

Patent Owner's Demonstrative Exhibits

Cellco Partnership D/B/A Verizon Wireless v. General Access Solutions, Ltd.

October 8, 2024

Oral Argument

U.S. Patent No. 9,426,794 | Case No. IPR2023-01147

SKIERMONT DERBY
LLP

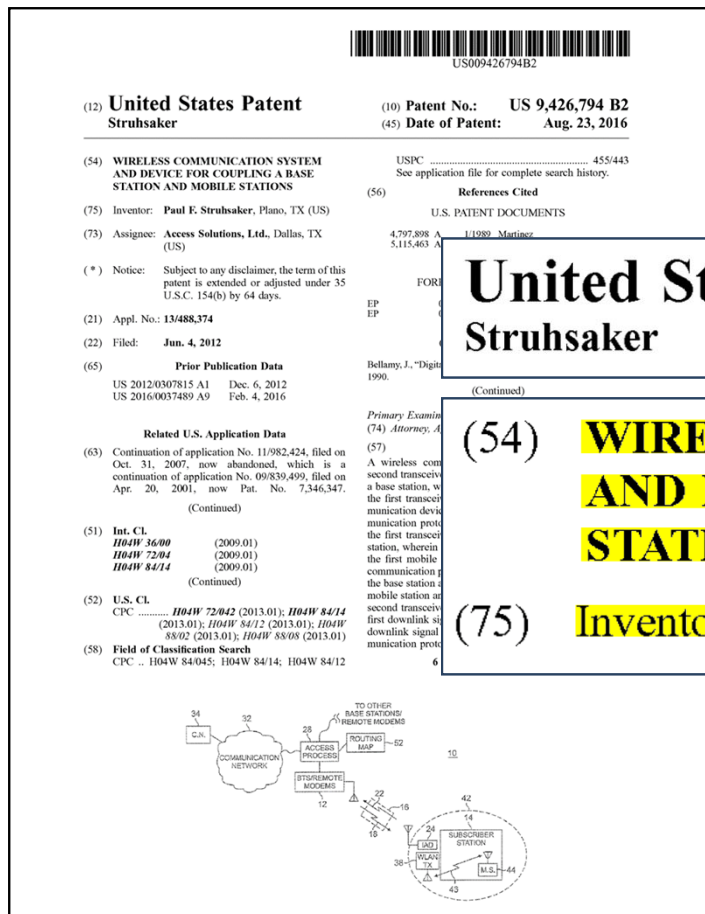
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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

1

'794 Patent

'794 Patent



Ex. 1001 at Cover.

'794 Patent

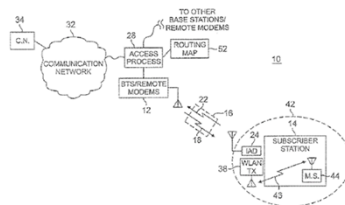
United States Patent

Struhsaker

(10) **Patent No.:** US 9,426,794 B2
(45) **Date of Patent:** Aug. 23, 2016

(54) **WIRELESS COMMUNICATION SYSTEM
AND DEVICE FOR COUPLING A BASE
STATION AND MOBILE STATIONS**

(75) **Inventor: Paul F. Struhsaker, Plano, TX (US)**



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

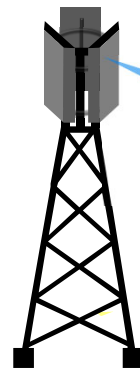
'794 Patent

'794 Patent

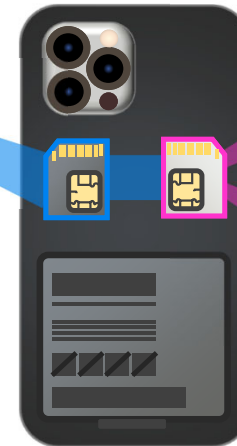
United States Patent
Struhsaker

(10) Patent No.: **US 9,426,794 B2**
(45) Date of Patent: **Aug. 23, 2016**

(54) **WIRELESS COMMUNICATION SYSTEM
AND DEVICE FOR COUPLING A BASE
STATION AND MOBILE STATIONS**
(75) **Inventor: Paul F. Struhsaker, Plano, TX (US)**



Base Station



Mobile Station 1



Mobile Station 2

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

US009426794B2

(12) **United States Patent**
Struhsaker

(10) Patent No.: **US 9,426,794 B2**
(45) Date of Patent: **Aug. 23, 2016**

(54) **WIRELESS COMMUNICATION SYSTEM
AND DEVICE FOR COUPLING A BASE
STATION AND MOBILE STATIONS**

(75) Inventor: **Paul F. Struhsaker, Plano, TX (US)**

(73) Assignee: **Access Solutions, Ltd., Dallas, TX
(US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 64 days.

(21) Appl. No.: **13/488,374**

(22) Filed: **Jun. 4, 2012**

(65) **Prior Publication Data**
US 2012/0307815 A1 Dec. 6, 2012
US 2016/0037489 A9 Feb. 4, 2016

Related U.S. Application Data

(63) Continuation of application No. 11/982,424, filed on Oct. 31, 2007, now abandoned, which is a continuation of application No. 09/839,499, filed on Apr. 20, 2001, now Pat. No. 7,346,347.
(Continued)

(51) **Int. Cl.**
H04W 36/00 (2009.01)
H04W 72/04 (2009.01)
H04W 84/14 (2009.01)
(Continued)

(52) **U.S. Cl.**
CPC **H04W 72/042** (2013.01); **H04W 84/14** (2013.01); **H04W 84/12** (2013.01); **H04W 88/02** (2013.01); **H04W 88/08** (2013.01)

(58) **Field of Classification Search**
CPC .. H04W 84/045; H04W 84/14; H04W 84/12

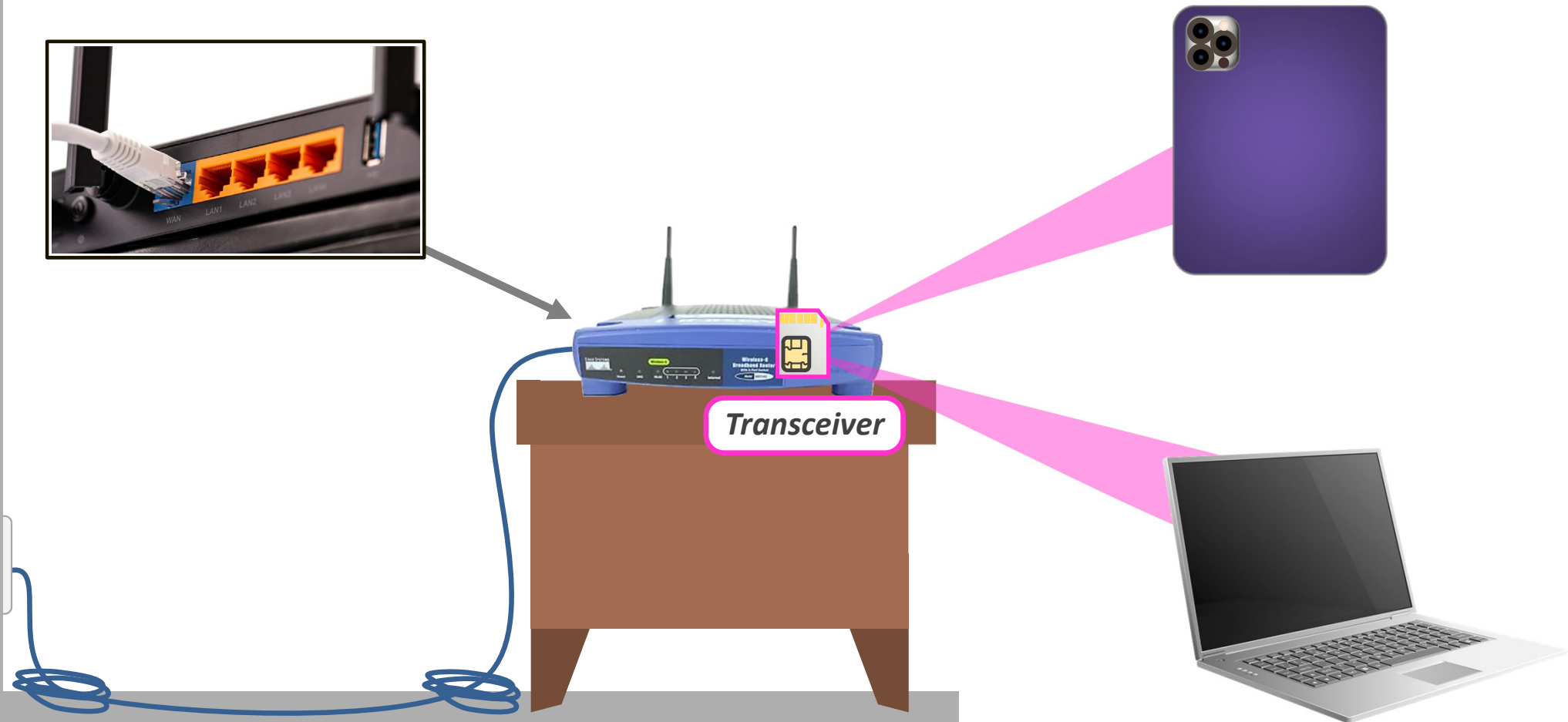
6 Claims, 3 Drawing Sheets

Ex. 1001 at Cover.

'794 Patent

Benefits of Invention

The Old Way



POR at 2-3.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

'794 Patent: Cellular Wi-Fi Hotspot to Multiple Devices



US009426794B2

(12) **United States Patent**
(10) **Patent No.:** US 9,426,794 B2
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(54) **WIRELESS COMMUNICATION SYSTEM AND DEVICE FOR COUPLING A BASE STATION AND MOBILE STATIONS**

(75) **Inventor:** Paul F. Struhsaker, Plano, TX (US)

(73) **Assignee:** Access Solutions, Ltd., Dallas, TX (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 64 days.

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H04W 36/00 (2009.01)
H04W 72/04 (2009.01)
H04W 84/14 (2009.01)
(Continued)

(52) **U.S. Cl.**
CPC *H04W 72/042* (2013.01); *H04W 84/14* (2013.01); *H04W 84/12* (2013.01); *H04W 88/02* (2013.01); *H04W 88/08* (2013.01)

(58) **Field of Classification Search**
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(10) **Patent No.:** US 9,426,794 B2
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USPC 455/443
See application file for complete search history.

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(Continued)

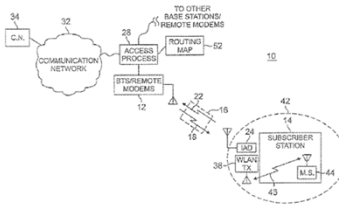
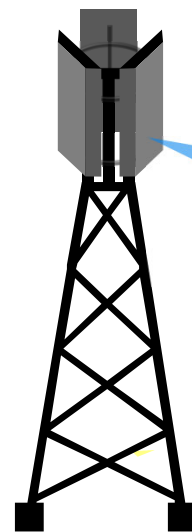
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(Continued)

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Bellamy, J., "Digital Telephony", 2nd Edition, John Wiley and Sons, 1990.
(Continued)

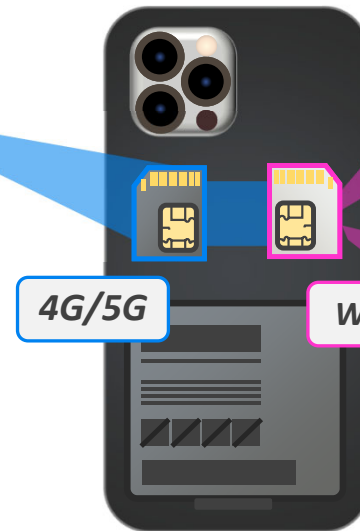
Primary Examiner — Wayne Cai
(74) **Attorney, Agent, or Firm** — Byrne Poh LLP

(57) **ABSTRACT**
A wireless communication system comprising first and second transceivers. The first transceiver communicates with a base station, wherein the base station communicates with the first transceiver and a plurality of other wireless communication devices according to a wide area wireless communication protocol. The second transceiver is coupled to the first transceiver and communicates with a first mobile station, wherein the second transceiver communicates with the first mobile station according to a local area wireless communication protocol. The first transceiver receives from the base station a first downlink signal intended for the first mobile station and transmits the first downlink signal to the second transceiver. The second transceiver re-transmits the first downlink signal to the first mobile station as a second downlink signal according to the local area wireless communication protocol.

