

DECLARATION OF MICHAEL J. SAMPSON

I, Michael J. Sampson, hereby declare the following to be true and correct to the best of my personal knowledge and belief:

1. I am the co-manager for the National Aeronautics and Space Administration's ("NASA") *Electrical, Electronic, and Electromechanical Parts and Packaging* program. I was educated in the United Kingdom and possess a Higher National Certificate in Electrical and Electronic Engineering. In 1999 I received a Master's degree in Engineering Management from the University of Maryland. I first began working with electronic components in 1968 and I have been employed by NASA since 1994. As co-manager of the Electrical, Electronic, and Electromechanical Parts and Packaging program, I lead the Parts Assurance Group. In that role I work with the Defense Supply Center in Columbus, Ohio ("DSCC") and make internal *recommendations as to how NASA programs should use DSCC-qualified parts*. I am located at NASA's Goddard Space Flight Center ("Goddard") but my responsibility within the Parts Assurance Group extends to the entire NASA organization.
2. I submit this sworn statement in connection with the investigation of the United States Department of Justice into Microsemi Corporation's ("Microsemi") July 2008 acquisition of Semicoa, Inc. ("Semicoa"), a transaction that seriously concerns me because it makes Microsemi the sole supplier of certain critical, high reliability components that are essential to the success of NASA programs.
3. DSCC maintains a list of qualified parts from specified suppliers generally known as the Qualified Manufacturer's List, or QML. DSCC administers different reliability grades of QML parts, known as Joint Army-Navy ("JAN") categories. The highest reliability grade, Joint Army-Navy Space ("JANS"), is intended for components qualified for use in space. Lower QML grades, including JANTXV and JANTX, apply to parts intended for use in other demanding military applications.
4. JANS parts are more reliable for space applications than lower QML grade parts because they are subjected to additional tests and process controls. These tests ensure that JANS parts closely conform to their stated specifications and that JANS parts have a very low failure rate. To the best of my knowledge, no JANS part has ever failed in space.
5. *Highly reliable performance under demanding conditions is essential for the electronic components used by NASA programs*. Spacecraft are not only subjected to intense vibrations during the launch process, but must also operate in the harsh conditions of space, which include potential exposure to high levels of radiation, repeated temperature fluctuations as the spacecraft travels in and out of sunlight, exposure to a vacuum, and a micro-gravity environment that may allow loose particles to interfere with the operation of electronic parts and equipment. Additionally, most of NASA's spacecraft cannot be retrieved after launch, meaning that a single *failure can jeopardize the success of the entire mission*.

6. NASA recommends the use of JANS level discrete semiconductors, such as small signal transistors and ultrafast recovery rectifier diodes, for its highest priority space missions. *Examples of these high priority, low-risk tolerance missions are the Hubble Space Telescope, the Cassini-Huygens Mission to the Saturnian system, the Mars Exploration Rover and the Mars Reconnaissance Orbiter.*

7. If no JANS part is available in time for a mission, NASA or its contractor must acquire a lower grade JANTXV or JANTX part and then perform additional testing to "upscreen" the part to a near-JANS level. Upscreening involves subjecting lower-grade parts to extensive testing, including, but not limited to, additional burn-in, particle impact noise detection and destructive physical analysis (where sample parts are actually taken apart and visually inspected). These tests identify and eliminate many defective or substandard parts and are intended to bring the remaining upscreened parts closer to the reliability guaranteed by JANS parts. Even following this extensive testing, however, JANTXV and JANTX parts are typically not as reliable as JANS parts.

8. Furthermore, I have conducted research which showed that, based on the total cost of ownership, "upscreening" JANTXV or JANTX parts to near JANS level is not a cost effective alternative to buying JANS parts. My research showed that, on average, the total cost to upscreen JANTXV parts to JANS equivalent is more than double the original cost of JANS parts. My research also showed that the cost to upscreen commercial parts to JANTXV equivalent is over four times the original cost of the JANTXV parts. Upscreening commercial parts to JANS equivalent would be even more expensive than upscreening them to JANTXV equivalent, and there is no consensus that this is even possible. Based on my research and the fact that upscreened parts are typically not as reliable as JANS parts, I recommend that NASA programs *use JANS parts for high priority missions whenever JANS parts are available.*

9. I also recommend that NASA programs move forward cautiously with newly qualified manufacturers of QML parts and augment the testing process by doing qualifications of their own, especially if a part is difficult to make or is to be used in a mission critical application.


10. I attended an August 14, 2008 meeting hosted by DSCC and led by Kare Karlsen and Beth Parker of Microsemi. The purpose of the meeting was for Microsemi to explain the impact of its acquisition of Semicoa and its plans for the future of Semicoa's QML parts. During that meeting, Kare Karlsen directly stated that Microsemi's customers should expect annual price increases "in the low teens." Microsemi said that price increases were justified because Semicoa's pricing was "lower than it should have been."

11. I am concerned about the possible effects of this acquisition. As a result of the acquisition, Microsemi has become the only source for many small signal transistors that NASA relies on. I am concerned Microsemi could increase prices for these parts. I am also concerned that Microsemi could cause increases in delivery times for these parts, or experience a plant failure or other disruption that would eliminate the only JANS supplier of these parts. Should this happen, numerous NASA programs, with budgets in the billions of dollars, could be delayed

until a secondary supply source was developed, subjecting NASA programs to increased risk and cost.

12. Delays from supply disruption can be quite significant and costly for NASA. For example, in 2006 Microsemi had production problems with JANS 5811 diodes, a part for which it was the sole provider. Because of Microsemi's problems, NASA supported DSCC's efforts to develop Semtech as a new source for JANS 5811 diodes. Even though Semtech was qualified to the JANTEX level, the effort to qualify to the JANS level is still ongoing after one year. This example illustrates the difficulty of developing additional JANS suppliers and the risk of dependence on Microsemi as a single source supplier of critical JANS parts.

I declare under penalties of perjury, that the foregoing is true and correct.
Executed at Greenbelt, Maryland on December 12, 2008.


Michael J. Sampson