SPIRENT COMMUNICATIONS PLC Form 6-K October 24, 2006

> 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 October, 2006

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 Citigroup Global Markets U.K. Equity Limited 1,000,000 ordinary shares at an average price of 61.7955 pence per share. The highest price and the lowest price paid for these shares were 62.0 pence and 61.25 pence respectively.

Following the above purchase, Spirent Communications plc holds 81,790,000 Spirent Communications plc ordinary shares in treasury, and has 892,449,240 Spirent Communications plc ordinary shares in issue (excluding treasury shares).

Signatures

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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: October 24, 2006

By \_\_\_\_/s/ Michael Anscombe\_\_\_\_\_

(Signature)\*