6 Claims, 3 Drawing Sheets

Base Station



Mobile Station 1

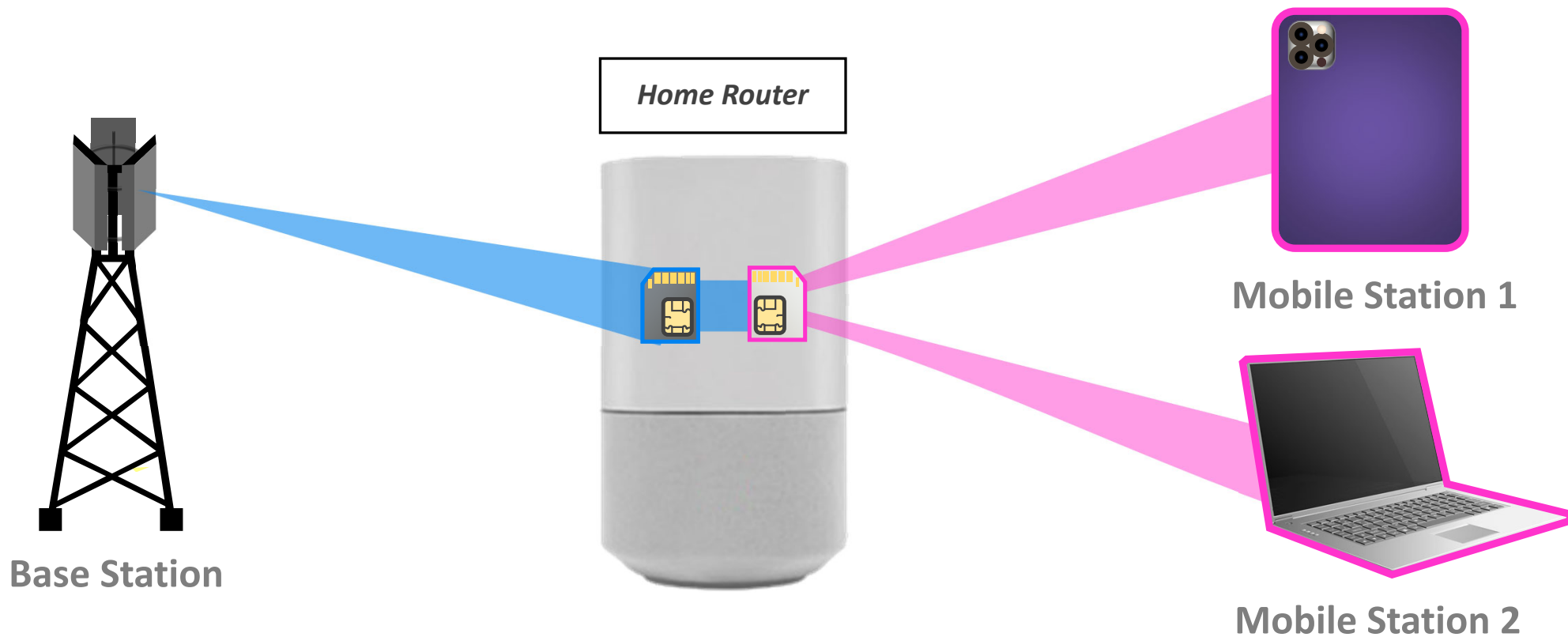


Mobile Station 2

POR at 6-7.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

'794 Patent: Benefit of the Invention



POR at 6-7.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The '794 Instituted Claims

The '794 Instituted Claims: Claim 1

Claim 1 recites:

A wireless communication device, comprising:

a first wireless transceiver operable to communicate with a base station, wherein the base station communicates with the first wireless transceiver and a plurality of other wireless communication devices according to a wide area wireless communication protocol; and

a second wireless transceiver coupled to the first wireless transceiver and operable to directly communicate with a first mobile station and a second mobile station, wherein the second wireless transceiver communicates with the first mobile station and the second mobile station according to a local area wireless communication protocol,

wherein the first wireless transceiver receives from the base station a first downlink signal intended for the first mobile station and provides the first downlink signal to the second wireless transceiver and wherein the second

wireless transceiver receives the first downlink signal and re-transmits the first downlink signal to the first mobile station as a second downlink signal according to the local area wireless communication protocol, and

wherein the second transceiver monitors first signal characteristics of the second downlink signal of the first mobile station and monitors second signal characteristics of the second mobile station, and based on the first

signal characteristics and the second characteristics, routes information to the first mobile station and the second mobile station, respectively.

Ex. 1001 at 10:17-44.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The '794 Instituted Claims: Claims 2, 3, 4 & 5

Claim 2 recites:

The wireless communication device of claim 1, wherein the second wireless transceiver is coupled to the first wireless transceiver by a wireline connection.

Claim 3 recites:

The wireless communication device of claim 2, wherein the second wireless transceiver is removably coupled to the first wireless transceiver.

Claim 4 recites:

The wireless communication device of claim 1, wherein the first wireless transceiver and second wireless transceiver are disposed in a fixed site subscriber station.

Claim 5 recites:

The wireless communication device of claim 1, wherein the first wireless transceiver and the second wireless transceiver are part of an integrated device.

Ex. 1001 at 10:45-56.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The '794 Instituted Claims: Claim 6

Claim 6 recites:

A method for communicating with a wireless communication device, comprising:

a first wireless transceiver operable to communicate with a base station, wherein the base station communicates with the first wireless transceiver and a plurality of other wireless communication devices according to a wide area wireless communication protocol; and

second wireless transceiver coupled to the first wireless transceiver and operable to directly communicate with a first mobile station and a second mobile station, wherein the second wireless transceiver communicates with the first mobile station and the second mobile station according to a local area wireless communication protocol,

the method comprising:

receiving, using the first wireless transceiver from the base station, a first downlink signal intended for the first mobile station;

providing, using the first wireless transceiver, the first downlink signal to the second wireless transceiver;

receiving, using the second wireless transceiver, the first downlink signal and re-transmitting the first downlink signal to the first mobile station as a second downlink signal according to the local area wireless communication protocol;

monitoring, using the second transceiver, first signal characteristics of the second downlink signal of the first mobile station;

monitoring, using the second transceiver, second signal characteristics of the second mobile station; and

based on the first signal characteristics and the second characteristics, routing, using the second transceiver, information to the first mobile station and the second mobile station, respectively.

Ex. 1001 at 10:57-11:22.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer

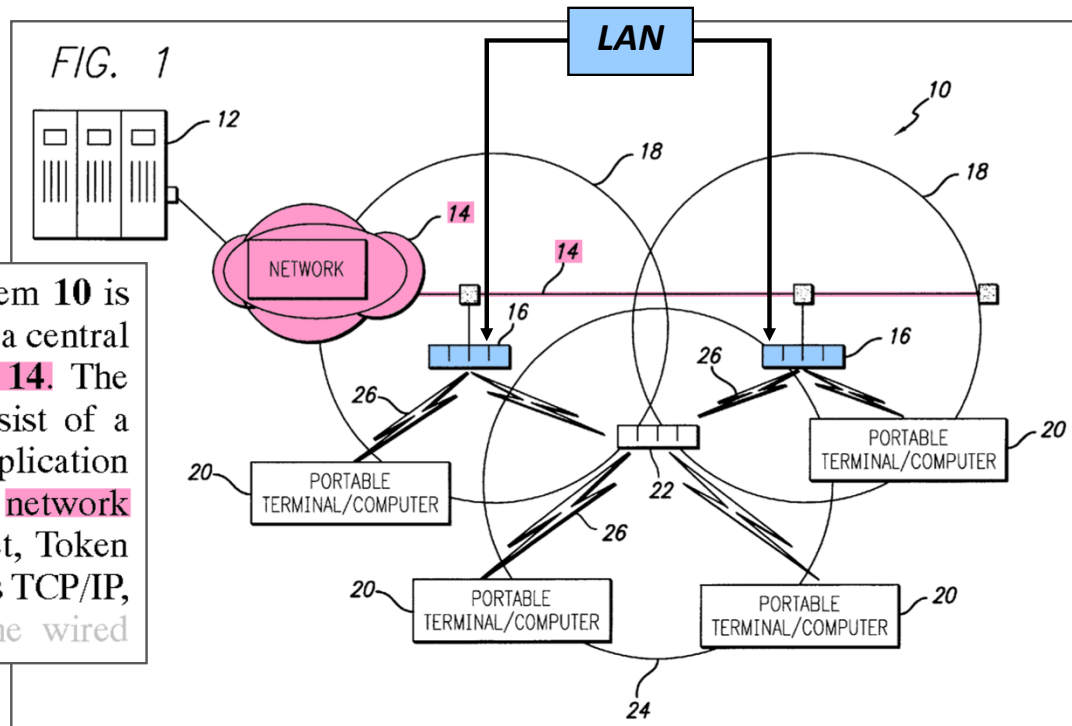
Palmer Teaches a Network of LANs, not a WWAN

Palmer teaches a network of LANs connected to a wired network, not a wireless wide area network:



Palmer

Referring first to FIG. 1, a communication system 10 is illustrated. The communication system 10 includes a central host processor 12 connected to a **wired network 14**. The central host processor 12 may, for example, consist of a UNIX based system that defines the host or application environment for the wired network 14. The wired **network 14** media may, for example, consist of an Ethernet, Token Ring, or ATM, and utilize network protocols such as TCP/IP, SPX/IPX, SNA LU6.2, as known in the art. The wired

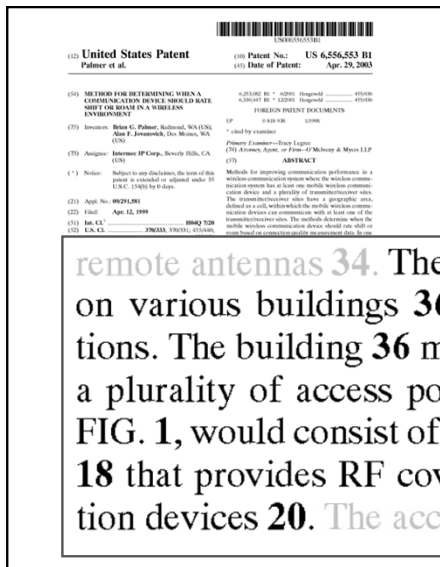


Ex. 1004 at Fig. 1, 4:26-34; POR at 14-15, 28-29.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

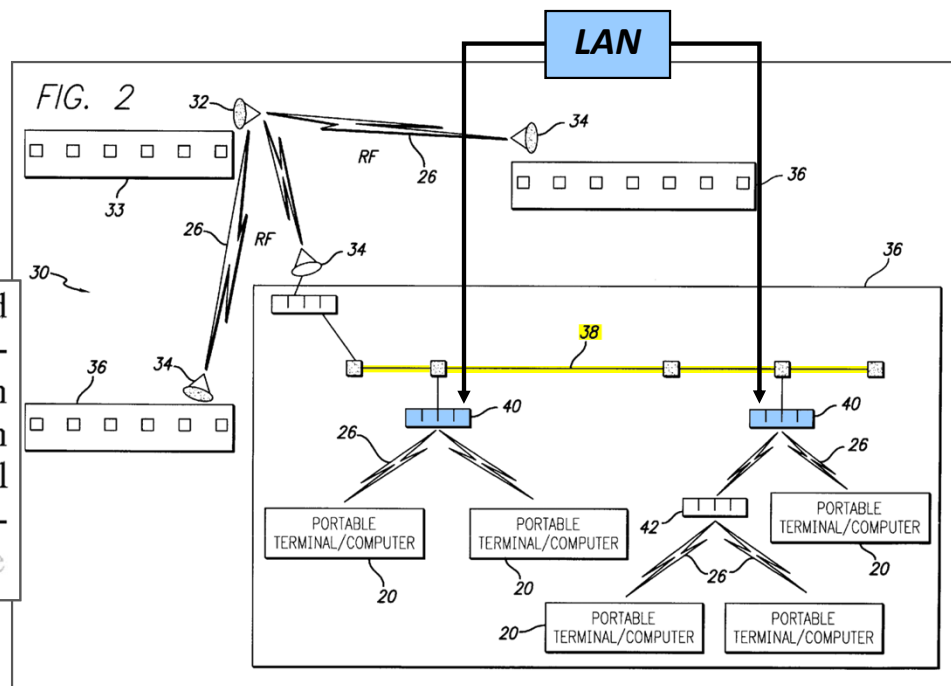
Palmer: Figure 2

Palmer's Figure 2 merely changes the link to wired network 38 into a wireless one, without mentioning a WAN or WWAN:



Palmer

remote antennas **34**. The remote antennas **34** may be located on various buildings **36** or other convenient remote locations. The building **36** may include a **wired network 38** with a plurality of access points **40**. The access point **40**, as in FIG. 1, would consist of a transmitter/receiver defining a cell **18** that provides RF coverage for the wireless communication devices **20**. The access point **40** would provide a bridge



Ex. 1004 at Fig. 2, 4:62-5:1; POR at 15-16, 29-30.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer Summary

1 **Does not** disclose “a wide area wireless communication protocol.”

2 **Does not** disclose a “wireless communication device” comprising “a second wireless transceiver coupled to the first wireless transceiver.”

3 **Does not** disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

POR at 27-46; Sur-Reply at 1-17.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer Summary

1 **Does not** disclose “a wide area wireless communication protocol.”

2 **Does not** disclose a “wireless communication device” comprising “a second wireless transceiver coupled to the first wireless transceiver.”

