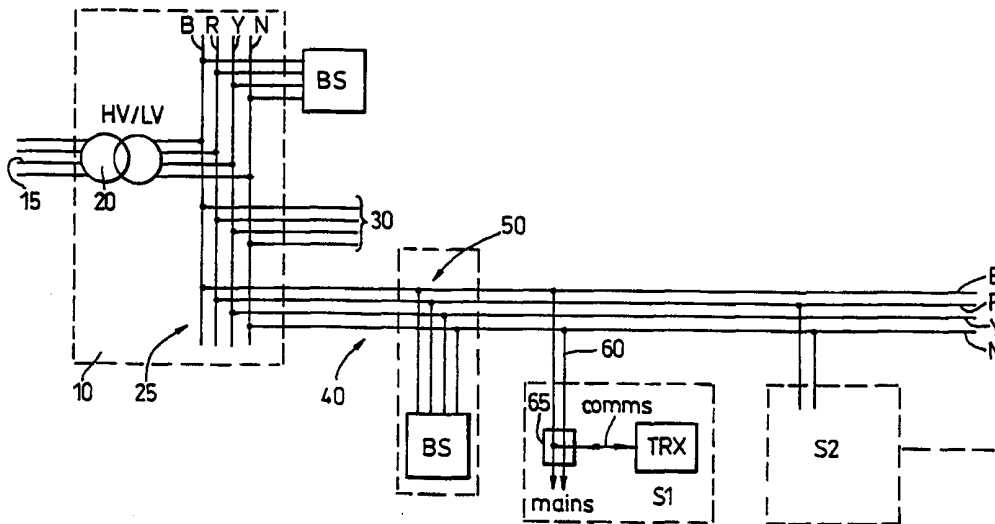




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<p>(21) International Application Number: PCT/GB98/02970 (22) International Filing Date: 2 October 1998 (02.10.98) (30) Priority Data: 08/943,169 3 October 1997 (03.10.97) US (71) Applicant (for all designated States except US): NORTHERN TELECOM LIMITED [CA/CA]; World Trade Center of Montreal, 8th floor, 380 St. Antoine Street West, Montreal, Quebec H2Y 3Y4 (CA). (72) Inventor; and (75) Inventor/Applicant (for US only): RICKARD, Robin, Paul [GB/GB]; 34 Magnaville Road, Bishop's Stortford, Hertfordshire CM23 4DN (GB). (74) Agent: RYAN, John, Peter, William; Nortel Patents, London Road, Harlow, Essex CM17 9NA (GB).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 24 June 1999 (24.06.99)</p>

(54) Title: COUPLING COMMUNICATIONS SIGNALS TO A POWER LINE



(57) Abstract

A power line communications system has a power line (40) having a plurality of conductors (B, R, Y) which carry communications signals. A set of communications signals are coupled to a set of the plurality of conductors, each signal being coupled to a respective one of the set of conductors and the phasor relationship of the set of communications signals is chosen such that radiation of communications signals from the power line is minimised. The phasor relationship may be achieved by phase shifting one or more of the signals. This method allows communications signals to be transmitted at higher power levels, thereby extending range of transmission, while minimising radiation from the line.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 H04B3/54 H04B3/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 6 H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 98 06188 A (NORTHERN TELECOM LTD ;RICKARD ROBIN PAUL (GB)) 12 February 1998 cited in the application see page 6, column 8 - page 8, column 11; figures 2,3 ---	1-16
A	GB 2 272 350 A (NORWEB PLC) 11 May 1994 cited in the application see page 1, line 21 - line 30 -----	1-16

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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