

SUPPLEMENTARY MATERIALS

Microwave Theremin Piano: SRR-based Touchpad

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SUPPLEMENTARY 1.

Apart from the three SRRs keys touchpad shown in Fig. 3, a variety of different combinations were tested. As an example, the combination of four SRRs keys with d equal to 13, 9, 1, and 2 mm (from up to down in Fig. S1(a)) with the resonance frequencies 1.03, 1.162, 1.533, and 1.477 GHz appears in Fig. S1. Since the last two SRRs frequency characteristics are very close, the transmission characteristics of $|S_{21}|$ -parameters demonstrate a very high recognition between different activation combinations, including the presented in Fig. S1(b) – ‘0000’, ‘1000’, ‘0100’, ‘0010’, and ‘0001’.

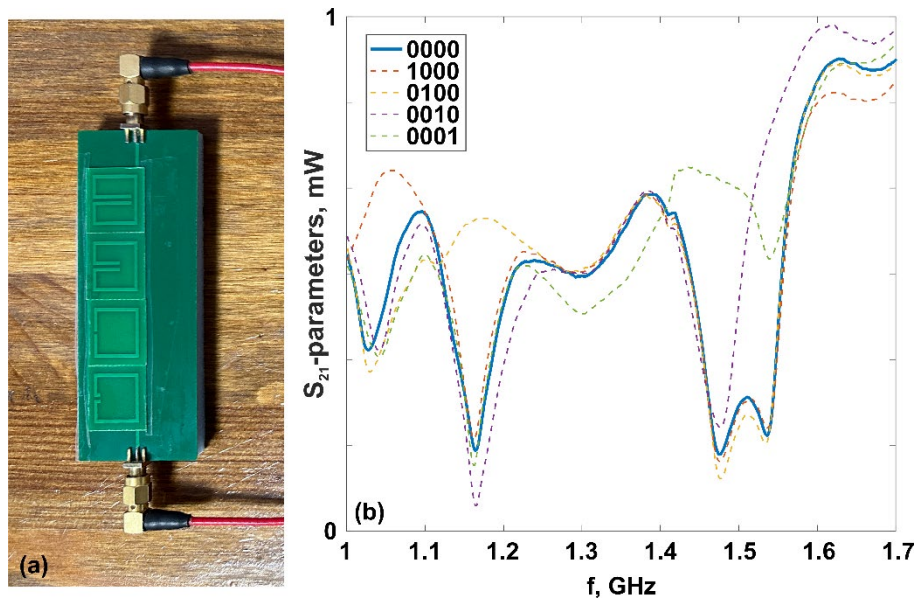


Fig. S1. Experimental setup of the strip transmission line loaded by four SRRs key (a) and its transmission characteristics ($|S_{21}|$) in linear scale for four SRRs keys activation combinations (b).

SUPPLEMENTARY 2.

Video record with three SRRs keys touchpad activation in real time. The presented device corresponds the one that is shown in Fig. 4(a). The presented on the video laptop monitor demonstrates the results from Fig. 4(c)-(d) in real time with all possible combinations. The device is fed from the laptop USB-port power supply and use it also for visualization. The mounted buzzer allows producing sound depends on the activated SRRs keys combination.

To watch the video record, please click [here](#).

SUPPLEMENTARY 3.

Video record of the same device, but for four SRRs keys touchpad activation in real time.

To watch the video record, please click [here](#).

SUPPLEMENTARY 4.

Video record of the same device, but is fed from battery, in order to demonstrate a standalone option of the suggested device.

To watch the video record, please click [here](#).