3 **Does not** disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

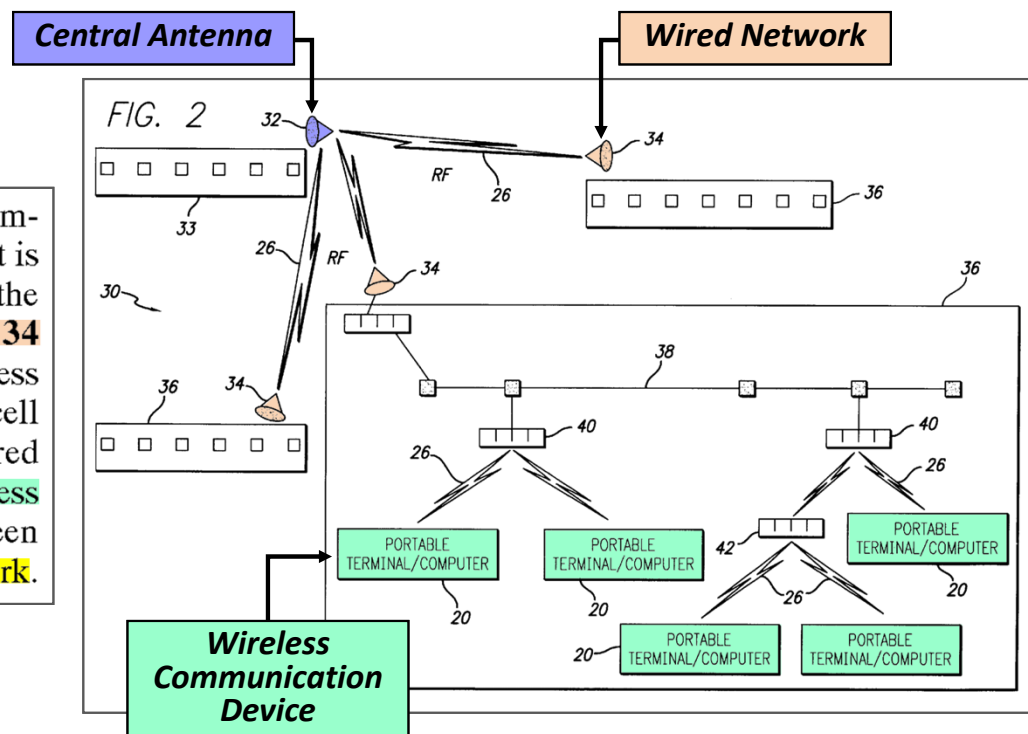
POR at 27-35; Sur-Reply at 1-7.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

If Palmer considered antennas 32/34 as part of a WWAN, Palmer would have described terminal 20 as having an additional WWAN transceiver to connect to antenna 32:

Palmer

In FIG. 1, as the mobile worker, with the wireless communication device 20, moves throughout the work area, it is necessary to maintain the wireless connection between the wireless communication device 20 and the wired network 34 and ultimately to the central host processor 12. The wireless communication device 20 may transition between one cell 18 to another or between the cell 18 and the cell 24 covered by the wireless access point 22. In FIG. 2, the wireless communication device 20 may also transition between buildings or comprise part of a wireless wide area network.

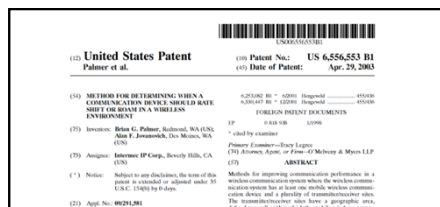


Ex. 1004 at Fig. 2, 5:10-19; POR at 16, 30; EX2007 at ¶¶ 66-67.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

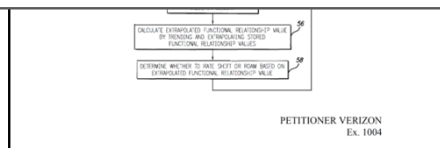
WANs Vary Vastly in Geographic Area

Palmer's "wireless coverage not only within a building, but also among several buildings or even within a city" does not denote a WAN:



Palmer

FIG. 2 illustrates a communication system 30. The communication system 30 expands upon the features of the communication system 10 of FIG. 1 by providing wireless coverage not only within a building, but also among several buildings or even within a city. The communication system



IBM Dictionary of Computing

wide area network (WAN) (1) A network that provides communication services to a geographic area larger than that served by a local area network or a metropolitan area network, and that may use or provide public communication facilities. (T) (2) A data communications network designed to serve an area of hundreds or thousands of miles; for example, public and private packet-switching networks, and national telephone networks. Contrast with local area network (LAN).

Ex. 1004 at 4:53-57; EX. 1021 at 744; Sur-Reply at 3-4.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer Does Not Disclose Using a Single WWAN Protocol

Petitioner acknowledges that Palmer does not disclose using a single WWAN protocol:

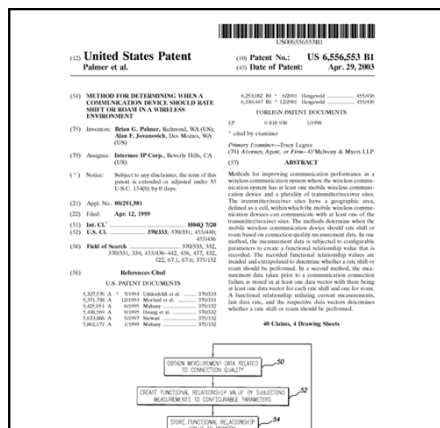
Filed on behalf of: Cellco Partnership d/b/a Verizon Wireless	
UNITED STATES PATENT AND TRADEMARK OFFICE _____ BEFORE THE PATENT TRIAL AND APPEAL BOARD	Petitioner's Reply
CELLCO PARTNERSHIP D/B/A Petitioner v. GENERAL ACCESS SOLUTIONS Patent Owner _____ IPR2023-01234 U.S. Patent No. 12,345,678 _____ PETITIONER	"Palmer has at least as much disclosure of protocols as the '794 Patent, which neither uses the word 'protocol' in the specification, nor offers a single example protocol."

Reply at 5-6; Sur-Reply at 4.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

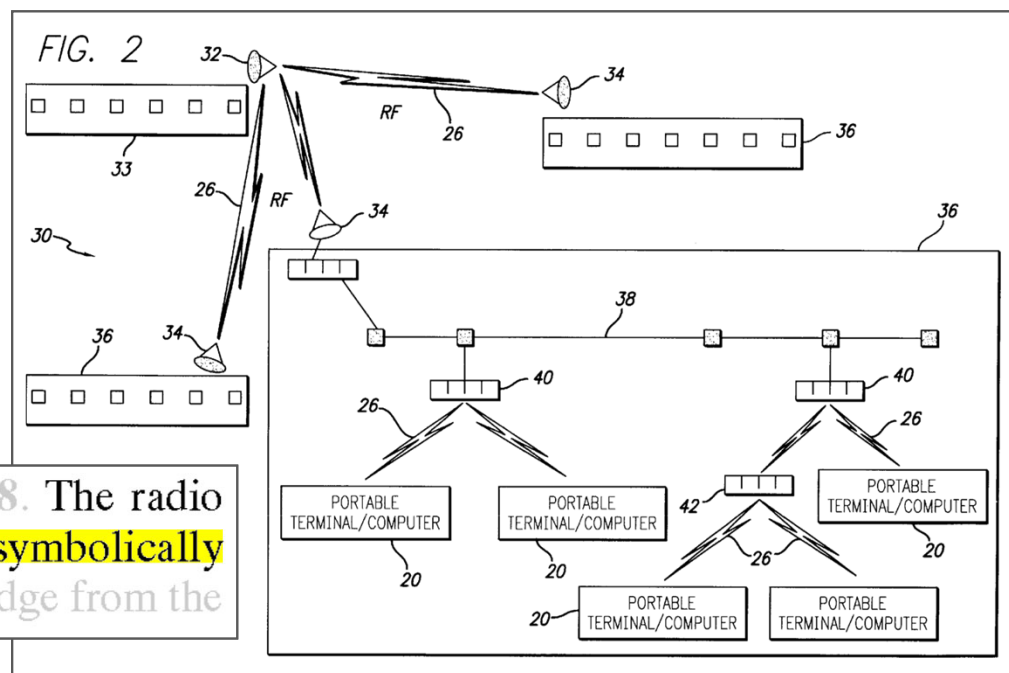
Palmer Does Not Disclose that its RF Links Use the Same WWAN Protocol

Palmer uses the term “symbolically” to generalize its RF links as any kind or assortment of RF connections:



Palmer

respective access point 16 for the given cell 18. The radio frequency (RF) wireless links are represented symbolically by RF links 26. The access point 16 acts as a bridge from the

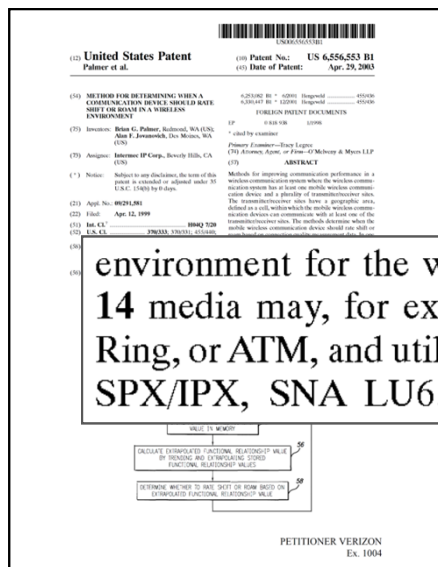


Ex. 1004 at Fig. 2, 4:40-42; POR at 32-33, 30; EX2007 at ¶ 76.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's Protocol Discussions Are Limited to Data Networking Protocols

Palmer's mention of "industry standard network protocols" refers to network and transport layer protocols such as TCP/IP, rather than media transmission protocols:



Palmer

environment for the wired network 14. The wired network 14 media may, for example, consist of an Ethernet, Token Ring, or ATM, and utilize network protocols such as TCP/IP, SPX/IPX, SNA LU6.2, as known in the art. The wired

Under some current implementations, delays in rate shifting and/or roaming within a cell or to a new cell may result in the loss of a network connection, such as a TCP/IP network connection, between the wireless communication device and the central host processing unit. When this occurs, the worker must reinitiate a logon sequence to the host, then to the required application, and finally repeat the work that was lost due to the TCP/IP connection loss. If the

Accordingly, it would be desirable to provide a method for determining when a communication device should rate shift or roam in a wireless environment. The method would improve communication connections and performance by reducing the number of required retransmissions, offer an optimum bandwidth, and faster response time. The method would further reduce network connection losses due to the use of industry standard network protocols by the wireless media. Furthermore, the method would be flexible and

Ex. 1004 at 2:26-33, 2:47-55, 4:31-34; POR at 34-35; Sur-Reply at 4-6.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer Summary

1 Does not disclose “a wide area wireless communication protocol.”

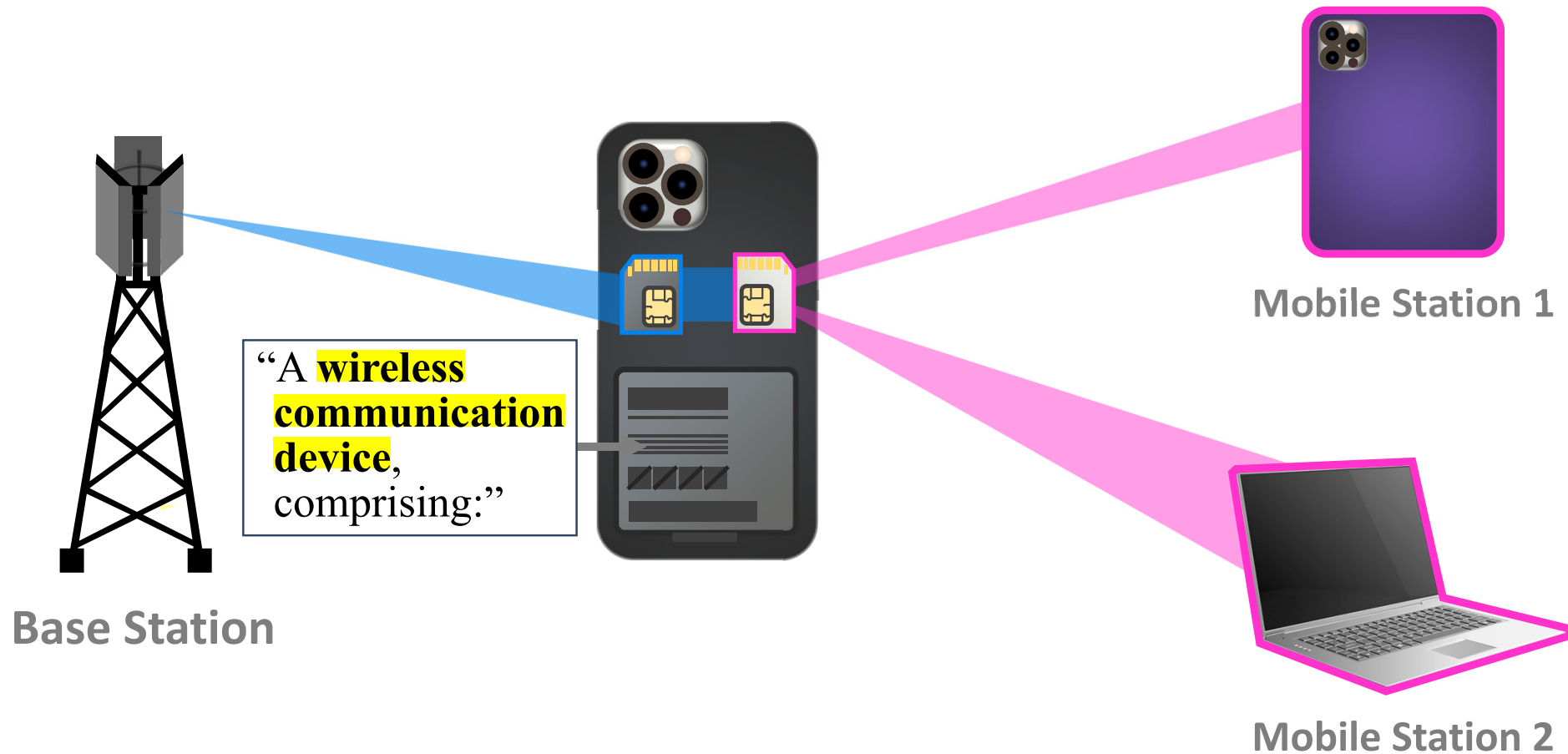
2 Does not disclose a “wireless communication device” comprising “a second wireless transceiver coupled to the first wireless transceiver.”

