SYSTEM FOR CODING ALPHABET PRONUNCIATION

Key Symbol Chart

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dot</td>
<td>dot under letter means 'lower case' sound. Placed between letters, then blend the 'lower case' letter sounds.</td>
</tr>
<tr>
<td>dash</td>
<td>dash under letter means capital letter sound, blend when extended. When a square surrounds a letter/s, then no sound from that/those letter/s</td>
</tr>
<tr>
<td>square</td>
<td>match numbered tilda for new sound</td>
</tr>
</tbody>
</table>

AOW: 198

erm: 18

drake: 0016

drake: 18

(57) Abstract: Provided is a system for coding letters in an alphabet for word pronunciation. The system includes a first code indicator (12) for association with letters for indicating a lower case letter sound; a second code indicator (14) for association with letters for indicating an upper case letter sound; a third code indicator (16) for association with letters for indicating a silent letter sound; and a fourth code indicator (18) for association with letters for indicating the sound of a sound varied from the upper or lower case sound, and having a variation sign for indicating that the associated letter or letters are for a sound varied from the lower case or upper case letter sound of the associated letter or letters, and a variation symbol for indicating a predetermined variation sound for the associated letter or letters. The first and second code indicator may be associated with two or more letters for indicating blending of the sounds of the associated letters. The system may be incorporated in a computer program and may include sound generating means arranged to generate an appropriate sound signal for the or each of the associated code indicator and words.
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG). For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ing of each regular issue of the PCT Gazette.

Published:
— with international search report
SYSTEM FOR CODING ALPHABET PRONUNCIATION

TECHNICAL FIELD OF THE INVENTION

THIS INVENTION relates to a system for coding letters in an alphabet for word pronunciation.

BACKGROUND OF THE INVENTION

The English language is recognised as the main language for global business communications. It is therefore a popular aim to learn to read and speak English. However, it is difficult for most people, especially people whose first language is non-English, to learn to pronounce the English words. The reason is due to various discrepancies in sounds of letters used in the English words, and there are no set rules providing guidance to use the appropriate letter sounds in particular words.

Although English words are spelt with one or more of the twenty six letters of the English alphabets, the sounds of the letters within the words vary in what appears to be a random manner. The alphabet is usually taught by introducing students to the spelling sounds (hereinafter referred to as the capital letter case sounds) of the letters. The sounds of the letters (hereinafter referred to as the lower case letter sounds) in words are, however, generally different from the spelling sounds. Moreover, the sounds of the same letters in a word can vary depending on positions and context. Two or more letters are sometimes blended together in one sound which may also vary depending on positions and context. A considerable number of the English words are words originated from other languages (borrowed words). Some of these borrowed words are spelt in English but pronounced in the original foreign language sounds which are not found in the English sounds, while others of the borrowed words are spelt and pronounced in the English sounds. As the sounds of letters in words do not follow particular rules, students have difficulties recognising appropriate sounds to be used when reading and speaking English.

The applicant has observed that because of the random variations in letter sounds, "rote learning" remains the main process of teaching English. That is, students are taught by repeating sounds made by a teacher and by practising in private. This process is thus based on retention of the sounds in memory and repeated practice. Only students with good memory retention capacity and personal instructions would achieve a reasonable level of reading and speaking skills by learning through this "rote learning" process. As most people do not have a good memory and people who are learning English as a second language have little opportunity to communicate in English, the
success rate of students acquiring reasonable level of reading and speaking English is quite low.

Although other Latin based languages such as French, German, Italian, Spanish and the like have somewhat less random variations in letter sounds, the “rote learning” process is also used for learners to memorise letter or syllable sounds within words.

OBJECT OF THE INVENTION

An object of the invention is to substantially alleviate or to reduce to a certain level one or more of the prior art disadvantages.

SUMMARY OF THE INVENTION

In one aspect therefore the present invention resides in a system for coding letters in an alphabet for word pronunciation. The system includes a first code indicator for association with one or more letters for indicating a lower case letter sound; a second code indicator for association with one or more letters for indicating an upper case letter sound; a third code indicator for association with one or more letters for indicating a silent letter sound; and a fourth code indicator for association with one or more letters for indicating use of a sound varied from the sound represented by the lower case or upper case letters, and having a variation sign for indicating that the associated letter or letters are for a sound varied from the lower case or upper case letter sound of the associated letter or letters, and a variation symbol for indicating a predetermined variation sound for the associated letter or letters.

