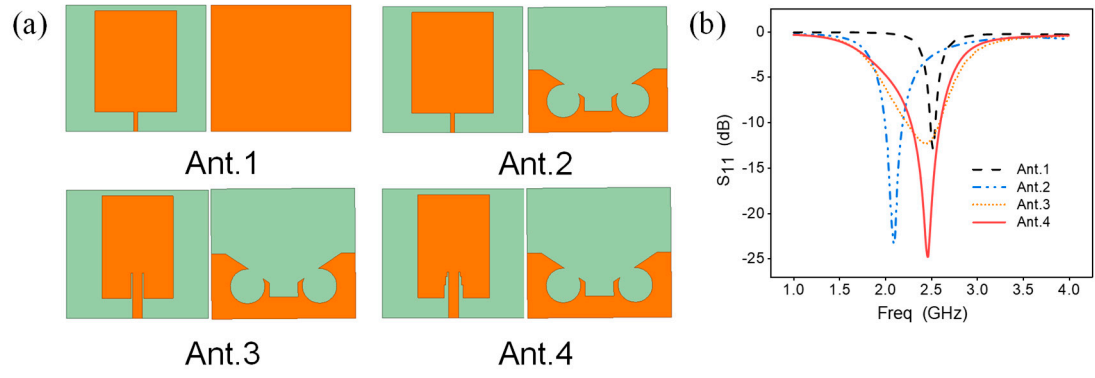


# Supplementary Materials

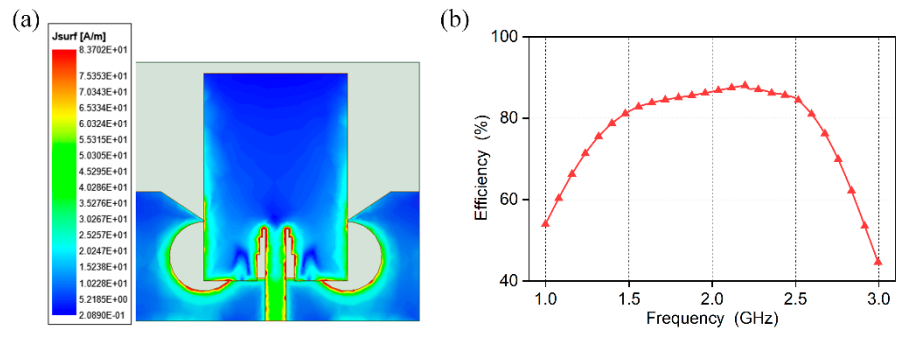
## Flexible Symmetric-Defection Antenna with Bending and Thermal Insensitivity for Miniaturized UAV

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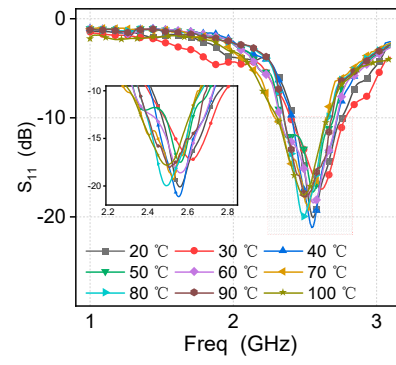
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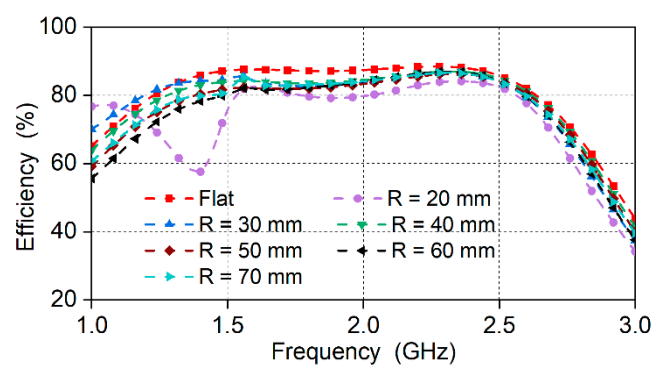
**Figure S1** (a) Four antennas with different structure designs. (b) Return loss results of four antennas.



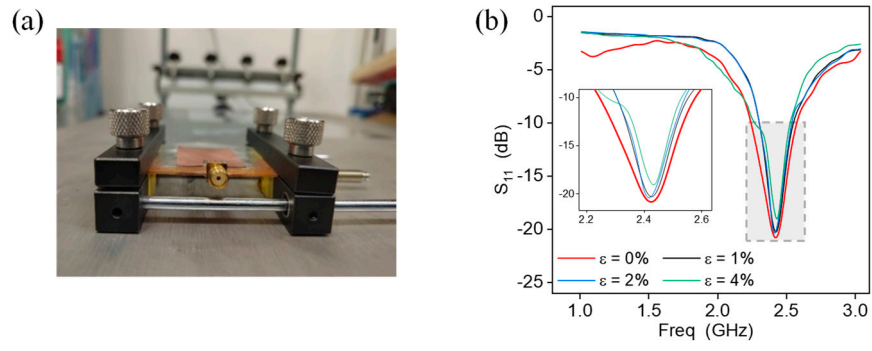
**Figure S2** (a) Surface current distribution of FSDA at 2.45 GHz. (b) Radiation efficiency.



