Exhibit 7

Declaration of Dr. Chris Mack

UNITED STATES DISTRICT COURT
DISTRICT OF NEW MEXICO

STC.UNM, **Plaintiff,** **v.** **INTEL CORPORATION** **Defendant.**	**Civil No. 1:10-cv-01077-RB-WDS**

DECLARATION OF DR. CHRIS MACK

59. In furtherance of my Declaration, dated June 21, 2011, I, Chris Mack, under penalty of perjury, state as follows:

60. STC explained in the prosecution history that the patent discloses two separate embodiments, to achieve high spatial frequencies, namely pattern density and square corners.

> The presently claimed invention ***alters the frequency distribution of the final structure*** by (i) ***increasing the pattern density*** in the plane of the wafer to periods less than $\lambda/2$ in at least one direction (interpolation of the gratings); and (ii) changing the features of a pattern in a desirable way ***without increasing the density*** such as, for example, ***round holes to square holes***.

Exh. 5 [Response and Amendment, January 14, 1999], at 8 (emphasis added).

While Intel's construction seeks to remove (ii) from the '998 patent, STC's construction retains this important result of the invention.

61. With respect to the embodiments disclosed in Figures 6 and 7, which disclose the fabrication of sharp corners, the applicants stated in the file history that the changes in magnitudes and phases of the Fourier coefficients produce higher spatial frequencies.

> The presently claimed invention ***also changes magnitudes and phases of the Fourier coefficients*** between the process described by (expose, expose, nonlinear) and (expose, nonlinear, expose, nonlinear). ***Figures 6 and 7 exemplify this result by the demonstration of the round hole to square hole transition.*** Both of the patterns have the same spatial

> frequencies; however, the round (or elliptical) holes have a distribution of frequencies that radiates outward from the center of frequency space, while the square holes have frequencies only in the x and y directions perpendicular to the sides of the holes. The roll-off of the magnitudes of the Fourier coefficients is a more rapid function of the magnitude of the frequency in the round case than in the square case.

Id., at 9 (emphasis added).

62. Consistent with STC's construction, the inventors further stated in the prosecution history that the "increase in frequency" result from an increase in the number of "significant terms" in the Fourier series. *Id.*, at 7.

63. Thus, the applicants did indeed state that the formation of square holes changes the frequency distribution of the final structure. By combining the patterns, the ***magnitudes and phases*** of the spatial frequencies in the final pattern are increased beyond the limit of a linear optical system, which, as the patent explicitly states, are the high spatial frequencies necessary to create patterns with sharp corners.

> there is still significant rounding of the corners . . . due to the unavailability of the spatial frequencies needed to provide sharp corners . . . the ***magnitudes*** of the spatial frequencies necessary to define these corners are greater than $2/\lambda$, the limit of a linear optical system. Exh. 1 ['998 Patent, 7:28-33] emphasis added.

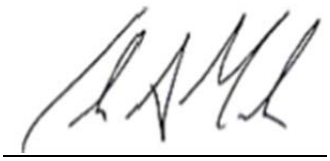
64. Intel misrepresents the meaning of "both of the patterns have the same spatial frequencies" on page 19 of its brief.

65. As explained by Intel's own expert: "The lowest spatial frequency terms for a given pattern represent its basic shape, location, and periodicity. These terms may be sufficient to image the basic structure of a pattern. The higher spatial frequency terms represent the finer feature detail, such as the sharp edges." Smith Dec. [Doc 111], at ¶7.

66. STC was correct when it stated that the patterns can have the same spatial frequencies, *e.g.,* corresponding to basic shape, location and periodicity, as explained by Intel's expert, but also have higher spatial frequencies present that correspond to "the finer feature detail, such as the sharp edges" (sharp corners), as also explained by Intel's expert. By increasing the magnitude of the higher spatial frequency terms, round corners can become sharp corners.

67. My explanation of how Intel's construction is incompatible with the idea of a combined mask that is the multiplication of the two individual patterns (¶¶38-58) is based upon the presence or absence of photoresist. If the *absence* of photoresist or hardmask is defined as the null (the most common definition), Intel's construction is incompatible with the idea of a combined mask that is the multiplication of the two individual patterns. If the *presence* of photoresist or hardmask is defined as the null, Intel's construction is incompatible with the idea of a combined mask that is the addition of the two individual patterns. Importantly, in both

scenarios, Intel's construction is only compatible with one of the operators (multiplication or addition), and not both.



Date: July 25, 2011

Dr. Chris Mack