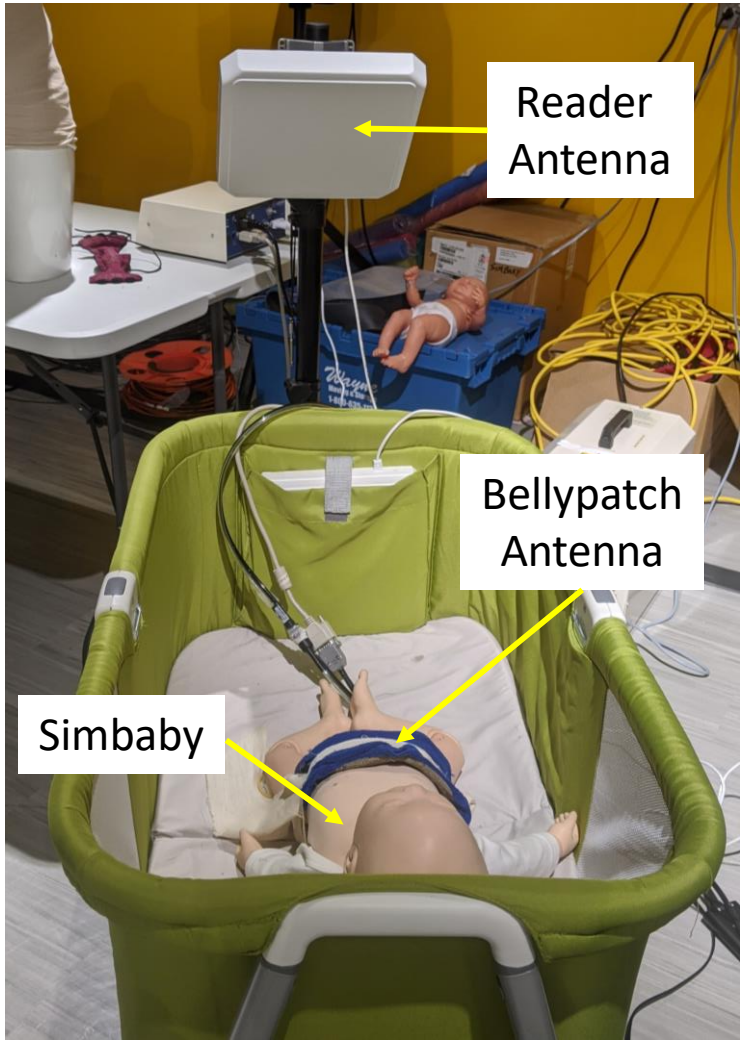
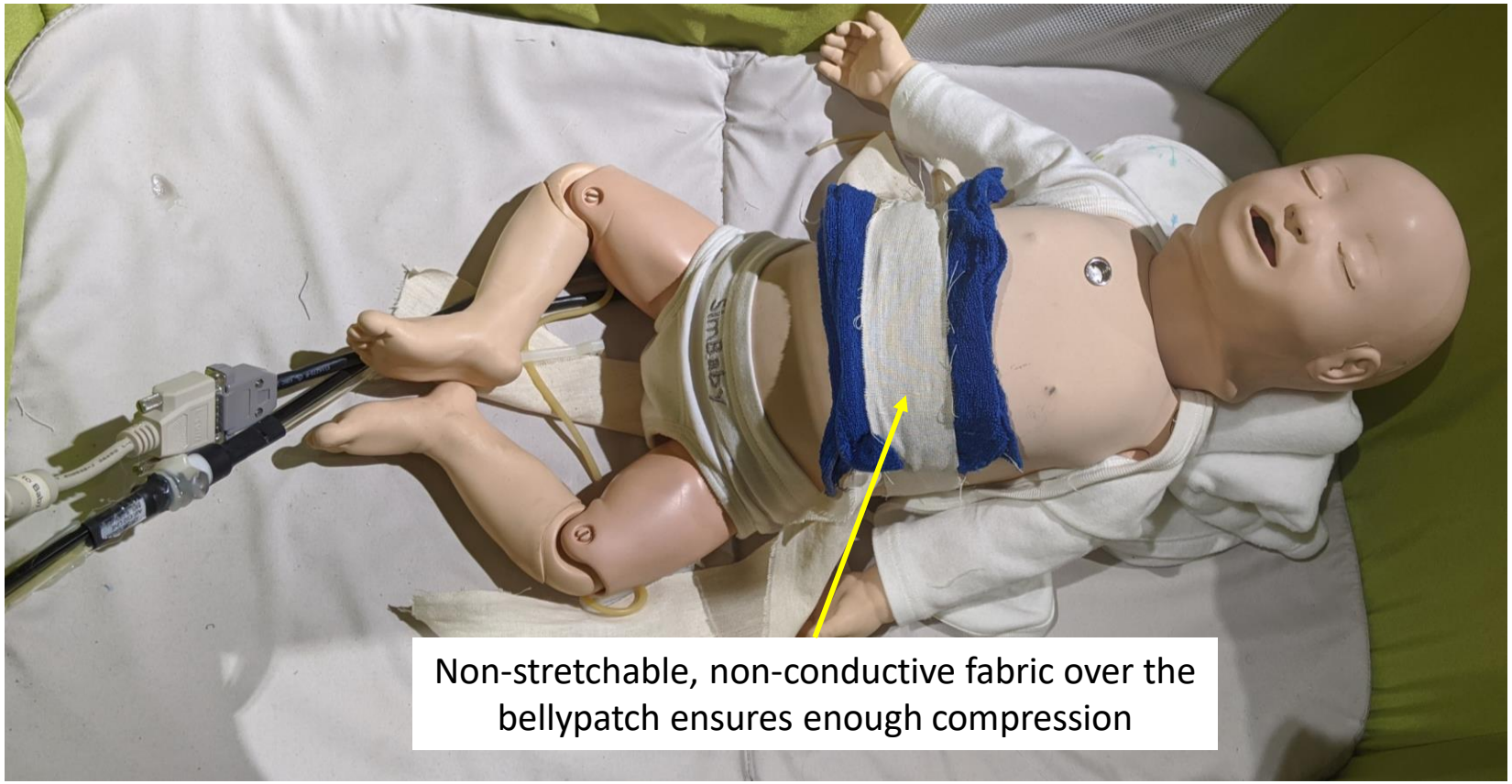
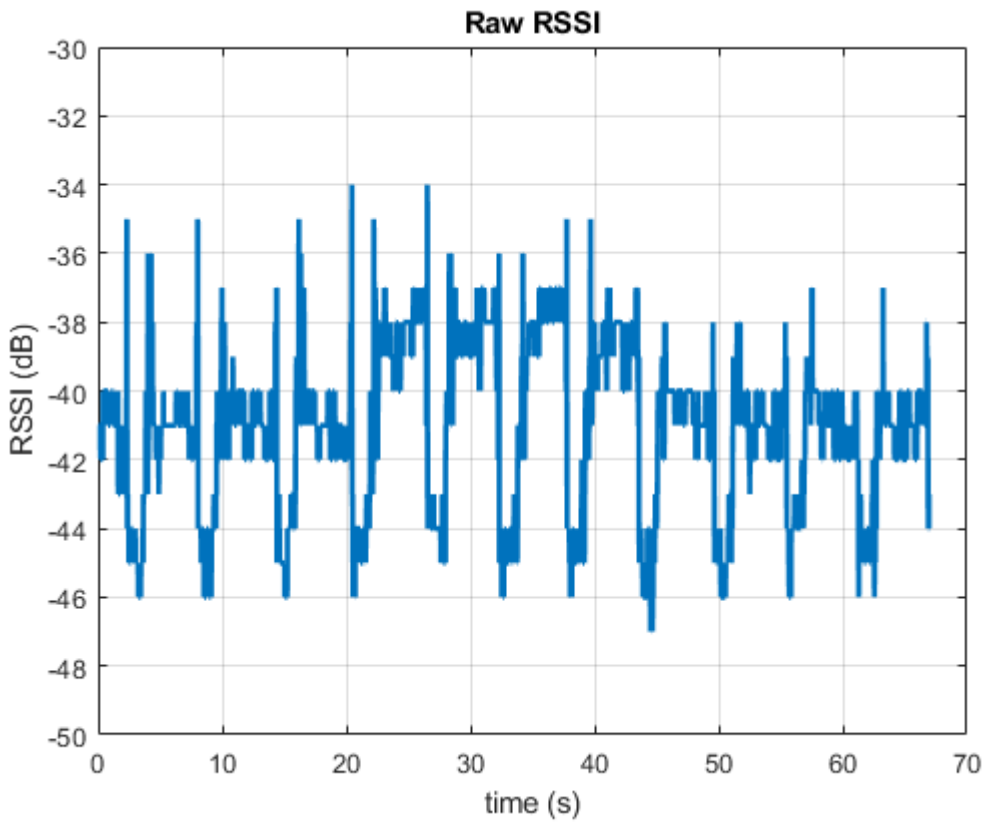
Bellypatch Antenna Experimentation with SimBaby

