

## Electronic Supplementary Information

# Liquid alloy printing of microfluidic stretchable electronics

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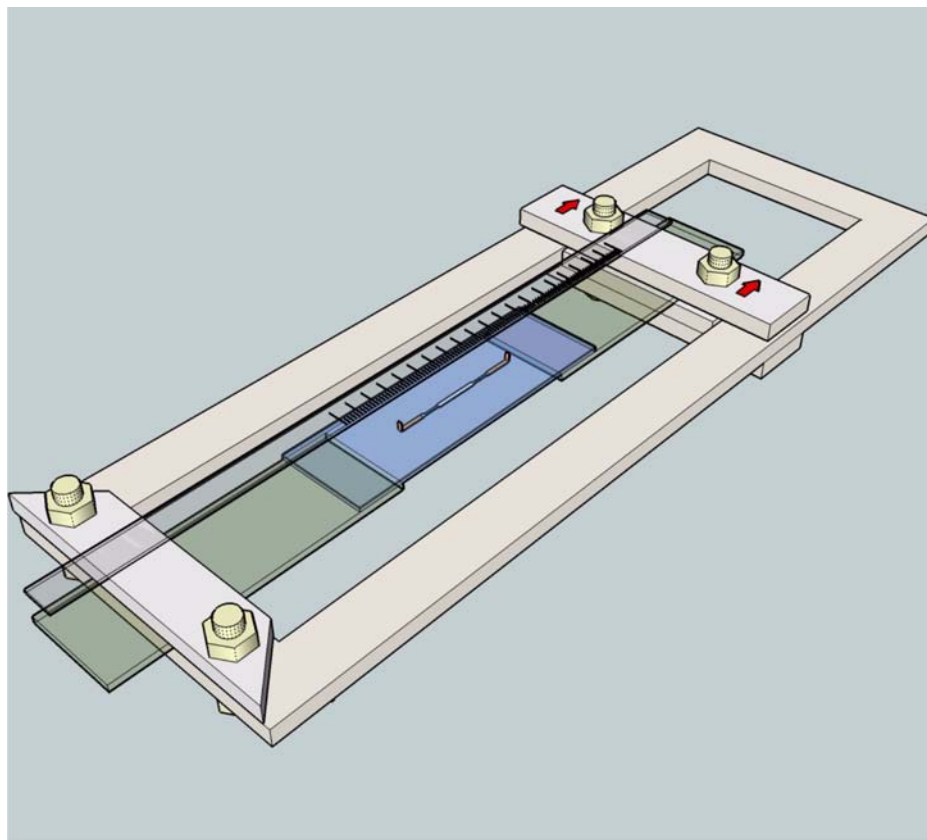
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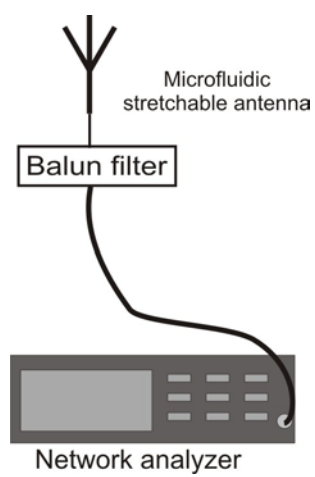
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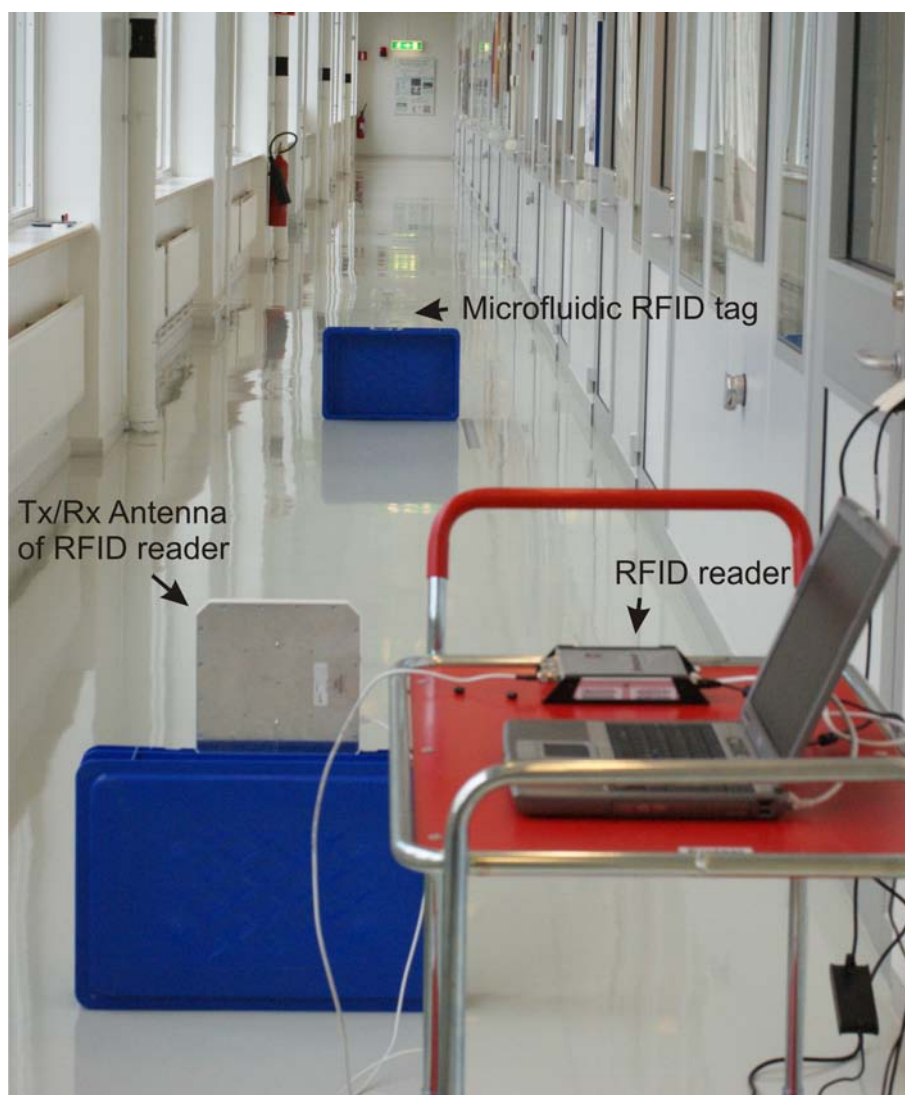
## ***Experimental setups***