3 Does not disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

POR at 35-39; Sur-Reply at 7-12.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

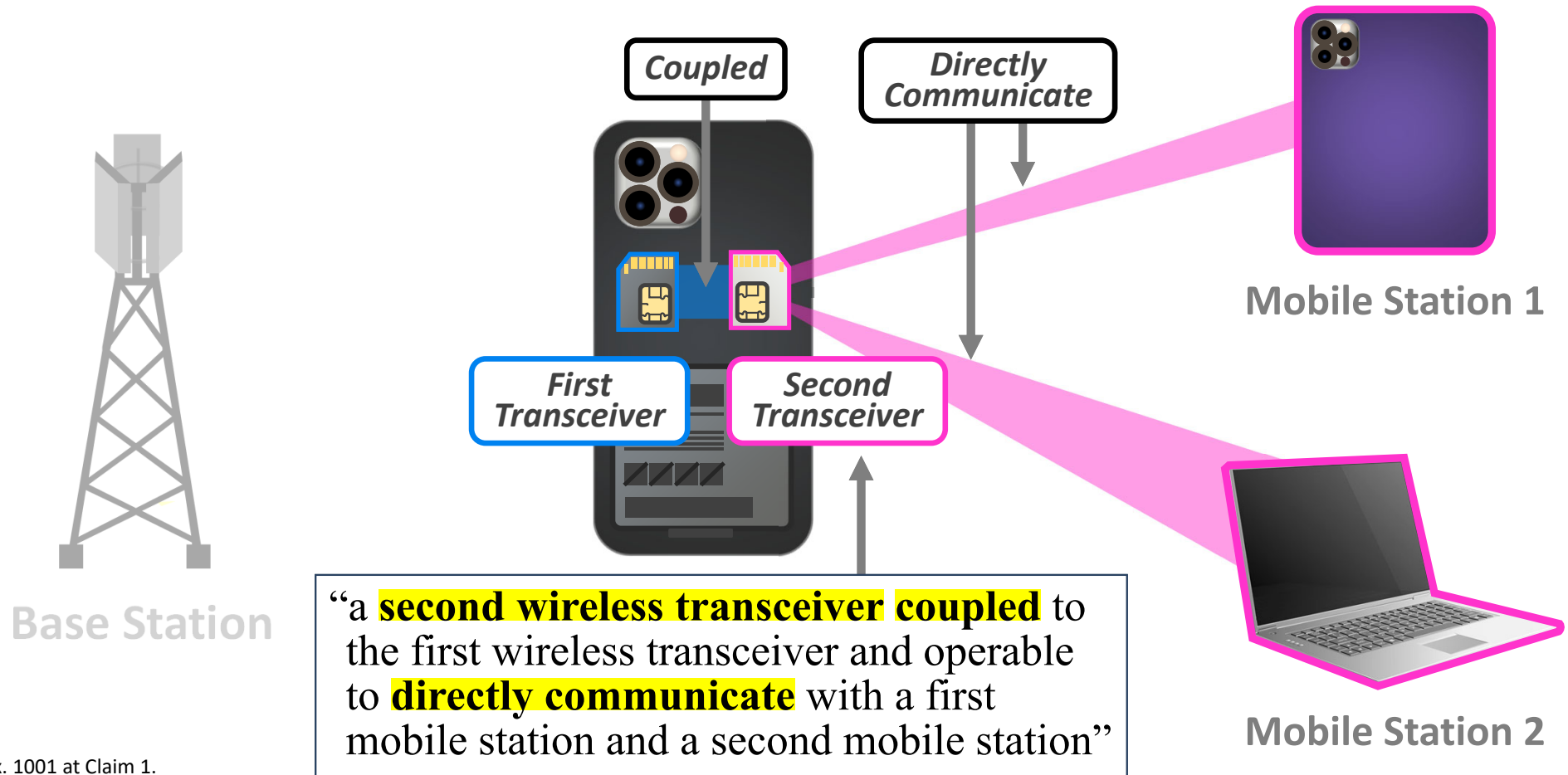
1[a] A **wireless communication device**, comprising:



Ex. 1001 at Claim 1.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

'794 Patent: 1[b]



Ex. 1001 at Claim 1.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Access Points in Palmer Are Dispersed

Case IPR2023-01147
Patent 9,426,794

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,

D. Chrissan Declaration

“80. Petitioner’s expert then opines, in view of Palmer’s remote antenna 34 and its **access points 40**, that integration of these components within a single device would still have been an obvious variant. *Id.*, ¶ 70. I disagree, for at least two important reasons: in Palmer, 1) there are **multiple access points 40** for each remote antenna 34; and 2) **access points 40** are *meant* to be spread around the building and to be geographically away from remote antenna 34, as opposed to being co-located. These two reasons *require* there to be a LAN in Palmer, and for the remote antenna 34 to be a distinct device from each **access point 40**.”

Palmer

United States Patent
Palmer et al.

(11) Patent No.: US 6,556,553 B1
(12) Date of Patent: Apr. 29, 2003

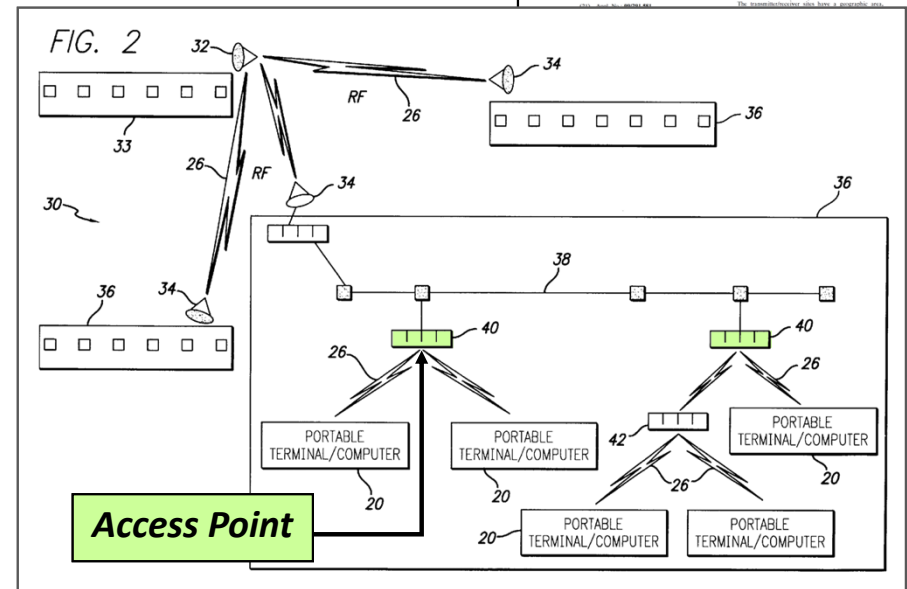
(54) METHOD FOR DETERMINING WHEN A COMMUNICATION DEVICE SHOULD RATE ADJUST AND HOW IN A WIRELESS ENVIRONMENT

(75) Inventors: Brian G. Palmer, Redmond, WA (US); Paul E. Jovanovich, Los Angeles, CA (US)

(73) Assignee: Interneer IP Corp., Beverly Hills, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

ABSTRACT
Methods for improving communication performance in a wireless communication system where the wireless communication system has at least one mobile wireless communication device and a plurality of communication sites. The communication sites have a geographic area.

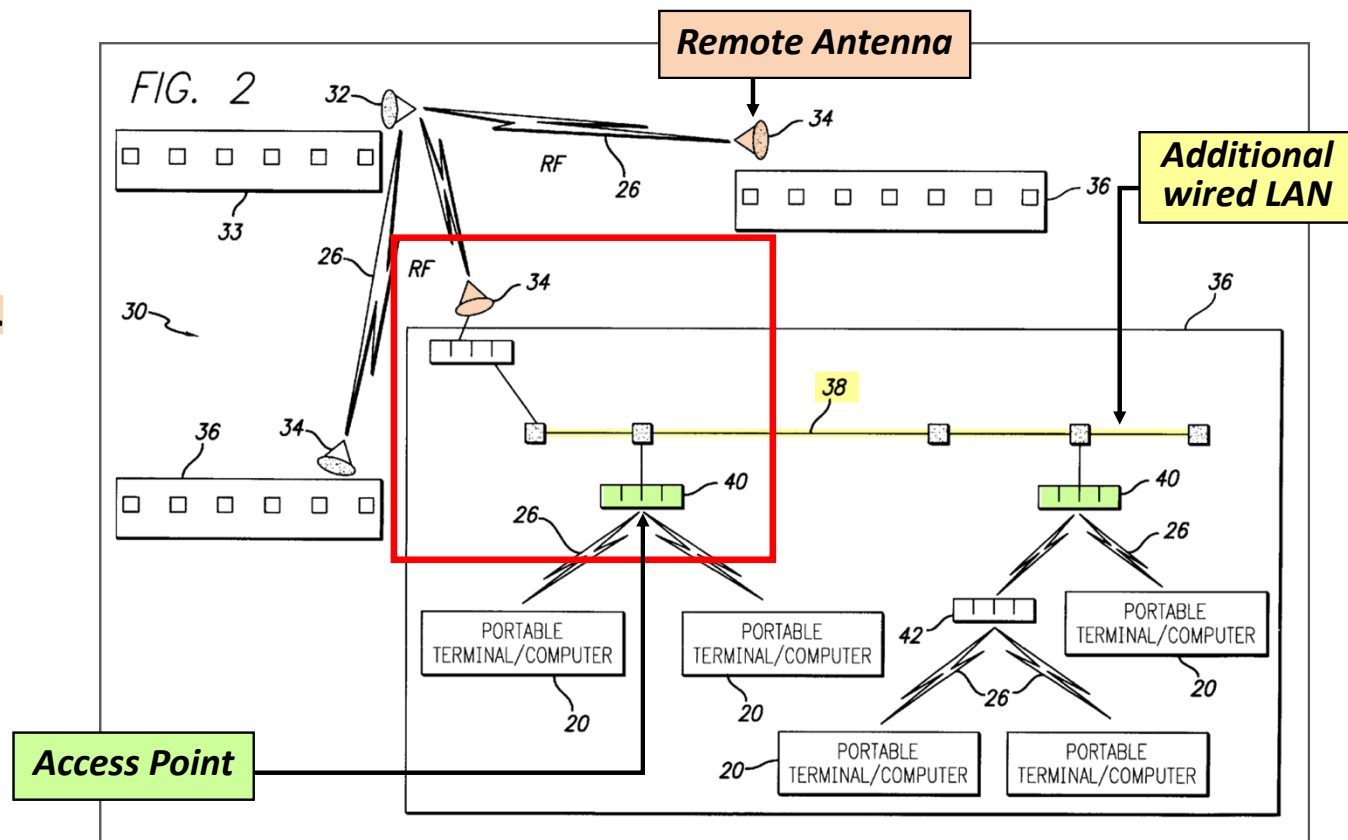


Ex. 2007 at ¶¶ 80-81; Palmer at Fig. 2.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's Alleged First and Second Transceivers are Not in a Single Device

Palmer's **remote antenna 34** and **access points 40** are separated by an entirely separate, **additional wired LAN 38**:

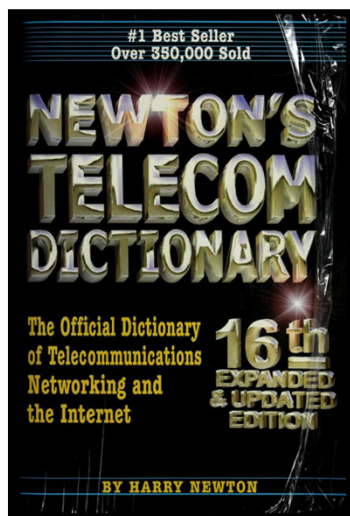


Ex. 1004 at Fig. 2; POR at 37; Sur-Reply at 9-11; EX2007 at ¶ 78.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's Alleged First and Second Transceivers are Separated by an Entire Network

Different devices connected by wired network 38 are different devices,
not a single device:



Newton's Telecom
Dictionary

“**LAN** Local Area Network. A geographically localized network consisting of both hardware and software. LANs link personal computers, workstations, printers file servers, and other peripherals. Devices on a LAN typically transmit data inside buildings or between buildings located near each other. For a more detailed explanation, see Local Area Network. See also AppleTalk, Ethernet, LocalTalk token ring, virtual networking systems (VINES), and Xerox Network Systems (XNS).

