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(54) Abstract Title

A polling arrangement for TV viewing in which in response to a broadcast code, tuned channel information is provided by E-mail over the internet

(57) A method and apparatus for automatically surveying a TV audience rating by specified TV channels and time periods, comprising a broadcasting station (100) and at least two internet TV receivers (102). The broadcasting station encodes a viewing channel search command into a TV broadcast signal. The internet TV receivers (102) each decode the TV broadcasting signal received from the broadcasting station, and, if the TV broadcast signal decoded includes the viewing channel search command, write electronic mails notifying currently viewed channels and transmit the electronic mails to the broadcasting station, (100). Then, the broadcasting station calculates the audience rating based on the electronic mails received from the internet TV receiver.

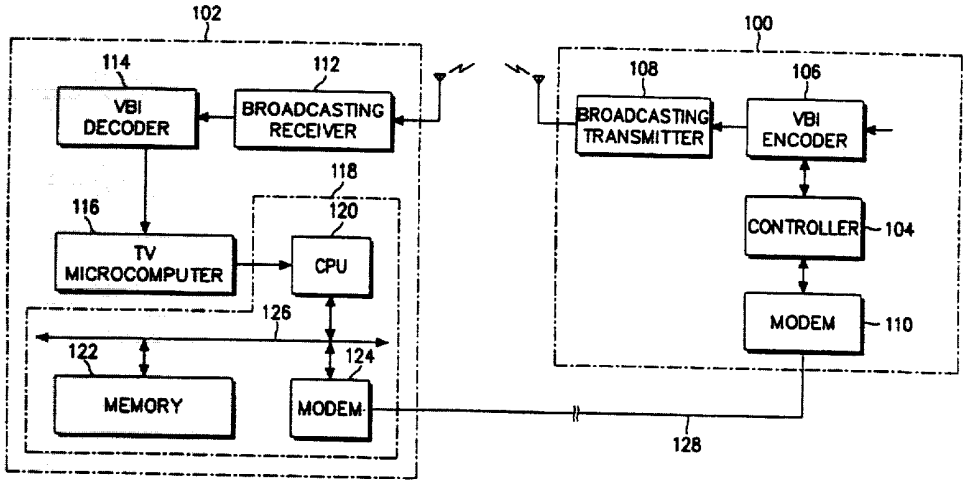

FIG. 1

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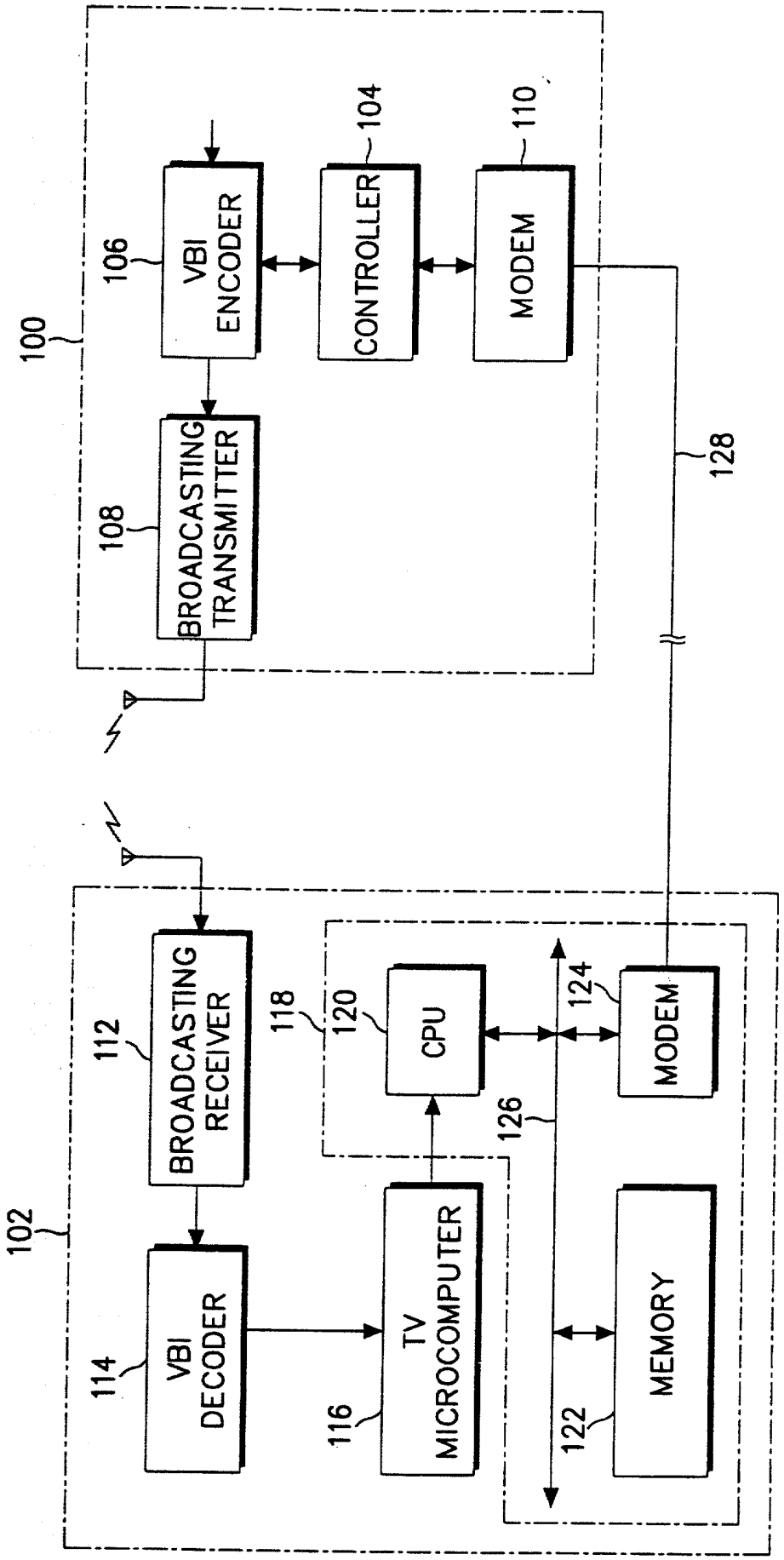
100
106
VBI ENCODER
104
CONTROLLER
110
MODEM
108
BROADCASTING TRANSMITTER
128
102
112
BROADCASTING RECEIVER
118
120
CPU
124
MODEM
126
114
VBI DECODER
116
TV MICROCOMPUTER
122
MEMORY

