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(54) **JITTER MEASUREMENT OF THE MULTI-LEVEL PAM EYE DIAGRAM**

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(57) **ABSTRACT**

A system and method based on the partition of sums of squares in analysis of variance (ANOVA) and image processing method can be used for jitter measurement of the multi-level PAM (PAMn) eye diagram. The system consists of importing a photo of the PAMn eye diagram, editing the eye diagram to obtain one Unit Interval (1UI) PAMn image, acquiring histograms of the single-lane and mixed-lane signals on a concentrated layer, and fitting Gaussians to the histograms. After obtaining the fitting parameters of the histograms, the random jitter RJ of the mixed-lane signals can be determined with the width of the mixed-lane signals, and the deterministic jitter DJ can be determined with the mean shift of the mixed-lane against the single-lane. Furthermore, the total jitter TJ of the mixed-lane signals is the sum of RJ and DJ.