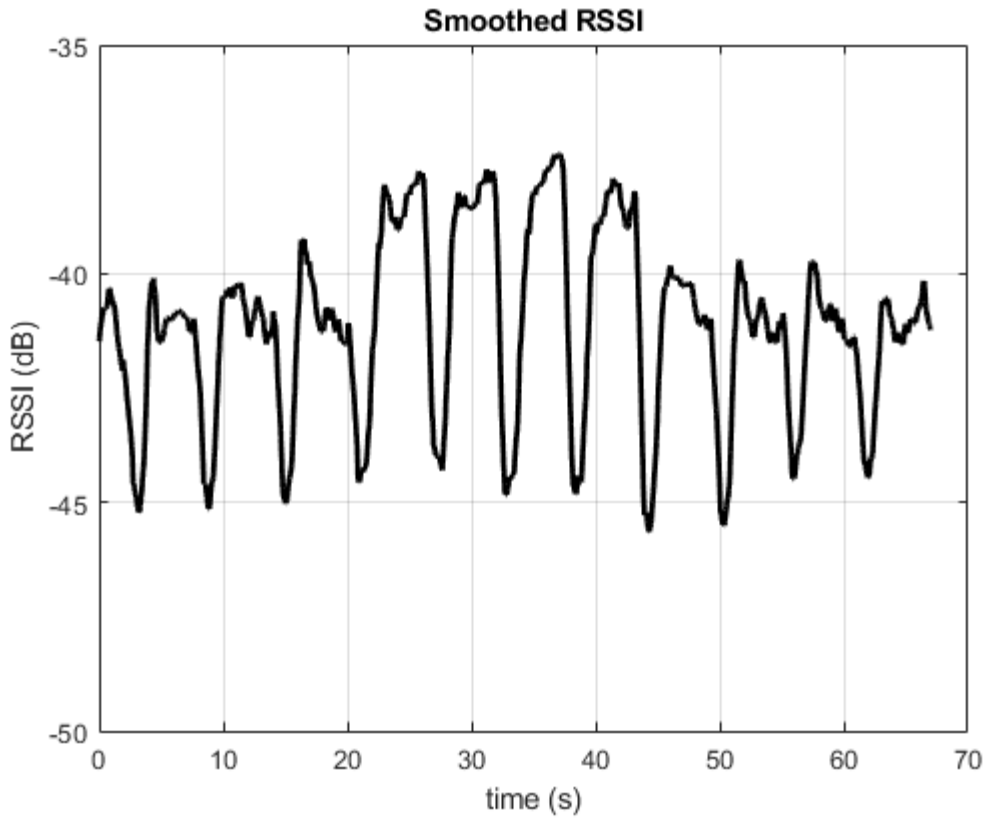
Experimental Setup



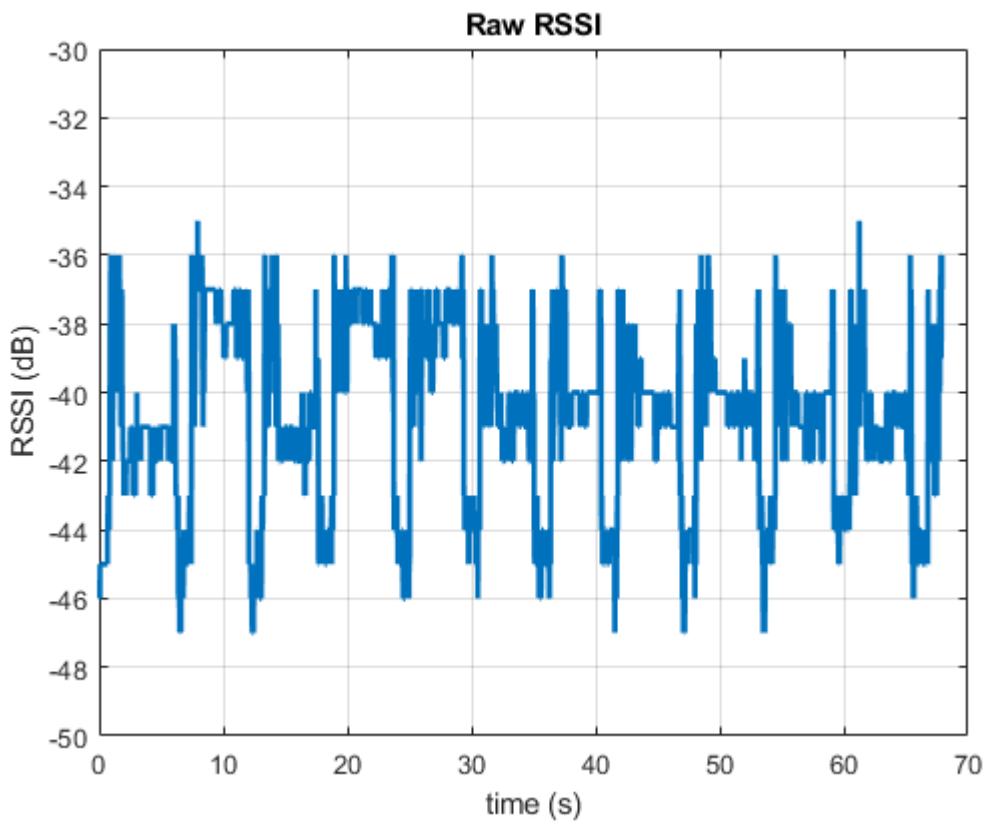


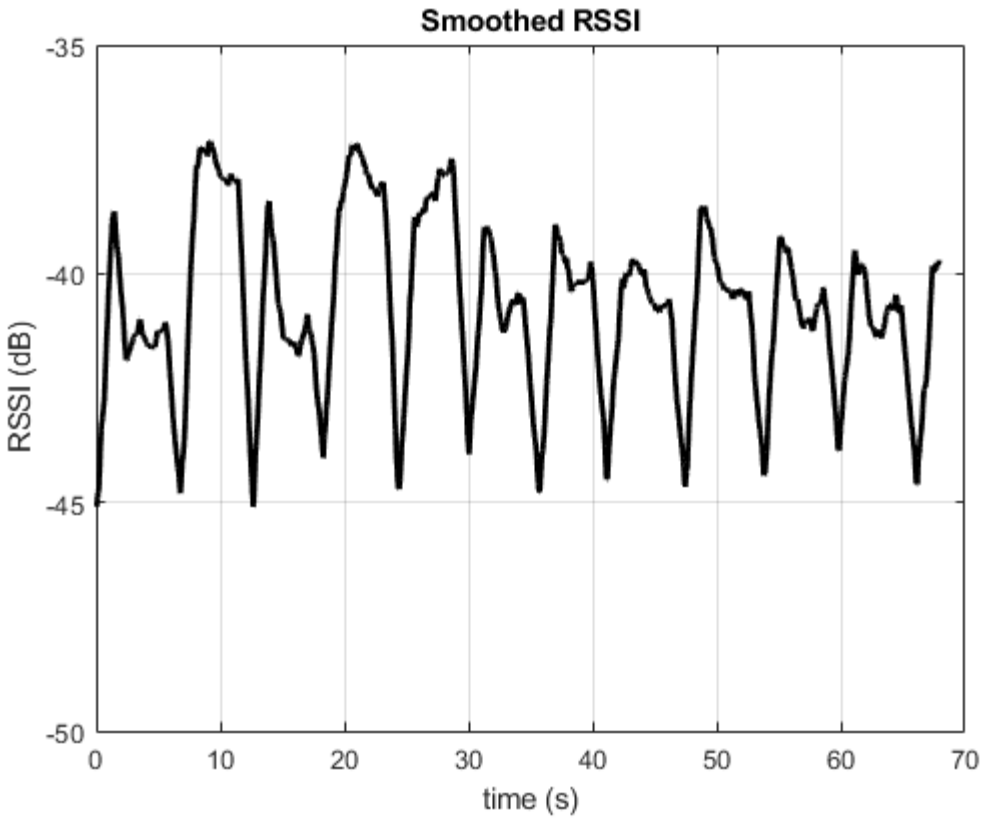