FIG. 1

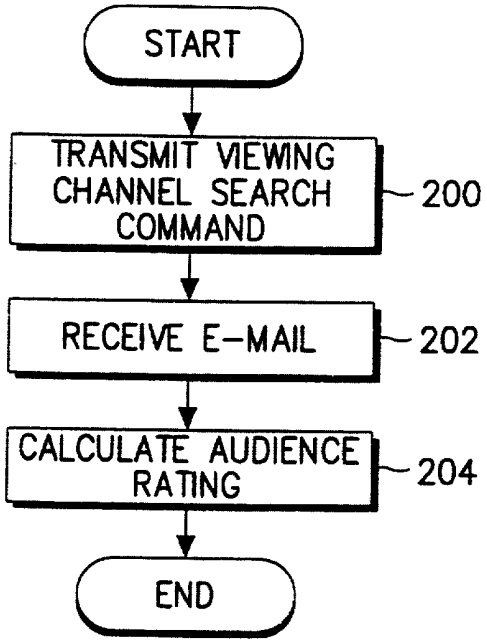
START
TRANSMIT VIEWING CHANNEL SEARCH COMMAND
200
RECEIVE E-MAIL
202
CALCULATE AUDIENCE RATING
204
END

FIG. 2

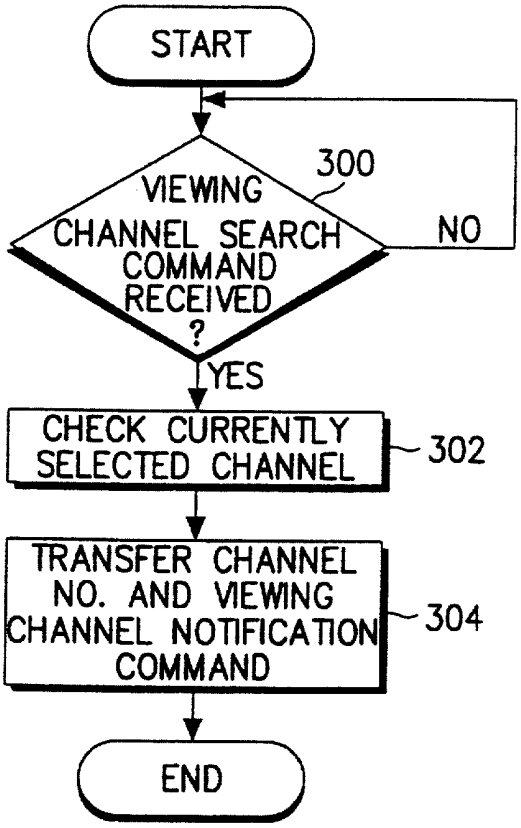
START
VIEWING CHANNEL SEARCH COMMAND RECEIVED ?
300
NO
YES
CHECK CURRENTLY SELECTED CHANNEL
302
TRANSFER CHANNEL NO. AND VIEWING CHANNEL NOTIFICATION COMMAND
304
END

