



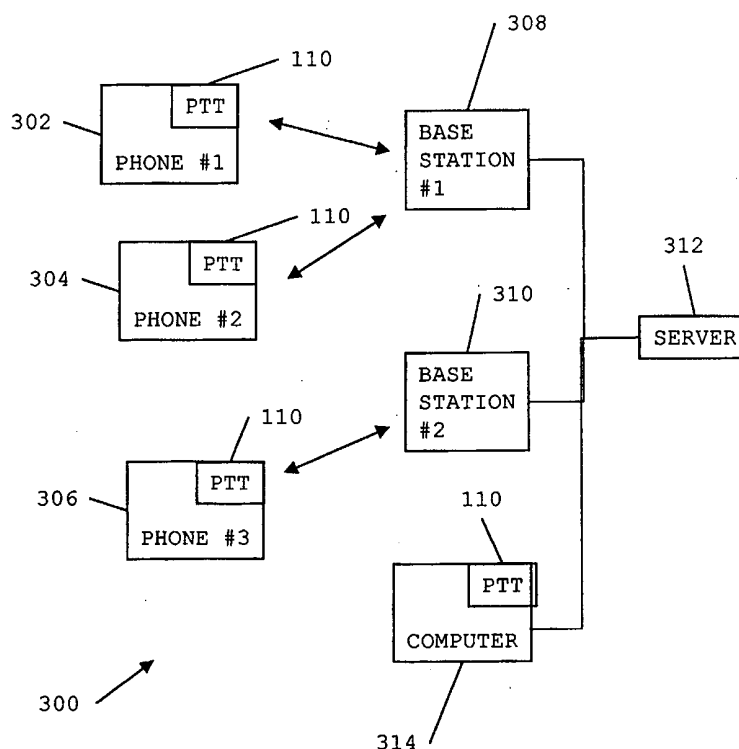
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : H04Q 7/28, H04M 7/00		A1	(11) International Publication Number: WO 00/47005
			(43) International Publication Date: 10 August 2000 (10.08.00)
(21) International Application Number: PCT/US99/29655 (22) International Filing Date: 14 December 1999 (14.12.99) (30) Priority Data: 60/119,195 5 February 1999 (05.02.99) US 60/122,629 3 March 1999 (03.03.99) US 09/365,964 2 August 1999 (02.08.99) US (71) Applicant: QUALCOMM INCORPORATED [US/US]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US). (72) Inventors: ROSS, David, J.; 2262 Carmel Valley Road, Suite A, Del Mar, CA 92014 (US). GUM, Arnold, J.; 4610 Janet Place, San Diego, CA 92115 (US). JACOBS, Paul, E.; 9075 La Jolla Shores Lane, La Jolla, CA 92037 (US). (74) Agents: MILLER, Russell, B. et al.; Qualcomm Incorporated, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>	

(54) Title: WIRELESS PUSH-TO-TALK INTERNET BROADCAST

(57) Abstract

A wireless telephone (302) digitizes the voice of the user in response to the depression of a push-to-talk button (110), either physical or virtual. It sends the digitized voice, in data mode, to a base station (308). The base station places the data, through the Internet, or an Intranet or Extranet, on a server (312). Other wireless phones (304-306) recover the data from the server through the same (308) or different (310) base station, through the Internet, Intranet, or Extranet, and convert the data back to digitized voice. The base stations transmit the digitized voice to other wireless telephones (306), which convert them back to voice in response to the recognition of voice frames on the data channel by the CODEC manager software. Networked computers (314) may be configured to emulate a combined base station and wireless telephone. The server can dynamically designate any wireless telephone (or landline emulation) as the broadcaster, and can dynamically configure any set of telephones/emulations as the receivers of the broadcast.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon	KR	Republic of Korea	PL	Poland		
CN	China	KZ	Kazakstan	PT	Portugal		
CU	Cuba	LC	Saint Lucia	RO	Romania		
CZ	Czech Republic	LI	Liechtenstein	RU	Russian Federation		
DE	Germany	LK	Sri Lanka	SD	Sudan		
DK	Denmark	LR	Liberia	SE	Sweden		
EE	Estonia			SG	Singapore		

WIRELESS PUSH-TO-TALK INTERNET BROADCAST

BACKGROUND OF INVENTION

5

Technical Field

This invention relates to wireless communications, and has particular relation to broadcasting voice to or from a wireless telephone over the Internet,
10 or an Intranet or Extranet.

Background Art

The conventional push-to-talk (PTT) communications system has several
15 transceivers, all tuned to the same channel, namely, the same frequency. Any user who wishes to speak pushes a button on his microphone, causing the transceiver to transmit. Releasing the button causes the transceiver to receive. Any number of users may share the same frequency, provided that there is some way to determine which user is next allowed to transmit.

20 Trunked radio is a step up from this technology. Instead of sharing a common physical channel, the users share a common logical channel. A user who wishes to start a conversation broadcasts a signal requesting such a start. A controller receives this signal. The controller broadcasts back a signal which allocates a physical channel -- a signal which every other user can receive as
25 well. All users then re-tune to the allocated frequency, and the conversation continues as before. Whenever there is a pause in the conversation, the controller can broadcast a new physical channel allocation. Such re-allocation may be required by traffic patterns, signal quality, and the like.

"Trunked" radio gets its name from telephone trunk lines between
30 distant cities. A telephone user in one city may regularly place a call, every day, to another user in the other city. When he does, he places it on a local loop to his local telephone company office, which places it on a trunk to the telephone company office in the other city, which places it on a local loop to the second user. There is no expectation that the same inter-city trunk will be
35 assigned every day. Indeed, the telephone company may change the trunk in

the middle of the call (presumably during a pause), without changing either of the local loops.

