frac{2x_k P_{1'}(P_{\text{tot}} - P_{1'}) + \sigma_2^2\left[P_{\text{tot}}(H+x_k)^2 - 2P_{1'}\left(H^2+x_k^2\right)\right]}{\left[\sigma_2^2(H+x_k)^2 + P_{1'}(H+x_k)\right]\left[\sigma_2^2(H-x_k)^2 + (P_{\text{tot}} - P_{1'})(H-x_k)\right]} \\
&= \frac{B}{4\,\text{In}\,2} \\
&\times \frac{2x_k P_{1'}(P_{\text{tot}} - P_{1'}) + \sigma_2^2\left[P_{\text{tot}}(H+x_k)^2 - 2P_{1'}\left(H^2+x_k^2\right)\right]}{\left(H^2 - x_k^2\right)\left[\sigma_2^2(H+x_k) + P_{1'}\right]\left[\sigma_2^2(H-x_k) + (P_{\text{tot}} - P_{1'})\right]},
\end{aligned} \tag{1}$$

where $P_{\text{tot}} \geq P_{1'} \geq 0$. It is observed that the denominators of (1) and (15) in [1] are the same and positive whereas the numerators are different. From (1), it cannot be assured that $\partial R_{\text{tot},k}/\partial x_k$ is always greater than 0, for example, when $P_{1'} \to P_{\text{tot}}$, $\partial R_{\text{tot},k}/\partial x_k < 0$. Therefore, the total channel capacity is not always monotonically increasing function of x_k for the given power allocation, and (16) and (17) in [1] cannot be obtained. Meanwhile, the extended proposition in [1, Section 4] does not stand.

References

[1] W. Wang, S. Yan, and S. Yang, "Optimally joint subcarrier matching and power allocation in OFDM multihop system," *EURASIP Journal on Advances in Signal Processing*, vol. 2008, Article ID 241378, 8 pages, 2008.