Tensor impedance transmitarrays consist of tensor impedance surfaces, separated by dielectric spacers. In this paper, we present a design method for realizing tensor impedance transmitarrays that are capable of controlling the reflection and transmission of circularly polarized waves, referred to as chiral polarization control. To achieve this, we implement a multi-conductor transmission-line (MTL) model to characterize how vertically and horizontally polarized waves are transmitted and reflected through the surface and to synthesize the desired tensor impedances, which comprise the array. Using this MTL model, we show how to synthesize two different chiral transmitarrays. This includes a polarization rotator, which rotates any linear polarization by 90° and a circular polarization selective surface (CPSS), which transmits one hand of circular polarization while reflecting the other. This is verified with full-wave simulation showing that our proposed model works. We also fabricate and measure the CPSS at X-band based on our design procedure. To measure the CPSS, we use a novel four-port quasi-optical system to characterize both the reflection and transmission of vertically and horizontally polarized fields off of the surface. We achieve a good agreement with our simulated results though we have -1.7 dB more loss than expected due to the use of FR-4 as our substrate.