

- Title:** Vertical and horizontal transmission enhancement between antennas using textile artificial magnetic conductor waveguide sheet
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- Abstract:** A textile artificial magnetic conductor (AMC) waveguide sheet with a textile diamond dipole is proposed to improve wireless on-body transmission. The sheet-like waveguide provides an independent transmission path which can reduce the performance degradation caused by the human body. The proposed AMC sheet is made entirely of textiles for both the substrate and the conducting parts, thus making it suitable for wearable communications. Transmission characteristics between antennas are studied rigorously in free space and on-body environments. Significant transmission enhancement is observed for all the tested orientations and positions for both free space and onbody placements. With the presence of the AMC, the  $S_{21}$  has peaks of up to a maximum of -9.9 dB. This textile AMC sheet constitutes a new approach for efficient wearable wireless body-centric communications.