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(54) **LOW LOSS TRANSVERSELY-EXCITED FILM BULK ACOUSTIC RESONATORS AND FILTERS**

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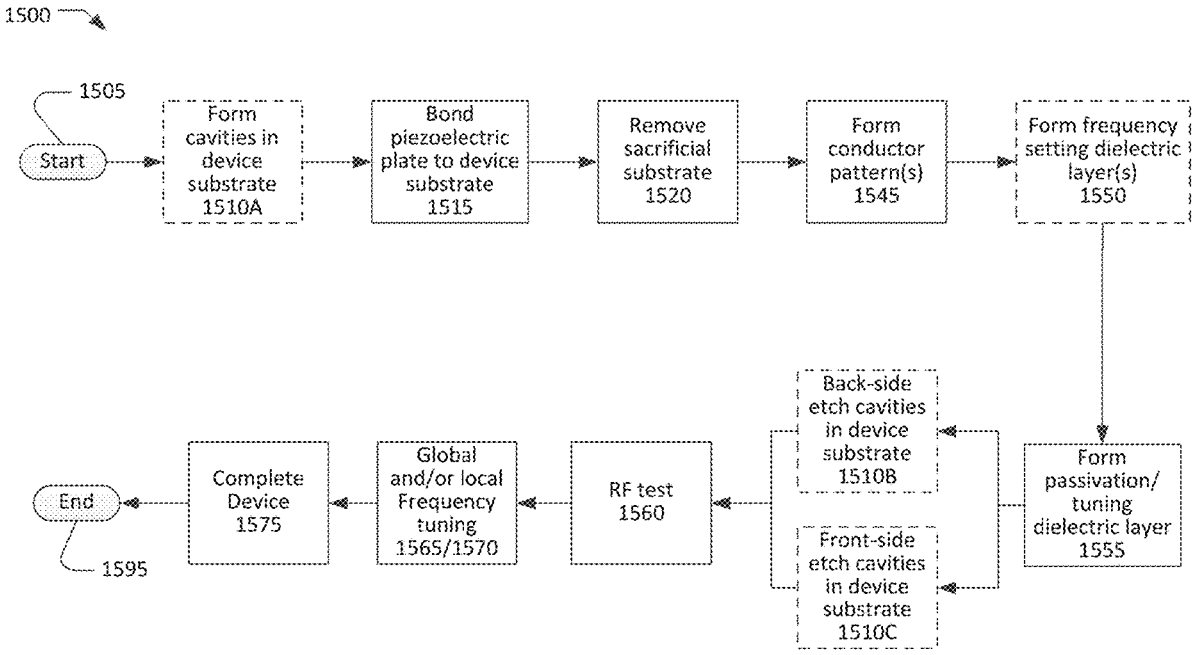
(57) **ABSTRACT**

An acoustic resonator device includes a portion of a piezoelectric plate is a diaphragm spanning a cavity in a substrate. A conductor pattern on a surface of the piezoelectric plate includes an interdigital transducer (IDT) with a first busbar, a second busbar, and a. plurality of interleaved fingers extending alternately from the first and second busbars, first and second reflector elementsproximate and parallel to a first finger of the interleaved fingers, and third and fourth reflector element proximate and parallel to a last finger of the interleaved fingers. Overlapping portions of the interleaved fingers and the first to fourth reflector elements are on the diaphragm. pr1 is a center-to-center distance of the first and second reflector elements and a center-to-center distance of the third and fourth reflector elements, p is a pitch of the interleaved fingers, and $1.1p \leq pr1 \leq 1.5p$.



Notes: Only one of actions 1510A, 1510B, 1510C is performed in each of three variations of the process 1500.