

SAMSUNG ELECTRONICS CO., LTD. v. ELM 3DS INNOVATIONS, LLC, Appeal No. 2017-2474 (Fed. Cir. June 12, 2019). Before Moore, Reyna, and Chen. Appealed from PTAB.

Background:

Samsung challenged the validity of 105 claims of 11 patents owned by Elm by petitioning the PTAB 13 times for inter partes review of Elm's patents, the appeals for which were consolidated into this case. Elm's patents are related to stacked integrated circuit memory, the patents share a specification, and all but two of the claims at issue use the term "substantially flexible" to modify either a semiconductor substrate or a circuit layer.

The Board construed the term "substantially flexible" according to its ordinary and customary meaning, and relied on a general-purpose dictionary to interpret the term to mean "largely able to bend without breaking." Ultimately, the Board held that Samsung had not met their burden of demonstrating that the claims were unpatentable because the prior art did not disclose the "substantially flexible" limitation.

Issue/Holding:

Did the Board err by construing the claim terms according to their ordinary and customary meaning? Yes, however, affirmed.

Discussion:

On appeal, Samsung argued that the term "substantially flexible" should be interpreted consistent with steps described in the shared specification. The specification describes steps in a fabrication sequence which "grind the backside or exposed surface of the second circuit substrate to a thickness of less than 50 μm and then polish or smooth the surface," after which the "thinned substrate is now a substantially flexible substrate." Conversely, Elm argued that the Board's interpretation was correct.

The Federal Circuit rejected the interpretations proposed by both Samsung and Elm, and turned to the prosecution history to construe the term "substantially flexible."

The Federal Circuit determined that Elm "clearly and unambiguously disclaimed claim scope" during prosecution. During prosecution of a first patent, an Examiner alleged that the term "substantially flexible," which modified a semiconductor substrate, rendered the claim's scope unclear. Elm argued that the meaning of "substantially flexible" was clearly explained in the specification, and cited the same steps Samsung proposed for interpretation of the term. During prosecution of a second patent, Elm criticized a prior art substrate for being rigid, which suggested to the Federal Circuit that "thinning and subsequent polishing or smoothing it is necessary but not necessarily sufficient to make the substrate substantially flexible." During prosecution of a third patent, Elm argued that two features are required to achieve substantial flexibility of a circuit layer, (i) the semiconductor material must be sufficiently thin, and (ii) the dielectric material must have sufficiently low tensile stress properties.

The Federal Circuit aggregated these arguments in the prosecution history of the related patents to arrive at its interpretation of a substantially flexible semiconductor substrate as "a semiconductor substrate that is thinned to 50 μm and subsequently polished or smoothed such that it is largely able to bend without breaking," and a substantially flexible circuit layer as "a circuit layer that is largely able to bend without breaking and contains a substantially flexible semiconductor substrate and a sufficiently low tensile stress dielectric material." Despite this new interpretation, the Federal Circuit affirmed the Board's decision because Samsung failed to show that combining the prior art would have a reasonable expectation of success.