

Supporting Information

A Capacitive Micromachined Ultrasonic Transducer-based Resonant Sensor Array for Portable Volatile Organic Compound Detection with Wireless System

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Figure S1

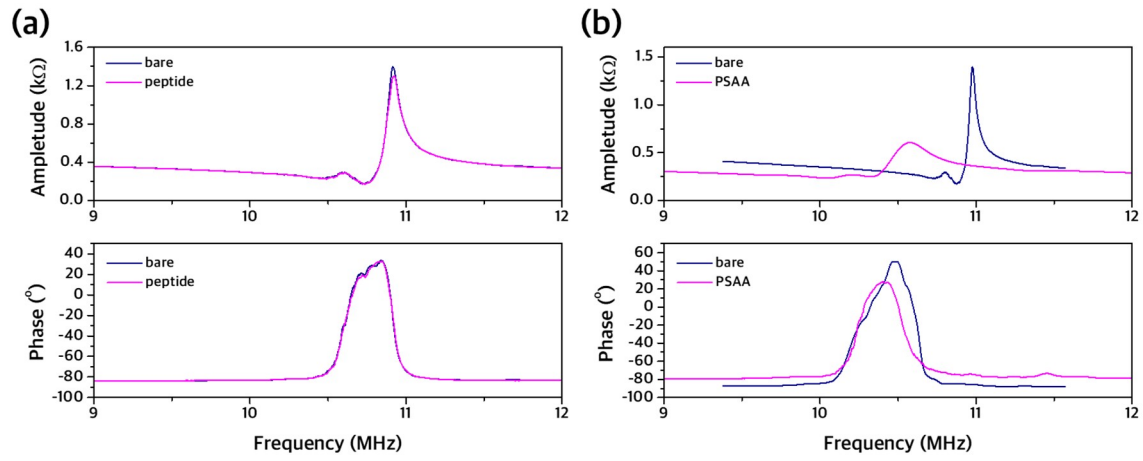


Figure S1. Plot of input impedance (amplitude and phase) of CMUT device before/after the functionalization with (a) peptide and (b) PSAA layer