The first code indicator may be associated with two or more letters for indicating blending of the sounds of the associated letters. The second code indicator may also be associated with two or more letters for indicating blending of the sounds of the associated letters.

The first code indicator can be positioned in between adjacent letters for indicating blending of the sounds of the adjacent letters. It is preferred that the first code indicator is a dot (.) sign positioned adjacent to the associated letter(s).

The second code indicator may be extendable for association with two or more letters for indicating blending of the sounds of the associated letters. It is also preferred that the second code indicator is a dash (-) sign positioned adjacent to the associated letter(s).

The third code indicator may also be extendable for association with two or more letters for indicating a silent sound of the associated letters. It is preferred that the third code indicator is a box (-) sign positioned containing the associated letter(s).
The fourth code indicator may be extendable for association with two or more letters for indicating use of a sound varying from the sounds represented by the lower case or upper case letters(s). The variation sign may be in the form of a tilde (~) sign. The variation symbols for indicating variation sounds may include lower case letters for indicating corresponding lower case letter sounds, upper case letters for indicating corresponding upper case letter sounds, and numerals for indicating respective other sounds. In one form, the numerals include "1" for the "aow" sound, "2" for the "ar" sound, "3" for the "er" sound, "4" for the "OOe" sound, "5" for the "Or" sound, and "6" for the "ou" sound.


In another aspect therefore the present invention resides in an alphabet sound card including corresponding lower case letters and upper case letters arranged in groups, and variation sounds, indicated according to the above described the system. The card may also include pictorial means and/or words for guiding sounds to be used for the letter(s). For example, a pictorial of an ant and the word "ant" are associated with the lower case letter "a" for indicating that the letter has the sound like that in the word "ant". Similarly, the mathematic representation of the numeral "eight" and the word therefor are associated with the upper case letter "A" for indicating that the letter has the sound like that in the numeral "eight".

In a further aspect therefore the present invention resides in a booklet including words and letters in one or more of the words being arranged according to the above described the system.

In another further aspect therefore the present invention resides in a computer program including means for generating words formed with one or more letters, and means for associating the letter or letters of each of the words with a code indicator(s) according to the above described the system. The computer program may also include sound generating means arranged to generate an appropriate sound signal for the or each of the associated code indicator.

The sound generating means may have a number of audio messages and a message selector associated with each word for selecting one or more predetermined audio messages, and is arranged to generate an appropriate sound signal
corresponding to the one or more predetermined audio messages when a message selector is selected.

In yet another further aspect therefore the present invention resides in an electronic device including a visual display unit, storage means, and processing means. The computer program as described is stored in the storage means and the processing means is arranged to generate words in respond to instructions from the computer program and to display the generated words on the visual display unit. The processing means may be arranged to cause an audio arrangement to produce sounds in accordance with the generated sound signals from the sound generating means.

The system of the present invention may be adapted for use with any other language that can be written in scripts.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the system of the present invention can be readily understood and put in practically effect the description will now refer to the accompanying drawings which illustrate non-limiting embodiments of the present invention and wherein:-

Figure 1 is a key phonetic chart showing the indicators for an embodiment of the system according to the present invention;

Figures 2A and 2B show an embodiment of the alphabet sound card according to the present invention;

Figures 3A and 3B show an embodiment of the representations of the vowels according to the system of the present invention;

Figures 4A and 4D show an embodiment of the representations of the consonants according to the system of the present invention;

Figure 5 shows examples of the applications of the system of the present invention to numerals and units;

Figures 6 and 7 are respective instructions for teachers and students who use the system according to the present invention;

Figure 8 shows selected pages of an embodiment of the booklet according to the present invention;

Figure 9 shows a page generated by an embodiment of the computer program according to the present invention on a display monitor;

Figure 10 shows the page shown in Figure 9 with the audio message selectors revealed;

Figure 11 shows another page with the audio message selectors revealed; and
Figure 12 shows a further embodiment of the system according to the present invention for the French language.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to the drawings and initially to Figure 1 there is shown a key phonetic chart 10 that is arranged to provide guidance on using the sound indicators 12 to 18 according to the system of the present invention. The first indicator 12 is for a lower case letter sound and is represented by a dot (.) sign. The second indicator 14 is for an upper case letter sound and is represented by a dash (-) sign. The third indicator 16 is for a silent letter and is represented by a box sign. The fourth indicator 18 is for a variation sound and is represented by a tilda (~) sign.