Trunked radio works as well (or as poorly) in a conference call (more than two users) as it does in a regular call (two users). The controller can do more than just allocate the physical channel. It can also arbitrate which user is next allowed to broadcast. It can alert a pre-selected group of users that a broadcast is being made to them. What it can't do, however, is dynamically change the composition of the group, or give the group geographic coverage driven by the availability of the Internet, or an Intranet or Extranet.

BRIEF DISCLOSURE OF THE INVENTION

Applicants have overcome this limitation by combining wireless telephone service with the Internet, or an Intranet or Extranet. A wireless telephone digitizes the voice of the user in response to the depression of a push-to-talk button, either physical or virtual. It sends the digitized voice, in data mode, to a base station. The base station places the data, through the Internet, or an Intranet or Extranet, on a server. Other wireless telephones recover the data from the server through the Internet, or an Intranet or Extranet, and convert the data back to digitized voice. Networked computers may also be configured to emulate a combined base station and wireless telephone. The server can dynamically designate any wireless telephone (or landline emulation) as the broadcaster, and can dynamically configure any set of telephones/emulations as the receivers of the broadcast.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a wireless telephone (100) according to the present invention.

5 FIG. 2 is a block diagram of an Internet, Intranet, or Extranet server (200) according to the present invention.

FIG. 3 is a block diagram of a system (300) according to the present invention.

10 FIG. 4 is a flowchart of a method (400) for operating the wireless telephone of FIG. 1.

FIG. 5 is a flowchart of a method (500) for operating the Internet, Intranet, or Extranet server of FIG. 2.

FIG. 6 is a flowchart of a method (600) for operating the system of FIG. 3.

15 FIG. 7 is a flowchart of a method (700) for configuring the system of FIG. 3.

FIG. 8 is a flowchart of a store-and-forward method (800) using the system of FIG. 3.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

20

FIG. 1 is a block diagram of a wireless telephone (100) according to the present invention. The wireless telephone includes a speaker (102), a microphone (104), a micro-browser or micro-client software (106) having an Internet, Intranet, or Extranet address, a voice CODEC manager software (108) to the micro-browser or micro-client software, and a real or virtual push-to-talk (PTT) button (110). It also includes means (112) for sending an outgoing streaming voice data message (SVDM) from the microphone through the voice CODEC manager software, and an indication that the PTT button has been depressed, in response to a depression of the PTT button. It further includes means (114) for sending an incoming streaming voice data message through the voice CODEC manager software to the speaker, in response to a release of the PTT button.

35 FIG. 2 is a block diagram of an Internet, Intranet, or Extranet server (200) according to the present invention. The Internet, Intranet, or Extranet server includes means for storing (202) a plurality of Internet, Intranet, or Extranet

addresses. This storage means can accept address additions and deletions both during a call and when no call is taking place. It thus provides the ability to dynamically group wireless telephones into conferences. Networked computers (314; see FIG. 3) may substitute for some wireless telephones.

5 The server (200) also includes means for receiving (204) an indication that a push-to-talk (PTT) button has been depressed at a wireless telephone at each Internet, Intranet, or Extranet address. It also includes means for determining (206) whether more than one wireless telephone has a depressed PTT button indication, and means, responsive to more than one wireless
10 telephone having a depressed PTT button indication, for arbitrating (208) which wireless telephone is allowed to place a streaming voice data message on the server. Once the arbitrated wireless telephone (or the sole wireless telephone, if only one has a depressed PTT button) has been selected, the server includes means for placing (210) a streaming voice data message on the server from the
15 arbitrated wireless telephone or from the sole wireless telephone. It also includes means for sending (212) the placed data to the wireless telephones at the other Internet, Intranet, or Extranet addresses. FIG. 2 shows these components as connected by a bus (214) connected to an interface (216), but any convenient architecture may be used.

20 FIG. 3 is a block diagram of a system (300) according to the present invention. The system includes a first wireless telephone (302), a second wireless telephone (304 or 306), a first base station (308), a second base station (310), and an Internet, Intranet, or Extranet server (312). Each wireless telephone is as described in FIG. 1. The first wireless telephone is in wireless
25 communication with a first base station, and the first base station is in communication, through the Internet, or an Intranet or Extranet, with the Internet, Intranet, or Extranet server. A direct connection is shown for simplicity. In practice, several routers (and perhaps other devices) would be included in the connection. The second wireless telephone is in wireless
30 communication with a second base station, and the second base station is also in communication, through the Internet, or an Intranet or Extranet, with the Internet, Intranet, or Extranet server. The Internet, Intranet, or Extranet server is as described in FIG. 2. The first base station may be the same as the second base station (the second wireless telephone is Phone #2 (304)), or different from
35 the second base station (the second wireless telephone is Phone #3 (306)).

The Internet, Intranet, or Extranet server may be configured to add or remove the Internet, Intranet, or Extranet address of a wireless telephone on request from that wireless telephone, from a device other than that wireless telephone, or both. The Internet, Intranet, or Extranet server may be configured, on request from a wireless telephone, to store one or more streaming voice data messages and to forward them to the wireless telephone on subsequent request. The system may further include at least one additional device, which is not a wireless telephone, but which has been constructed, and has been connected to the Internet, Intranet, or Extranet server, so as to emulate a wireless telephone. This device is preferably a computer (314), with microphone and speaker, loaded with appropriate software. In this case, the store-and-forward mechanism may be as simple as displaying an icon or avatar on the screen, representing the user of a particular telephone or computer. Clicking on this icon forwards all messages from that remote user, or allows particular messages to be selected. Careful use of this feature allows the user to select particular remote users who are deemed to be especially important, and to filter out especially unimportant remote users.

FIG. 4 is a flowchart of a method (400) for operating the wireless telephone of FIG. 1. The method includes depressing (402) the PTT button and sending (404) an outgoing streaming voice data message from the microphone through the voice CODEC manager software (and an indication that the PTT button has been depressed) in response to a depression of the PTT button. It further includes releasing (406) the PTT button and sending (408) an incoming streaming voice data message through the voice CODEC manager software to the speaker, in response to a release of the PTT button.

