INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

World Intellectual Property Organization
International Bureau

International Publication Date
12 June 2008 (12.06.2008)
PCT

International Publication Number
WO 2008/070005 A3

(51) International Patent Classification:
H04M 1/00 (2006.01)

(21) International Application Number:
PCT/US2007/024700

(22) International Filing Date:
30 November 2007 (30.11.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/872,217 1 December 2006 (01.12.2006) US

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(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, CA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
with international search report

Date of publication of the international search report:
18 September 2008

Title: METHODS AND APPARATUS FOR WIRELESS STEREO AUDIO

Abstract: One aspect disclosed herein pertains to wireless audio transmission to a series of headset receivers (for example, 509, 517, etc.) in a daisy chain. Another aspect relates to a wireless headset with integrated audio outputs (for example, 802 and/or 808) so that amplified audio may be made available to one or more persons without the use of head-phone or ear-bud listening devices. Another aspect pertains to a wireless headset with an integrated mini-loudspeaker (904) for incoming cell phone calls. Another aspect relates to a wireless headset with both noise cancellation (1010) and external voice enhancement (1012) features. Yet another aspect relates to a wireless device (1100) configured to receive an audio or voice signal and to re-transmit the signal. Other aspects, features and embodiments are also disclosed herein.
### A CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H04M 1/00 (2008.04)  
USPC - 455/567

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(8) - H04M 1/00 (2008.04)  
USPC - 455/567

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)

MicroPatent, GooglePatent

### C DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
</tr>
</thead>
</table>

* Special category of cited documents

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

"E" earlier application or patent 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

Further documents are listed in the continuation of Box C

### D

Date of the actual completion of the international search: 03 June 2008  
Date of mailing of the international search report: 11 JUL 2008

Name and mailing address of the ISA/US

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PCTOSP 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2005)
### Observations where certain claims were found unsearchable (Continuation of item 2 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. **D** Claims Nos because they relate to subject matter not required to be searched by this Authority, namely

2. **D** 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. **D** Claims Nos because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6 4(a)

### Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See Extra Sheet

1. **D** As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims

2. **D** As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees

3. **D** 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. **D** 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 1-6, 10-14

### Remark on Protest

- The additional search fees were accompanied by the applicant’s protest and, where applicable, the payment of a protest fee
- The additional search fees were accompanied by the applicant’s protest but the applicable protest fee was not paid within the time limit specified in the invitation
- No protest accompanied the payment of additional search fees

Form PCT/ISA/210 (continuation of first sheet (2)) (Apπl 2005)
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13 1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-6, 10-14, drawn to a wireless headset, a detachable ear piece and method of wireless audio transmission to multiple wireless headsets

Group II, claim 7, drawn to a wireless headset

Group III, claims 8, 9, drawn to a wireless headset

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13 1 because, under PCT Rule 13 2, they lack the same or corresponding special technical features for the following reasons:

- The special technical feature of the Group I invention is transferring an audio signal from a wireless receiver in a first wireless headset to a wireless transmitter in a first wireless headset and transmitting the audio signal from a wireless transmitter in the first wireless headset to a wireless receiver in a second wireless headset as claimed therein is not present in the invention of Groups II and III.

- The special technical feature of the Group II invention is control circuitry configured such that when an incoming call is received on a cell phone associated with a wireless headset, a ring or vibration is emitted from a mini-speaker in the headset as claimed therein is not present in the invention of Group I and III.

- The special technical feature of the Group III invention is noise cancellation circuitry coupled to receive a signal from a microphone and configured to generate a third audio signal therefrom and voice enhancement circuitry coupled to receive the signal from the microphone and configured to generate a third audio signal therefrom as claimed therein is not present in the invention of Groups I and II.

Since none of the special technical features of the Group I, II and III inventions is found in more than one of the inventions, unity of invention is lacking.