As can be seen, the dot sign can be placed in between two lower case letters such as between the letters "t" and "h" in the word "birth" for indicating blending of the sounds of "th" and "h". Similarly the box sign 16 can be extended to indicate two or more letters with a silent sound, such as the "gh" in the word caught. The tilda sign can also be extended to indicate blending of the sounds of two or more letters, such as "gh" in the word draught. The tilda signs are associated with a variation sign 19A comprising a lower case letter or an upper case letter and/or variation symbol 19B such as a numeral for a specific sound when there is no corresponding sound in the lower and upper case letters. In the chart as shown, there are six numerals for use with the tilda signs. The numerals can be extended for other sounds not found in the chart 10. The chart also shows the lower case letters and the upper case letters.

Figures 2A and 2B show an embodiment of the alphabet sound card 20 according to the present invention. The sound card 20 has corresponding lower and upper case letters grouped in boxes 22. The lower case letter in each of the boxes 22 is associated with the first indicator 12 and the second indicator 14. The boxes 22 also have the letters in different fonts for indicating that the letters can be represented in different fonts. Boxes 24 are provided for the indicators 18 the six variation sounds not amongst the sounds of the letters. The boxes 24 has relevant pictorials 26 and words 28 for guiding a user to use the appropriate sound.

In Figures 3A and 3B the vowels as represented are associated with a dot 12 or a dash 14 depending on whether are lower case letter sound or upper case letter sound. The vowels are also associated with relevant pictorials 26 and words 28. The relevant pictorials and the words are for guiding a user to use the appropriate sounds. A number of other words that incorporate the same sound for each of the vowels are also provided for students to practise the sound.
In Figures 4A and 4D the consonants are arranged in a manner as for the vowels shown in Figures 3A and 3B.

In Figure 5 numerals and units of mathematics are represented in words and numeral representations. Each of the sounds for the number words are associated with any of the relevant indicators 12 to 18.

Figures 6 and 7 are respective examples of instruction sheets for a teacher to teach and a student to learn English sounds in accordance with the system 10 of the present invention.

Figure 8 shows pages 1 and 2 of the booklet entitled "Sports Day" Drama 2 created by the inventor. The words in the booklet are associated with the indicators 12 to 18 according to the system 10 of the present invention.

Referring to Figure 9, there is shown a page generated by an embodiment of the computer program or the electronic device according to the present invention. The program/device has a library of audio messages stored on a recordable medium such as a compact disk or a hard disk and on the displayed page a hidden audio message selector 30 shown as a loud speaker symbol (see Figure 10) associated with each word or letter. A user may select any of the selectors for the program/device to case the program/device to retrieve the appropriate stored message to generate an audio signal corresponding to the sound(s) for the pronunciation of the selected word(s) or letter.

Figure 11 shows a page on a display monitor where some of the message selectors 30 are for selecting messages corresponding to pronunciations of words in a sentence or phrase.

Figure 12 shows an embodiment of the program/device according to the present as applied to some French words on a display monitor.

Whilst the above has been given by way of illustrative examples of the present invention, many variations and modifications thereto will be apparent to those skilled in the art without departing from the broad ambit and scope of the invention as herein set forth in the claims.
CLAIMS

1. A system of coding letters in an alphabet for word pronunciation comprising:
   (a) a first code indicator for association with one or more letters for indicating a
       lower case letter sound;
   (b) a second code indicator for association with one or more letters for indicating an
       upper case letter sound;
   (c) a third code indicator for association with one or more letters for indicating a
       silent letter sound; and
   (d) a fourth code indicator for association with one or more letters for indicating use
       of a sound varied from the sound represented by the lower case or upper case letters,
       and having a variation sign for indicating that the associated letter or letters are for a
       sound varied from the lower case or upper case letter sound of the associated letter or
       letters, and a variation symbol for indicating a predetermined variation sound for the
       associated letter or letters.

