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Enhanced Polarization from Flexible Hierarchical MnO_2 Arrays on the Cotton Cloth with Excellent Microwave Absorption

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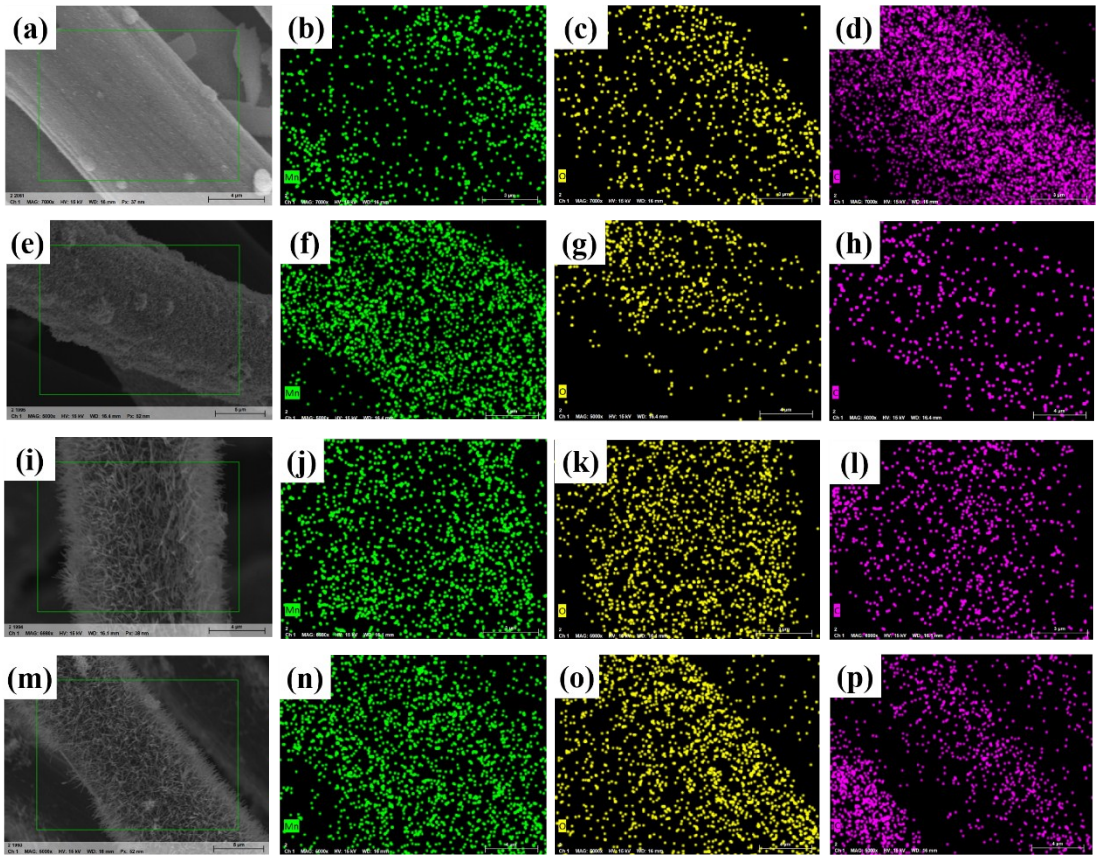

Figure S1. Elemental mapping of CC@MnO_2-1 (a, b, c, d), CC@MnO_2-2

(e, f, g, h), CC@MnO_2-3 (i, j, k, l) and CC@MnO_2-4 (m, n, o, p).

