

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 20-F/A

(Amendment No. 1)

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2009

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

OR

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company report

Commission file number: 000-51196

AIXTRON Aktiengesellschaft

(Exact name of Registrant as specified in its charter)

Federal Republic of Germany

(Jurisdiction of incorporation or organization)

**Kaiserstr. 98
52134 Herzogenrath**

Federal Republic of Germany

(Address of principal executive offices)

Guido Pickert, +49 241 8909-444, +49 241 8909-445, Aixtron AG, Kaiserstr. 98, 52134 Herzogenrath, Federal Republic of Germany

(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

American Depositary Shares, each representing one Ordinary Share

Ordinary shares, no par value (not for trading, but only in connection with the listing of its American Depositary Shares on The NASDAQ Global Select Market)

(Title of Class)

The NASDAQ Global Select Market

(Name of each Exchange on which registered)

Securities registered or to be registered pursuant to Section 12(g) of the Act: **None**

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: **None**

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of December 31, 2009:
100,667,177 ordinary shares, no par value.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files)

Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of accelerated filer and large accelerated filer in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing.

U.S. GAAP

International Financial Reporting Standards as issued
by the International Accounting Standards Board

Other

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17 Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

EXPLANATORY NOTE

This Form 20-F/A (the “Amended Filing”) is being filed by Aixtron Aktiengesellschaft (the “Company” or “AIXTRON”) to amend its Annual Report on Form 20-F for the year ended December 31, 2009 (the “Original Filing”), filed with the Securities and Exchange Commission (the “SEC”) on March 10, 2010, to set forth Item 15, Item 18 and Item 19 to replace Item 15, Item 18 and Item 19 in their entirety, respectively, in the Original Filing. All other items remain unchanged from the Original Filing.

As disclosed below, Item 15 of this Amended Filing is filed to (i) include Deloitte & Touche GmbH’s attestation report on the effectiveness of the Company’s internal controls over financial reporting, which was inadvertently omitted from the Original Filing, (ii) revise the Company’s conclusion regarding the effectiveness of its disclosure controls and procedures as of the end of the period covered by this report, (iii) remove the definition of disclosure controls and procedures in the Company’s disclosure regarding its officers’ conclusions about the effectiveness of the Company’s disclosure controls and procedures and (iv) remove the definition of internal control over financial reporting in the Company’s disclosure regarding its conclusion about the effectiveness of its internal control over financial reporting.

As disclosed below, Item 18 of this Amended Filing is filed to revise the report of independent registered public accounting firm to (i) opine on the December 31, 2009, 2008 and 2007 consolidated statements of financial position and (ii) correct the conformed signature to the report of independent registered public accounting firm.

As disclosed below, Item 19 of this Amended Filing is filed to (i) update the Sections 302 and 906 certifications and (ii) revise the consent of independent registered public accounting firm to refer to the report of independent registered public accounting firm dated March 10, 2010.

Except as otherwise stated herein, no other information contained in the Original Filing has been updated by this Amended Filing and no disclosures have been updated to reflect events that occurred at a later date. This Amendment should be read in conjunction with the Company’s SEC filings made subsequent to the Original Filing.

Item 15: Controls and Procedures

Disclosure Controls and Procedures

Management of AIXTRON conducted an evaluation, under the supervision and with the participation of AIXTRON's Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of AIXTRON's disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act).

Based on such evaluation, AIXTRON's Chief Executive Officer Paul Hyland and Chief Financial Officer Wolfgang Breme had concluded that disclosure controls and procedures were effective. However, in light of the fact that AIXTRON's Management inadvertently omitted the required attestation report on the effectiveness of the Company's internal controls over financial reporting issued by Deloitte & Touche GmbH from the Original Filing, the Company is hereby revising its conclusion regarding its disclosure controls and procedures as of the end of the period covered by this report and instead is concluding that those disclosure controls and procedures were not effective at December 31, 2009.

The Company has remedied this failure in the effectiveness of its disclosure controls and procedures by filing the required attestation report on the effectiveness of the Company's internal controls over financial reporting in the Amended Filing. The Company has also implemented additional controls and procedures designed to ensure that the disclosures provided by the Company meet the then-current requirements of the applicable filing made under the Exchange Act.

