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BEFORE THE PATENT TRIAL AND APPEAL BOARD**

In Re: U.S. Patent 7,834,605 : Attorney Docket No. 082963.0108

Inventor: Balu Balakirshnan et al. :

Filed: October 16, 2009 :

Issued: November 16, 2010 : IPR No. Unassigned

Assignee: Power Integrations Inc.

Title: Method and Apparatus for Maintaining a Constant Load Current With  
Lin Voltage in a Switch Mode Power Supply

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*Submitted Electronically via the Patent Review Processing System*

**DECLARATION OF DOUGLAS HOLBERG, Ph.D.**

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## **Declaration of Doug Holberg**

I, Doug Holberg, declare as follows:

1. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters contained herein.
2. I have been asked to provide technical assistance in the *inter partes* review of U.S. Patent No. 7,834,605 (“the ’605 Patent”).
3. This declaration is a statement of my opinions on issues related to the unpatentability of claims 1, 2, 5, and 9 of the ’605 Patent.

### **I. Background and Qualifications**

4. In formulating my opinions, I have relied upon my knowledge, training, and experience in the relevant art. A complete listing of my qualifications including a list of my patents is stated more fully in my curriculum vitae. Ex. 1004. Here I provide a brief summary of my qualifications

5. I have over 30 years of experience in the electronics field. During that time, I have worked for several different electronics companies including: Mostek, Crystal Semiconductor, Cygnal Integrated Products, and Silicon Laboratories, when it acquired Cygnal, which I co-founded in 1999. I am a named inventor on 39 U.S. patents. I have held a variety of engineering positions over that time from circuit designer to Director of Engineering and V.P. of Technology. In addition to my engineering experience, I also have served as an adjunct faculty member at the

University of Texas, where I earned my M.S.E. and Ph.D. degrees. Further, I have published numerous IEEE papers, and co-authored three editions of a text book titled CMOS Analog Circuit Design.

## **II. Legal Understanding**

6. My opinions are also informed by my understanding of the relevant law. I understand that the patentability analysis is conducted on a claim-by-claim and element-by-element basis, and that there are several possible reasons that a patent claim may be found to be unpatentable.

7. I understand that a single prior art reference, article, patent or publication “anticipates” a claim if each and every element of the claim is disclosed in that prior art reference. I further understand that, where a claim element is not explicitly disclosed in a prior art reference, the reference may nonetheless anticipate a claim if the missing claim element is necessarily present in the apparatus or a natural result of the method disclosed—i.e. the missing element is “inherent.”

## **III. Overview of the '605 Patent**

### **A. Background of the Technology**

8. I have reviewed the '605 Patent, which is entitled “Method and Apparatus for Maintaining a Constant Load Current With Line Voltage in a Switch Mode Power Supply.” Ex. 1001. I understand that this patent was filed on

October 16, 2009, and issued on November 16, 2010. *Id.* I have also reviewed U.S. Patent No. 7,110,270 (“the ’270 Patent”), a patent from which the ’605 Patent depends. Ex. 1002.

9. The ’605 Patent relates to switch mode power supply circuits. Ex. 1001, Abstract, 1:24-26. A switch mode power supply may transfer electrical energy from a power source input (e.g., a wall socket) to the output of the switch mode power supply through an inductive element, such as a transformer, coupled to a switch. *Id.*, 5:9-13, 2:4-8, Fig. 4. The duty cycle of the switch (i.e., the ratio of the on-time of the switch to the overall switching period) may be controlled during each switching cycle in order to regulate the amount of energy transferred from the input to the output of the switch mode power supply. *Id.*, 5:37-39, 5:11-13, 3:19-21.

10. An example of a switch mode power supply is illustrated in Figure 4 of the ’605 Patent. *Id.*, 5:31-34, Fig. 4. As shown in Figure 4, the power supply receives power from an external power source at input 355 on the primary side of the power supply. *Id.*, Fig. 4. A regulation circuit 350 drives a winding of energy transfer element 320 to supply power at output 300 on the secondary side of the power supply. *Id.*, Fig. 4; *see also id.*, 5:31-49.

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