2. The system according to claim 1 wherein the first code indicator being
   associated with two or more letters for indicating blending of the sounds of the
   associated letters.

3. The system according to claim 2 wherein the first code indicator being positioned
   in between adjacent letters for indicating blending of the sounds of the adjacent letters.

4. The system according to claim 3 wherein the first code indicator is a dot (.) sign
   positioned adjacent to the associated letter(s).

5. The system according to claim 1 wherein the second code indicator being
   associated with two or more letters for indicating blending of the sounds of the
   associated letters.

6. The system according to claim 5 wherein the second code indicator being
   extendable for association with two or more letters for indicating blending of the sounds
   of the associated letters.

7. The system according to claim 6 wherein the second code indicator is a dash
   (-) sign positioned adjacent to the associated letter(s).

8. The system according to any one of claims 1 to 7 wherein the third code
   indicator being extendable for association with two or more letters for indicating a silent
   sound of the associated letters.

9. The system according to claim 8 wherein the third code indicator is a box (-) sign
   positioned to contain the associated letter(s) therein.
10. The system according to any one of claims 1 to 9 wherein the fourth code indicator being extendable for association with two or more letters for indicating use of a sound varying from the sounds represented by the lower case or upper case letters.
11. The system according to any one of claims 1 to 10 wherein the variation sign being in the form of a tilde (~) sign.
12. The system according to any one of claims 1 to 11 wherein the variation symbols for indicating variation sounds including lower case letters for indicating corresponding lower case letter sounds, upper case letters for indicating corresponding upper case letter sounds, and numerals for indicating respective other specific sounds.
13. The system according to claim 12 wherein the numerals include "1" for the "aow" sound, "2" for the "ar" sound, "3" for the "er" sound, "4" for the "Ooe" sound, "5" for the "Or" sound, and "6" for the "ou" sound.
15. An alphabet sound card including corresponding lower case letters and upper case letters arranged in groups, and variation sounds, arranged according to the system as claimed in any one of claims 1 to 14.
16. The card according to claim 15 wherein further including pictorial means and/or words associated with a letter or letters for guiding use of appropriate sound(s) for the letter(s).
17. A booklet including words and letters in one or more of the words being arranged according to the system as claimed in any one of claims 1 to 14.
18. A computer program including means for generating words formed with one or more letters, and means for associating the letter or letters of each of the words with a code indicator(s) and wherein the code indicators being arranged according to the system as claimed in any one of claims 1 to 14.
19. The computer program according to claim 18 wherein further including sound generating means arranged to generate an appropriate sound signal for the or each of the associated code indicator.
20. The computer program according to claim 18 wherein the sound generating means having a number of audio messages and a message selector associated with
each letter or word or a passage for selecting one or more predetermined audio messages, and being arranged to generate an appropriate sound signal corresponding to the one or more predetermined audio messages when a message selector is selected.

21. An electronic device including a visual display unit, storage means, processing means and a computer program as claimed in one of claims 18 to 20, wherein the computer program being stored in the storage means and the processing means is arranged to generate words in respond to instructions from the computer program and to display the generated words on the visual display unit.

22. The electronic device according to claim 21 wherein the processing means being arranged to cause an audio arrangement to produce sounds in according with the generated sound signals from the sound generating means.
Key Symbol Chart

- **dot** = dot under letter means 'lower case' sound. Placed between letters then blend the 'lower case' letter sounds.
- **dash** = dash under letter means capital letter sound, blend when extended.
- **square** = when a square surrounds a letter/s, then no sound from that/those letter/s
- **tilda** = e on E = letter change
- **match numbered tilda for new sound**

**aow**
- 1
- cow
- 12
- fowl
- round
- proud
- sour

**er**
- 3
- early
- 18
- pleasure
- birth
- occur

**or**
- 5
- ball
- caught
- court
- talk

**ar**
- 2
- 19B
- 19A
- 12
- draft
- draught
- doctor
- path
- dollar

**ou**
- 6
- 19B
- 19A
- took
- could
- push
- push

"lower case letters" = a b c d e f g h i j k l m n o p q r s t u v w x y z
"CAPITAL LETTERS" = A B C D E F G
a c h = I J a = L e = K e = L e = M e = N o P C h = Q
a r = R e = S t = U V a b = U a b = U a b = W e = K w = Y z = D Z

