

### Supplementary file

## Real-Time Detection of Acetone Gas Molecules at ppt Levels in Air Atmosphere Using a Partially Suspended Graphene Surface Acoustic Wave Skin Gas Sensor

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Figure S1 (a) Surface roughness of different thickness of SiO<sub>2</sub> film, (b) Grain size of SiO<sub>2</sub> (3 μm) film grown at different temperature.

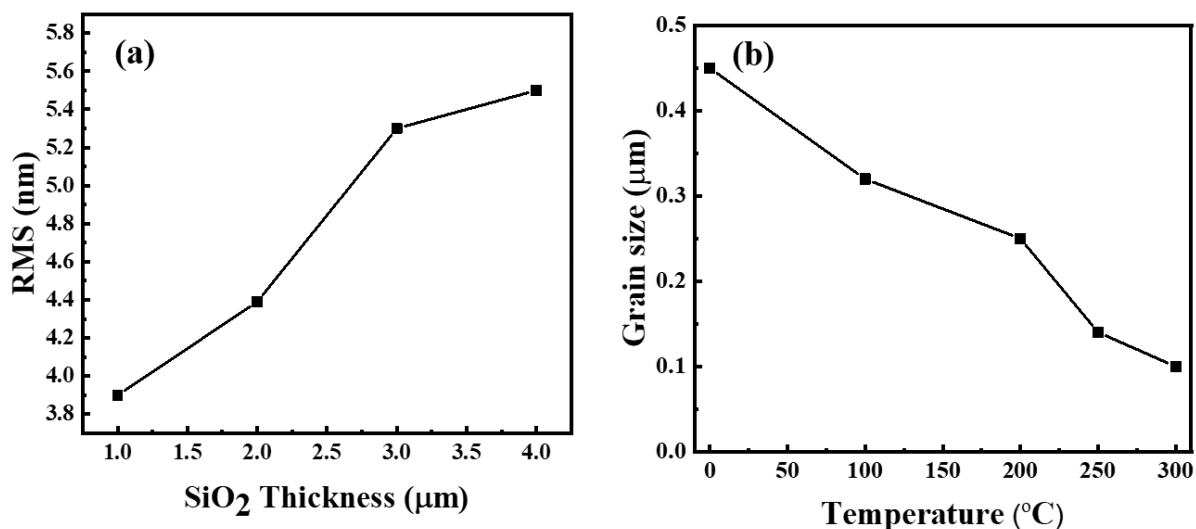




Figure S3 Surface acoustic wave spectra of 1, 2, 3 & 4  $\mu\text{m}$  deposited  $\text{SiO}_2$  thin film.

