In this study a sensor that wirelessly records the breathing profile of the human respiratory system is presented. The sensor works passively and does not contain a power source. Furthermore, it is lightweight, robust and flexible making it ideal as a wearable monitoring device. The sensor is made of a ~902MHz thin film piezoelectric-on-substrate (TPoS) MEMS resonator and an ultra-high frequency (UHF) antenna made of a thin metal film formed on a flexible substrate. The resonance frequency of the TPoS resonator shifts in response to inspiration and expiration and a wireless detection technique is utilized to sense the frequency shift and translate it into the respiration profile. The Respiration profile of a subject is measured and presented for a sensor-to-transceiver distance of ~25cm.

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The public is welcome to attend.