Fig. 1
Fig. 2B
Vowels

act account alone amount apple

chron fact hat matter map

rept snap trap stack trance

aient apricot april

anient apricot april

ache apple acht act

act account alone amount apple
Vowels

1. If in it ill imp ink issue itself
2. Bit bring fit mix system trick
3. Ignore inside improve image
4. Calling hopping hoping skiing
5. Icon idol iron isolate item
6. Excite kite
7. Buy cry try height light sight

1. Object occur of office oxygen
2. Clock cloth hot lot rock stop
3. Octopus
4. Cat obey only open over owe
5. Broke cosy float post toast
6. Blow dough crow though
7. Ugly uncle under up until
8. But gutter mud put such
9. Dove glove blood flood
10. Enough rough tough
11. Union use surp usual you
12. Blue cute lake male tune
13. Beautiful fruit suit

Fig. 3B
CONSONANTS

Bus 26  bat bett bike book
Bee 28  baby Beach Believe Brief
Car  CARRY clear corn cut
Check chat chip chocolate church
K as C = kayak keen king kookaburra
Circle  Cent City Citrus Cycle
Dog deaf debt dive dove dug
Deer Decode Defer Design

g as j = giant germ gel gym gyro
G o = great gift garden good gut
Genie Geode Genus Geology

Fig. 4A
CONSONANTS

plus

pat pear pill posh

Pea

Peak Peter Pizza People

ph as f - photo Phillip physics phase

text

tax tiger top true

path that father the though

Teacher Tiara plenty

vase

vet visit vote vulgar

TV

Viola Veer Vehicle Viva

Fig. 4B
CONSONANTS

ef = F

fat  

fish

food  

fur

ph as f = photo  

physio  

sphere

Ach = H

hall  

heap

house

hit  

huddle

jA = J

jam  

jingle

jewel

joy  

jump

g as j = giant  

gel  

gem  

gym

kA = K

kangaroo

koala  

kung-fu

c as k = cat  

Celt  

crypt  

come

el = L

lava  

leg

light

local  

lunar

em = M

medal  

milk

maze

mobile  

mud

en = N

net  

nil

mail

north  

nugget

Fig. 4C
NUMBERS

one = 1

10 = ten

two = 2

twenty = 20

three = 3

thirty = 30

four = 4

forty = 40

five = 5

fifty = 50

six = 6

sixty = 60

seven = 7

seventy = 70

eight = 8

eighty = 80

nine = 9

ninety = 90

millimetres = 1,000mm

centimetres = 100cm

metres = 1m

kilometres = 1km

milligram = 10,000mg

milligrams = 1,000kg

= 2.2046lb

squared metres = 10² = 100

cubic metres = 10³ = 300

1st = first

2nd = second

3rd = third

Fig. 5
Sound Advice

The Actual Alphabet

The English language is difficult to decipher when learning to read as:
Only 7 of the Capital Consonants have a letter sound that could be used on its merits. The other Capital letters are a combination of lower case letter sounds with the occasional Capital vowel sound added.
When melding letter sounds, how does a student know what sound to make when: a word is usually a combination of both lower and Capital letter sounds. Then some combinations do not match any other letter sound that’s contained within both alphabets. And also, many letters written within some words, do not make an actual sound contribution to the word.
We begin with the sounds of the “actual alphabet”:
  ‘vowels’ a e i o u A E I O U
  ‘consonants’ b B c ch C d D f g
  G h j k l m n p P q r s sh t th T v V w x y z
Every ‘lower case’ letter has a unique sound, & should always have priority over the ‘upper case’ letters. As only 7 of the ‘CAPITAL CONSONANTS’ have a sound that can be used in this spoken language.
The “other CAPITAL consonants,”
  ef = F Ach = H jA = J kA = K el = L em = M en = N cU = Q
  ar = R es = S abl.U = W ex = X wI = Y zed = Z
Are mainly used for visual purposes, as in:
  recognising the importance of a word, for example;
  Australia, = a country
  Mr Peter and Dr Susan Long = people and their ‘titles’.