FIG. 5 is a flowchart of a method (500) for operating the Internet, Intranet, or Extranet server of FIG. 2. The method includes storing (502) a plurality of Internet, Intranet, or Extranet addresses, receiving (504) an indication that a push-to-talk (PTT) button has been depressed at a wireless telephone at each Internet, Intranet, or Extranet address, and determining (506) whether more than one wireless telephone has a depressed PTT button indication. If more than one wireless telephone has a depressed PTT button indication, the method further includes arbitrating (508) which wireless telephone is allowed to place a streaming voice data message on the server, and placing (510) a streaming voice data message on the server from the arbitrated

wireless telephone. If only one had a depressed PTT button, then it includes placing the message from that sole wireless telephone. It finally includes sending (512) the placed streaming voice data message to the wireless telephones at the other Internet, Intranet, or Extranet addresses.

5 FIG. 6 is a flowchart of a method (600) for operating the system of FIG. 3. The PTT button on the first wireless telephone is depressed (602). The first wireless telephone sends (604) an outgoing streaming voice data message from the microphone through the voice CODEC manager software (and an indication that the PTT button has been depressed) in response to a depression
10 of the PTT button, to the first base station. The first base station sends (606) an indication to the Internet, Intranet, or Extranet server that the PTT button has been depressed at the first wireless telephone. The Internet, Intranet, or Extranet server arbitrates (608), if more than one wireless telephone has a depressed PTT button indication, which wireless telephone is allowed to place a
15 streaming voice data message on the server. The streaming voice data message is placed (610) on the server from the arbitrated wireless telephone or from a sole wireless telephone. The server sends (612) the placed streaming voice data message to the second wireless telephone through the second base station. The second wireless telephone sends the placed streaming voice data message
20 through the voice CODEC manager software, in response to a release of the PTT button (614), to the speaker. The server sends (616) the placed streaming voice data message to the wireless telephones at the other Internet, Intranet, or Extranet addresses, if any.

As before, the first base station may be the same as the second base
25 station, or different from the second base station.

FIG. 7 is a flowchart of a method (700) for configuring the system of FIG. 3. The Internet, Intranet, or Extranet server may be configured to add (702) or remove (704) the Internet, Intranet, or Extranet address of a wireless telephone on request (706 or 708) from that wireless telephone, from a device other than
30 that wireless telephone, or both.

FIG. 8 is a flowchart of a store-and-forward method (800) using the system of FIG. 3. The method may include, on request (802) from a wireless telephone, storing (804) one or more streaming voice data messages and forwarding (806) them to the wireless telephone on subsequent request (808).

Industrial Application

Our invention is capable of exploitation in industry, and can be made and used, whenever is it desired to broadcast to or from a wireless telephone via the Internet, or an Intranet or Extranet. The individual components of the apparatus and method shown herein, taken separate and apart from one another, may be entirely conventional, it being their combination which we claim as our invention.

While we have described various modes of apparatus and method, the true spirit and scope of my invention are not limited thereto, but are limited only by the following claims and their equivalents, and we claim such as our invention.

What is claimed is:

CLAIMS

1. A wireless telephone, wherein:
 - 2 (a) the wireless telephone includes:
 - 4 (1) a speaker; and
 - (2) a microphone; and
 - (b) the wireless telephone is *characterized in that* it includes:
 - 6 (1) a micro-browser or micro-client software having an Internet, Intranet, or Extranet address;
 - 8 (2) a voice CODEC manager software to the micro-browser or micro-client software;
 - 10 (3) a real or virtual push-to-talk (PTT) button;
 - (4) means for sending:
 - 12 (A) an outgoing streaming voice data message from the microphone through the voice CODEC manager software; and
 - 14 (B) an indication that the PTT button has been depressed;
 - 16 in response to a depression of the PTT button; and
 - 18 (5) means for sending an incoming streaming voice data message through the voice CODEC manager software to
 - 20 the speaker, in response to a release of the PTT button.
2. An Internet, Intranet, or Extranet server, wherein:
 - 2 (a) the Internet, Intranet, or Extranet server includes means for storing a plurality of Internet, or Intranet or Extranet, addresses;
 - 4 and
 - (b) the server is *characterized in that* it includes:
 - 6 (1) means for receiving an indication that a push-to-talk (PTT) button has been depressed at a wireless telephone at each
 - 8 address;
 - (2) means for determining whether more than one wireless
 - 10 telephone has a depressed PTT button indication;

- 12 (3) means, responsive to more than one wireless telephone
having a depressed PTT button indication, for arbitrating
14 which wireless telephone is allowed to place a streaming
voice data message on the server;
- 16 (4) means for placing a streaming voice data message on the
server from the arbitrated wireless telephone or from a sole
wireless telephone;
- 18 (5) means for sending the placed data to the wireless
telephones at the other addresses; and
- 20 (6) means for dynamically grouping wireless telephones and
networked computers into conferences.

