UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.
Petitioner

v.

DANIEL L. FLAMM
Patent Owner

_____

Case IPR2016-01512
Patent No. RE 40,264 E

_____

REBUTTAL DECLARATION OF DR. STANLEY SHANFIELD

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I, Stanley Shanfield, declare as follows:

I.   Introduction

1.   As I testified in my declaration signed July 29, 2016, which I understand has been labeled as Exhibit 1002 in this proceeding, I have been retained by Samsung Electronics Co., Ltd. ("Petitioner") as an independent expert consultant in this proceeding before the United States Patent and Trademark Office ("PTO"). I previously provided testimony in this proceeding in my July 29, 2016 declaration. (*See* Ex. 1002.) As with my previous work relating to this proceeding, no part of my compensation is contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other interest in this proceeding. Relevant aspects of my educational background, career history, and other qualifications were provided in my July 29, 2016 declaration. (*See id*. at ¶¶ 7-13.)

2.   I have been asked to review and consider the testimony provided by Dr. Daniel Flamm in his declaration (Ex. 2001) and his cross-examination testimony (which I understand is being submitted in this proceeding as Exhibit 1011) and provide my opinions regarding his positions. My rebuttal opinions are

set forth below, which reply to certain opinions offered by Dr. Flamm.[1] My

opinions in this rebuttal declaration are based on the documents I reviewed and my

knowledge and professional judgment. In forming my opinions in this rebuttal

declaration, I considered the Declaration of Dr. Flamm (Ex. 2001), his deposition

testimony (Exhibit 1011), and any other materials I refer to in this declaration in

support of my opinions. In forming these opinions, I have also drawn on my

knowledge and experience in designing, developing, and researching plasma

processing systems, and rely on my opinions and discussions set forth in my July

29, 2016 declaration, including my opinions regarding the level of skill of one of

ordinary skill in the art. In providing my rebuttal to Dr. Flamm's positions, I do

not change my opinions that I provided in my July 29, 2016 Declaration. Instead, I

provide my opinions below to explain why I believe Dr. Flamm's positions

regarding my opinions in my July 29, 2016 Declaration are incorrect.

II.   **Response to Dr. Flamm's Opinion Regarding the Lack of a Benefit from Combining the Teachings of *Kadomura* and *Matsumura***

3.   It is my understanding that Dr. Flamm contends that there would have

been no benefit to combining the teachings of *Kadomura* and *Matsumura*. (Ex.

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[1] Although I respond to selected opinions offered by Dr. Flamm, doing so

does not mean that I agree with any of Dr. Flamm's testimony that I do not respond

to in this rebuttal declaration.

2001 at ¶¶ 16-19, 22-24.) For instance, Dr. Flamm states that "incorporating Matsumura's control recipes in Kadomura would have no meaningful effect, and certainly no beneficial effect, on Kadomura." (*Id*. at ¶ 19.) I understand from reviewing his declaration that Dr. Flamm bases his conclusion on his understanding that the "time period for changing the temperature 'does not constitute a factor' in the process" described in *Kadomura* because "it matters not how long it takes to change the temperature" in *Kadomura*. (*Id*. at ¶¶ 16-17.) I disagree with Dr. Flamm's conclusion because the disclosure of *Kadomura* suggests and supports the understanding that the time required to change the substrate temperature is an important factor in *Kadomura*'s process and must be controlled accurately to achieve *Kadomura*'s goal of not lowering throughput.

4. *Kadomura* explains that two steps occur between etches. The first step involves changing the gases in the processing chamber, and the second step involves changing the temperature of the substrate while the gases are being changed. (*See e.g.,* Ex. 1006 at 6:36-62, 8:24-50, 10:4-16.)

5. *Kadomura*'s process takes into account the amount of time to control the temperature of the specimen (e.g., a substrate) between etching steps so that it can provide an etching treatment comprising multiple steps that can be applied rapidly without lowering the throughput. In particular, *Kadomura* states:

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