

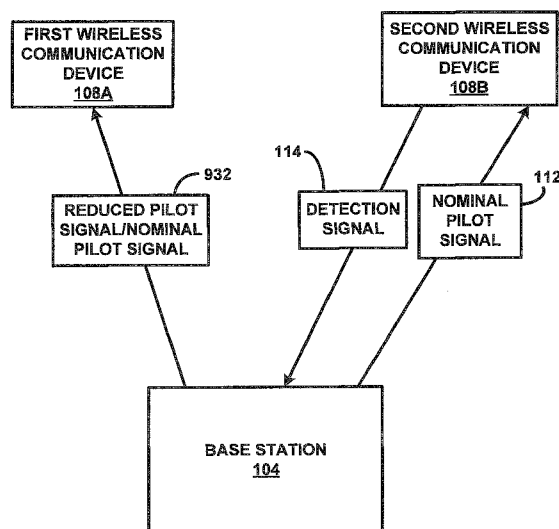


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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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**Declarations under Rule 4.17:**

[Continued on next page]

(54) **Title:** PILOT SIGNAL TRANSMISSION MANAGEMENT



**FIG. 10**

(57) **Abstract:** A base station (104) is configured to reduce interference with other base stations (106) and/or devices in a multi-cell wireless network. The base station includes a wireless interface (118), detector (116) and controller. To reduce interference, the wireless interface may provide services to a first wireless communication device (108A) (WCD) using a pilot signal (932) emitted from the base station 104 at a reduced power level. In the reduced pilot signal mode, when the detector detects a second WCD (108B) within the base station's service area, the controller increases the pilot signal's power level above the reduced power level in order to establish communications with the second WCD (108B). Upon successfully connecting to the first and second WCDs, the base station (104) may again reduce the pilot signal's power level to reduce interference with other base stations or wireless devices.

WO 2010/107915 A3

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
  - *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- Published:**  
— *with international search report (Art. 21(3))*
- (88) Date of publication of the international search report:**  
11 November 2010

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2010/027665

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. H04W52/32 H04W52/38 H04W52/02

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)  
**H04W**

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 1 587 221 A2 (SAMSUNG ELECTRONICS CO LTD [KR]) 19 October 2005 (2005-10-19) page 2, paragraph 4 - paragraph 14 page 7, paragraph 72 - page 8, paragraph 78 page 10, paragraph 105 -----	1-3,8,9, 11,15-17

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

\* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search  <b>1 June 2010</b>	Date of mailing of the international search report  <b>18/08/2010</b>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  <b>Franz, Volker</b>
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2010/027665

## Box No. II 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.  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 No. III 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 additional sheet

1.  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 fees, this Authority did not invite payment of additional fees.
  
3.  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.:  
  
1-3, 8, 9, 11, 15-17

### 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.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

## 1. claims: 1-3, 8, 9, 11, 15-17

To send a pilot signal at a reduced power level to reduce or minimize interference.

## 1.1. claim: 9

The controller is configured to determine whether the second wireless communication device is authorized.

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## 2. claims: 4, 18

To incrementally increase the pilot signal's power level over a predetermined time period.

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## 3. claims: 5-7, 19, 20

To transmit power control commands to the first wireless communication device, to send these commands prior to increasing the power level of the pilot signal.

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## 4. claim: 10

The predetermined power level is based on the quality of the air link between the base station and the first wireless communication device.

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## 5. claims: 12-14

To receive a detection signal from the second device that is an uplink communication signal transmitted to another base station, decoding the uplink communication signal using a long code mask corresponding to the second wireless communication device, wherein the uplink communication signal is detected when the uplink signal is successfully decoded.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/027665

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1587221	A2	19-10-2005	
		CN 1684441 A	19-10-2005
		KR 20050101070 A	20-10-2005
		US 2005250528 A1	10-11-2005

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