Henry C. Bunsow (SBN 60707)
bunsowh@howrey.com
Denise De Mory (SBN 168076)
demoryd@howrey.com
Brian A.E. Smith (SBN 188147)
smithbrian@howrey.com
Matthew F. Greinert (SBN239492)
greinertm@howrey.com
HOWREY LLP
525 Market Street, Suite 3600
San Francisco California 94105
Tel: 415-848-4900
Fax: 415-848-4999

Attorneys for Defendant
AuthenTec, Inc.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

OAKLAND DIVISION

ATMEL CORPORATION, a Delaware corporation; ATMEL SWITZERLAND, a corporation; ATMEL FRANCE, a corporation; and ATMEL SARL, a corporation,

Plaintiffs,

v.

AUTHENTEC, INC., a Delaware corporation,

Defendant.

Case No. 06 CV 2138 CW

DECLARATION OF DR. ROGER D. MCWILLIAMS

I, Roger D. McWilliams, declare as follows:

1. I am a Professor of Physics at the University of California, Irvine and a Fellow of the American Physical Society. I received my Ph.D. in Plasma Physics from Princeton University. I have over 30 years of experience in the transmission and detection of electromagnetic fields. I am the owner of McWilliams Scientific, and I have been retained by AuthenTec to conduct independent experimentation on the AuthenTec sensors at issue in this matter. I may also provide an expert report and expert testimony at the appropriate time. A true and accurate copy of my curriculum vitae is attached hereto as Exhibit A. A true and accurate list of my publications is attached hereto as Exhibit B.

2. I was provided with a number of AuthenTec AES1610 and AES2501 series sensors together with their technical evaluation kits, including operating software. I was asked by counsel for AuthenTec to conduct experiments on these sensors to determine whether these sensors included contact sensitive elements.

3. I understand that Atmel proposes that "contact sensitive elements" and "sensing elements" be defined as "two or more components that are responsive to contact between a finger and the sensing surface of the sensor wherein the sensor is integrated onto a semiconductor substrate and is not an optical sensor." Based on my experimentation detailed below, in my opinion the tested AuthenTec sensors operate without "contact sensitive elements" and "sensing elements" as defined by Atmel. Specifically, they operate without components that are responsive to contact between a finger and the sensing surface of the sensor.

4. I used three methods to test the sensors for contact sensitivity. The first method utilized a controlled but variable air gap between the finger and the protective layer above the sensors. The second method utilized an insulating dielectric shim between the finger and the protective layer above the sensors. The third method utilized a sensor with the drive ring disconnected, but with a wire attached to the RF transmitter so that the RF signal could be accessed remotely from the sensor housing and applied to any part of the human body near or far from the finger being identified.

5. In all methods, I found that it was possible to identify fingerprints without any direct contact between the finger and the sensors.

6. Before performing any of these methods, I verified proper operation of the sensors to be tested by operating them under normal conditions using the AuthenTec software.

7. The variable air gap method was performed by placing conducting shims of various thicknesses on the external drive ring attached to the AuthenTec product housing. I tested the sensors using shim heights of 13, 25, 38 and 51 microns thickness. A laser beam was directed parallel to the surface of the protective layer above the sensors in order to verify that an air gap was maintained during swiping of the finger across the shim tops.

8. At all shim heights tested (13, 25, 38 and 51 microns), the laser beam passed through the gap between the finger and the protective layer above the AES1610 sensors. At shim heights of 25, 38 and 51 microns, the laser beam passed through the gap between the finger and the protective layer above the AES2501 sensors. For swipes made with shim heights of 13, 25 and 38 microns, the AuthenTec sensors and software identified the fingerprints. This was true for both the AES1610 and AES2501 series sensors.

9. In order to standardize the finger swipe force, I measured the gram-equivalent force of the finger on the shims. Typical swipes used a 10 gram-equivalent force.

10. Based upon the air gap tests, I conclude that no contact is required between the finger and the protective layer above the sensors in order to detect and identify fingerprints. In fact, the AuthenTec fingerprint identification system functioned to detect and identify fingerprints regardless of whether the finger touched the protective layer or not. Thus, in my opinion, the tested sensors operate without "contact sensitive elements" or "sensing elements" as defined by Atmel.

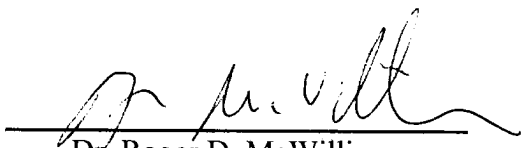
11. The second method (using a dielectric shim) was performed by placing a dielectric material 12.5 microns thick over the entire fingerprint. The radio frequency external excitation source was wired to the finger without disturbing the dielectric material covering the fingerprint. In this configuration, the fingerprint was detected and identified by the AuthenTec sensor and software with the 12.5 micron gap between the finger and the top of the protective layer above the sensor.

12. When the connection between the finger and the external RF excitation source was removed, the fingerprint was not detected or identified. I conclude that an external excitation source is required by the tested AuthenTec sensors in order to detect and identify fingerprints.

13. In the third method, I also found that the sensor would operate properly without any contact between the finger and the drive ring or the protective coating on the sensor upper surface. I determined this by testing a sensor with a wire attached to the RF transmitter while simultaneously having the external drive ring disabled. The wire extended away from the sensor housing. A small piece of copper foil was attached to the end of the wire. In this configuration, for example, the left hand could hold the copper foil while the right hand fingers were swept near the sensor. In this example, the sensor was able to identify fingerprints even though the right hand made no contact with the copper foil (i.e., the RF drive signal).

14. I then covered the copper foil with an insulator and covered the finger to be detected with another insulator. Even in this configuration the sensor still could detect and identify fingerprints. Thus, the sensor operated properly to identify fingers without any contact between the finger being read and the drive ring or the sensor's protective layer. Indeed, the hand of the fingerprint being read was not in contact with any part of the system.

This declaration was executed at Irvine, California on February 25, 2008.



Dr. Roger D. McWilliams