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(71) Applicant (for all designated States except US): MAT-SUSHITA ELECTRIC INDUSTRIAL CO., ITD. [JP/JP]; 1006, Oaza Kadoma,, Kadoma-shi,, Osaka 571-8501 (JP).

(72) Inventor; and

(75) Inventor/Applicant (for US only): KIRINO, Hideki

[JP/JP]; 6-69-13, Hama, Utadu-cho, Ayauta-gun, Kagawa 769-0206 (JP).

- (74) Agent: HAYASE, Kenichi; HAYASE & CO. Patent Attorneys, 13F, Nissay Shin-Osaka Bldg., 3-4-30, Miyahara, Yodogawa-ku, Osaka-shi,, Osaka 532-0003 (JP).
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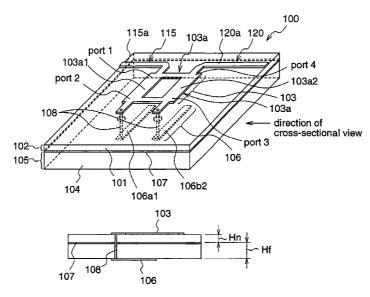
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ANTENNA CONTROL UNIT AND PHASED-ARRAY ANTENNA



(57) Abstract: As shown in figure 1, a paraelectric transmission line layer 102 and a ferroelectric transmission line layer 105 are laminated through a ground conductor 107, and plural phase shifters which are connected via through holes 108 that pass through the ground conductor 107 are disposed on both of the transmission line layers at some positions on a feeding line that branches off from the input terminal between all antenna terminals and an input terminal to which a high-frequency power is applied. In addition, loss elements each having the same transmission loss amount as the phase shifter, or the phase shifters are disposed so that transmission loss amounts from all of the antenna terminals to the input terminal are equalized. Accordingly, an antenna control unit which can be manufactured in fewer manufacturing processes and has a pointed beam and a large beam tilt amount, and a phased-array antenna that employs such antenna control unit can be obtained.



International Application No PCT/JP 03/07540

Relevant to claim No.

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01Q3/26

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 H01Q

Category °

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)

Citation of document, with indication, where appropriate, of the relevant passages

EPO-Internal, PAJ, WPI Data

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consice "E" earlier of filing of the which citation "O" docume other of the remainder of th	ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another n or other special reason (as specified) ent referring to an oral disclosure, use, exhibition or	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		
5	December 2003	1 4. 01. 04		
Name and r	mailing address of the ISA  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	Authorized officer Unterberger, M		

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International application No. PCT/JP 03/07540

### INTERNATIONAL SEARCH REPORT

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
2. Claims Nos.:  because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
1. X As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark on Protest  The additional search fees were accompanied by the applicant's protest.  X  No protest accompanied the payment of additional search fees.

# FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-4, 9-12

Antenna control unit for an array antenna with ferroelectric/paraelectric phase shifters

2. Claims: 5-12

Antenna control unit including phase shifters and loss elements

Information on patent family members

International Application No
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