10 breath/min, Shallow Breathing



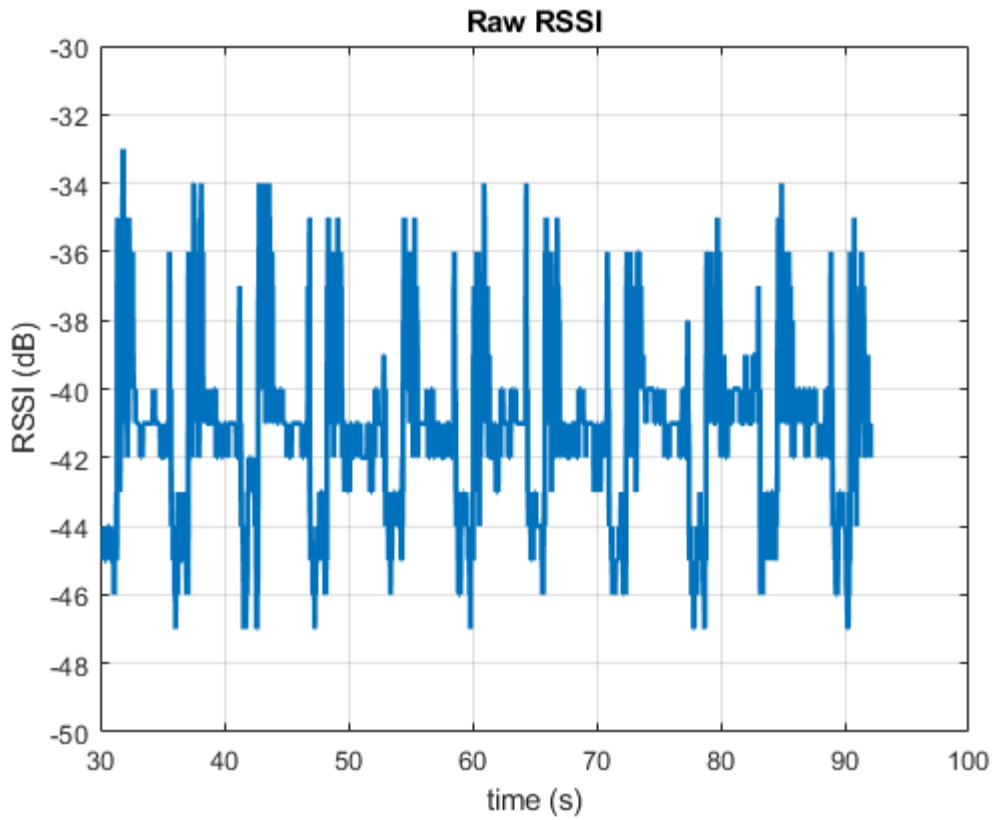


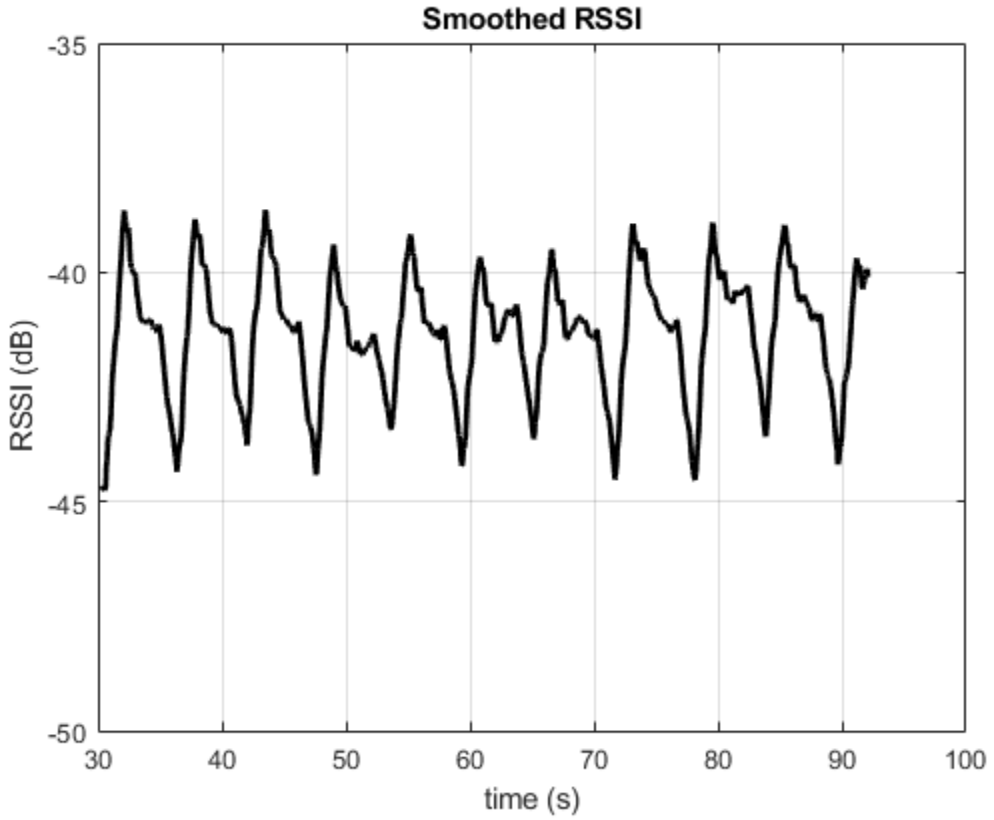
10 breath/min, Normal Breathing



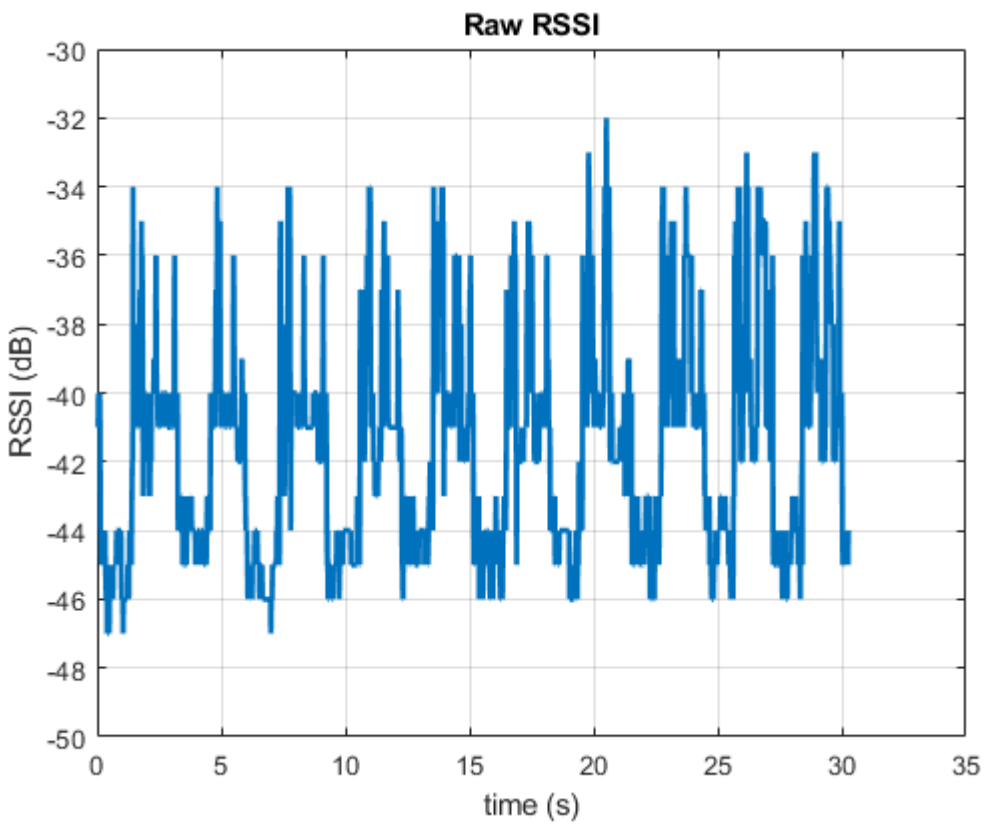