3. A system, wherein:

- 2 (a) the system includes a first wireless telephone, a second wireless
telephone or networked computer, a first base station, a second
4 base station, and an Internet, Intranet, or Extranet server;
- (b) each wireless telephone includes:
- 6 (1) a speaker; and
(2) a microphone;
- 8 (c) the first wireless telephone is in wireless communication with a
first base station;
- 10 (d) the first base station is in communication, through the Internet, or
an Intranet or Extranet, with the server;
- 12 (e) the second wireless telephone is in wireless communication with a
second base station;
- 14 (f) the second base station or networked computer is in
communication, through the Internet, or an Intranet or Extranet,
16 with the server;
- (g) the server includes means for storing a plurality of Internet, or
18 Intranet or Extranet, addresses;
- (h) each wireless telephone is *characterized in that* it includes:
- 20 (1) a micro-browser or micro-client software having an
Internet, Intranet, or Extranet address;
- 22 (2) a voice CODEC manager software to the micro-browser or
micro-client software;

- 24 (3) a real or virtual push-to-talk (PTT) button;
26 (4) means for sending:
28 (A) an outgoing streaming voice data message from the
microphone through the voice CODEC manager
software; and
30 (B) an indication that the PTT button has been
depressed;
in response to a depression of the PTT button; and
32 (5) means for sending an incoming streaming voice data
message through the voice CODEC manager software to
34 the speaker, in response to a release of the PTT button; and
(i) the server is *characterized in that* it includes:
36 (1) means for receiving an indication that a push-to-talk (PTT)
button has been depressed at a wireless telephone at each
38 address;
(2) means for determining whether more than one wireless
40 telephone has a depressed PTT button indication;
(3) means, responsive to more than one wireless telephone
42 having a depressed PTT button indication, for arbitrating
which wireless telephone is allowed to place a streaming
44 voice data message on the server;
(4) means for placing a streaming voice data message on the
46 server from the arbitrated wireless telephone or from a sole
wireless telephone;
48 (5) means for sending the placed data to the wireless
telephones at the other addresses; and
50 (6) means for dynamically grouping wireless telephones and
networked computers into conferences.

4. The system of Claim 3, *further characterized in that* the first base station
2 is the same as the second base station.

5. The system of Claim 3, *further characterized in that* the first base station
2 is different from the second base station.

6. The system of Claim 3, *further characterized in that* the server is
2 configured to add or remove the address of a wireless telephone on
request from that wireless telephone.
7. The system of Claim 3, *further characterized in that* the server is
2 configured to add or remove the address of a wireless telephone on
request from a device other than that wireless telephone.
8. The system of Claim 3, *further characterized in that* the server is
2 configured, on request from a wireless telephone, to store one or more
streaming voice data messages and to forward them to the wireless
4 telephone on subsequent request.
9. The system of Claim 3, *further characterized in that* the system further
2 includes at least one additional device, which is not a wireless telephone,
but which has been constructed, and has been connected to the server, so
4 as to emulate a wireless telephone.
10. The system of Claim 9, *further characterized in that* the server is
2 configured to add or remove the address of a wireless telephone or first
device on request from a second device.
11. A method for operating a wireless telephone, wherein:
2 (a) the wireless telephone includes:
 (1) a speaker; and
4 (2) a microphone;
 (b) the wireless telephone is *characterized in that* it includes:
6 (1) a micro-browser or micro-client software having an
Internet, Intranet, or Extranet address;
8 (2) a voice CODEC manager software to the micro-browser or
micro-client software; and
10 (3) a real or virtual push-to-talk (PTT) button; and
 (c) the method is *characterized in that* it includes:
12 (1) depressing the PTT button;
 (2) sending;

12

- 14 (A) an outgoing streaming voice data message from the
microphone through the voice CODEC manager
16 software; and
(B) an indication that the PTT button has been
18 depressed;
in response to a depression of the PTT button;
20 (3) releasing the PTT button; and
(4) sending an incoming streaming voice data message
22 through the voice CODEC manager software to the
speaker, in response to a release of the PTT button.

12. A method for operating an Internet, Intranet, or Extranet server,
2 wherein:

- (a) the method includes storing a plurality of Internet, Intranet, or
4 Extranet addresses; and
(b) the method is *characterized in that* it further includes:
6 (1) receiving an indication that a push-to-talk (PTT) button has
been depressed at a wireless telephone at each address;
8 (2) determining whether more than one wireless telephone has
a depressed PTT button indication;
10 (3) if more than one wireless telephone has a depressed PTT
button indication, arbitrating which wireless telephone is
12 allowed to place a streaming voice data message on the
server;
14 (4) placing a streaming voice data message on the server from
the arbitrated wireless telephone or from a sole wireless
16 telephone;
(5) sending the placed streaming voice data message to the
18 wireless telephones at the other addresses; and
(6) dynamically grouping wireless telephones and networked
20 computers into conferences.

13. A method for operating a system, wherein:

- 2 (a) the system includes a first wireless telephone, a second wireless
telephone, a first base station, a second base station, and an
4 Internet, Intranet, or Extranet server;
- (b) each wireless telephone includes:
- 6 (1) a speaker; and
(2) a microphone;
- 8 (c) the first wireless telephone is in wireless communication with a
first base station;
- 10 (d) the first base station is in communication, through the Internet,
Intranet or Extranet, with the server;
- 12 (e) the second wireless telephone is in wireless communication with a
second base station;
- 14 (f) the second base station is in communication, through the Internet,
Intranet or Extranet, with the server;
- 16 (g) the server includes means for storing a plurality of Internet, or
Intranet or Extranet, addresses;
- 18 (h) each wireless telephone is *characterized in that* it includes:
- 20 (1) a micro-browser or micro-client software having an
Internet, Intranet, or Extranet address;
- 22 (2) a voice CODEC manager software to the micro-browser or
micro-client software; and
- 24 (3) a real or virtual push-to-talk (PTT) button; and
- 26 (i) the method is *characterized in that* it includes:
- (1) depressing the PTT button on the first wireless telephone;
- 28 (2) the first wireless telephone sending:
- (A) an outgoing streaming voice data message from the
microphone through the voice CODEC manager
software; and
- 30 (B) an indication that the PTT button has been
depressed;
- 32 in response to a depression of the PTT button, to the first
base station;
- 34 (3) the first base station sending an indication to the server that
the PTT button has been depressed at the first wireless
36 telephone;

- 38 (4) the server arbitrating, if more than one wireless telephone
has a depressed PTT button indication, which wireless
40 telephone is allowed to place a streaming voice data
message on the server;
- 42 (5) placing the streaming voice data message on the server
from the arbitrated wireless telephone or from a sole
wireless telephone;
- 44 (6) the server sending the placed streaming voice data message
to the second wireless telephone through the second base
46 station;
- 48 (7) the second wireless telephone sending the placed
streaming voice data message through the voice CODEC
manager software, in response to a release of the PTT
50 button, to the speaker; and
- 52 (8) the server sending the placed streaming voice data message
to the wireless telephones at the other addresses, if any.