FIG. 3

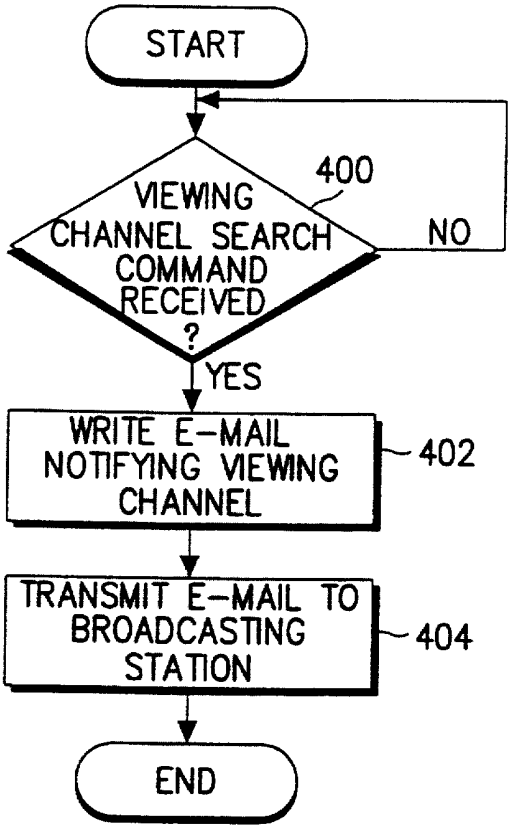
START
VIEWING CHANNEL SEARCH COMMAND RECEIVED ?
400
NO
YES
WRITE E-MAIL NOTIFYING VIEWING CHANNEL
402
TRANSMIT E-MAIL TO BROADCASTING STATION
404
END

FIG. 4

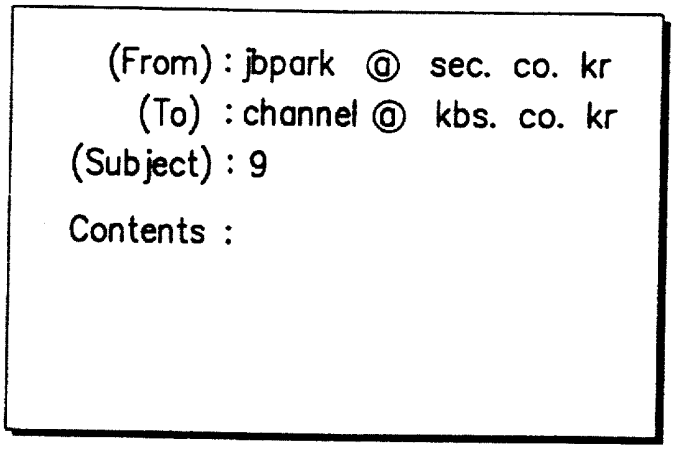

FIG. 5

APPARATUS AND METHOD FOR SURVEYING TV AUDIENCE RATING

The present invention relates to a television (TV) broadcasting system, and in particular, to a method for surveying an audience rating by using an internet television, and a system therefor.

Television broadcasting stations and audience rating survey institutes regularly survey an audience rating by specified TV channels and time periods, for use such as in estimating advertising rates by the specified time periods or reorganizing a broadcasting schedule. A known technique for surveying the audience rating takes a limited random sample and each home in the sample is telephoned to ask a currently viewing channel. Such a random sample survey involves significant cost and time. Further, the accuracy of the survey may be affected due to an insincere answer to an inquiry, and the time interval available for conducting the survey is restricted.

It is therefore an aim of at least preferred embodiments of the present invention to provide a method and apparatus for automatically surveying a TV audience rating.

According to a first aspect of the present invention, there is provided a method for surveying a TV audience rating, said method for use in an internet TV system including a broadcasting station and at least two internet TV receivers, said method comprising the steps of:

transmitting a viewing channel search command from said broadcasting station to said internet TV receivers;

upon receiving said viewing channel search command, writing an electronic mail in each said internet TV receiver notifying currently viewed channels and transmitting said electronic mails to said broadcasting station; and

in said broadcasting station, calculating the audience rating based on said electronic mails received from said internet TV receivers.

