Functionalized Graphene Nanoribbon Films as a Radiofrequency and Optically Transparent Material – Supporting Information

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Table S1. Properties of HD-GNR films

R_s (kΩ/□)	**27.7**	**26.0**	**8.1**	**5.8**	**4.3**	**1.7**
d (nm)	42.1	88.8	138.1	174.1	202.6	213.0
σ (S/m)	857.2	432.5	1346.8	550.0	2878.4	3427.9

*R_s is the sheet resistance of the HD-GNR film. d is the thickness of the HD-GNR film. σ is the DC conductivity calculated based on the sheet resistance and the thickness of the HD-GNR film. Conductivity is thickness-independent for a bulk material. However, the density of HD-GNR films is proportional to the thickness; thus, increase in the DC conductivity is related to the increase in film density.

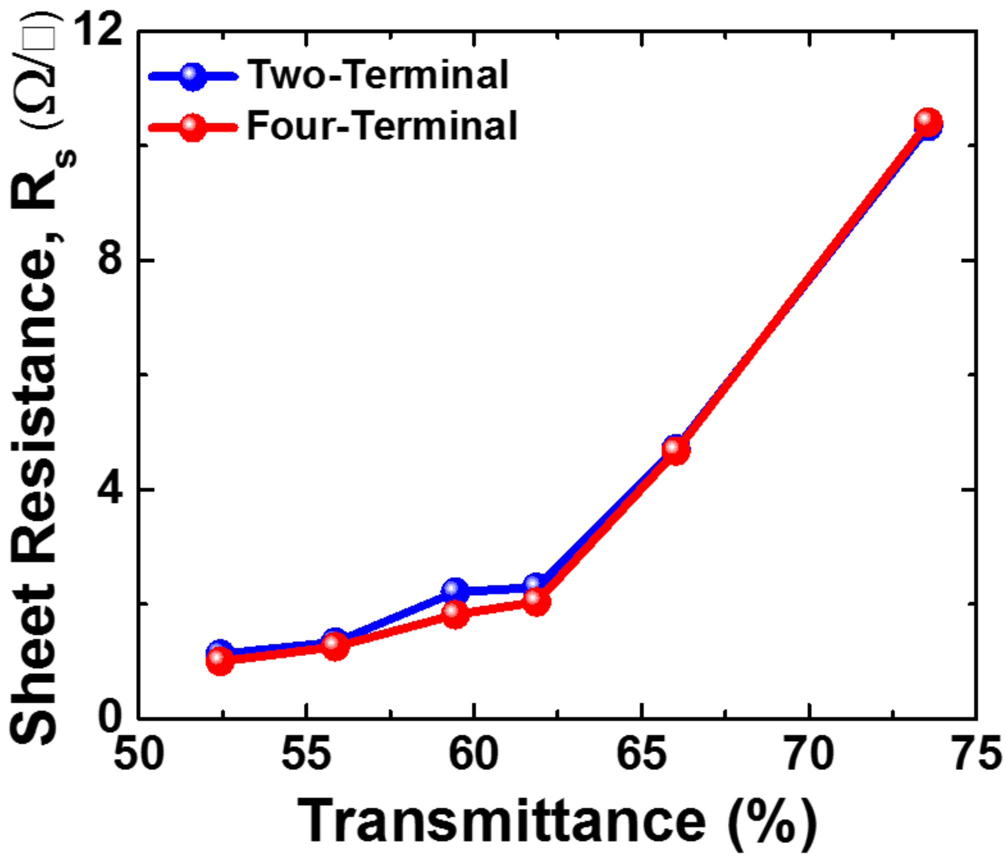

Figure S1. Comparison between the two-terminal and four-terminal measurements. Both methods show excellent agreement with each other. The sheet resistance with the two-terminal measurement is described in the Experimental Methods. The four-terminal measurement was carried out using Alessi four-point probe and Keithley 2010 multimeter. The four-point probe was placed directly on the HD-GNR films without any deposited metal contacts, unlike the two-terminal method. The sheet resistance was determined by $R_s = \frac{\pi}{ln2}\frac{V}{I}$. The film size was 7.62 cm × 2.54 cm, large enough to prevent the need for any correction due to finite size and edge effects that could arise from the four-terminal measurement.