
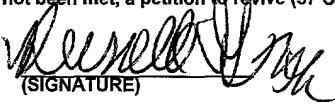


File History 7,016,676

FORM PTO-1390 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NO. PHDE 000238
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. Application No. (if known, see 37 CFR 1.5) 10/089959
INTERNATIONAL APPLICATION NO. PCT/EP01/09258	INTERNATIONAL FILING DATE AUGUST 8, 2001	PRIORITY DATE CLAIMED AUGUST 8, 2000
TITLE OF INVENTION: METHOD, NETWORK AND CONTROL STATION FOR THE TWO-WAY ALTERNATE CONTROL OF RADIO SYSTEMS OF DEFFERENT STANDARDS IN THE SAME FREQUENCY BAND		
APPLICANT(S) FOR DO/EO/US BERNHARD WALKE; STEFAN MANGOLD		
Applicant(s) herewith submit to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
<p>1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</p> <p>4. <input type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 18th month from the earliest claimed priority date.</p> <p>5. <input type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c)(2))</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> has been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2))</p> <p>7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> have been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p style="margin-left: 20px;">d. <input type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> A translation of the amendment to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p>Items 11. to 16. below concern document(s) or information included:</p> <p>11. <input type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98.</p> <p>12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.</p> <p>13. <input type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND OR SUBSEQUENT preliminary amendment.</p> <p>14. <input type="checkbox"/> A substitute specification.</p> <p>15. <input checked="" type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>16. <input checked="" type="checkbox"/> Other items or information: Application as published (WO 02/13457 A2) 3 Sheets of Formal Drawings</p>		
		<p style="text-align: center;">CERTIFICATE OF EXPRESS MAILING</p> <p>Express Mail Mailing Label No. <u>EL 686950531</u></p> <p>Date of Deposit <u>April 4, 2002</u></p> <p>I hereby certify that this paper and/or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the</p> <p>Commissioner of Patents and Trademarks, Washington D.C. 20231</p> <p>Edna Chapa _____ Typed Name</p> <p style="text-align: right;"> Signature</p>

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U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) 10/089959		INTERNATIONAL APPLICATION NO. PCT/EP01/09258	ATTORNEY'S DOCKET NUMBER PHDE 000238
17 [X] The following fees are submitted: BASIC NATIONAL FEE (37 C.F.R. 1.492(A)(1)-(5)):			CALCULATIONS (PTO USE ONLY)
Search Report has been prepared by the EPO or JPO		\$940.00	
International preliminary-examination fee paid to USPTO (37 C.F.R. 1.482)		\$720.00	
No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but international search fee paid to USPTO (37 C.F.R. 1.445(a)(2))		\$760.00	
Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO		\$970.00	
International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)		\$ 96.00	
ENTER APPROPRIATE BASIC FEE AMOUNT =			\$970.00
Surcharge of \$130.00 for furnishing the oath or declaration later than [] 20 [] 30 months from the earliest claimed priority date (37 C.F.R. 1.492(e)).			\$
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total Claims	11 - 20 =		X \$ 18.00
Independent claims	3 - 3 =		X \$ 78.00
MULTIPLE DEPENDENT CLAIMS (if applicable)			+ \$260.00
TOTAL OF ABOVE CALCULATIONS =			\$970.00
Reductions by 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 C.F.R. 1.9, 1.27, 1.28)			\$
SUBTOTAL =			\$970.00
Processing fee of \$130.00 for furnishing the English translation later than [] 20 [] 30 months from the earliest claimed priority date (37 C.F.R. 1.492(f)).			\$
TOTAL NATIONAL FEE =			\$
Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28,3.31). \$40.00 per property			\$40.00
TOTAL FEES ENCLOSED =			\$1,010.00
			Amount to be refunded \$
			charged \$
<p>a. [] A check in the amount \$ _____ to cover the above fees is enclosed.</p> <p>b. [X] Please charge my Deposit Account No. <u>14-1270</u> in the amount of <u>\$1,010.00</u> to cover the above fees. A duplicate copy of this sheet is enclosed.</p> <p>c. [X] The Commissioner is hereby authorized to charge any additional fee, with the exception of the Base Issue Fee, which may be required, or credit any overpayment to Deposit Account No. <u>14-1270</u>. A duplicate copy of this sheet is enclosed.</p>			
NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filed and granted to restore the application to pending status.			
SEND ALL CORRESPONDENCE TO:		 (SIGNATURE) Russel Gross 40,007 (REGISTRATION NUMBER)	
Corporate Patent Counsel Philips Electronics North America Corporation Tarrytown, NY 10591			
DATE OF MAILING: April 4, 2002			

204340-656303

Method, network and control station for the two-way alternate control of radio systems of different standards in the same frequency band

The invention relates to a method of alternate control of radio systems of different standards in the same frequency band.