14. The method of Claim 13, *further characterized in that* the first base
2 station is the same as the second base station.
15. The method of Claim 13, *further characterized in that* the first base
2 station is different from the second base station.
16. The method of Claim 13, *further characterized in that* the method further
2 includes adding or removing the address of a wireless telephone on
request from that wireless telephone.
17. The method of Claim 13, *further characterized in that* the method further
2 includes adding or removing the address of a wireless telephone on
request from a device other than that wireless telephone.
18. The method of Claim 13, *further characterized in that* the method further
2 includes, on request from a wireless telephone, the server storing one or
more streaming voice data messages and forwarding them to the
4 wireless telephone on subsequent request.

19. The method of Claim 13, *further characterized in that* the system further
2 includes at least one additional device, which is not a wireless telephone,
but which has been constructed, and has been connected to the server, so
4 as to emulate a wireless telephone.
20. The method of Claim 19, *further characterized in that*:
- 2 (a) the server is configured to add or remove the address of a wireless
telephone or first device on request from a second device; and
4 the method includes, at the second device, clicking on an avatar representing
the wireless telephone or first device.

1/6

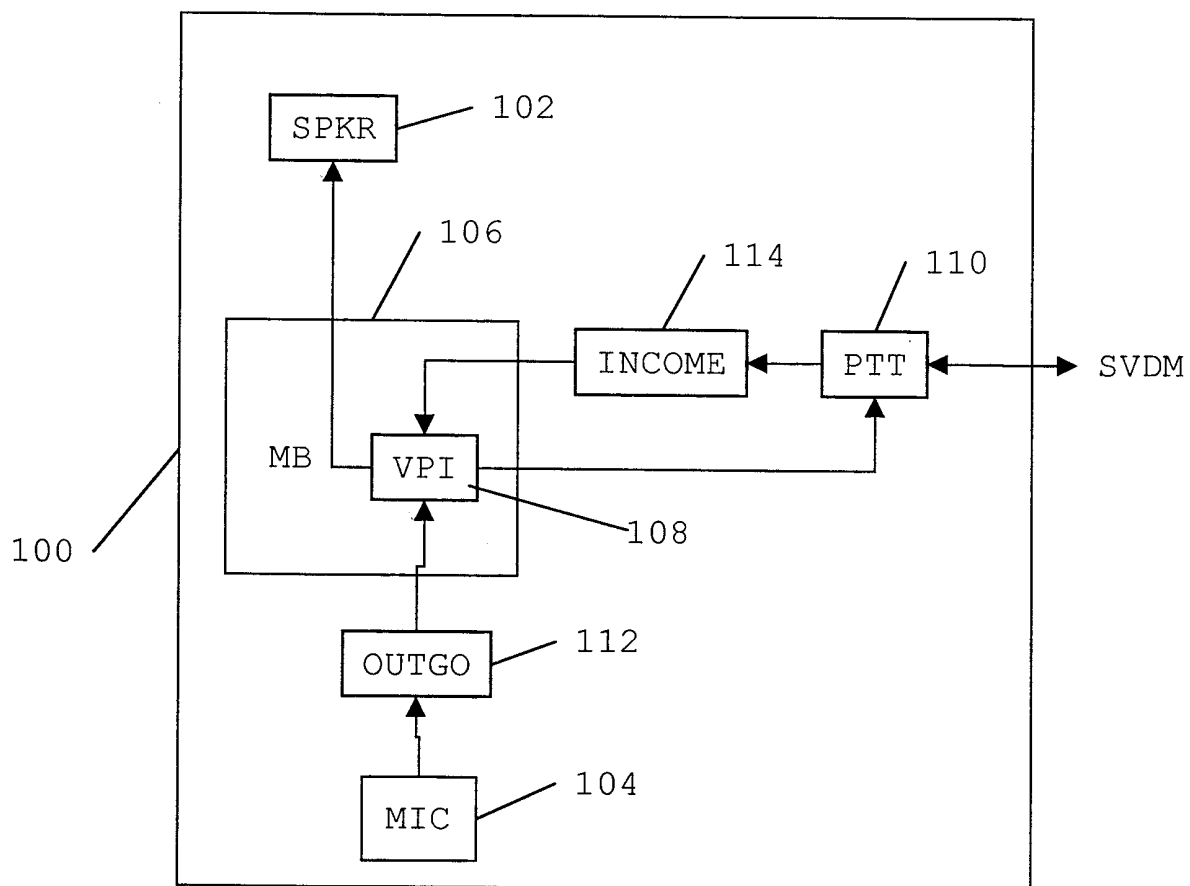


FIG. 1

2/6

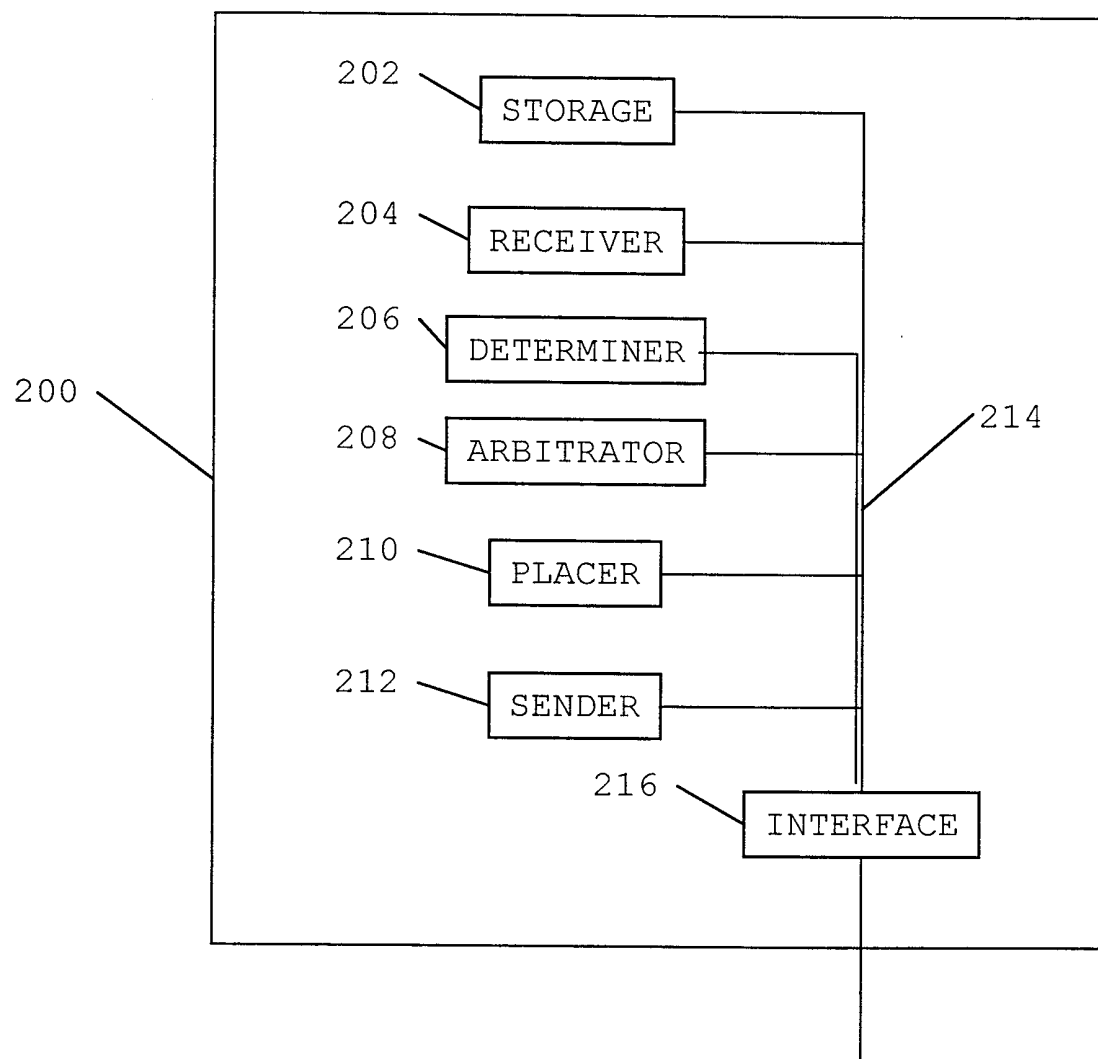


FIG. 2

3/6

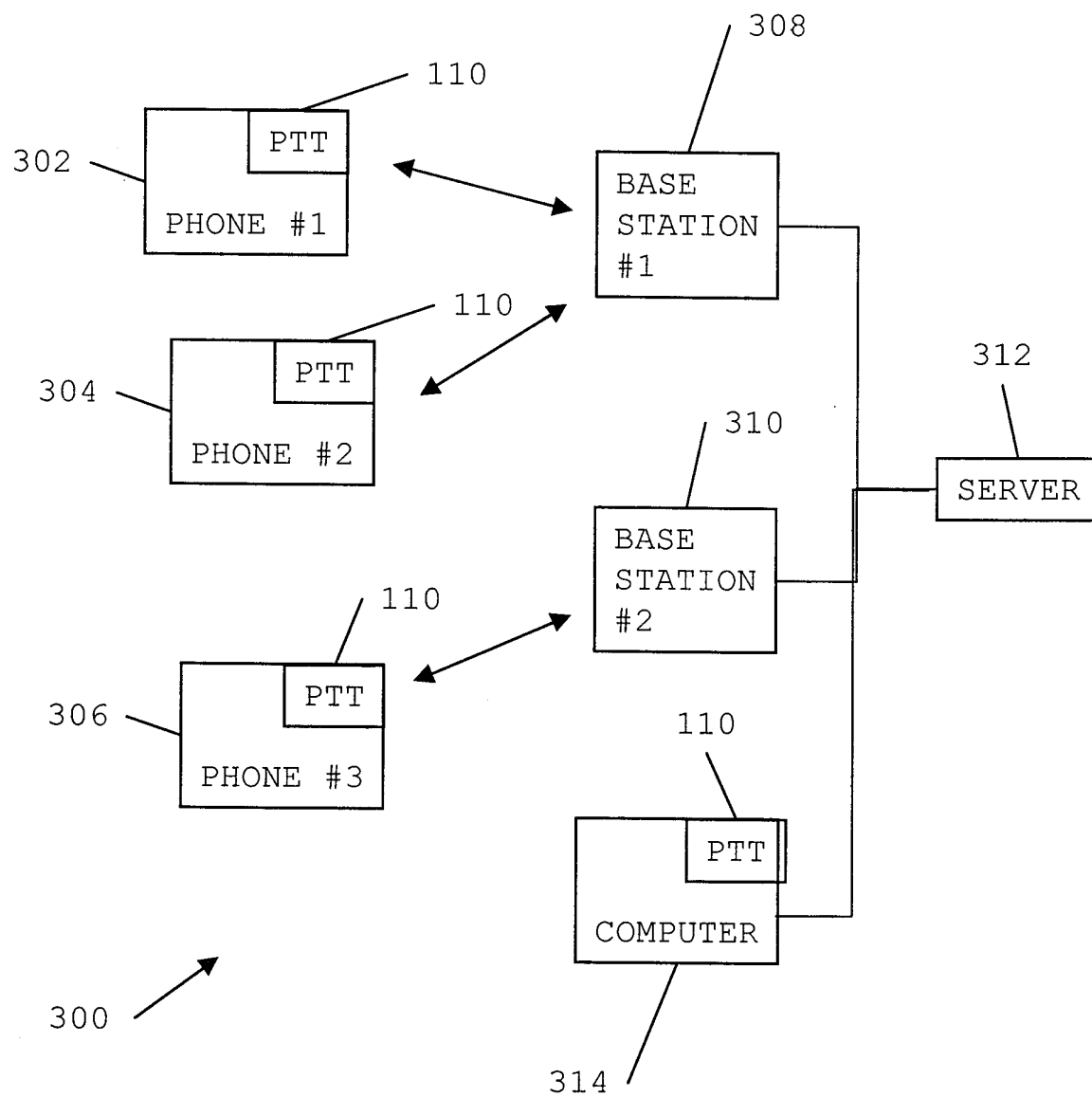


FIG. 3

4/6

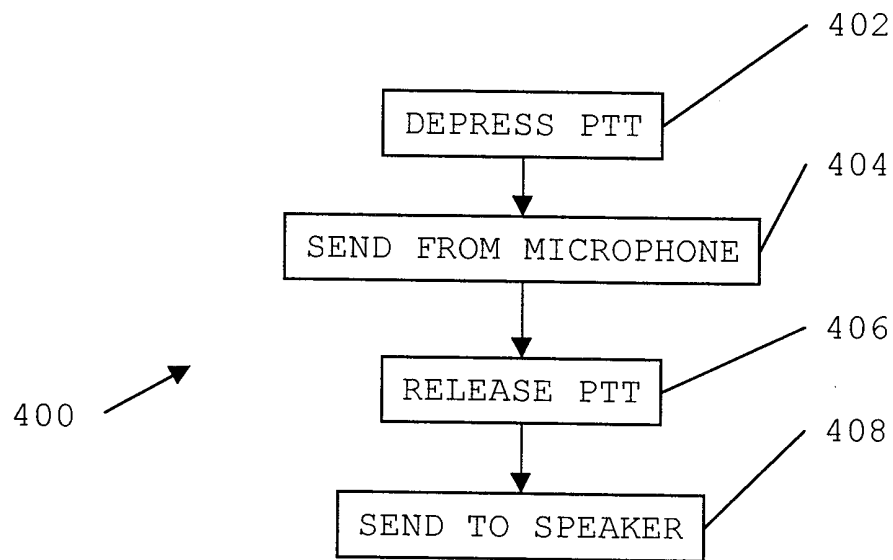


FIG. 4

5/6

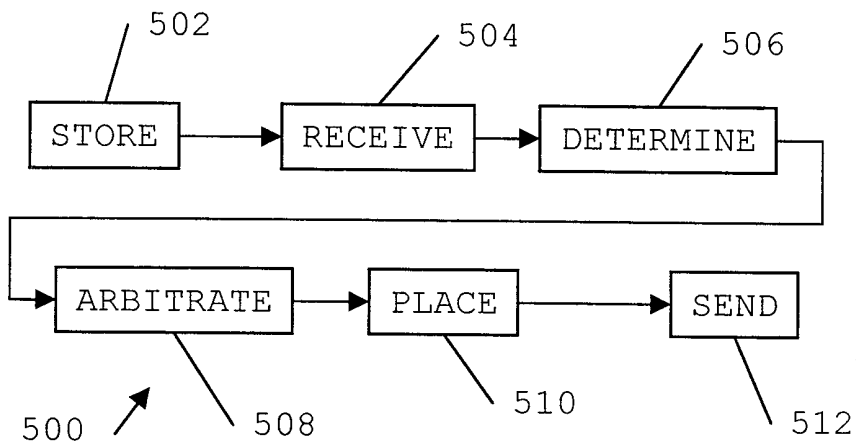


FIG. 5

