

**Suppl Figure 1:** On the left side, the Naeotom Alpha photon-counting CT system. On the right, the semi-anthropomorphic abdomen phantom and the fat extension rings used in this study are shown.



**Suppl Figure 2:** Modulation transfer function (MTF) between air and the homogeneous soft tissue background of the phantom for the UHR (green) and Std (purple) acquisition mode reconstructed using a B40 kernel at a slice thickness of 1 mm and a dose of 8 mGy. On the left, the corresponding profiles in an S-phantom reconstruction.  $C = 20$  HU,  $W = 1000$  HU.