According to another aspect of the present invention there is provided an apparatus for surveying a TV audience rating, comprising:

a broadcasting station for encoding a viewing channel search command into a TV broadcast signal and broadcasting the TV broadcast signal; and

at least two internet TV receivers for decoding said TV broadcasting signal received from said broadcasting station, and, if said TV broadcasting signal decoded includes said viewing channel search command, for writing an electronic mail notifying current viewing channels and transmitting said electronic mail to said broadcasting station;

whereby said broadcasting station calculates the TV audience rating based on said electronic mails received from said internet TV receivers.

For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

Figure 1 shows a schematic block diagram of a preferred internet TV system for surveying an audience rating;

Figure 2 shows a control process of a controller (104) in a broadcasting station (100) of Figure 1;

Figure 3 shows a control process of a TV microcomputer (116) in an internet TV receiver (102) of Figure 1;

Figure 4 shows a control process of a CPU (120) in an internet module (118) of Figure 1; and

Figure 5 shows an example electronic mail (E-Mail) for notifying a viewing channel.

Referring to Figure 1, a preferred internet TV system is shown comprising a broadcasting station 100, and an internet TV receiver 102 connected to the broadcasting station 100 via a telephone line 128 of a public switched telephone network (PSTN). For simplicity, only those portions of a broadcasting station 100 and the internet TV receiver 102, particularly relevant to the preferred embodiment will be described in detail. Further, any suitable number of broadcasting stations 100 and internet TV receivers 102 may be provided

The broadcasting station 100 includes a controller 104, a VBI (vertical blanking interval) encoder 106, a broadcasting transmitter 108, and a modem (modulator-demodulator) 110. The controller 104, which is a main controller of the broadcasting station 100, provides the VBI encoder 106 with a viewing channel search command to broadcast together with a broadcast signal. The VBI

encoder 106 encodes the viewing channel search command received from the controller 104 into a TV broadcast signal, and transfers it to the broadcasting transmitter 108. The broadcasting transmitter 108 modulates the TV broadcasting signal received from the VBI encoder 106 in a known manner, and transmits it via an antenna.

Figure 2 shows a control procedure of the controller 104 in the broadcasting station 100 according to the present invention. With reference to Figure 2, the controller 104 transfers at a step 200 the viewing channel search command to the VBI encoder 106 at a predetermined time interval or in response to a key input by an operator. In this way, the viewing channel search command encoded by the VBI encoder 106 is loaded on (or inserted into) the TV broadcasting signal and transmitted to the internet TV receiver 102 via the antenna.

The internet TV receiver 102 includes a broadcasting receiver 112, a VBI decoder 114, a TV microcomputer 116, and an internet module 118. The broadcasting receiver 112 receives the TV broadcasting signal transmitted from the broadcasting station 100 via an antenna, and demodulates the received TV broadcasting signal. An output signal of the broadcasting receiver 112 is processed in a known manner and output to a cathode ray tube (CRT; not shown) and a speaker (not shown). Further, the output signal of the broadcasting receiver 112 is transferred to the VBI decoder 114. The VBI decoder 114 decodes the signal output from the broadcasting receiver 112 to extract the viewing channel search command inserted into the TV broadcasting signal. Here, if the VBI decoded data includes the viewing channel search command, the VBI decoded data is transferred to the TV microcomputer 116. The internet TV receiver 102 performs a general TV

function as well as an internet function by using the internet module 118, under the control of the TV microcomputer 116. In addition, the TV microcomputer 116 performs the viewing channel notification function.

Figure 3 shows a control process of the TV microcomputer 116 according to the preferred embodiment of the present invention. With reference to Figure 3, the TV microcomputer 116 checks at a step 300 whether the viewing channel search command is received or not from the broadcasting station 100. If the viewing channel search command is received, the TV microcomputer 116 checks a channel currently selected by a tuner (not shown) at a step 302. At a step 304, the TV microcomputer 116 transfers a currently selected channel number and the viewing channel notification command to a CPU (central processing unit) 120 of the internet module 118, and completes the procedure.

