SPIRENT COMMUNICATIONS PLC Form 6-K April 02, 2007

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

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of March, 2007

SPIRENT COMMUNICATIONS plc

(Translation of registrant's name into English)

Spirent House, Crawley Business Quarter, Fleming Way, Crawley, West Sussex RH10 9QL, UK.

(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F X Form 40-F....

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes No X

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-

Spirent Communications plc: Transaction in own shares

Spirent Communications plc announces that it has today purchased through ABN AMRO Bank NV 500,000 ordinary shares at an average price of 61.63 pence per share. The highest price and the lowest price paid for these shares were 61.75 pence and 61.5 pence respectively.

Spirent Communications plc intends to hold the purchased shares in treasury.

Following the purchase of these shares, Spirent Communications plc holds 74,010,000 of its ordinary shares in treasury and has 882,894,785 ordinary shares in issue (excluding treasury shares). This figure (882,894,785) represents the total voting rights in the Company and may be used by shareholders as the denominator for the calculations by which they can determine if they are required to notify their interest in, or a change to their interest in, the Company under the Financial Services Authority's Disclosure and Transparency Rules.

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

_____MICHAEL ANSCOMBE_____

(Registrant)

Date: 30 March, 2007

By ____/s/ Michael Anscombe____

(Signature)*