5 A radio system for wireless transmission of information is allowed to use transmission power only in accordance with standards. The national regulation authority determines on what frequencies with what transmission power and in accordance with what radio interface standard a radio system is allowed to transmit. For this purpose there is provided for so-termed ISM frequency bands (Industrial Scientific Medical) that radio systems transmit in the same frequency band in accordance with different radio interface standards. An example of this is the US radio system IEEE802.11a and the European ETSI BRAN HiperLAN/2. The two radio systems transmit in the same frequency bands between 10 5.5 GHz and 5.875 GHz with approximately the same radio transmission method, but different transmission protocols.

15 In the event of interference, method were standardized for an active switching to another frequency within the permitted frequency band, for controlling transmission power and for the adaptive coding and modulation to reduce interference. Radio systems of wideband LANs of the radio interface standards ETSI BRAN HiperLAN/2 and IEEE802.11a utilize the same radio transmission method, a 64-carrier OFDM method and an adaptive modulation and coding. About the same modulation and coding methods (Link Adaptation, 20 LA) are defined for the two standards.

25 The Medium Access Control (MAC) of the two systems is totally different. ETSI BRAN HiperLAN/2 utilizes a centrally controlled reservation-based method in which a radio station takes over the role of a central instance co-ordinating the radio resources. This central radio station (Access Point, AP) which may be an access point to the wide area network, periodically signals every 2 ms the MAC frame structure from the AP and the associated stations if required.

The IEEE802.11a standard describes a CSMA/CA (Carrier Sense Multiple Access/Collision Avoidance) method not based on reservations, in which all the radio

stations listen in on the medium and assume that the channel is unused for a minimum duration (Short InterFrame Space, SIFS) before 802.11a-MAC frames, thus user data packets, are transmitted if necessary. The method is highly suitable for self-organizing ad hoc networks, but requires positive acknowledgements of all the packets. Measures supporting service quality (Point Coordination Function PCF) in addition allow the support of multimedia applications. Fig. 2 shows by way of example the sequence for media access in accordance with IEEE802.11a. In accordance with a variant of the standard a station is to then transmit an RTS packet (Ready To Send) and wait for a CTS packet (Clear To Send) from the addressed station before it is allowed to transmit user data. All the other stations in the radio coverage area set a time monitoring (Network Allocation Vector, NAV) and do not transmit until the addressed station has sent an acknowledgement (ACKnowledge, ACK).

Wideband LANs in accordance with the HiperLAN/2 and 802.11a standards will operate in the same frequency band in the future between 5.15 and 5.825 GHz. The wideband LANs work with Transmitter Power Control (TPC), it is true, with adaptive radio transmission methods and the Dynamic Frequency Selection (DFS) to minimize the alternating interfering effects, these methods, however, do not make optimum use and spreading possible of the radio channels over the stations which transmit in accordance with different standards. The guarantee of the service quality necessary for the multimedia applications is impossible in the case of interference caused by their own stations or stations of outside systems. In case of alternating interference, systems do not work efficiently and occupy a frequency channel even at low transmission rates.

It is an object of the invention to provide a method, a wireless network and a control station which make efficient use of radio transmission channels possible.

This object is achieved for the method in accordance with the invention by an interface control protocol method for a radio system, which system comprises at least a frequency band provided for the alternate use of a first and a second radio interface standard, the radio system comprising stations which operate in accordance with a first radio interface standard and/or a second radio interface standard, respectively, a control station being provided which controls the alternate use of the frequency band.

The invention is based on the idea of providing a comprehensive standard exchange of implicit or explicit control information in systems that have the same radio transmission methods but different radio transmission protocols. This makes a simple and efficient use possible of a radio channel via a plurality of radio interface standards.

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