Or for :- emphasising word/s = RUN SCREAM
  and for
  sounding out letters singularly.

Fig. 6
Before the vowels and consonants are
memorised by visual/tactile sound association,
Use the ‘new alphabet cards’ when learning the letters.
Each sound of the alphabet could be described as
either short or long. And to help those reading for
the first time, additional symbols have been added.

For the ‘short’ sounds, a dot under the letter/s will
signify that a ‘lower case’ letter sound is to be made.
For example: but or but

the dots placed
between the letters, tell
the reader to ‘melt’ those
letter sounds into one sound.

For the ‘long’ sounds, a dash under the letter/s will
show that the ‘capital letter’ sound is to be made,
For example: greed or greed

the dash joined
between the letters, tell
the reader to ‘melt’ those
letter sounds into one sound.

Letters that are silent - do not sound within a word -
although the letter is written there. When a is
placed around the letter/s it means it is silent.

For single or combined letter sounds; that are not
written as they sound, - a warning ‘tick’ will show
the correct letter sound - for example prey sky

If the sound cannot be replaced with a letter from
the alphabet,— then six separate numbers denote
where they can find the ‘sound needed’ to say the
complete word.

\[
\begin{align*}
\text{aow} = \text{owl} & \quad \text{ar} = \text{banana} & \quad \text{er} = \text{first} \\
1 & \quad 2 & \quad 3
\end{align*}
\]

\[
\begin{align*}
\text{00e} = \text{grew} & \quad \text{or} = \text{talk} & \quad \text{ou} = \text{should} \\
4 & \quad 5 & \quad 6
\end{align*}
\]

A more detailed chart is in the ‘Key Sounds Index’

Fig. 7
Settings: 12
At home, talking, while eating breakfast in the kitchen. For the 1st and 3rd scenes.

At the sports field, people are warming up, a lot of activity going on, during the 2nd scene.

Characters: 18
MC - Strong willed person, who likes to win

CR - Close relative who lives with them

YR - Younger relative who idolises MC

G - Gardian of the house and mediator

TL - Team leader of MC's sport's team

B - Bully who is about to compete with MC
Vowels

1 act action advice anger atom
2 crack fact hat matter rap
3 rapr snap trap stack trance
4 preamble react regatta

ace ape able ache Amy
ancient enricot April ate
eight freight plague vague
day game play state take
wait prey

echo edit effect eject elect elf
else empty energy ethics
2 exact excuse exercise export
head bied fed
head tread said any
5 aggregate aerial aerobic

eat equal equip even evil
meet believe see free key me
beach heat feed please tea
7 bony cookie money rocky

Fig. 9
Can you say all the sounds correctly? Ask a friend to listen while you sound the letters + numbers 'out loud'.

Or you could record your voice, while you say them.

Then listen to yourself, when you play the recording back.

Was your voice copying all the sounds correctly?

When you can say all the blending of the letters, into words begins.

Fig. 11
A preview of 'another' language, of the many, that will be available.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   Int. Cl. ?: G09B 19/04, 5/04

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)

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 practicable, search terms used)

DWPI, USPTO, Keywords: pronunciation, phonetics, phonemes, audio, sound, teach, train, demonstrate, learn, picture, drawing, image, figure, dictionary, code, display, silent, upper case, lower case, grapheme, and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>US 6077080 A (RAI) 20 June 2000</td>
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<td>Y</td>
<td>US 5906492 A (PUTTERMAN) 25 May 1999</td>
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Combine this citation with the Macquarie Dictionary citation above.

Further documents are listed in the continuation of Box C  X  See patent family annex

Special categories of cited documents:
- "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
4 May 2005

Name and mailing address of the ISA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN  ACT 2606, AUSTRALIA
E-mail address: pct@ipaustalia.gov.au
Facsimile No. (02) 6283 3929

Date of mailing of the international search report

10 MAY 2005

Authorized officer

ROBERT BARTRAM
Telephone No: (02) 6283 2215

Form PCT/ISA/210 (second sheet) (January 2004)
This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX