(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 December 2003 (04.12.2003)

PCT

(10) International Publication Number
WO 2003/100964 A3

(51) International Patent Classification[7]: H03F 1/32

(21) International Application Number:
PCT/GB2003/002242

(22) International Filing Date: 22 May 2003 (22.05.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0212023.6 24 May 2002 (24.05.2002) GB

(71) Applicant *(for all designated States except US)*: **ANDREW CORPORATION** [US/US]; 10500 West 153rd Street, Orland Park, Chicago, IL 60462-3099 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **SMITHSON, Antony, James** [GB/GB]; 68 Amberley Way, Wickwar, Wotton-Under-Edge, South Gloucestershire GL12 8LP (GB).

(74) Agents: **GILLARD, Matthew, Paul** et al.; Withers & Rogers, Goldings House, 2 Hays Lane, London SE1 2HW (GB).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

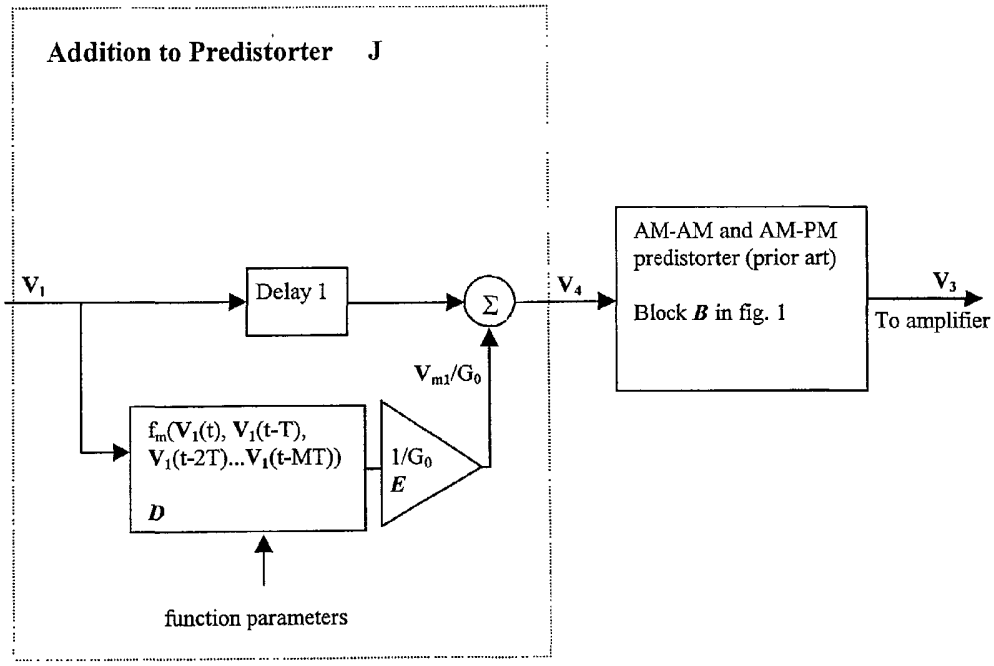
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

Published:

— *with international search report*

[Continued on next page]

(54) **Title:** SIGNAL CORRECTION BY PREDISTORTION



(57) **Abstract:** A digital predistorter comprises a module (J) for producing a counteracting signal V_{ml} for combination with the input signal of a power amplifier to correct the output of the amplifier for distorting memory effects within the amplifier. The module (J) produces the counteracting signal V_{ml} by convolving (see Figure 6) non-linear functions of the input signal with impulse response characteristics related to the memory effects being corrected.

WO 2003/100964 A3

(88) Date of publication of the international search report:
12 February 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02242

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H03F1/32

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 7 H03F

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)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 054 811 A (LICENTIA GMBH) 30 June 1982 (1982-06-30) page 5, line 9 -page 8, line 11; figures 1-3	1-12
X	POWERS, E.J: "A New Volterra predistorter based on the indirect learning architecture" IEEE TRANSACTIONS ON SIGNAL PROCESSING, vol. 45, no. 1, 31 January 1997 (1997-01-31), pages 223-227, XP002254008 the whole document	1-12
A	WO 01 08297 A (DATUM TELEGRAPHIC INC) 1 February 2001 (2001-02-01) abstract; figure 8	1

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 September 2003	24/09/2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Agerbaek, T

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02242

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00 70750 A (HARRIS CORP) 23 November 2000 (2000-11-23) abstract ---	1
A	EP 1 162 732 A (NORTEL NETWORKS LTD) 12 December 2001 (2001-12-12) abstract -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB 03/02242

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0054811 A	30-06-1982	DE 3047292 A1	29-07-1982
		DK 556281 A	17-06-1982
		EP 0054811 A1	30-06-1982
		JP 57150215 A	17-09-1982
WO 0108297 A	01-02-2001	US 6587514 B1	01-07-2003
		AU 5840500 A	13-02-2001
		AU 5840800 A	13-02-2001
		AU 6009300 A	13-02-2001
		AU 6009400 A	30-01-2001
		AU 6309300 A	13-02-2001
		EP 1205024 A1	15-05-2002
		EP 1203444 A1	08-05-2002
		EP 1196986 A2	17-04-2002
		EP 1203445 A1	08-05-2002
		EP 1196988 A1	17-04-2002
		EP 1280273 A2	29-01-2003
		WO 0108294 A1	01-02-2001
		WO 0108295 A1	01-02-2001
		WO 0108296 A1	01-02-2001
		WO 0105026 A1	18-01-2001
		WO 0108297 A1	01-02-2001
		US 6356146 B1	12-03-2002
		US 6342810 B1	29-01-2002
		US 2002008578 A1	24-01-2002
		US 2002044014 A1	18-04-2002
		US 2001050592 A1	13-12-2001
WO 0070750 A	23-11-2000	US 6501805 B1	31-12-2002
		AU 4713300 A	05-12-2000
		TW 483234 B	01-04-2002
		WO 0070750 A1	23-11-2000
EP 1162732 A	12-12-2001	CA 2347407 A1	11-11-2001
		EP 1162732 A2	12-12-2001
		US 2002041210 A1	11-04-2002