

## Best Known Method: Contact Hole / Pillar Measurement Data Collection

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<b>Averaging</b>	Averaging is your friend when measuring LCDU, LEPE, defectivity, and other hole/pillar measurements. You want >200 features per SEM image (>400 preferred), and at least 20 SEM images to average together. The images being averaged together should be nominally the same (same pattern type and size and the same process conditions). The required number of features to use depends on the desired size of the error bars on your results. The error bars will get smaller as you average together more features. For defectivity measurements, more images lower the defectivity measurement floor (the smallest defectivity rate that can be detected).
<b>Image Size</b>	At least 1024 X 1024 (or similar) is preferred; 2048 X 2048 is better.
<b>Pixel size</b>	Square pixels should be used. For circular features, the pixel size should be about CD/30 or less. For slot contacts, the pixel size should be about CD/30 when using the CD of the smaller dimension.
<b>Image file type</b>	Uncompressed images such as TIFF
<b>Filtering/smoothing</b>	For best results the images should not be filtered or smoothed. Filtering will change the measured LCDU and LEPE, among other metrics.
<b>Condition files</b>	For automated across-field, across-wafer, and other data analysis, the SEM condition files need to be available with the SEM images (for example, the Hitachi CND folder or AMAT .xml files).