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(54) Title: DUAL-CONTACT CHIPCARD MODULE AND SMART CARD WITH A DUAL-CONTACT CHIPCARD MODULE

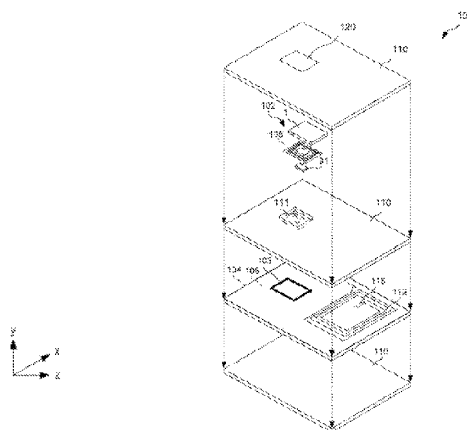


Fig. 11

(57) Abstract: This application relates to a dual-interface smart card that integrates a highly optimized antenna system and chipcard module to support both contact and contactless operations. The design addresses challenges in electromagnetic coupling, resonance tuning, and compliance with industry standards like EMV, ensuring robust performance across various chip types. The antenna system features a combination of three coils and a capacitive element, enabling efficient energy transfer and communication with external readers while maintaining a compact and durable structure. The application further incorporates precise adjustments to wire parameters, resonant frequency, and quality factor, enhancing coupling efficiency and operational reliability.

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