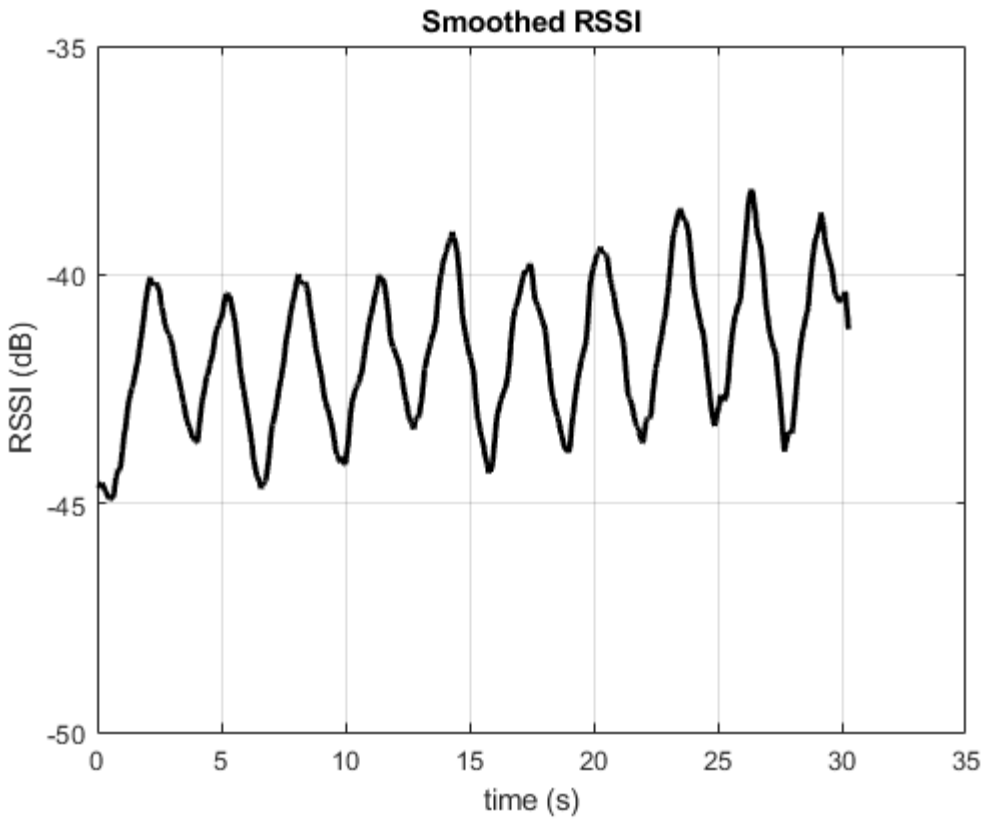
10 breath/min, Deep Breathing



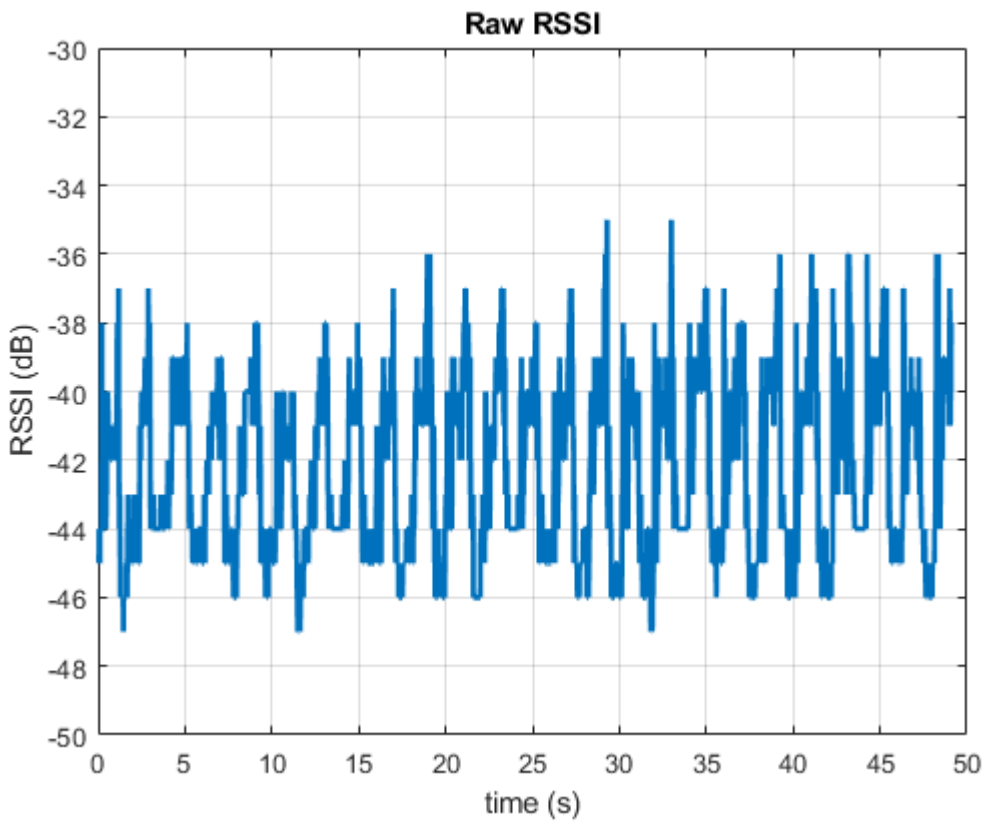


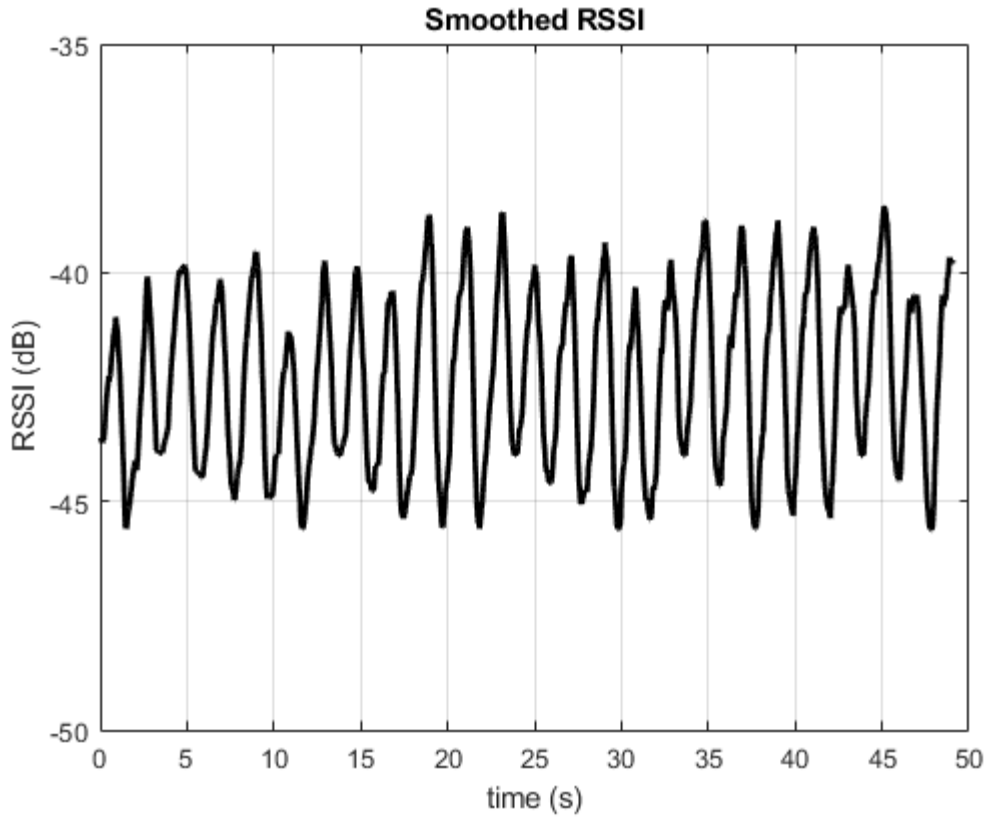
20 breath/min, Deep Breathing





30 breath/min , Shallow Breathing





Comments

- The initial design started with flexible neoprene substrate. However, the force exerted by the chest/belly of the `SimBaby' is not enough to compress the neoprene substrate. We observed no fluctuation in RSSI wit neoprene substrate.
- Later the substrate was replaced by soft foam (used in packaging). The on-body read range somewhat increased (7.3m or 24 feet, previously 23 feet).
- The bellypatch was placed on the chest of the SimBaby mannequin and wrapped with a thin non-conductive fabric. This step ensures that the bellypatch gets enough compression for sensing chest movement.