Management's Report on Internal Control over Financial Reporting

AIXTRON's Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Exchange Act, for AIXTRON. Under the supervision and with the participation of AIXTRON's Chief Executive Officer and Chief Financial Officer, AIXTRON's Management conducted an evaluation of the effectiveness of AIXTRON's internal control over financial reporting based upon the framework in "Internal Control—Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission as of the end of the period covered by this report.

Based on that evaluation, Management has concluded that AIXTRON's internal control over financial reporting was effective as of December 31, 2009.

Deloitte & Touche GmbH, an independent registered public accounting firm, has audited the Consolidated Financial Statements included in this annual report on Form 20-F and, as part of the audit, has issued an attestation report, included herein, on the effectiveness of AIXTRON's internal control over financial reporting.

Attestation Report of the Registered Public Accounting Firm

To The Supervisory Board

AIXTRON AG

Herzogenrath, Germany

We have audited the internal control over financial reporting of AIXTRON Aktiengesellschaft and subsidiaries (the "Company") as of December 31, 2009, based on the criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management Report On Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed by, or under the supervision of, the company's principal executive and principal financial officers, or persons performing similar functions, and effected by the company's board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2009, based on the criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements as of and for the year ended December 31, 2009 of the Company and our report dated March 10, 2010 expressed an unqualified opinion on those financial statements.

/s/ Deloitte & Touche GmbH Wirtschaftsprüfungsgesellschaft

Deloitte & Touche GmbH

Wirtschaftsprüfungsgesellschaft

Duesseldorf, Germany, March 10, 2010

Changes in Internal Control over Financial Reporting

During the year ended December 31, 2009 there have been no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations of Disclosure Controls and Procedures in Internal Control over Financial Reporting

It should be noted that any system of controls, however well-designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system will be met. In addition, the design of any control system is based in part upon certain assumptions about the likelihood of future events.

Item 18: Financial Statements

See pages F-1 to F-62 of the Amended Filing which are incorporated herein by reference.

Item 19: Exhibits

| <u>Exhibit Number</u> | <u>Description of Exhibit</u> |
|-----------------------|--|
| 1.1 | Articles of Association (<i>Satzung</i>) as amended January 19, 2010.* |
| 4.2 | Manufacturing License and Technical Services Agreement, dated as of August 10, 1989, between AIXTRON Aktiengesellschaft and Laboratoires D'Electronique Philips (incorporated by reference to Exhibit 10.2 to Form F-4, dated February 8, 2005, File No. 333-122624). |
| 4.3 | Exclusive Patent and Know-How License Agreement among AIXTRON Aktiengesellschaft, Centre National de la Recherche Scientifique and the Institut National Polytechnique de Grenoble (incorporated by reference to Exhibit 10.3 to Form F-4, dated February 8, 2005, File No. 333-122624). |
| 8.1 | List of Subsidiaries (incorporated by reference to the list of significant subsidiaries set forth in this report under the caption "Item 4. Information on the Company—Organizational Structure.")* |
| 11.1 | Code of Ethics, revised in 2007 (incorporated by reference to Exhibit 11.1 to Form 20-F, dated March 13, 2008, File No. 000-51196). |
| 12.1 | Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.** |
| 12.2 | Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.** |
| 13.1 | Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.** |
| 15.1 | Consent of Deloitte & Touche GmbH Wirtschaftsprüfungsgesellschaft.** |

* Previously filed as an exhibit to the Original Filing.

** Filed herewith.

SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F (as amended by this Form 20-F/A Amendment No. 1) and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

Date: June 21, 2010

AIXTRON AKTIENGESELLSCHAFT

/s/ PAUL HYLAND

Name: **Paul Hyland**

Title: **Chairman, President and Chief Executive Officer**

/s/ WOLFGANG BREME

Name: **Wolfgang Breme**

Title: **Executive Vice President and Chief Financial Officer**

Report of Independent Registered Public Accounting Firm

To The Supervisory Board

AIXTRON AG

Herzogenrath, Germany

We have audited the accompanying consolidated statement of financial position of AIXTRON Aktiengesellschaft and subsidiaries (the “Company”) as of December 31, 2009, 2008 and 2007 and the related consolidated income statement, consolidated statement of cash flows and consolidated statement of changes in equity, for each of the three years in the period ended December 31, 2009. These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of AIXTRON Aktiengesellschaft and subsidiaries as of December 31, 2009, 2008 and 2007 and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2009, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board (IASB).

