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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ABB, INC.

Petitioner

v.

ROY-G-BIV CORPORATION

Patent Owner

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Trial No.: IPR2013-00062

U.S. Patent No. 6,516,236

MOTION CONTROL SYSTEMS

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DECLARATION UNDER 37 CFR § 42.53
BY DAVID B. STEWART, Ph.D.

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I.   Personal Background

1.   My name is David Bernard Stewart. I have personal knowledge of the facts contained in this Declaration, am of legal age, and am otherwise competent to testify.

2.   I am the author of the Stewart reference relied upon in the Petitions for Inter Partes Reviews of U.S. Patent Nos. 6,516,236B1, the '236 Patent (IPR2013-00062) and 8,073,557, the '557 Patent (IPR2013-00074) (hereafter the "Patents" and the "Petitions"). I have also co-authored publications with Dr. Matthew Wayne Gertz, the author of the Gertz reference relied upon in the Petitions.

3.   All of the opinions I express in this Declaration have been made from the standpoint of a person of ordinary skill in the motion control field, who I have assumed would have a bachelor's degree (or equivalent) in electrical, mechanical, or computer science/engineering and at least one or two years' experience developing software for motion control systems.

4.   I have over 25 years of diverse professional experience. I am currently the lead software architect for the next generation of defibrillator and vital sign monitoring devices being developed by Physio-Control that are used in ambulances and hospitals. My main areas of expertise are within the general area

of embedded systems (*i.e.*, computer systems with a dedicated function within a larger mechanical or electrical system), and more specifically within the areas of embedded system hardware and software architecture, real-time operating systems and executives, low-level kernel and device driver programming, hardware-software co-design, component-based software engineering, real-time design, performance analysis, power optimization, debugging techniques, and hardware and software verification and validation. I have significant experience in numerous market segments, including mobile computing, wireless sensor networks, aerospace, industrial control, consumer electronics, transportation, medical devices, robotics, and environmental monitoring. I am an expert in the low-level operating system and device driver aspects of motion control systems, and a person of ordinary skill in the application levels of such systems.

5.   I earned my Ph.D. in computer engineering from Carnegie Mellon University in 1994. My Ph.D. dissertation is in fact the "Stewart" reference at issue in this proceeding. From 1994 through 2000, I was a computer engineering faculty member at University of Maryland. Between 2000 and 2006, I was Chief Technology Officer at an embedded systems startup firm. Then from 2006 through 2012, I was Director of Software Engineering at an embedded systems electronics firm. During the span from 1994 through present, I have often worked as a

consultant for numerous companies, and have been regularly invited to present lectures at the Embedded Systems Conferences held two to three times per year in the US. My CV is attached.

6. I have been retained as an expert by Roy-G-Biv Corporation ("Patent Owner") in connection with Inter Partes Reviews IPR2013-00062 and IPR2013-00074 of the Patents (hereafter IPR's). In connection with my analysis, I have reviewed the following: (1) the Patents, including their claims; (2) the Petitions; (3) the Board's Decisions relating to the Petitions; (4) the following references relied on in the Petitions: (a) M.W. Gertz, A Visual Programming Environment for Real-Time Control Systems ("The Gertz Reference" or "Gertz"); (b) D.B. Stewart, Real-Time Software Design and Analysis of Reconfigurable Multi-Sensor Based Systems ("The Stewart Reference" or "Stewart"); and (c) J. Dan Morrow, Vision and Force Driven Sensorimotor Primitives for Robotic Assembly Skills ("The Morrow Reference" or "Morrow") (collectively, "the References"); and (5) the Second Amended Joint Claim Construction and Prehearing Statement and its Exhibits (previously submitted in these IPR's as Exhibit 2009 in IPR2013-00062 and as Exhibit 2012 in IPR2013-00074, hereafter "JCCS"). I have read the claim constructions presented in the JCCS.

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