Figure S2

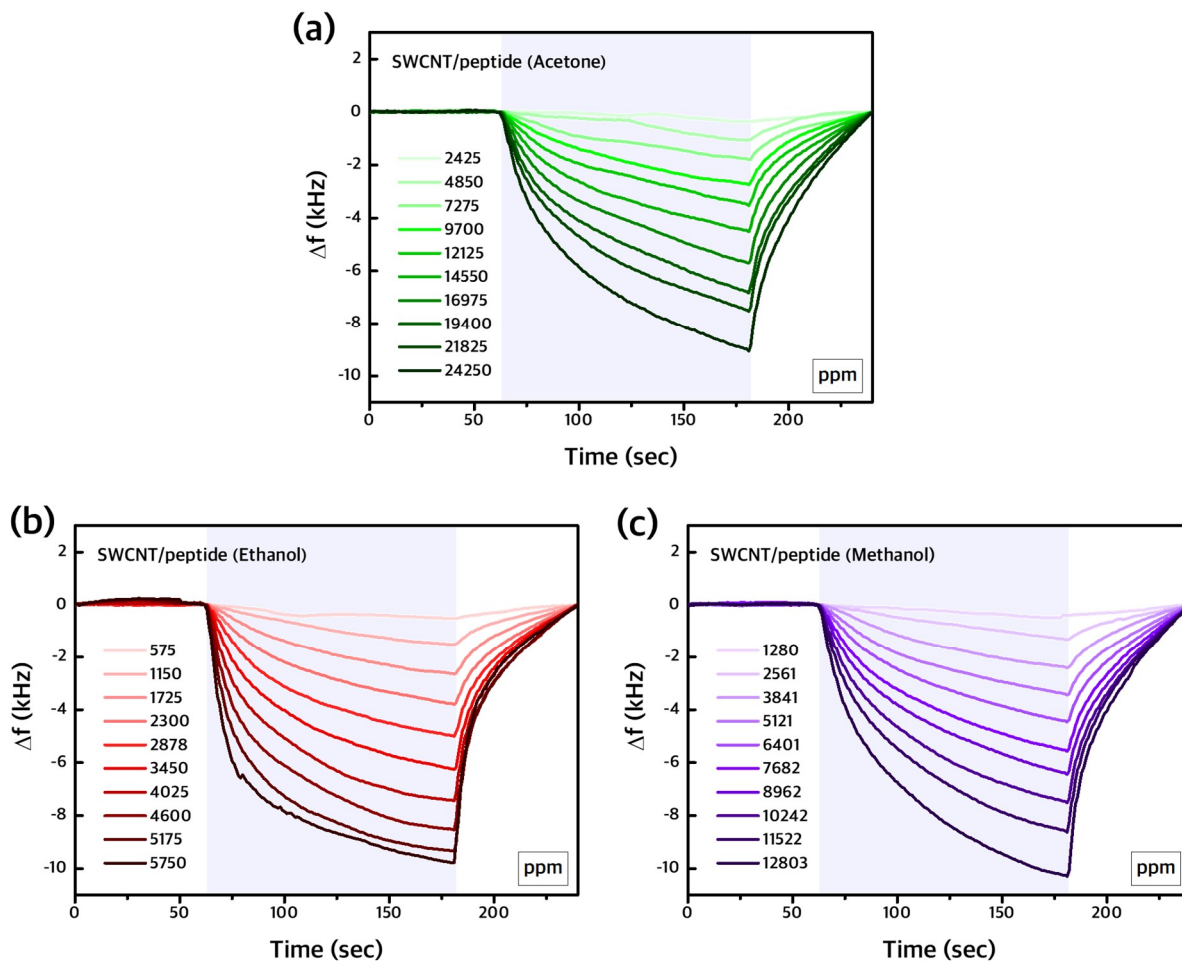


Figure S2. Transient plot of the oscillation frequency of a CMUT-based VOC sensor functionalized with SWCNT/peptide layer in response to varying concentrations of (a) acetone, (b) ethanol and (c) methanol.

Figure S3.