The internet module 118 includes the CPU 120, a memory 122, and a modem 124 being connected to one another via a bus line 126. The modem 124 is connected to the broadcasting station 100 such as via the telephone line 128. The CPU 120 communicates with the TV microcomputer 116 and performs the internet search function via the modem 124. The memory 122 stores a control program of the CPU 120 and various reference data. Further, the memory 122 temporarily stores data (e.g., data of the E-mail) generated in the course of executing the control program of the CPU 120. The modem 124 telephones to the broadcasting station 100 under the control of the CPU 120, and modulates/demodulates signals transmitted to and received from the broadcasting station 100 via the telephone line 128.

Figure 4 shows a control process of the CPU 120. With reference to Figure 4, the CPU 120 checks at a step 400 whether the viewing channel search command is received or not from the TV microcomputer 116. If the viewing channel search command is received, the CPU 120 writes an E-mail notifying the current viewing channel at a step 402. Then, the CPU 120 transmits the E-mail to the broadcasting station 100 via the modem 124 at a step 404, and completes the procedure. As shown in Figure 5, the viewing channel notification E-mail includes an E-mail address of a user of the internet TV receiver 102 (i.e., a sender), an E-mail address of the broadcasting station 100 (i.e., a receiver). A character "9" shown in "subject" expresses that the E-mail is the viewing channel notification mail, and the viewing channel number is written in "contents".

As shown, at a step 202 of Figure 2, the controller 104 of the broadcasting station 100 receives the viewing channel notification E-mail transferred from the internet TV receiver 102 via the modem 110. Thereafter, at a step 204, the controller 104 totalises the E-Mails received from the respective internet TV receivers, and completes the procedure. For example, the audience rating of a particular channel is determined by dividing the number of the received E-mails for the particular channel by the total number of the received E-mails.

In this manner, the broadcasting station 100 can automatically survey the audience rating. Accordingly, it is possible to reduce the cost and time required in surveying the audience rating, and enhance the accuracy of the survey. Further, it is possible to freely change the time interval between the surveys.

Although a preferred embodiment of the present invention has been described in detail hereinabove, it should be clearly understood that many variations and/or modifications of the basic inventive concepts herein taught which may appear to those skilled in the art will still fall within the scope of the present invention as defined in the appended claims. For example, the present invention is also applicable to a cable TV system.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any

accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

CLAIMS

1. A method for surveying a TV audience rating, said method for use in an internet TV system including a broadcasting station and at least two internet TV receivers, said method comprising the steps of:

transmitting a viewing channel search command from said broadcasting station to said internet TV receivers;

upon receiving said viewing channel search command, writing an electronic mail in each said internet TV receiver notifying currently viewed channels and transmitting said electronic mails to said broadcasting station; and

in said broadcasting station, calculating the audience rating based on said electronic mails received from said internet TV receivers.

2. A method according to claim 1, wherein each said electronic mail comprises an electronic mail address of the corresponding internet TV receiver, and an electronic mail address of said broadcasting station.

3. A method according to claims 1 or 2, further comprising the steps of:

in said broadcasting station, encoding said viewing channel search command into a TV broadcasting signal and transmitting said TV broadcasting signal to said internet TV receivers;

in said internet TV receivers, decoding said TV broadcasting signal transmitted from said broadcasting station; and

checking whether said TV broadcasting signal received includes said viewing channel search command.

4. A method according to claims 1, 2 or 3, wherein said audience rating is determined by dividing a number of said electronic mails for a specified TV channel by a total number of said electronic mails received.

5. An apparatus for surveying a TV audience rating comprising:

a broadcasting station for encoding a viewing channel search command into a TV broadcast signal and broadcasting the TV broadcast signal; and

at least two internet TV receivers for decoding said TV broadcasting signal received from said broadcasting station, and, if said TV broadcasting signal decoded includes said viewing channel search command, for writing an electronic mail notifying current viewing channels and transmitting said electronic mail to said broadcasting station;

whereby said broadcasting station calculates the TV audience rating based on said electronic mails received from said internet TV receivers.

6. An apparatus according to claim 5, wherein each said electronic mail comprises an electronic mail address of the corresponding internet TV receiver, and an electronic mail address of the broadcasting station.

7. An apparatus according to claims 5 or 6, wherein said audience rating is determined by dividing a number of said electronic mails for a specified TV channel by a total number of said electronic mails received.

8. A method substantially as hereinbefore described with reference to the accompanying drawings.

9. An apparatus substantially as hereinbefore described with reference to the accompanying drawings.

The Patent Office

12

Application No: GB 9806629.3
Claims searched: 1-9

Examiner: D. Midgley
Date of search: 16 June 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): H3Q QAR

Int Cl (Ed.6): H04H 9/00

Other: ONLINE:WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	EP 0307181 A2 (VIDEO)	1,5

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.