

## **Description of Additional Supplementary Files**

**Supplementary Data 1:** Editable Word version of the quantitative comparison table shown in Fig. 2d, providing the full numerical results in an accessible format.

**Supplementary Movie 1:** Visualization of TAMP enhancement on various non-ideal measurement CT images, showing slice-by-slice comparisons between original NICT and TAMP-enhanced images across different NICT settings and body regions.