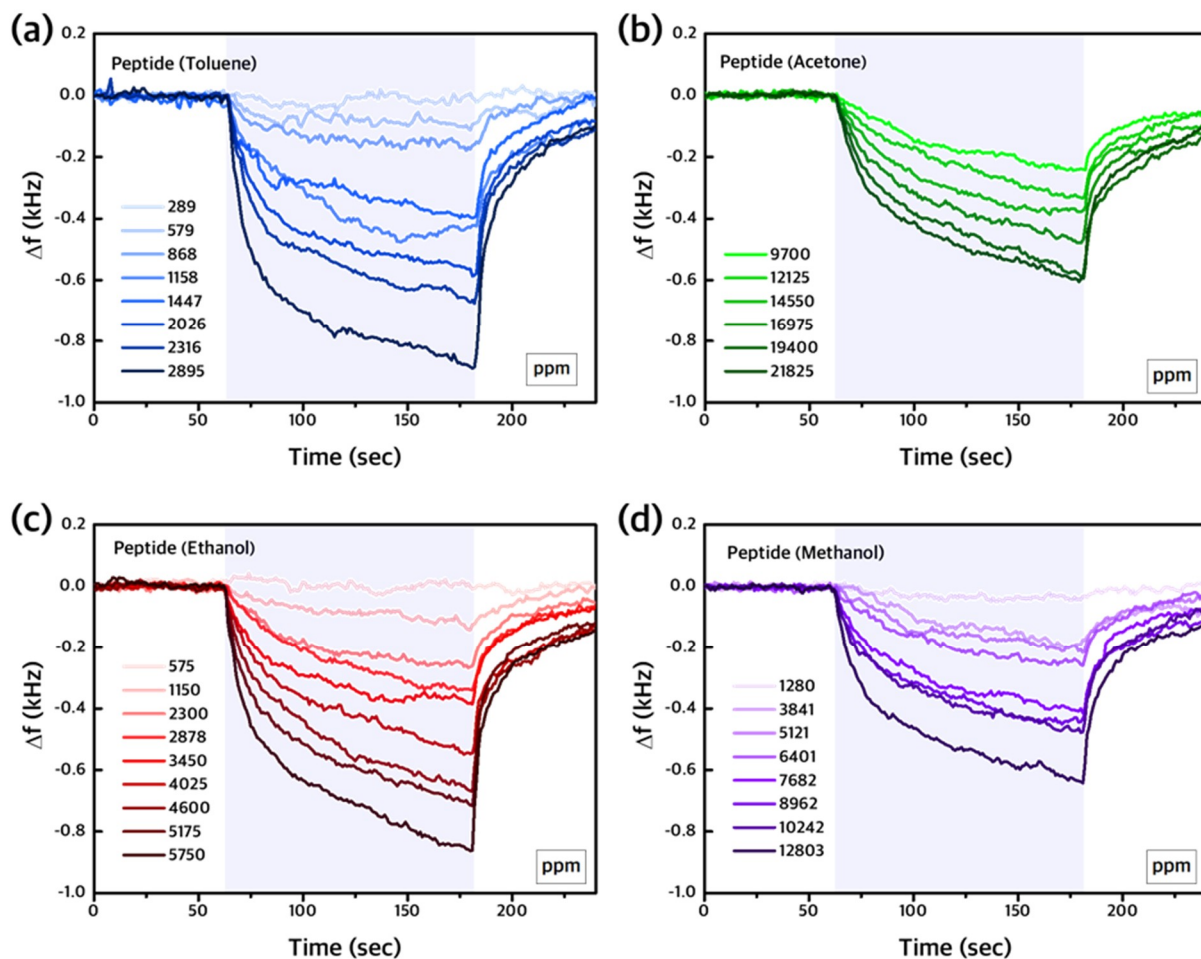


Figure S3. Transient plot of the oscillation frequency of a CMUT-based VOC sensor functionalized with peptide layer in response to varying concentrations of (a) toluene, (b) acetone, (c) ethanol and (d) methanol.

Figure S4.

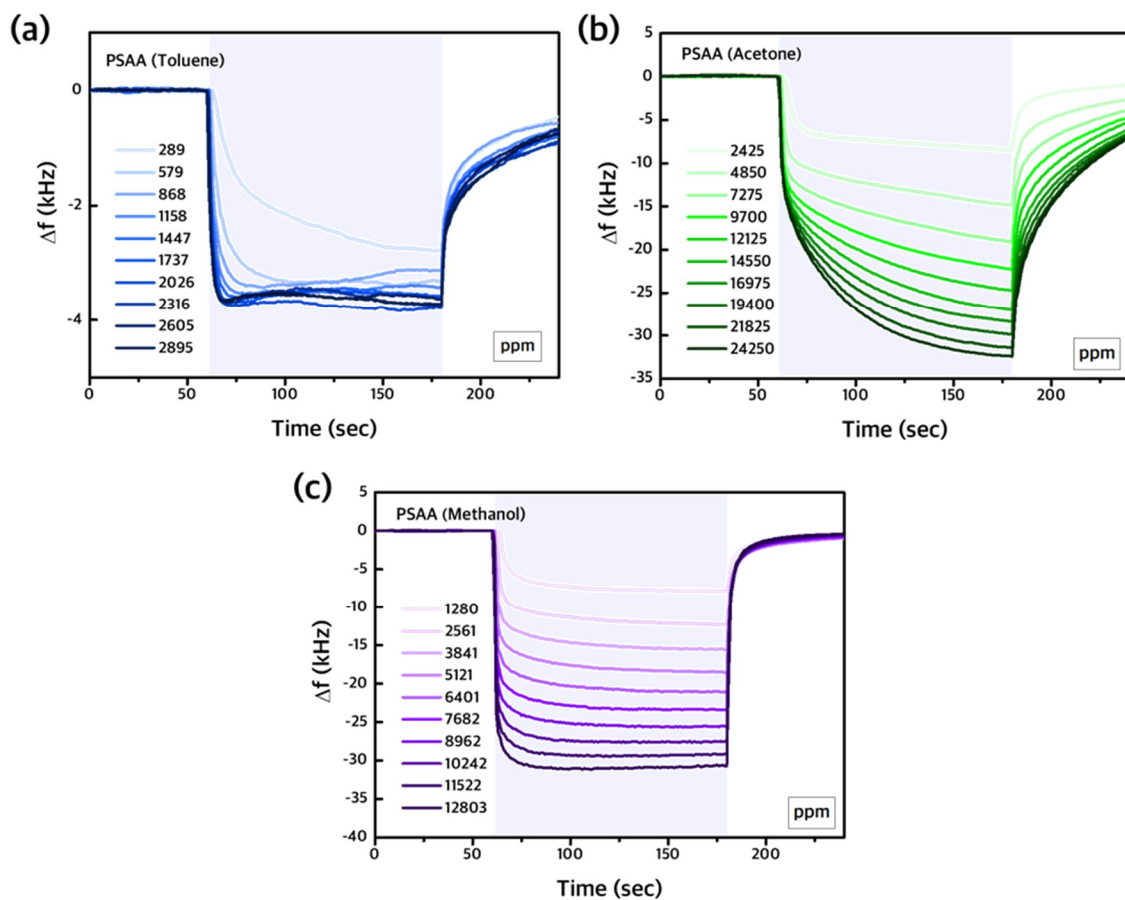


Figure S4. Transient plot of the oscillation frequency of a CMUT-based VOC sensor functionalized with peptide layer in response to varying concentrations of (a) toluene, (b) acetone, and (c) methanol.