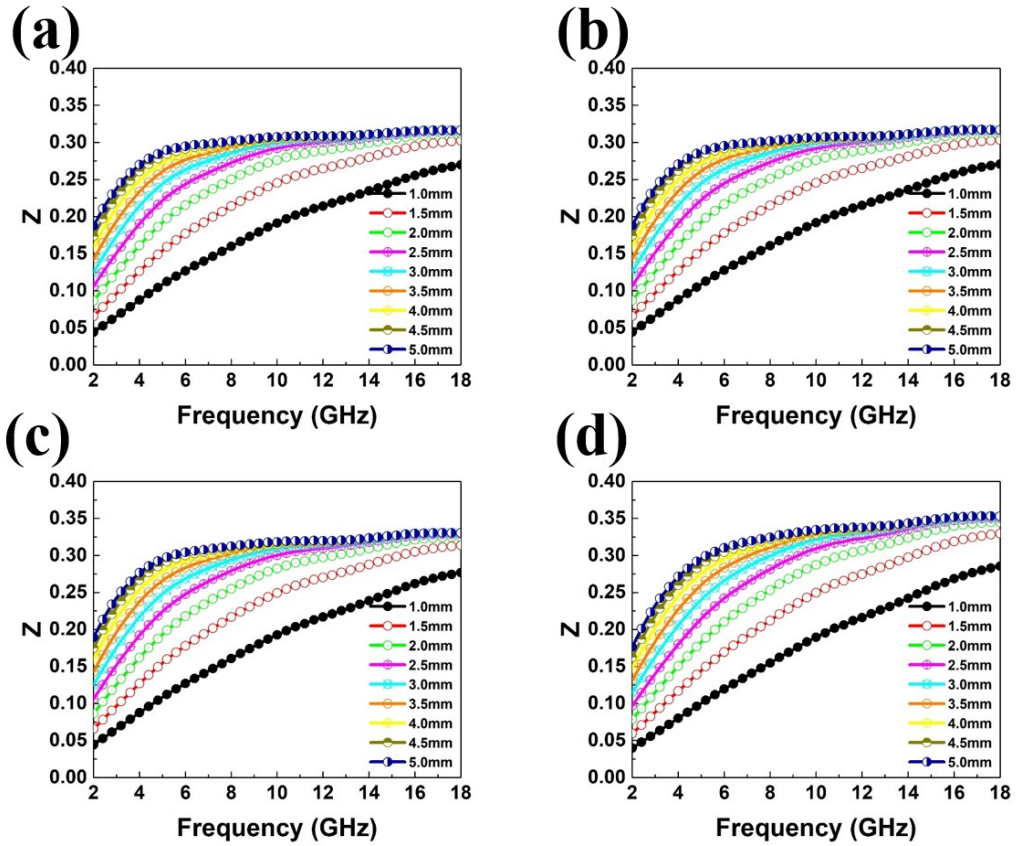

Figure S2. Impedance matching versus frequency for CC@MnO_2-1 (a), CC@MnO_2-2 (b), CC@MnO_2-3 (c) and CC@MnO_2-4 (d).

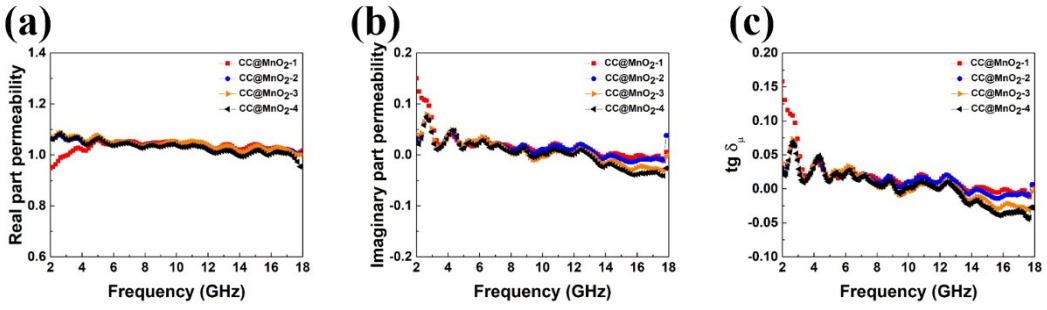

Figure S3. Real permeability μ' (a), imaginary permeability μ'' (b) and tan δ_μ (c) of the paraffin composites containing 25 wt.% CC@MnO_2.

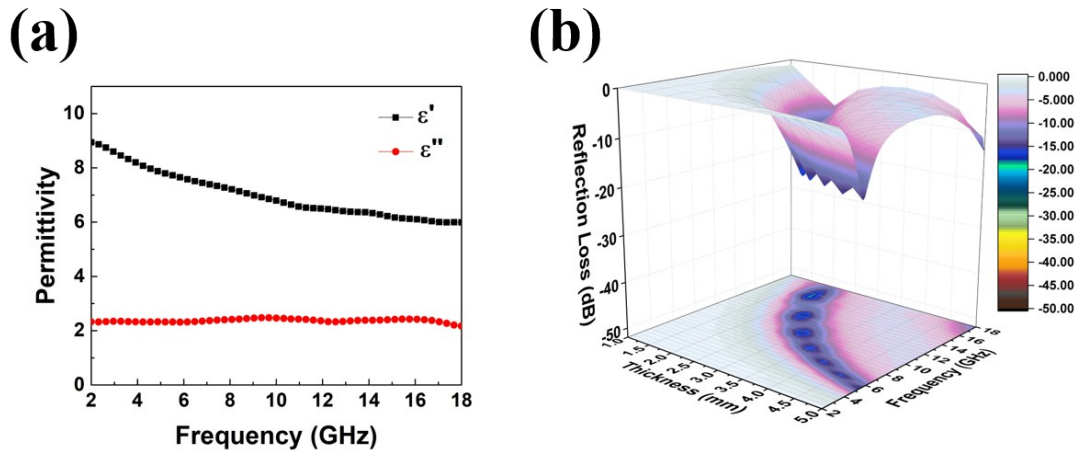

Figure S4. The permittivity (a) and frequency dependence of calculated 3D plots (b) for pure CC sample.

Table S1. Comparison of microwave absorption performance between the reported MnO_2-based composites and the as-prepared CC@MnO_2-4.

absorber	maximum RL (dB)	matching frequency (GHz)	absorption band (GHz)	refs
Hollow urchin-like MnO_2	-41.0	8.7	-	S1
MnO_2@Fe-graphene	-17.5	16	-	S2
Graphene@Fe_3O_4@carbon@ MnO_2	-38.8	15	5.4	S3
Polydopamine@MnO_2	-21.8	9.68	3.28	S4
Carbonyl iron@MnO_2	-39.1	4.4	-	S5
Fe_3O_4@MnO_2	-42.6	5.7	6.7	S6
MnO_2-reduced graphene oxide	-37	16.8	-	S7
Fe_2O_3@C@MnO_2	-45	9.36	3.99	S8
CC@ MnO_2	**-53.2**	**5.44**	**5.84**	**our**

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