Local Area Network A short distance data communications network (typically within a building or campus) **used to link together computers** and peripheral LAN between klonger. For a more detailed explanation, See Local Area Network devices (such as printers) under some form of standard control”

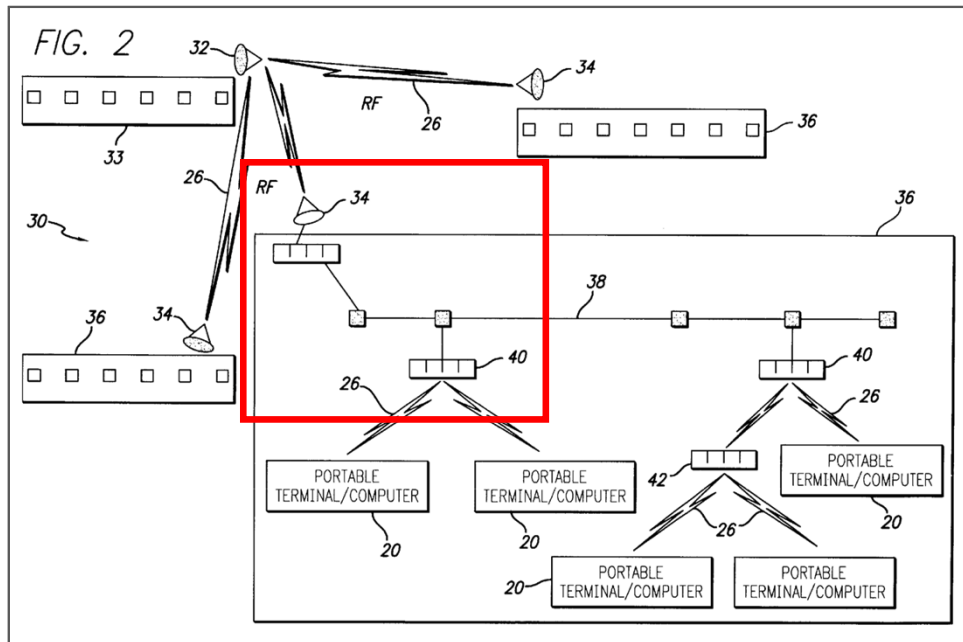
Ex. 2009, 3; POR at 37; EX2007 at ¶ 77.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

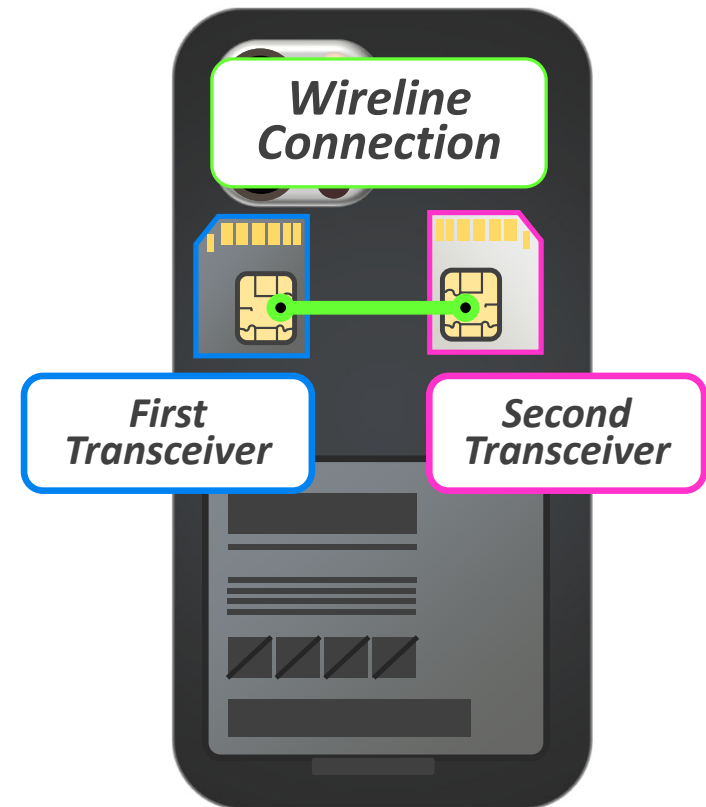
Claim 2 The wireless communication device of claim 1, wherein the second wireless transceiver is coupled to the first wireless transceiver by a wireline connection.

Claim 2's wireline connection between transceivers is not the same as Palmer's additional LAN 38:

Palmer



Ex. 1004 at Fig. 2; Sur-Reply at 9-11.



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Claim 2

Claim 2's wireline connection is not a



First Transceiver

Second Transceiver

Ex. 1001 at 4:16-32; Sur-Reply at 10-11.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer Summary

1 Does not disclose “a wide area wireless communication protocol.”

2 Does not disclose a “wireless communication device” comprising “a second wireless transceiver coupled to the first wireless transceiver.”

3 Does not disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

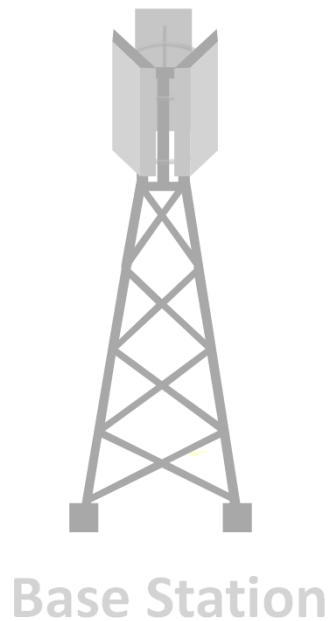
POR at 40-46; Sur-Reply at 12-17.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

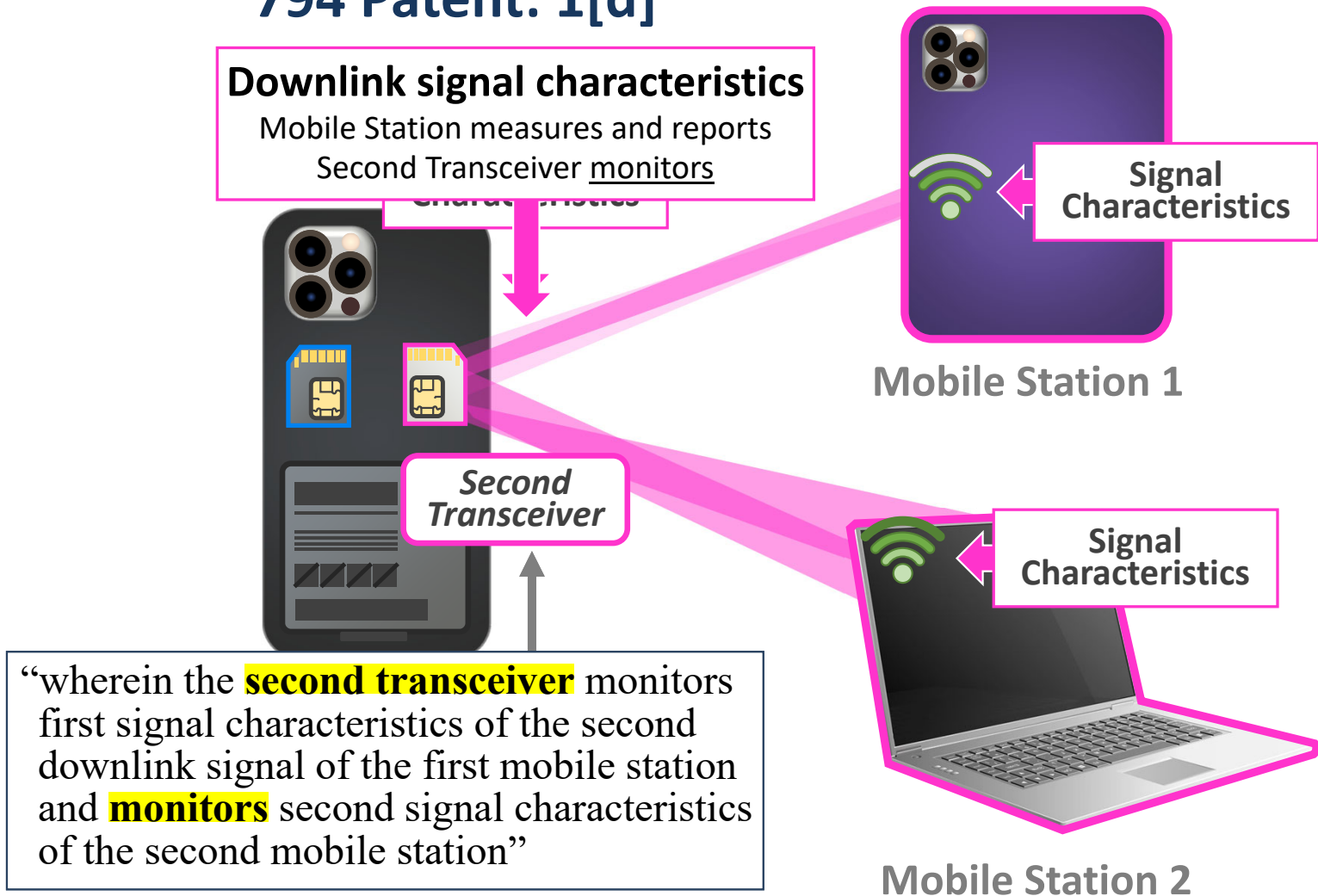
'794 Patent: 1[d]

Downlink signal characteristics

Mobile Station measures and reports
Second Transceiver monitors



Ex. 1001 at Claim 1.



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's Figure 3 Does not Indicate Where its Decision to Rate Shift or Roam is Made

Palmer's Figure 3 "predictive method" says nothing about access point 40 monitoring signal characteristics:

United States Patent
Palmer et al.

(19) Patent No.: US 6,556,553 B1
(11) Date of Patent: Apr. 29, 2003

(52) Int. Cl. Class.: H04W 36/00
(51) Int. Cl. Class.: H04W 36/00

(73) Inventor: Robert C. Palmer, Belmont, MA (US)
(73) Inventor: Albert J. Jaramilla, San Marcos, CA (US)

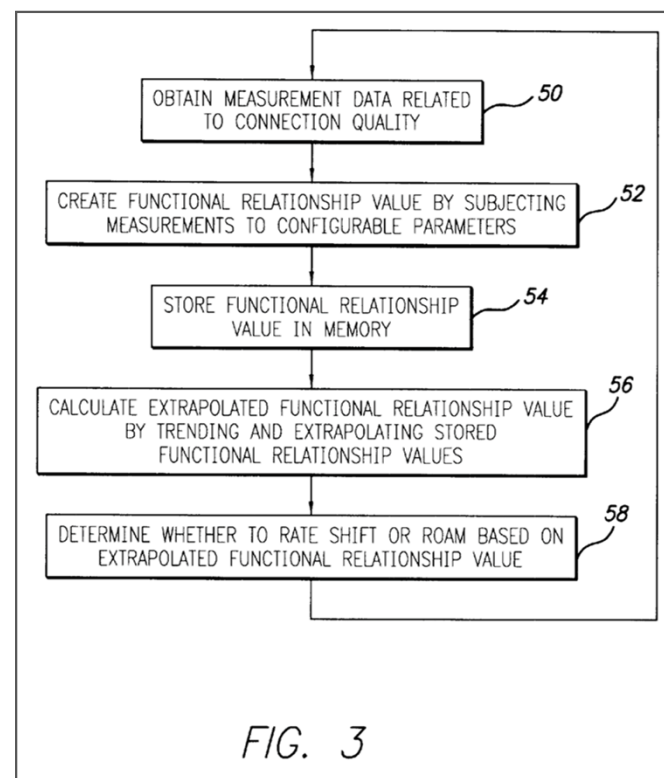
(73) Assignee: Internet IP Corp., Beverly Hills, CA (US)

(54) Title: METHOD FOR DETERMINING WHEN A COMMUNICATION DEVICE SHOULD RATE SHIFT OR ROAM IN A WIRELESS ENVIRONMENT

(57) Abstract: Methods for improving communication performance in a wireless communication system when the wireless communication system is in a wireless environment. The methods include: obtaining measurement data related to connection quality; creating a functional relationship value by subjecting the measurement data to configurable parameters; storing the functional relationship value in memory; calculating an extrapolated functional relationship value by trending and extrapolating the stored functional relationship value; and determining whether to rate shift or roam based on the extrapolated functional relationship value.