Figure S5.

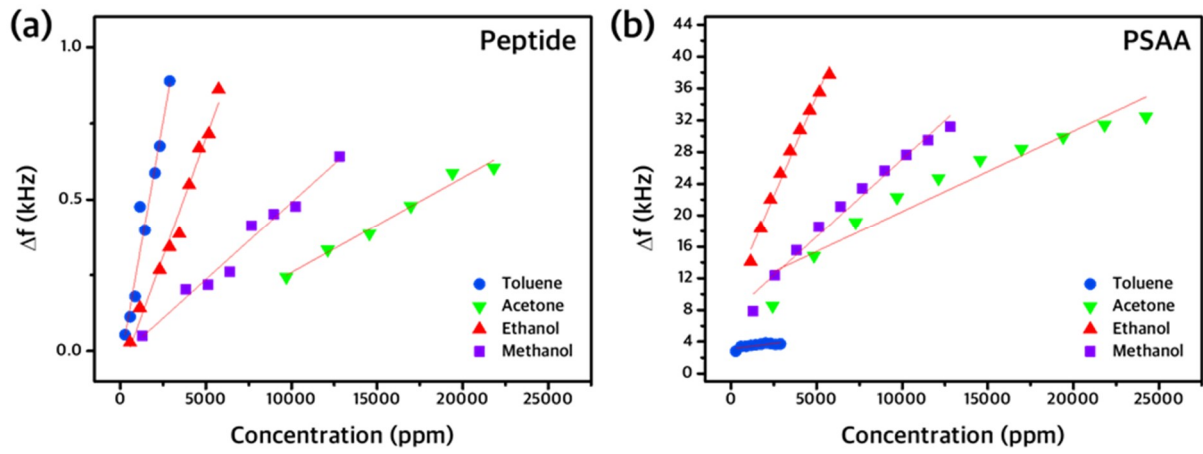


Figure S5. Plot of maximum frequencies of CMUT-based VOC sensors functionalized with (a) peptide and (b) PSAA layers at various concentrations of different VOCs.

Figure S6.

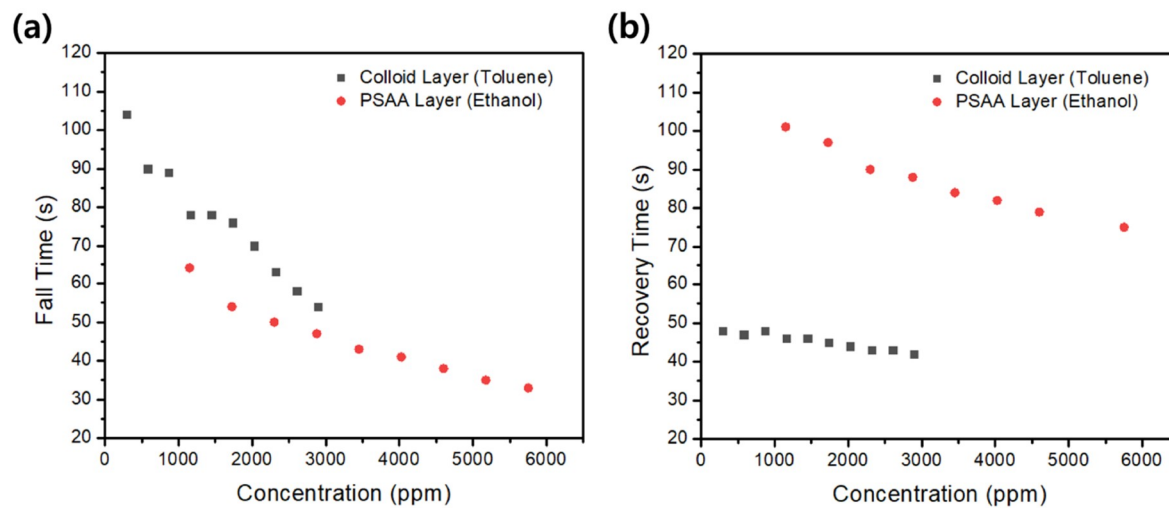


Figure S6. Plot of (a) fall time and (b) rise (or recovery) time calculated from the transient measurements of two sensors (coated with colloid layer and PSAA layer) in response to various concentrations of toluene and ethanol.