Errata: Digital Beamforming on Receive: Techniques and Optimization Strategies for High-Resolution Wide-Swath SAR Imaging

This correction refers to the above paper[1] p. 571, (25).

Summation of $e_k(f)$ for all $k > 0$ leads to the correct complex spectrum $e_\Sigma(f)$ for $k > 0$, but then the factor of 2 in (25) of [1] is not correct to account for both signs of k. This requires summing over all contributions k, $k \neq 0$, which leads to the correct expression for $e_\Sigma(f)$ as follows:

$$e_\Sigma(f) = \sum_{\substack{k=-\infty \\ k\neq 0}}^{\infty} e_k(f) = \sum_{\substack{k=-\infty \\ k\neq 0}}^{\infty} \left(U_k(f) \cdot \sum_{m=1}^{N} \sum_{j=1}^{N} H_{jk}(f) \cdot P_{jm}(f) \right) \tag{25}$$

Note that (24) defined $e_k(f)$ for $k > 0$ by restricting the integer index m to $\{m_0, N\}$ for $k > 0$, with $m_0 = \max\{N - k + 1, 1\}$, while a restriction to $\{1, m_1\}$ applies to $k < 0$, with $m_1 = \min\{-k, N\}$. In contrast the above equation includes a generalization of $e_k(f)$ to both signs of k, simply by considering the full range of m from $\{1, N\}$. Such extension of the index leaves the final results unchanged, as the restrictions only remove zero contributions from the sums.

Notably, the simulation results presented in Section IV of the paper are not affected.

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[1] Gebert, N., Krieger, G., and Moreira, A., Digital beamforming on receive: Techniques and optimization strategies for high-resolution wide-swath SAR imaging, *IEEE Transactions on Aerospace and Electronic Systems*, **45**, 2 (Apr. 2009), 564–592.

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