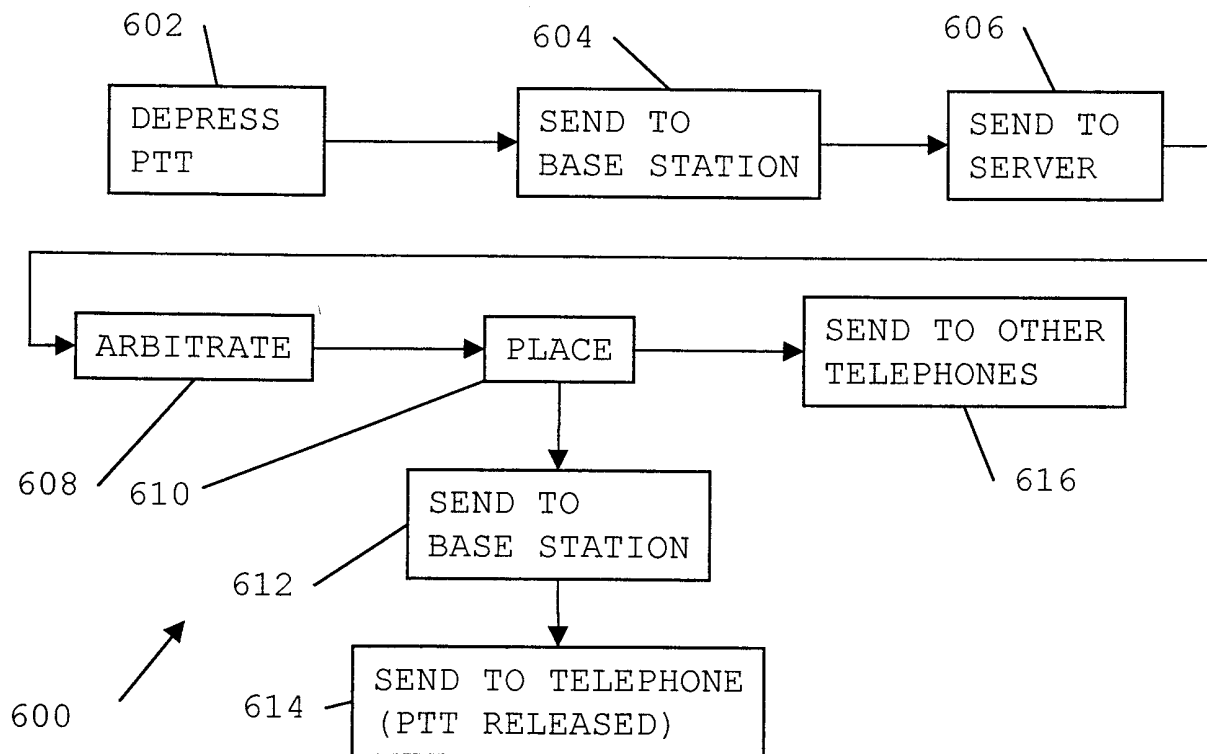


FIG. 6

6/6

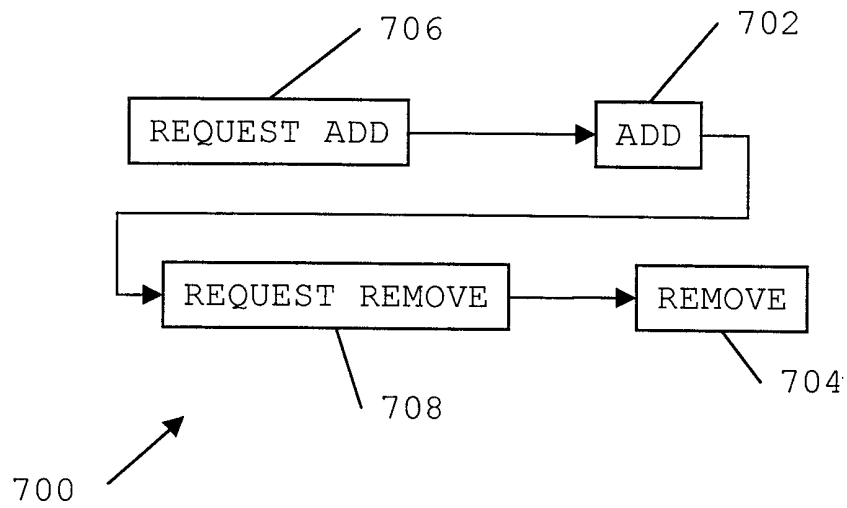


FIG. 7

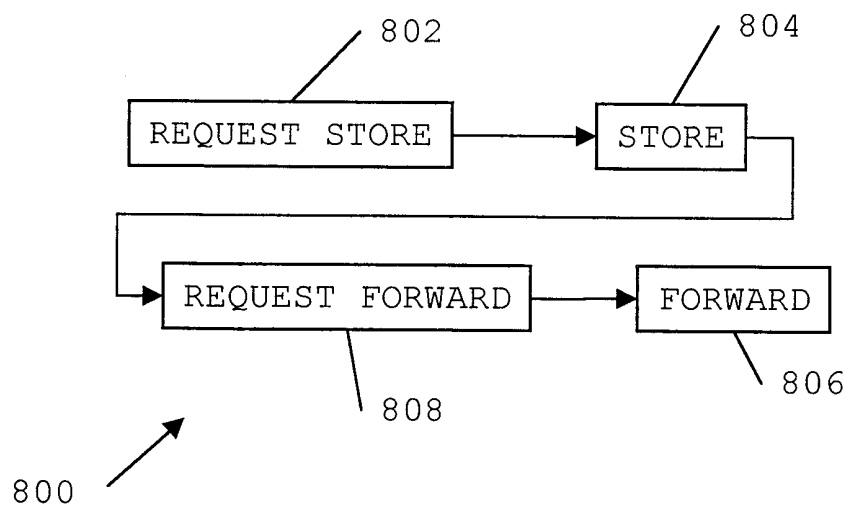


FIG. 8

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/29655

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04Q7/28 H04M7/00

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 7 H04Q H04M

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, Y	WO 99 09768 A (QUALCOMM) 25 February 1999 (1999-02-25) page 4, line 8 -page 20, line 26; figures ----	1-3, 11-13
Y	EP 0 540 081 A (TRT) 5 May 1993 (1993-05-05) page 2, column 1, line 56 -page 3, column 4, line 10; figures ----- -/--	1-3, 11-13

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

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

"E" earlier document 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

Date of the actual completion of the international search

27 April 2000

Date of mailing of the international search report

10/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Geoghegan, C

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/29655

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	P. COCKRAM & R.H. TRIDGELL: "A standard signalling protocol for Band III trunked systems" JOURNAL OF THE INSTITUTION OF ELECTRICAL AND RADIO ENGINEERS, vol. 57, no. 3, May 1987 (1987-05) - June 1987 (1987-06), pages 113-118, XP002048932 uk page 115, line 120 - line 135 -----	1-3, 11-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/29655

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9909768 A	25-02-1999	US 5991615 A US 6026292 A AU 8913198 A CA 2241762 A EP 0993746 A CA 2245312 A	23-11-1999 15-02-2000 08-03-1999 18-02-1999 19-04-2000 19-02-1999
EP 540081 A	05-05-1993	FR 2683107 A JP 5227090 A	30-04-1993 03-09-1993