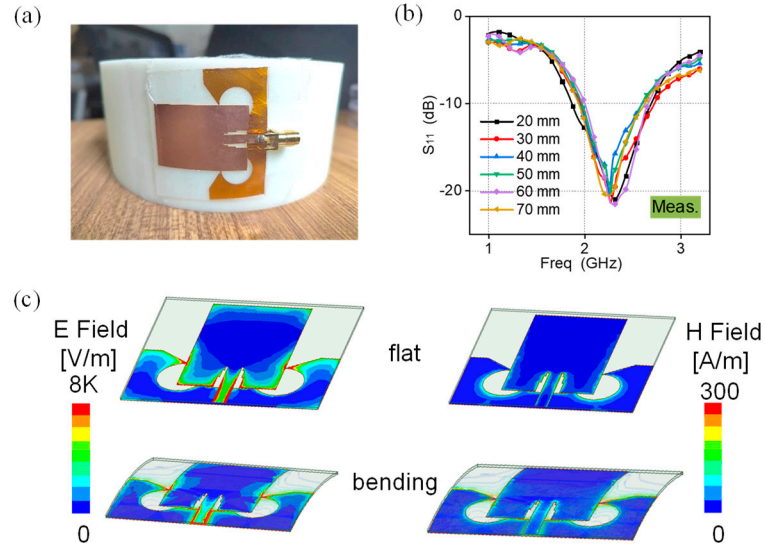
**Figure S3** Return loss changes versus the temperature.



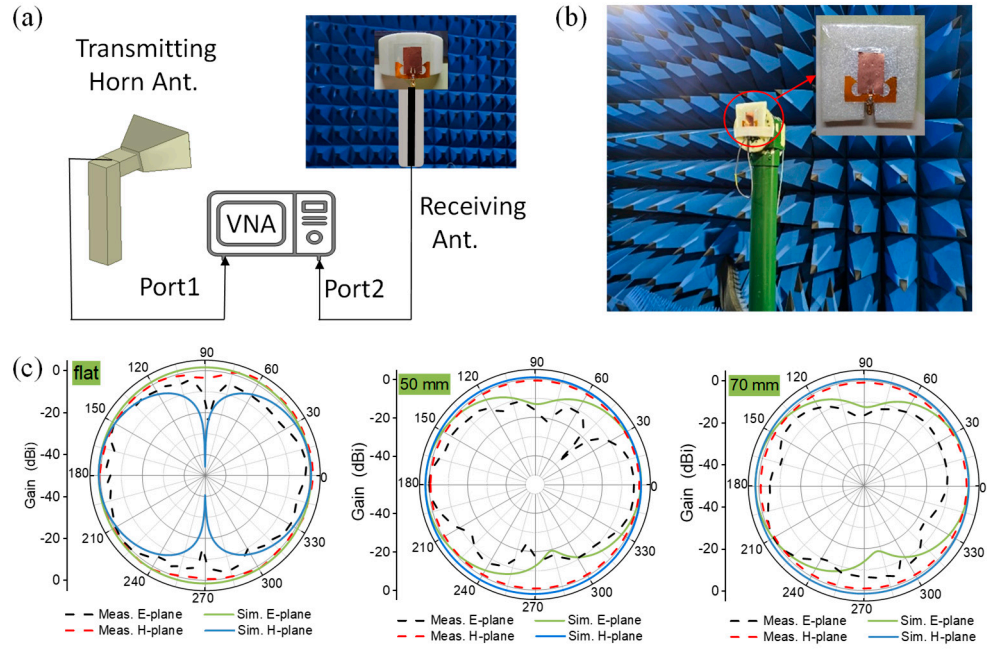
**Figure S4** Radiation efficiency at various bending radii and flat.



**Figure S5** FSDA's stretching performance. (a) Stretching control machine. (b) Return loss changes of the FSDA versus different stretching strains.

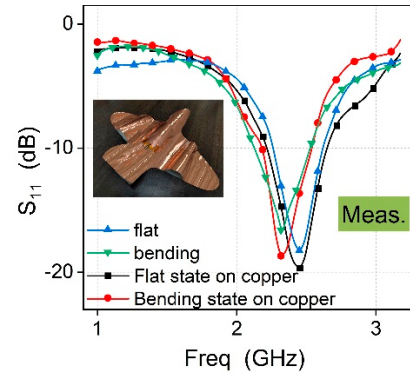


**Figure S6** FSDA's bending performance (E-plane). (a) Optical image when the FSDA is attached to a cylinder surface along with the circumference direction. (b) Measured results for  $S_{11}$  with different bending radii. (c) Electric and magnetic field comparison while the FSDA is flat (top) and bending (bottom).



**Figure S7** Comparison of the radiation patterns. (a) Schematic illustration of the free space testing. (b) Optical image of the tested antenna at a rotating platform in the anechoic chamber. (c) Measured and simulated radiation patterns at the H-plane and E-plane of the FSDA under three states, flat (left), conformal cylinder with a radius of 50 mm (middle), and 70 mm (right).





**Figure S8** Measured results for the return loss while the antenna is tested with different statues and an optical image of the antenna mounted on the copper-covered 3D-printed UAV.