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company’s internal control over financial reporting as of December 31, 2009, based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 10, 2010 expressed an unqualified opinion on the Company’s internal control over financial reporting.

/s/ Deloitte & Touche GmbH Wirtschaftsprüfungsgesellschaft

Deloitte & Touche GmbH

Wirtschaftsprüfungsgesellschaft

Duesseldorf, Germany, March 10, 2010

CONSOLIDATED INCOME STATEMENT

| | Notes | 2009 | 2008 | 2007 |
|--|-------|----------------|--------------------|---------------|
| | | | (in EUR thousands) | |
| Revenues | 3 | 302,857 | 274,404 | 214,815 |
| Cost of sales | | 168,143 | 161,525 | 129,779 |
| Gross profit | | 134,714 | 112,879 | 85,036 |
| Selling expenses | | 25,465 | 27,842 | 27,163 |
| General administration expenses | | 21,288 | 17,997 | 16,030 |
| Research and development costs | 5 | 32,917 | 28,286 | 26,532 |
| Other operating income | 6 | 10,046 | 5,192 | 6,612 |
| Other operating expenses | 7 | 2,365 | 11,457 | 1,280 |
| Operating result | | 62,725 | 32,489 | 20,643 |
| Finance Income | | 1,283 | 3,189 | 1,857 |
| Finance Expense | | 27 | 23 | 99 |
| Net Finance Income | 9 | 1,256 | 3,166 | 1,758 |
| Result before taxes | | 63,981 | 35,655 | 22,401 |
| Taxes on income | 10 | 19,215 | 12,661 | 5,151 |
| Profit/loss attributable to the equityholders of AIXTRON AG (after taxes) | | 44,766 | 22,994 | 17,250 |
| Basic earnings per share (€) | 23 | 0.49 | 0.26 | 0.20 |
| Diluted earnings per share (€) | 23 | 0.48 | 0.25 | 0.19 |

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENT OF OTHER COMPREHENSIVE INCOME

| | 2009 | 2008 | 2007 |
|--|----------------------|----------------------|---------------------|
| | (in EUR thousands) | | |
| Profit or Loss | 44,766 | 22,994 | 17,250 |
| Losses/gains from derivative financial instruments before taxes | (1,417) | (1,707) | 961 |
| Currency translation adjustment | 1,306 | (5,372) | (9,932) |
| Deferred taxes | 302 | 515 | (289) |
| Other comprehensive income | 191 | (6,564) | (9,260) |
| Total comprehensive income attributable to equity holders of AIXTRON AG | <u>44,957</u> | <u>16,430</u> | <u>7,990</u> |

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

| | <u>Note</u> | <u>12/31/2009</u> | <u>12/31/2008</u> (in EUR thousands) | <u>12/31/2007</u> |
|---|-------------|-------------------|---|-------------------|
| Assets | | | | |
| Property, plant and equipment | 12 | 37,758 | 39,324 | 35,121 |
| Goodwill | 13 | 58,275 | 58,719 | 58,974 |
| Other intangible assets | 13 | 7,766 | 10,255 | 12,508 |
| Investment property | 14 | 0 | 4,908 | 4,908 |
| Other non-current assets | 15 | 644 | 672 | 745 |
| Deferred tax assets | 16 | 13,869 | 3,161 | 4,773 |
| Tax assets | 17 | 373 | 420 | 437 |
| Total non-current assets | | 118,685 | 117,459 | 117,466 |
| Inventories | 18 | 89,552 | 77,086 | 60,013 |
| Trade receivables less allowance k€717 (2008: k€ 2,289; 2007: k€567) | 19 | 49,265 | 38,814 | 33,490 |
| Current tax assets | 11 | 59 | 59 | 59 |
| Other current assets | 19 | 14,341 | 10,947 | 9,025 |
| Other financial assets | 20 | 90,000 | 3,000 | 4,831 |
| Cash and cash equivalents | 21 | 211,192 | 67,462 | 71,943 |
| Total current assets | | 454,409 | 197,368 | 179,361 |
| Total assets | | 573,094 | 314,827 | 296,827 |
| Liabilities and shareholders' equity | | | | |
| Subscribed capital Number of shares: 99,587,927 (2008: 89,692,328; 2007: 89,138,905) | | 99,588 | 89,692 | 89,139 |
| Additional paid-in capital | | 260,413 | 106,445 | 102,562 |
| Retained earnings | | 67,092 | 30,507 | 13,845 |
| Income and expenses recognised in equity | | (13,564) | (13,755) | (7,192) |
| Total shareholders' equity | 22 | 413,529 | 212,889 | 198,354 |
| Employee benefits | 26 | 1,064 | 845 | 878 |
| Other non-current liabilities | | 70 | 67 | 71 |
| Other non-current provisions | 26 | 790 | 1,210 | 1,496 |
| Deferred tax liabilities | | 275 | 0 | 0 |
| Total non-current liabilities | | 2,199 | 2,122 | 2,445 |
| Trade payables | 27 | 21,419 | 18,782 | 23,761 |
| Advance payments from customers | | 87,918 | 52,566 | 49,988 |
| Other current provisions | 26 | 28,666 | 20,481 | 16,473 |
| Other current liabilities | 27 | 2,265 | 1,866 | 1,303 |
| Current tax liabilities | | 17,064 | 6,085 | 4,254 |
| Deferred revenues | | 34 | 36 | 249 |
| Total current liabilities | | 157,366 | 99,816 | 96,028 |
| Total liabilities | | 159,565 | 101,938 | 98,473 |
| Total liabilities and shareholders' equity | | 573,094 | 314,827 | 296,827 |