Palmer

In accordance with a first embodiment of the present invention, a predictive method for determining when a communication device should rate shift or roam in a wireless environment is provided. FIG. 3 illustrates the basic steps, in flowchart form, of the predictive method. The method would utilize various measurements to evaluate connection quality, the measurement data obtained at step 50. These measure-



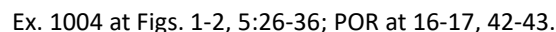
Ex. 1004 at Fig. 3, 5:37-43; POR at 16-17, 42-43; Petition at 24-25.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's "predictive" method is performed by terminal 20 or centrally, by network 14 or central host processor 12 (in Fig. 1) or in administration building 33 (in Fig. 2):



Wireless Communication Device



Receiving/Forwarding Data ≠ Monitoring

The '794 Patent explains that monitoring requires reporting back to the WLAN transceiver and appropriate control circuitry, which requires:

'794 Patent

Determination of when to initiate handover of communications is made responsive to measurements of signal characteristics of communication signals communicated between the WLAN transceiver and the mobile station. In one implementation signal characteristics are measured, or otherwise determined, at the mobile station and results of such measures or determinations of are reported back to the WLAN transceiver and appropriate control circuitry. Thereafter, if appropriate, the handover of communications is effectuated.

◀ The WLAN transceiver has control circuitry that can process the received data

◀ The received data terminates in the WLAN transceiver for processing by the control circuitry

Ex. 1001 at 8:61-9:3; Sur-Reply at 14-15.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Monitoring = Receiving and Using Measurements in Choice of Rate Versus Roam

Palmer requires using the received measurements in the choice of rate versus roam:

Douglas A. Chrissan Deposition (July 26, 2024)

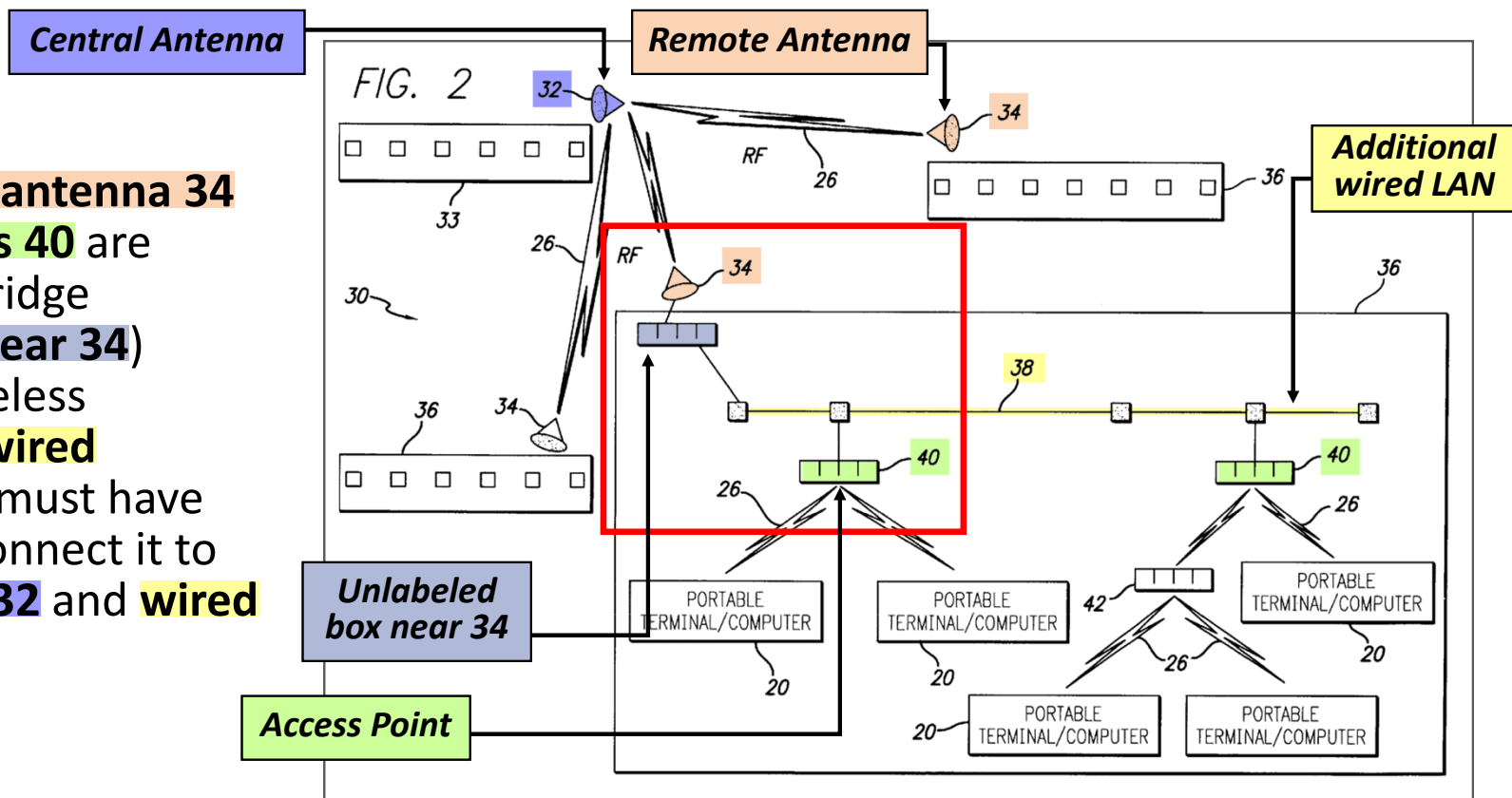
"But I think the answer to that is, those units, any unit qualifying as network or central host processor in Palmer's sentence here, it's understood that those would not be directly measuring the Radio Signal 26, but they could collect measurements from Portable Terminal Computer 20 and potentially take other measurements related to the connection quality **and then use those measurements and possibly generate other measurements in some algorithm that was making a choice of rate versus roam.**"

Sur-Reply at 16; Ex. 1017 at 88:22-89:10.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's Alleged First and Second Transceivers are Separated by an Entire Network

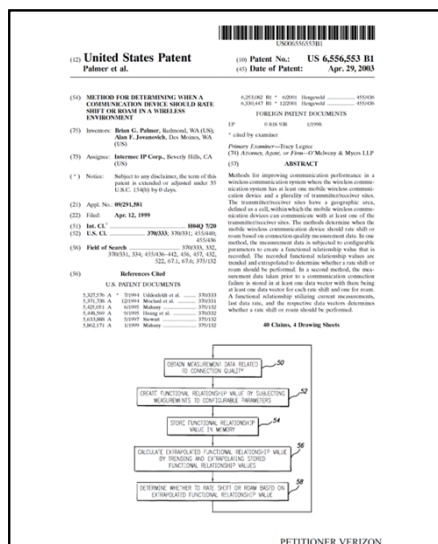
Palmer's **remote antenna 34** and **access points 40** are separated by a bridge (**unlabeled box near 34**) between the wireless connection and **wired network 38** that must have transceivers to connect it to **central antenna 32** and **wired network 38**:



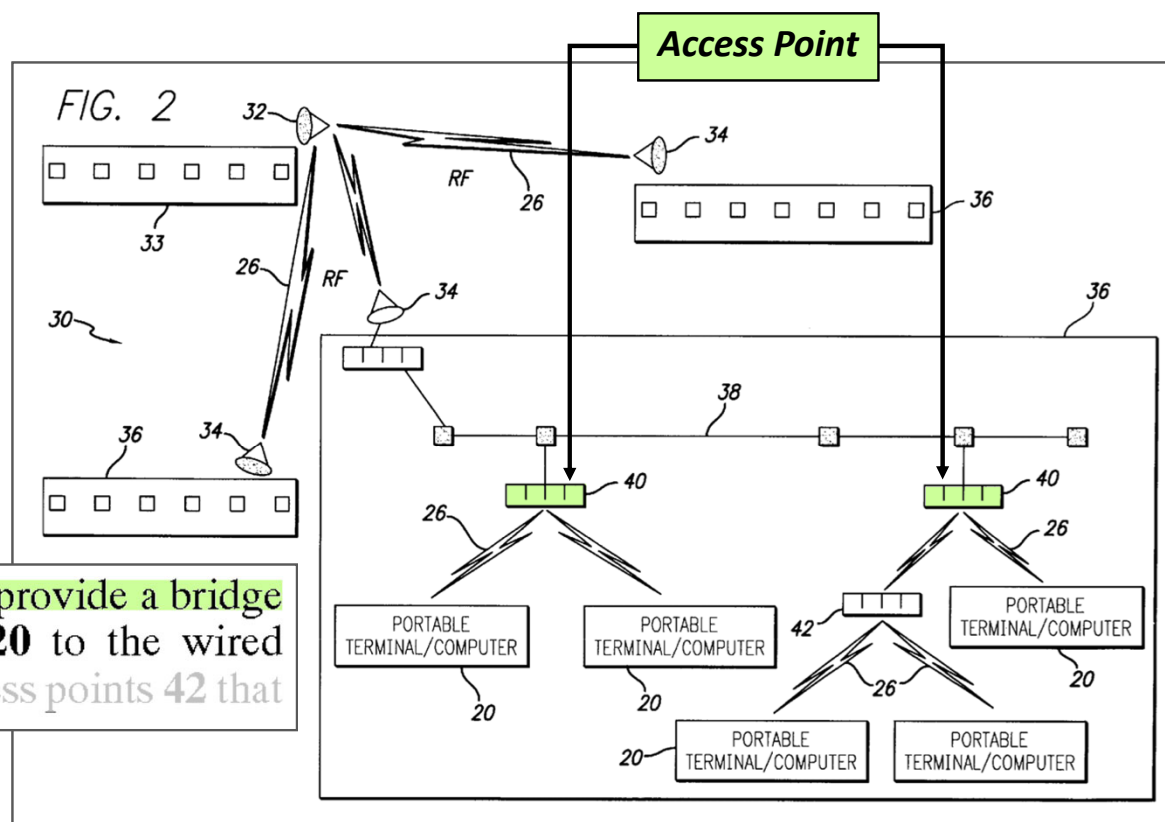
Ex. 1004 at Fig. 2; POR at 36; Sur-Reply at 9-11; EX2007 at ¶ 77 n.4.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer teaches that its access points 16/40 act as a bridge:



tion devices **20**. The access point **40** would provide a bridge for the wireless communication devices **20** to the wired network **38**. There may also be wireless access points **42** that



Ex. 1004 at Fig. 1, 4:42-44, 5:1-3; POR at 15, 28-29.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's Access Points are Bridges that Merely Accept Data Packets and Forward Them

Palmer's access point is a bridge accepts data packets and forwards them:

Dr. K. Almeroth Declaration

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS
Petitioner

v.

GENERAL ACCESS SOLUTIONS, LTD.
Patent Owner

IPR2023-01147
U.S. Patent No. 9,426,794

DECLARATION OF DR. KEVIN C. ALMEROTH
SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 9,426,794

“92. Palmer's access point 40 receives the first downlink signal and re-transmits the first downlink signal to the first mobile station as a second downlink signal, again as **access point 40 operates as a 'bridge' and therefore 'forwards packets' from the remote antenna 34 to the portable terminal 20 by accepting data packets and forwarding them, consistent with the above-presented dictionary definition for 'bridge'.**

Additionally, such re-transmission is performed according to the local area wireless communication protocol, since Palmer refers to 'the use of industry standard network protocols by the wireless media.'”

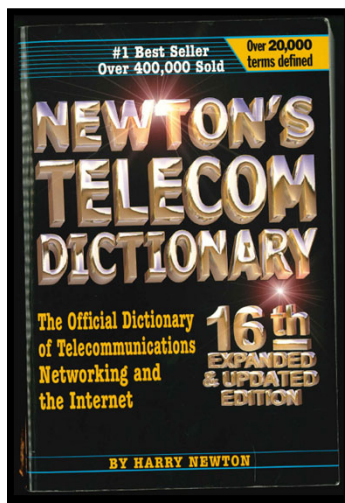
PETITIONER VERIZON
Ex. 1002

Ex. 1004 at 4:42-44, 5:1-3; POR at 15, 28-29; Sur-Reply at 13-14; Ex. 1002 at ¶¶ 47, 92.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Palmer's Access Points are “Relatively Dumb” Bridges that Do Not Monitor Signal Characteristics

Palmer's access point is a “relatively dumb” device that simply accepts data packets and forwards them:



Newton's Telecom Dictionary

Bridge 1. In classic terms, a bridge is a data communications device that connects two or more network segments and forwards packets between them. Such bridges operate at Layer 1 (Physical Layer) of the OSI Reference Model. At this level, a bridge simply serves as a physical connector between segments, also amplifying the carrier signal in order to compensate for the loss of signal strength incurred as the signal is split across the bridged segments. In other words, the bridge is used to connect multiple segments of a single logical circuit. Classic bridges are relatively dumb devices, which are fast and inexpensive; they simply accept data packets, perhaps buffering them during periods of network congestion, and forward them. Bridges are protocol-specific, e.g., Ethernet or Token Ring in the LAN domain. Bridges also are used in the creation of multipoint circuits in the WAN domain, e.g., DDS (Dataphone Digital Service).

