F1.00048 Preparation of sample templates for organic spin electronic test devices, RACHEL BAARDA, DAVID WATERS, WILLIAM BAKER, DOUG BAIRD, KAPILDEP AMBAL, CHRISTOPH BOEHME, University of Utah — Spin-dependent transitions in organic semiconductors are promising candidates for potential spin electronic device applications such as spin memory, spin-based information processing, magnetic-field sensing. Devices such as organic transistors, solar cells and organic light emitting diodes (OLED's) have shown that their optical and electronic properties can all depend significantly on the spin degree of freedom of charge carriers. For the investigation of such processes, we have built OLED structures and then observed the resonant changes while we manipulate spin states within the device. This is carried out in a highly controlled and /coherent/ way via (pulsed) magnetic resonance with either resonant microwave or rf excitation. Since these experiments require homogeneity of the magnetic resonant excitation fields (so called /B_1 / fields), we needed to prepare these devices on substrate templates which contain well defined contact structures that do not distort the electromagnetic excitation fields. Furthermore, in order to couple infrared and visible light into and out of such devices, the templates require transparent contacts made out of indium tin oxide (ITO). Here, we report on the structural design and the fabrication protocol of the device templates. We further investigate the surface structure of the ITO contact layer by characterizing the roughness of the ITO with profilometry, atomic force microscopy and scanning electron microscopy. Finally, we discuss how to prepare organic devices using these templates and demonstrate the presence of spin-dependent sample currents.