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS

| | Note | 2009 | 2008 (in EUR thousands) | 2007 |
|--|------|-----------------|----------------------------|-----------------|
| Cash inflow from operating activities | | | | |
| Net income for the year (after taxes) | | 44,766 | 22,994 | 17,250 |
| Reconciliation between profit and cash inflow/outflow from operating activities | | | | |
| Expense from share-based payments | | 2,149 | 1,808 | 1,250 |
| Impairment expense | | 0 | 0 | 332 |
| Depreciation and amortization expense | | 12,368 | 10,753 | 9,748 |
| Net result from disposal of property, plant and equipment | | (1,207) | 68 | 36 |
| Deferred income taxes | | (10,412) | 2,314 | 620 |
| Other non-cash expenses | | (472) | 98 | 2,888 |
| Change in | | | | |
| Inventories | | (11,713) | (20,087) | (9,601) |
| Trade receivables | | (10,506) | (6,811) | (8,086) |
| Other assets | | (4,283) | (3,930) | (4,045) |
| Trade payables | | 2,539 | (3,192) | (5,518) |
| Provisions and other liabilities | | 19,265 | 8,040 | 8,295 |
| Deferred revenues | | (6) | (215) | (243) |
| Non-current liabilities | | 55 | (376) | (452) |
| Advance payments from customers | | 34,939 | 4,393 | 20,390 |
| Cash inflow from operating activities | | 77,482 | 15,857 | 32,864 |
| Cash inflow/outflow from investing activities | | | | |
| Cash from acquisitions | | 0 | 0 | 80 |
| Cost related to the acquisitions | | 0 | (392) | (458) |
| Capital expenditures in property, plant and equipment | | (8,912) | (11,617) | (6,090) |
| Capital expenditures in intangible assets | | (1,008) | (1,251) | (2,029) |
| Proceeds from disposal of fixed assets | | 7,787 | 0 | 0 |
| Bank deposits with a maturity of more than 90 days | 20 | (87,000) | 1,831 | (2,050) |
| Cash inflow/outflow from investing activities | | (89,133) | (11,429) | (10,547) |
| Cash inflow from financing activities | | | | |
| Dividend paid to shareholders | | (8,181) | (6,331) | 0 |
| Proceeds from issue of equity shares | | 161,749 | 2,628 | 5,171 |
| Cash inflow from financing activities | | 153,568 | (3,703) | 5,171 |
| Effect of changes in exchange rates on cash and cash equivalents | | 1,813 | (5,206) | (2,296) |
| Net change in cash and cash equivalents | | 143,730 | (4,481) | 25,192 |
| Cash and cash equivalents at the beginning of the period | | 67,462 | 71,943 | 46,751 |
| Cash and cash equivalents at the end of the period | 21 | 211,192 | 67,462 | 71,943 |
| Interest paid | | (9) | (119) | (85) |
| Interest received | | 778 | 3,141 | 1,850 |
| Income taxes paid | | (16,903) | (3,105) | (988) |
| Income taxes received | | 122 | 59 | 376 |

See accompanying notes to consolidated financial statements.