Ex. 1004 at 4:42-44, 5:1-3; POR at 15, 28-29; Sur-Reply at 13-14; Ex. 1002 at ¶¶ 47, 92; Ex. 1011 at 126-127.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Hohnstein

Hohnstein Summary

1 **Does not** disclose “a wide area wireless communication protocol.”

2 **Does not** disclose a second transceiver that communicates with the first and second mobile stations according to a single “local area wireless communication protocol.”

3 **Does not** disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

POR at 47-62; Sur-Reply at 17-26.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Hohnstein Summary

1 **Does not** disclose “a wide area wireless communication protocol.”

2 **Does not** disclose a second transceiver that communicates with the first and second mobile stations according to a single “local area wireless communication protocol.”

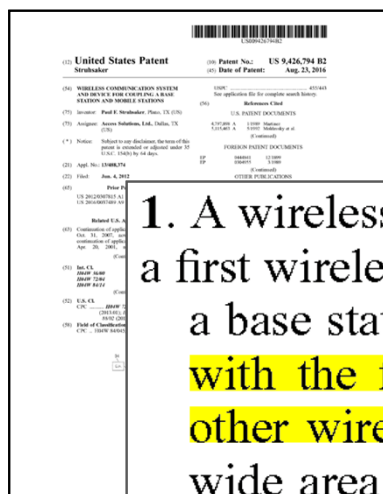
3 **Does not** disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

POR at 47-57; Sur-Reply at 17-25.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

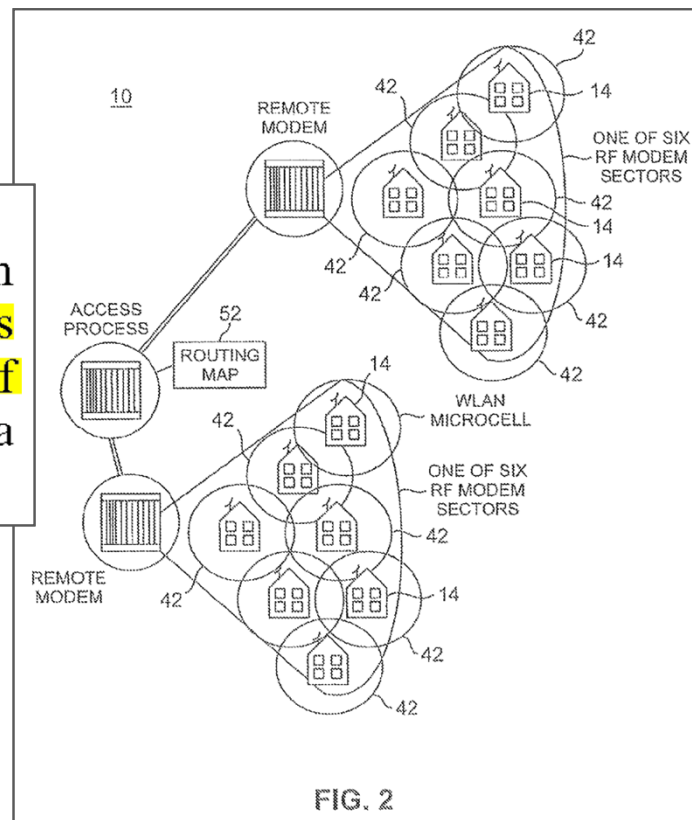
'794 Patent = Point-to-Multipoint

The '794 patent's claims recite a point-to-multipoint system:



'794 Patent

1. A wireless communication device, comprising:
a first wireless transceiver operable to communicate with a base station, wherein the base station communicates with the first wireless transceiver and a plurality of other wireless communication devices according to a wide area wireless communication protocol; and

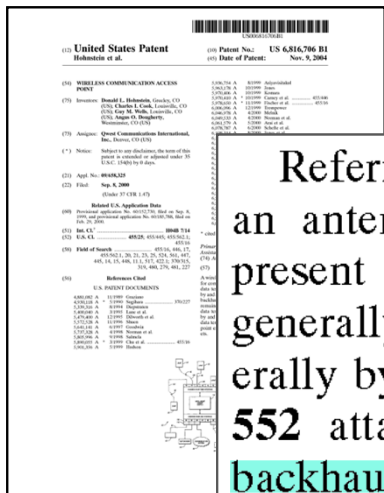


Ex. 1001 at Figs. 2-3, claim 1; POR at 51; Sur-Reply at 17-20.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

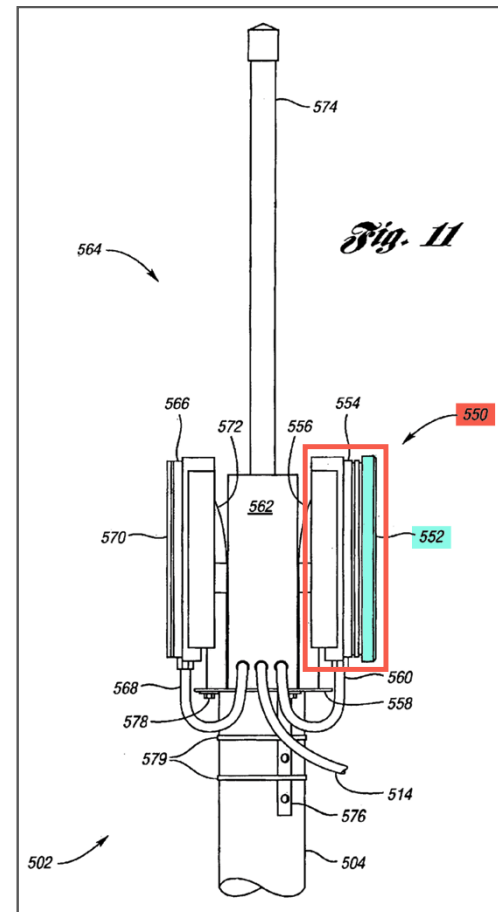
Hohnstein Discloses a Point-to-Point System

Petitioner identifies Hohnstein's first wireless transceiver as backhaul system 550, including backhaul antenna 552, but Hohnstein describes this system as a point-to-point link:



Hohnstein

Referring now to FIG. 11, an elevation view drawing of an antenna system according to an embodiment of the present invention is shown. An antenna module, shown generally by 502, includes a backhaul system, shown generally by 550. Backhaul system 550 has backhaul antenna 552 attached to backhaul data terminal 554. Typically, backhaul antenna 552 is a directional antenna aimed at a corresponding antenna at another location. Backhaul mount-

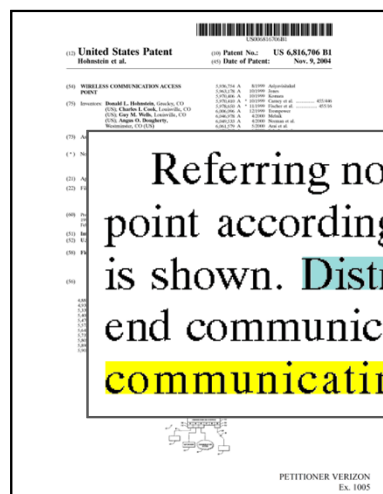


Ex. 1005 at Fig. 11, 15:13-20; POR at 48-49.

Hohnstein's Connections Between Access Points 22 and Distribution Points 40 are Point-to-Point

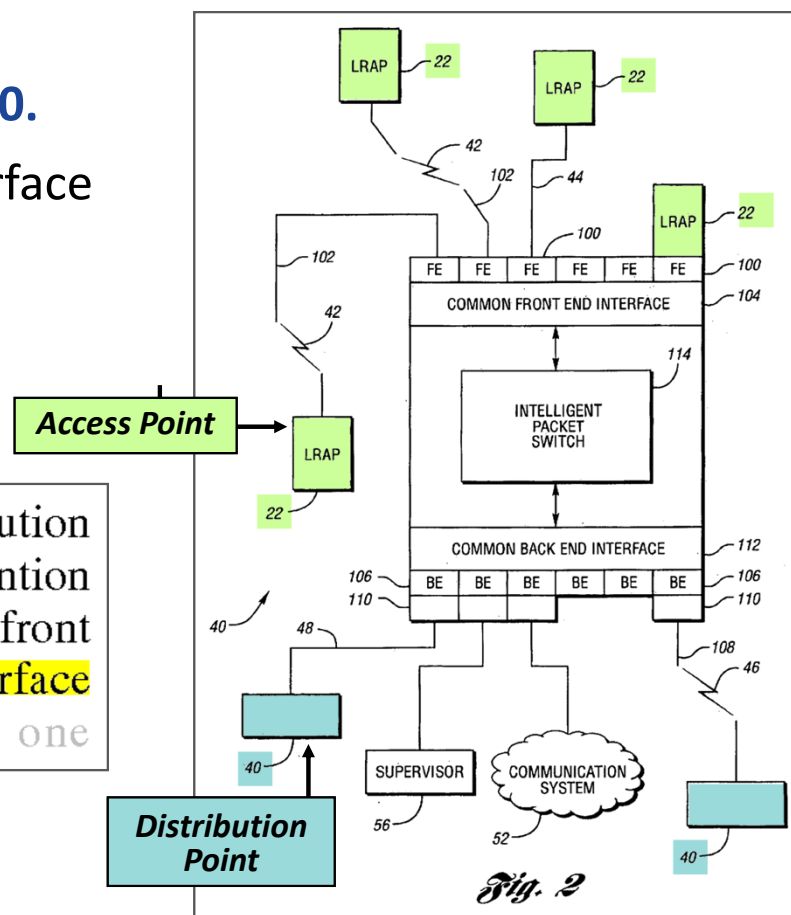
Hohnstein describes point-to-point connections between access points 22 and distribution points 40.

Each **access point 22** has a dedicated front end interface in **distribution point 40**



Hohnstein

Referring now to FIG. 2, a block diagram of a distribution point according to an embodiment of the present invention is shown. Distribution point 40 includes one or more front end communication interfaces 100, each front end interface communicating with one access point 22. In one



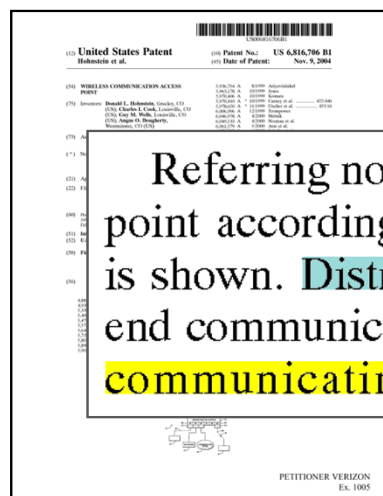
Ex. 1005 at Fig. 2, 8:34-36; POR at 19-21, 48-50; Ex. 2007 ¶ 96.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Hohnstein's Connections Between Access Points 22 and Distribution Points 40 are Point-to-Point

Hohnstein describes point-to-point connections between access points 22 and distribution points 40.

Distribution points 40 connects with other distribution points 40 via point-to-point wired connections 48 or point-to-point radio links 46:

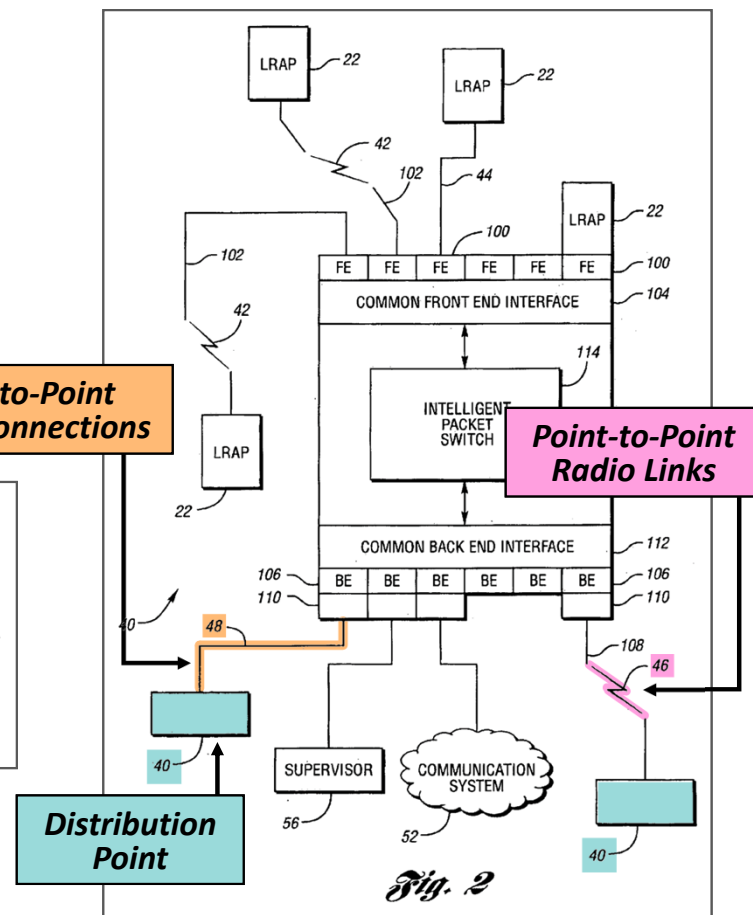


Hohnstein

Referring now to FIG. 2, a block diagram of a distribution point according to an embodiment of the present invention is shown. Distribution point 40 includes one or more front end communication interfaces 100, each front end interface communicating with one access point 22. In one

