

ABSTRACT**Lithographic Apparatus, Device Manufacturing Method, and
Device Manufactured Thereby.**

During device manufacturing a projection beam is projected onto a substrate through a
5 mask. The substrate is aligned with the mask using an alignment structure on the substrate.
Properties of the light reflected from the alignment structure are used to determine the
relative position of the substrate. Preceding processing of the substrate potentially causes
errors in the position determined from the reflected light. measurement of properties of the
reflected light are used to determine the size of a correction that is needed to correct for the
10 errors caused by processing of the substrate. Preferably parameters of a physical model of
the alignment structure are estimated from the reflected light and used to determine the
correction. Preferably, the amplitudes of a plurality of different diffraction peaks are
measured to determine the correction.

15 Fig. 4