Agilent Technologies

Problem with Subtype Learning When Used With the Connector Algorithm in R7.0

There has been a potential issue identified on the 5DX that occurs when subtype learning is applied to multi-board panels that are using panel based thresholds. Since software version 6.1, NDF and RTF threshold files (algo_thr.ndf, algo_thr.rtf) are supported in both board and panel directories. Previously they were only supported in a board directory (board based thresholds). This change has been made to make it easier to share thresholds across all boards on multi-board panels, including divided long panels. Panel based thresholds refer to the case where the threshold files reside in the panel directory.

When subtype learning is applied to multi-board panels that are using panel based thresholds, subtype learning will always result in a sigma value of zero when performing calculations for thresholds. This poses no problems for joint types such as BGA2 or FPGULLWING, as this information is only noted in the comment field in the threshold editor. However, this does present an issue when subtype learning is applied to the CONNECTOR algorithm family, where the sigma values are used to set various threshold values in the Open algorithm. The threshold parameters under the Open algorithm that are affected are MIN_LENGTH, MAX_LENGTH, MIN_HEEL_SLOPE, MIN_TOE_SLOPE, MIN_SLOPE_SUM, and MIN_SUM_SLOPE_CHGS. Incorrect values in these threshold parameters can result in false and/or erroneous calls.

Work Around

A work around for this issue is to first perform subtype learning with the CONNECTOR algorithm, then use Review Measurements to manually set the algorithm thresholds. Additional information on the Review Measurements utility can be found in the 5DX Reference Guide.

After performing subtype learning, manually enter values for the following threshold parameters:

SPC	
NOM_FILLET_THICK	Set to nominal value
Open	
MIN_LENGTH	Set to Average minus 4 Sigma
MAX_LENGTH	Set to Average plus 4 Sigma
MIN_HEEL_SLOPE	Set to Average minus 4 Sigma
MIN_TOE_SLOPE	Set to Average minus 4 Sigma
MIN_SLOPE_SUM	Set to Average minus 4 Sigma
MIN_SUM_SLOPE_CHGS	Set to Average minus 4 Sigma