

Electronic Supplementary Information†

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Light weight and flexible poly(ether ether ketone) based composite film with excellent thermally stable and mechanical properties for wide-band electromagnetic interference shielding

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Electronic supplementary information for:

1. The dimensions of film samples in EMI shielding test. (Table S1)
2. TGA curves of PEEK/MWCNT composites with different GPPS contents. (Figure S1)
3. Comparisons of AC conductivities and thermal stabilities between PEEK/MWCNT/GPPS1.0 and PEEK/wrapped MWCNT/GPPS1.0 composite films. (Figure S2)
4. The detailed EMI SE and specific EMI SE of PEEK/wrapped MWCNT/GPPS1.0 film (9 wt% wrapped MWCNT) at various frequencies. (Table S2)

1. The dimensions of film samples in EMI shielding test.

Table S1 The precisely dimensions of film samples at different frequency band in EMI shielding test.

Frequency band (GHz)	Length (mm)	Width (mm)	Thickness (mm)
8.2-12.4 (X band)	22.90	10.20	0.18
12.4-18 (Ku band)	15.90	8.03	0.18
18-26.5 (K band)	10.95	4.50	0.18
26.5-40 (Ka band)	7.15	3.60	0.18

2. TGA curves of PEEK/MWCNT composites with different GPPS contents.

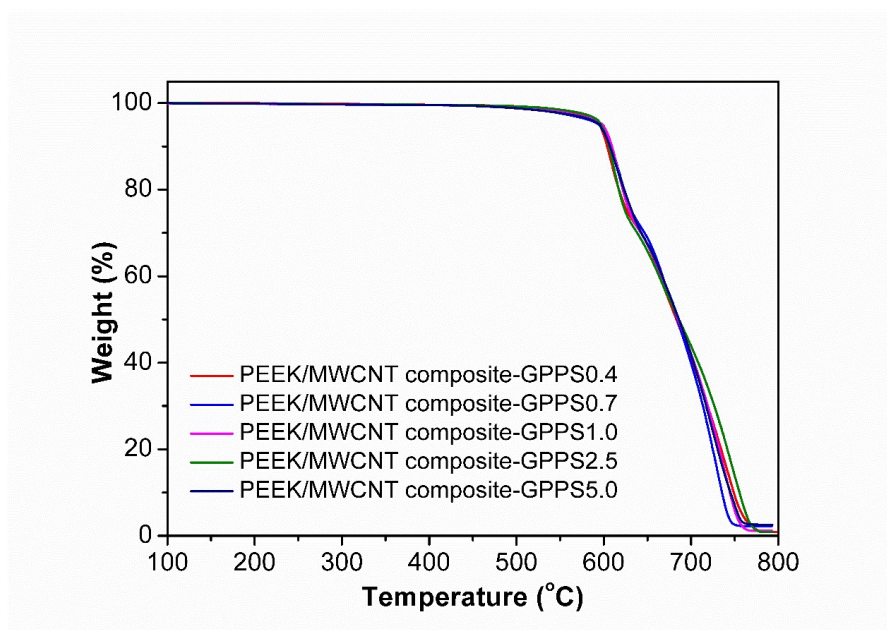


Figure S1 TGA curves of PEEK/MWCNT composite-GPPSx.

3. Comparisons of AC conductivities and thermal stabilities between PEEK/MWCNT/GPPS1.0 and PEEK/wrapped MWCNT/GPPS1.0 composite films.

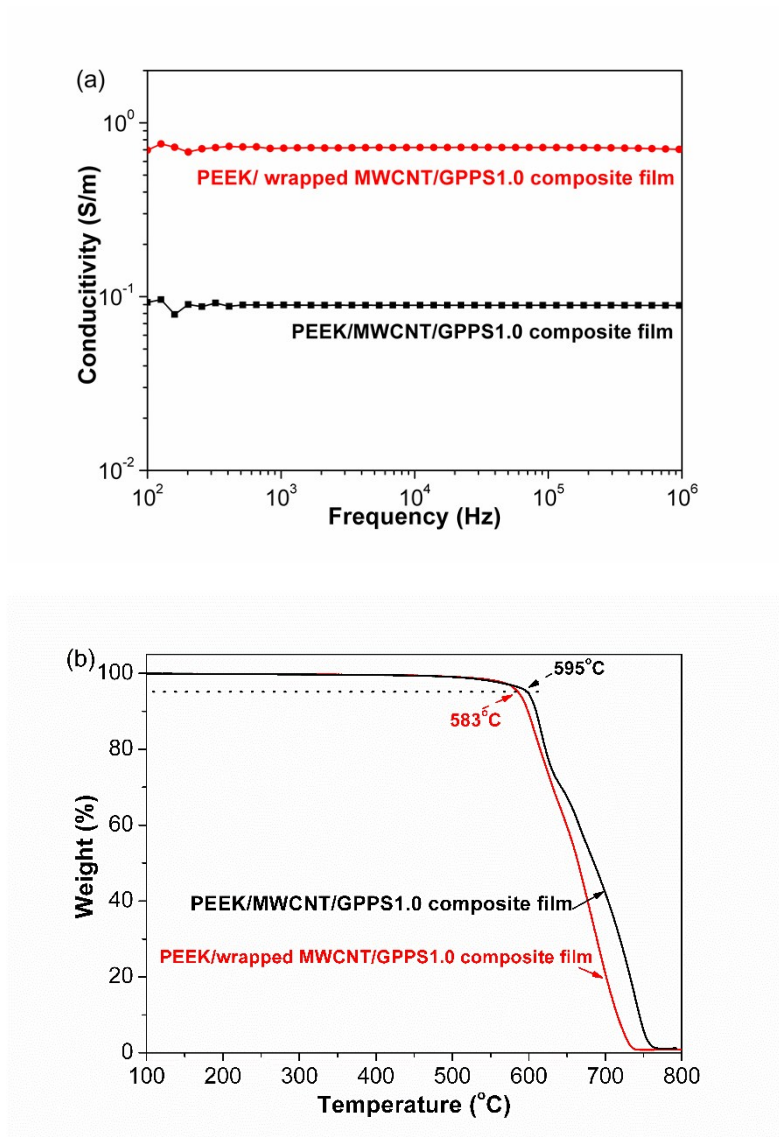


Figure S2 Comparisons of (a) AC conductivities and (b) thermal stabilities between PEEK/MWCNT/GPPS1.0 and PEEK/wrapped MWCNT/GPPS1.0 composite films (the weight ratio of the wrapped MWCNT or MWCNT are 7 wt%).

4. The detailed EMI SE and specific EMI SE of PEEK/wrapped MWCNT/GPPS1.0 film (9 wt% wrapped MWCNT) at various frequencies.

Table S2 The detailed EMI SE and specific EMI SE of PEEK/wrapped MWCNT/GPPS1.0 film (9 wt% wrapped MWCNT) at various frequencies.

Frequency (GHz)	SE (dB)	SSE^a (dB mm⁻¹)	Frequency (GHz)	SE (dB)	SSE^a (dB mm⁻¹)
8.2	11.8	65.3	22.0	18.4	102.1
10.0	10.3	57.4	24.0	15.3	85.0
12.4	10.0	55.8	26.5	15.2	84.4
14.0	9.9	54.8	30.0	16.7	92.5
16.0	9.1	50.6	33.0	16.2	89.9
18.0	9.3	51.6	36.0	16.6	92.4
20.0	18.5	102.8	40.0	16.1	89.7

^aSSE: Specific EMI SE.