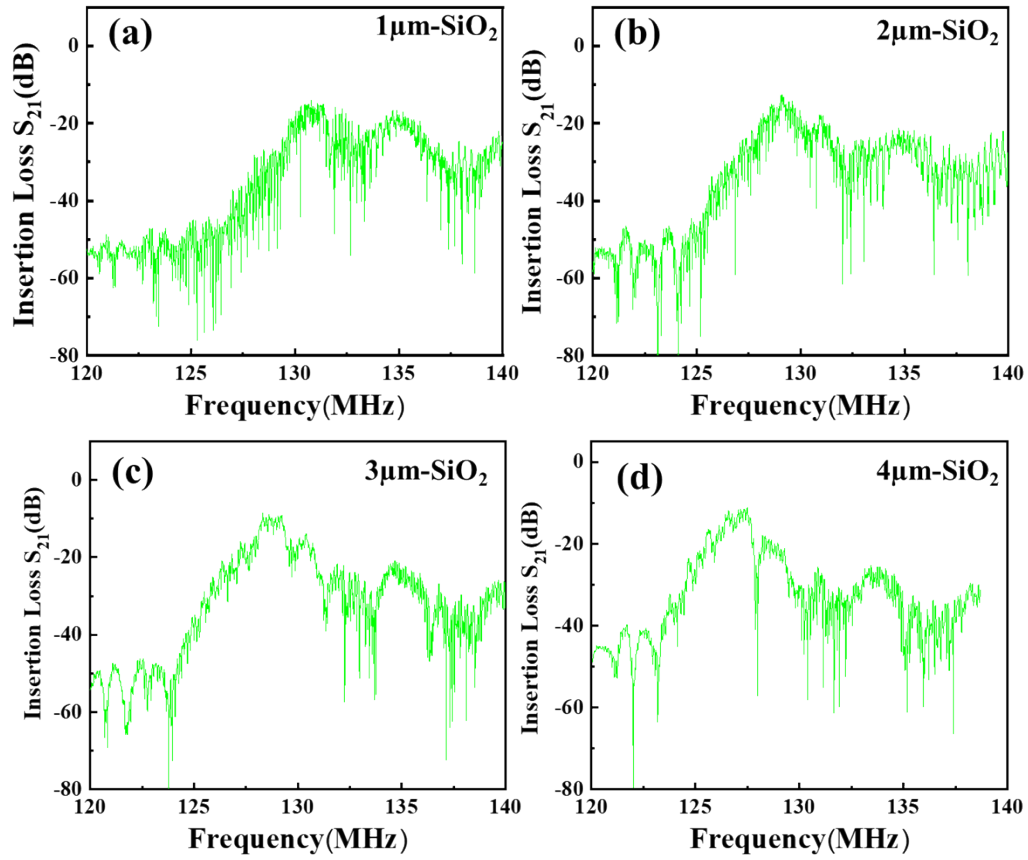


Figure S4 Dynamic frequency response curves of the G-SAW sensor towards (a). acetone, (b). Ammonia, & (c). Ethanol and gas molecules, respectively.

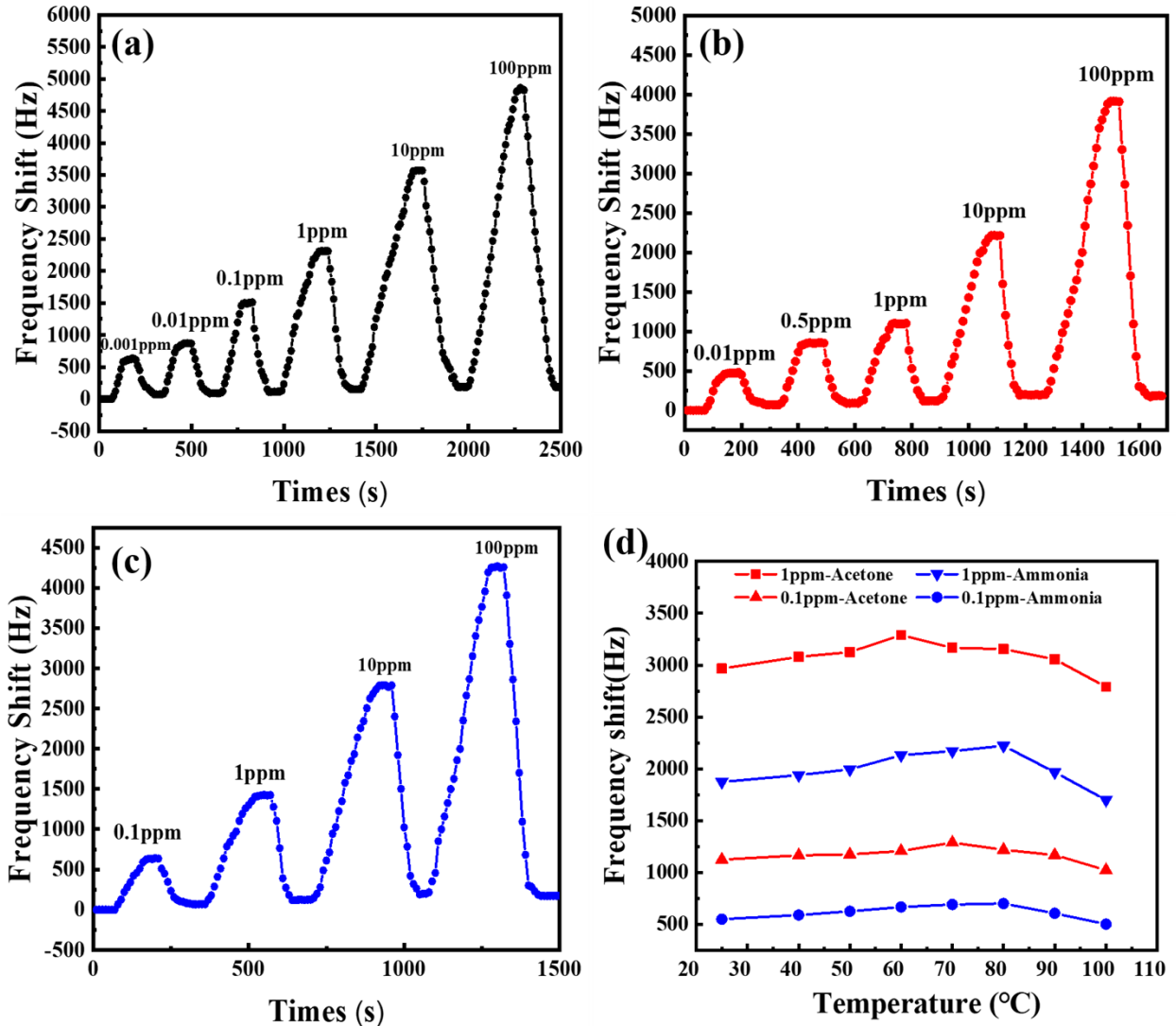


Figure S5. Gas Response of graphene SAW sensor towards acetone under different humidity and temperature.

