

Dox Joseph F
 Form 3
 May 21, 2007

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL

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INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section
 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person *

Dox Joseph F

(Last) (First) (Middle)

C/O NANOMETRICS
 INCORPORATED, 1550
 BUCKEYE DRIVE

(Street)

MILPITAS, CA 95035

(City) (State) (Zip)

2. Date of Event Requiring Statement

(Month/Day/Year)
 05/17/2007

3. Issuer Name and Ticker or Trading Symbol
 NANOMETRICS INC [NANO]

4. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

Director 10% Owner
 Officer Other
 (give title below) (specify below)

5. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)
 Form filed by One Reporting Person
 Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Beneficially Owned

| 1. Title of Security (Instr. 4) | 2. Amount of Securities Beneficially Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---------------------------------|---|--|---|
| Common Stock | 701 | D | |
| Common Stock | 311 | I | See footnote (1) |
| Common Stock | 1,221 | I | See footnote (2) |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

SEC 1473 (7-02)

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

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| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 5) | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---|--|--|---|---|---|
| | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| | Director | 10% Owner | Officer | Other |
| Dox Joseph F C/O NANOMETRICS INCORPORATED 1550 BUCKEYE DRIVE MILPITAS, CA 95035 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Signatures

/s/ Joseph F.
Dox

05/17/2007

**Signature of Reporting Person

Date

Explanation of Responses:

- * If the form is filed by more than one reporting person, see Instruction 5(b)(v).
 - ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- (1) Shares held directly by the Alexia Dox Trust (the "AD Trust"). Ira Greenspan is the Trustee of the AD Trust and has sole voting and investment power over the shares held by the AD Trust. The Reporting Person disclaims beneficial ownership of these securities, and this report shall not be deemed an admission that the Reporting Person is the beneficial owner of such securities for purposes of Section 16 or for any other purpose.
- (2) Shares held directly by the Emilie Dox Trust (the "ED Trust"). Ira Greenspan is the Trustee of the ED Trust and has sole voting and investment power over the shares held by the ED Trust. The Reporting Person disclaims beneficial ownership of these securities, and this report shall not be deemed an admission that the Reporting Person is the beneficial owner of such securities for purposes of Section 16 or for any other purpose.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, See Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.