UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD., TSMC NORTH AMERICA CORPORATION, FUJITSU SEMICONDUCTOR LIMITED, FUJITSU SEMICONDUCTOR AMERICA, INC., THE GILLETTE COMPANY, ADVANCED MICRO DEVICES, INC., RENESAS ELECTRONICS CORPORATION, RENESAS ELECTRONICS AMERICA, INC., GLOBALFOUNDRIES U.S., INC., GLOBALFOUNDRIES DRESDEN MODULE ONE LLC & CO. KG, GLOBALFOUNDRIES DRESDEN MODULE TWO LLC & CO. KG, TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC., TOSHIBA AMERICA INC., TOSHIBA AMERICA INFORMATION SYSTEMS, INC., and TOSHIBA CORPORATION,

Petitioner

v.

ZOND, LLC
Patent Owner

U.S. Patent No. 7,808,184

Inter Partes Review Case No. 2014-00799[1]

PATENT OWNER'S OBSERVATIONS ON CROSS-EXAMINATION OF PETITIONER'S REPLY WITNESS

37 C.F.R. §42.70

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[1] Cases IPR2014-00855, IPR2014-00995, and IPR2014-01042 have been joined with the instant proceeding.

Pursuant to 37 C.F.R. §42.70(a), Patent Owner, Zond, LLC, hereby submits it observations on cross-examination of Dr. Bravman, whose Declaration was submitted by Petitioners with their Reply Brief filed March 23, 2015. Dr. Bravman's cross-examination was conducted by deposition on April 21, 2015. Exhibit 2022 is a transcript of that deposition, and is used as the basis for present observations.

1. **Dr. Bravman's testimony confirms that those skilled in the art understand that pulsed power supplies include a controller for controlling the supply's output, and therefore the terminology of control systems is relevant to the claimed control.**

In the testimony excerpts A – D below, Dr. Bravman explains that all power supplies require a "controller" for controlling the supply's output and that the terminology of control systems such as described in Eronini is applicable to such control. This testimony is relevant to the Patent Owner's argument (Patent Owner Response, Pages 19 – 21) that "Control Systems" and the terminology of control systems are useful for understanding the claimed "control" of voltage amplitude and rise time.

Excerpt A: Zond Ex. 2021, Pages 11, line 17 - page 12, line 9

> Q. Now, for the power supplies that you designed yourself, did they include a control system?
>
> A. Yes. I mean, **the power supply for anything but the simplest application needs to have some measure of control** starting with

on/off switch and getting more sophisticated depending on what was required.

Q. What would you call the component that provides that control; can we use a reference, would you call it controller?

A. I have been using component to more narrow -- a definition typically, a component such as a transformer or capacitor and assembly of components **often would be called a controller**.

Excerpt B: Zond Ex. 2021, Page 24, line 21 - page 25, line 18

Q. Would, based upon your understanding of the '155 Patent disclosure and your knowledge in the art, would you expect that the pulsed power supply 102 to include a controller in addition to the items you just mentioned?

A. As I indicated, I believe, earlier, what constitutes or comprises a controller could vary from something as simple as on/off switches to something quite sophisticated. So, **yes, I would expect there would be some means of controlling the power supply's output**, especially given that it is labeled a pulsed power. So **there has to be something controlling when those pulses start, stop, and other features** that would be well understood to workers of skill. They are not indicated in the schematic but one presumes that, like many things not in the schematic, they would be present.

Excerpt C: Zond Ex. 2021, Page 109, lines 7 - 16

Q. "And Sinka also show that the "controlled parameter" is widely

understood to mean the parameter being controlled by the control system" and he sites to Kuo.

Again, in this paragraph, is he making any mention that he is limiting his analysis to feedback control systems?

A. In those sentences, no. **He is using terminology that's applicable for feedback and open-looped systems**.

Excerpt D: Zond Ex. 2022, Page 100, line 24 – page 101, line 15, lines 7 - 16

A. In general, one understands that if you are going to have a controlled system, it's to control some desired output variable.

2. Dr. Bravman's testimony confirms that a power supply disclosed by the '155 patent includes a programmable controller that is programmed to various target voltage amplitudes depicted as dotted lines in Figure 5C of the '155 patent.

In the excerpts reproduced below, Dr. Bravman confirmed that the pulsed power supplies disclosed in the '155 patent include a controller, and that one skilled art would understand that the controller could be programmed to provide the target voltage amplitude levels shown in figure 5C of the patent. This is relevant to the Patent Owner's argument (Patent Owner Response, pages 11 – 12) that the dotted lines in figure 5C represent a program of target voltage amplitudes for a programmable power supply controller, which is pertinent to the claimed distinctions between the claimed pulse control and Wang:

Excerpt A: Page 39, line 9 – page 40, line 13

Q. Right. I want to focus on the structure of the power supply itself. So would one skilled in the art reading this understand that the pulsed power supply 102 could include a programmable controller?

A. I believe a worker of skill would understand that depending on what was built or purchased and what was labeled power supply on some box may or may not include various circuits to do things such as program it. So some power supplies you may have something external to it. It may be controlled by a computer, through software. So a worker of skill in the timeframe of the patent would understand there is a variety of ways to control a device such as a power supply.

Q. Understood. And one of those ways to control would be with a programmable controller; is that correct?

A. Yes, I understand your question. What constitutes a programmable controller in fact is, though, I believe at the heart of your question because the accentuation of that device or function could take many forms. But, yes, the phrase programmable controller is understood to workers of skill.

Excerpt B: Page 44, lines 3 – 14

Q. So now we mentioned earlier the programmable controller referred to in the '155 Patent. Does the programmable controller

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