**Figure S1 Schematic of plastic frame for stretching measurements.**



**Figure S2 Schematic of the antenna measurement setup.**



**Figure S3 Schematic of the RFID tag evaluation setup.**

### Antenna measurements

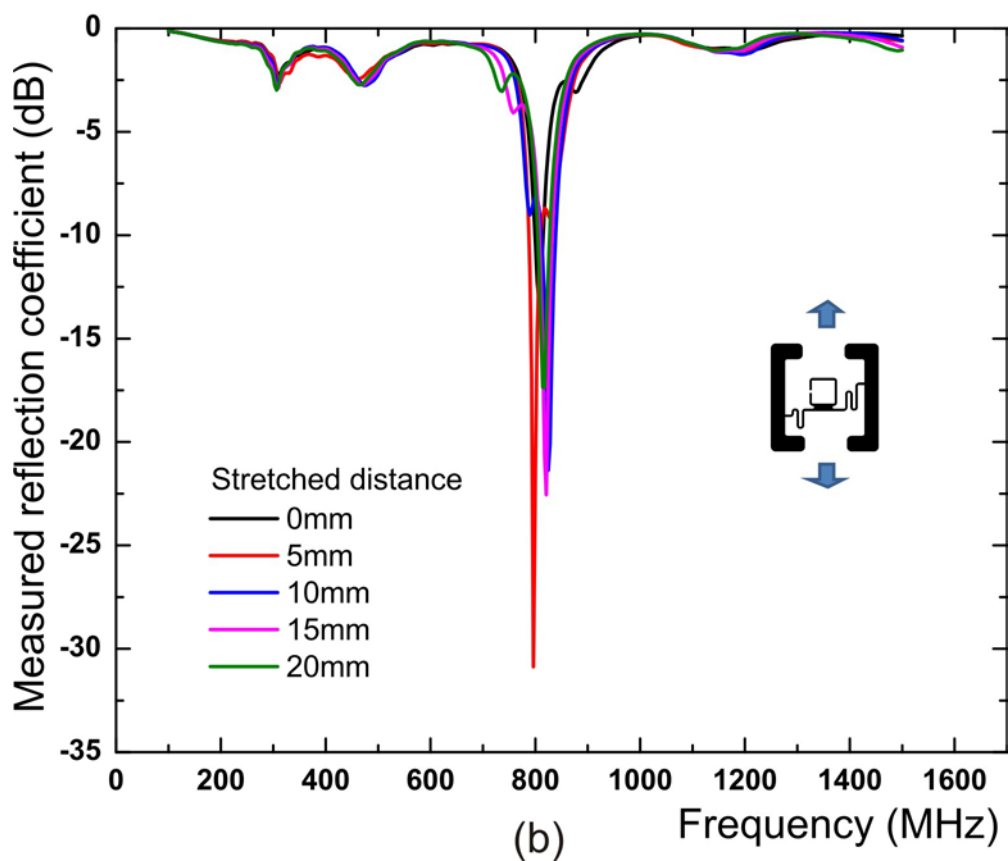
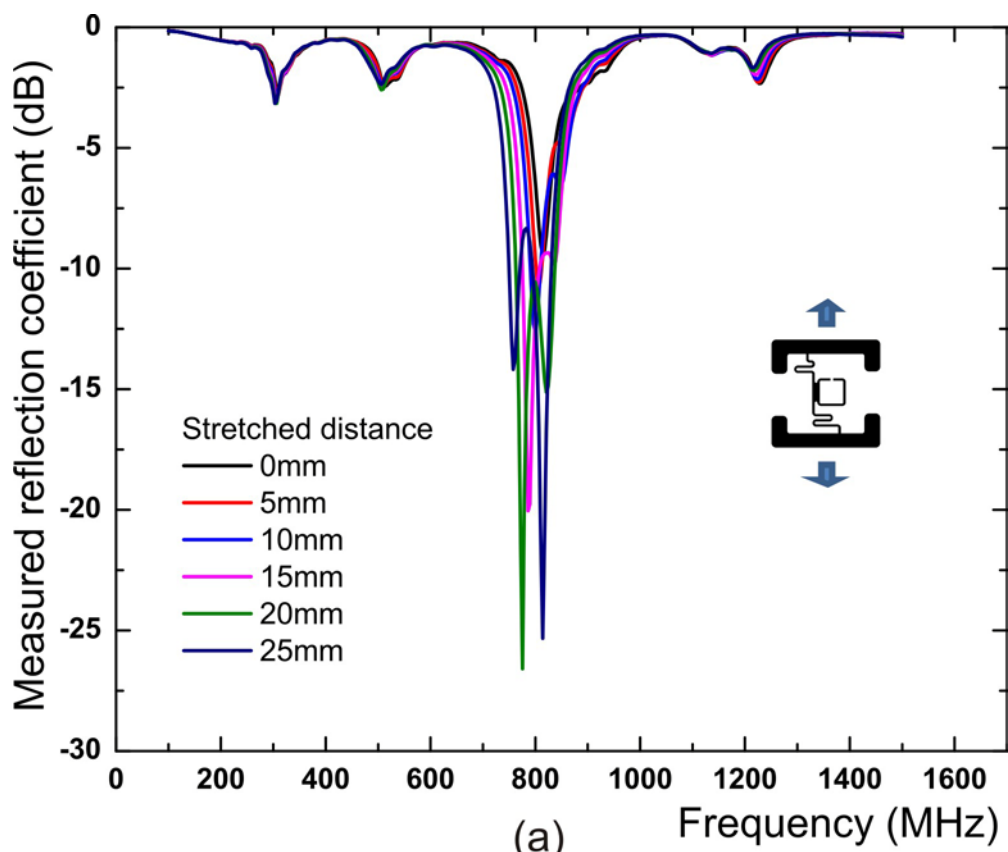
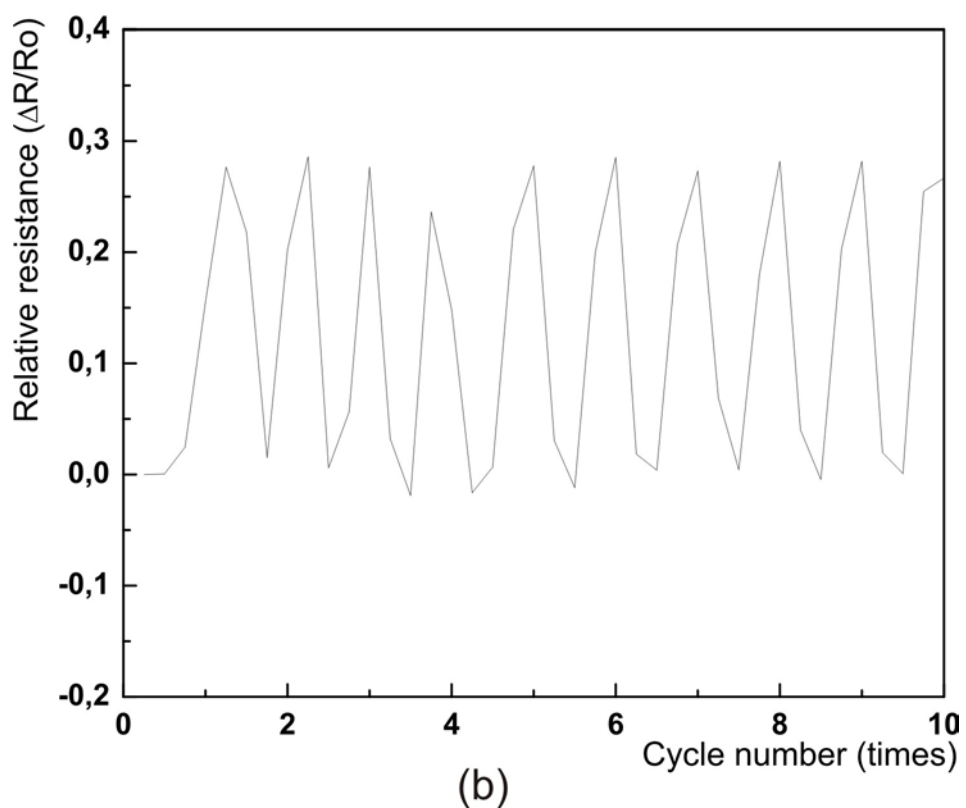
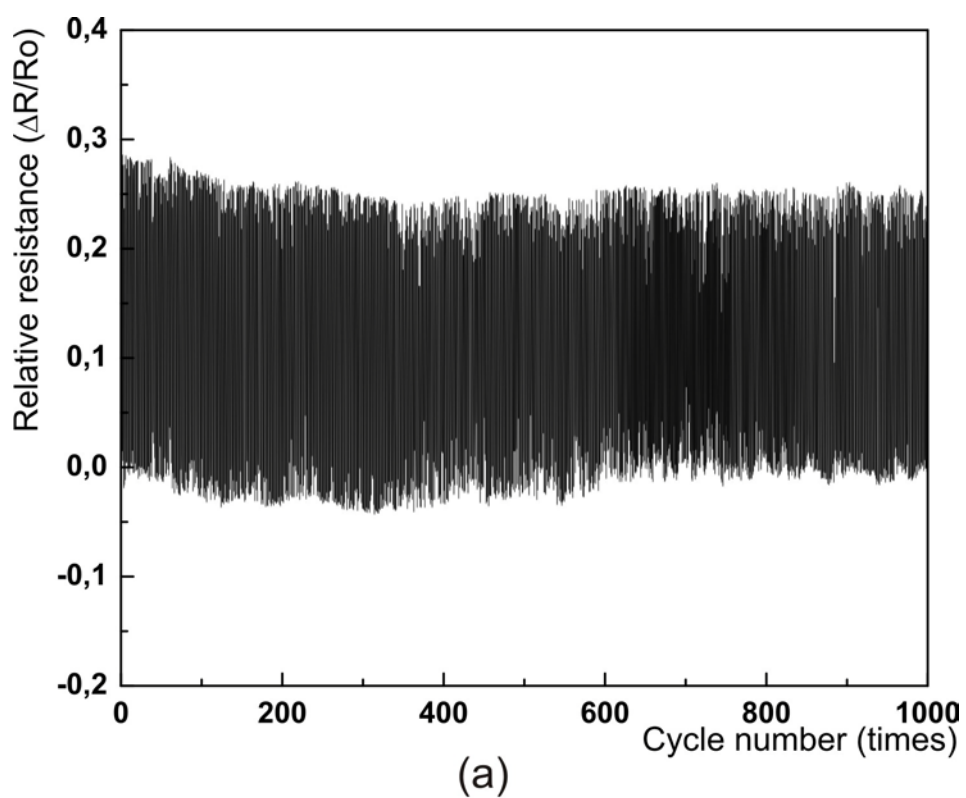


Figure S4 Measured reflection coefficient of the antenna.

The resonance frequency of the manufactured antenna was found to be approximately 885 MHz when not stretched, as shown in Fig. S4(a). The reflection coefficient was less than -10 dB in a wide frequency band from 840 MHz to 930 MHz. When the antenna was stretched in the y direction (same coordination in Fig. 6) the resonance frequency decreased, showing a higher impact on antenna resonance frequency and/or impedance matching as function of y axis deformation compared to x axis deformation. The total frequency shift, when stretched from 0 to 25 mm in the y direction, was approximately 80 MHz. Stretching of the antenna in the x direction does not create a large shift in the resonance frequency, but has a greater effect on the reflection coefficient, which can be seen in Fig. S4(b).



**Figure S5** Measured relative resistance of the Galinstan conductor (without LED, elongated up to 60%) along the cycling times: (a) 1,000 times and (b) 10 times.