Point-to-Point
Wired Connections

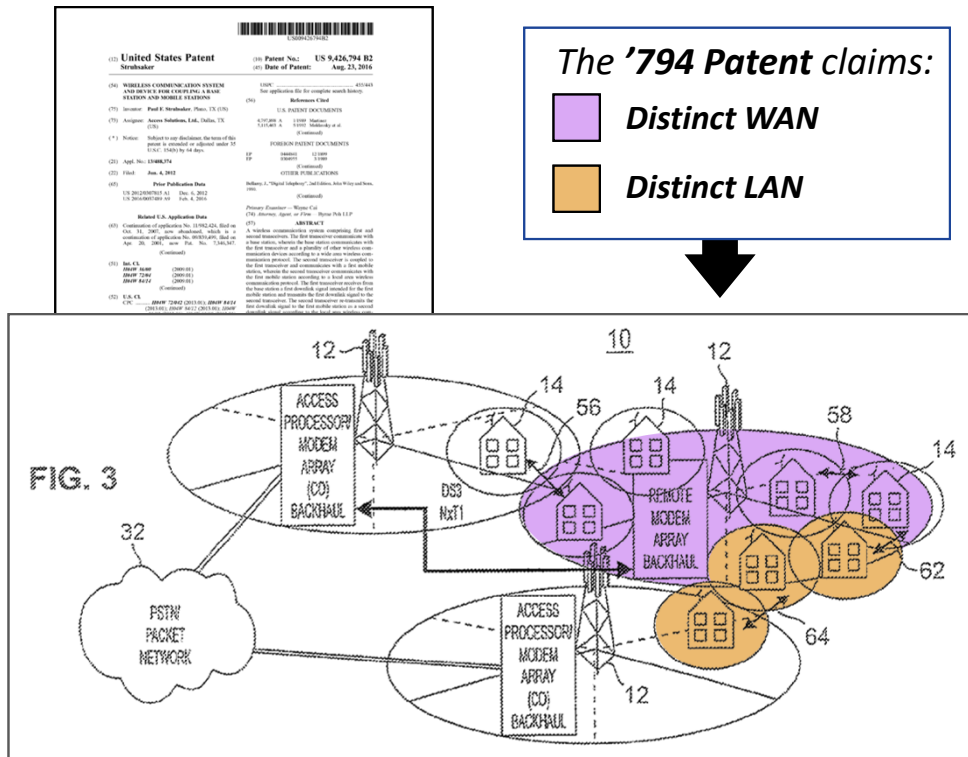
Point-to-Point
Radio Links



Ex. 1005 at Fig. 2, 8:34-36; POR at 19-21, 48-50; Ex. 2007 ¶ 96.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

1-Layer Mesh Network ≠ '794 WAN and LAN Networks



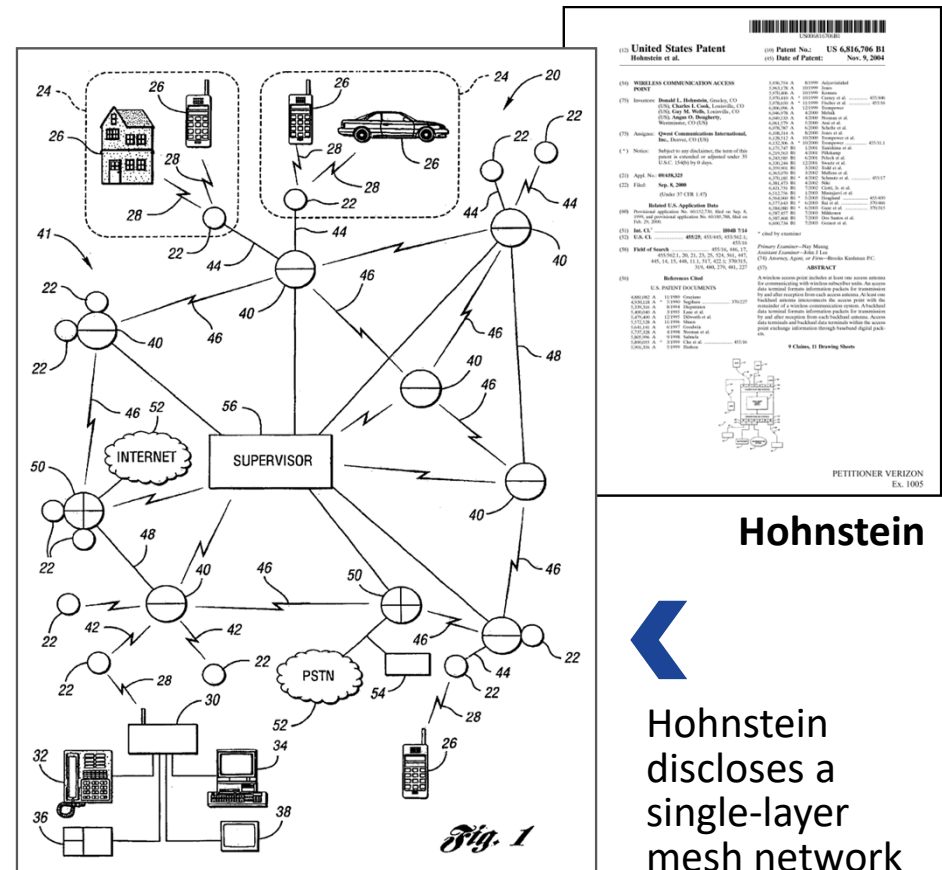
'794 Patent

Ex. 1001 at Fig. 3; POR at 51-55; Ex. 2007 at ¶¶ 96, 97.

The '794 Patent claims:

Distinct WAN

Distinct LAN



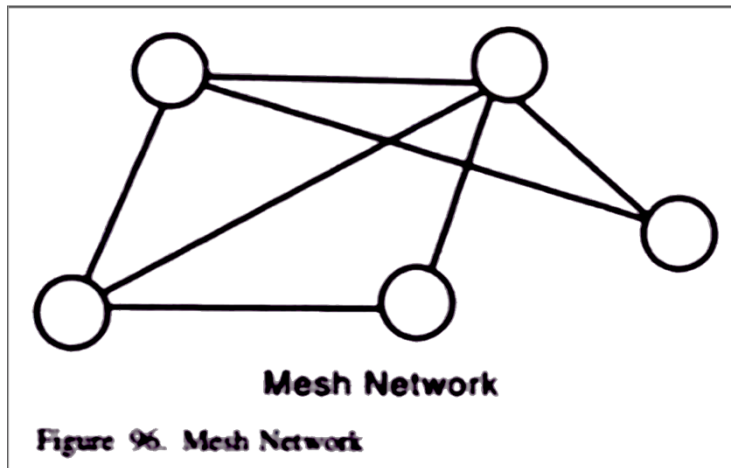
Hohnstein
discloses a
single-layer
mesh network

Mesh Network ≠ '794 Patent's Cellular WWAN

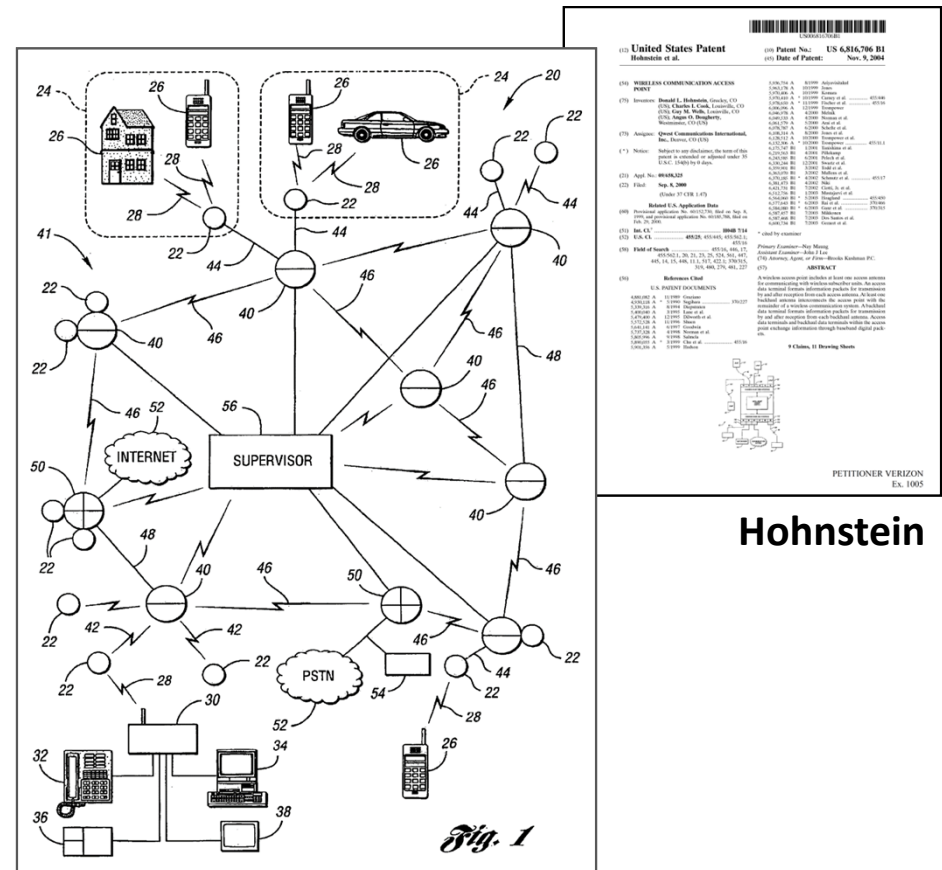
Hohnstein discloses a mesh network:

Mesh networks cannot encompass cellular WWAN.

A Mesh network would require at least some mobile stations to talk to each other, which does not happen in cellular WWAN.



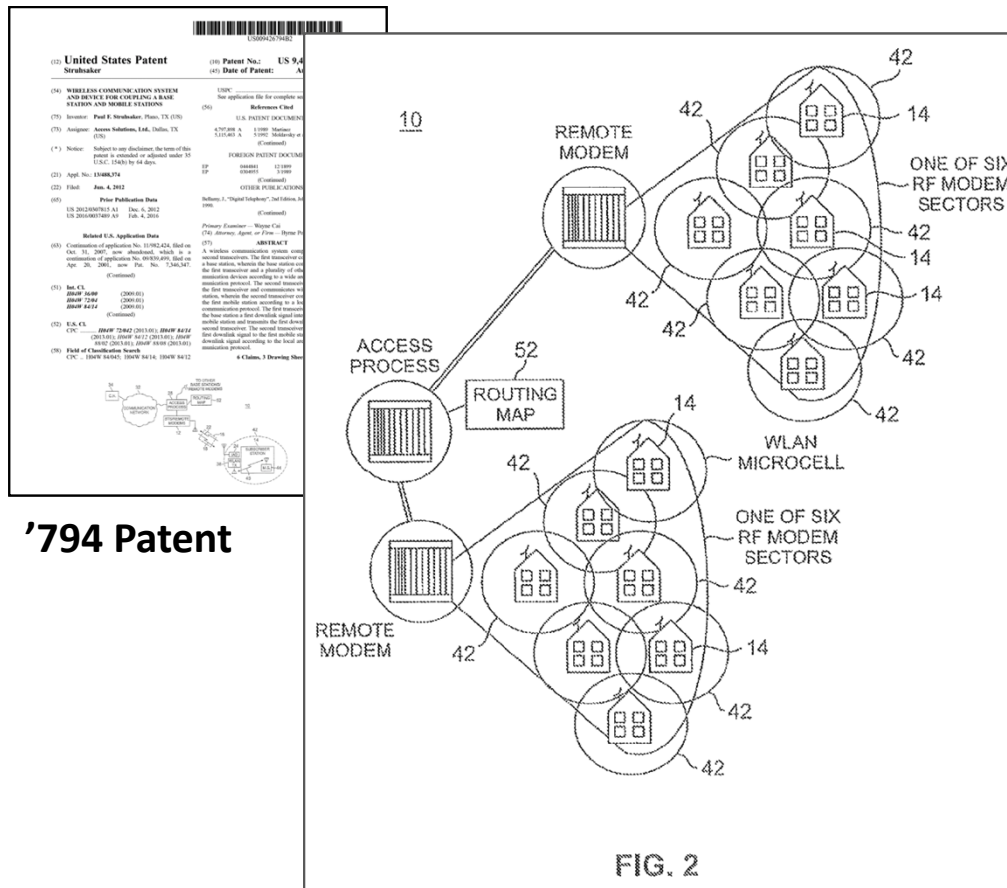
Ex. 1005 at Fig. 1; POR at 51-54; Ex. 2007 at ¶¶ 96, 97.



Hohnstein

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Common Front End = Common Protocol



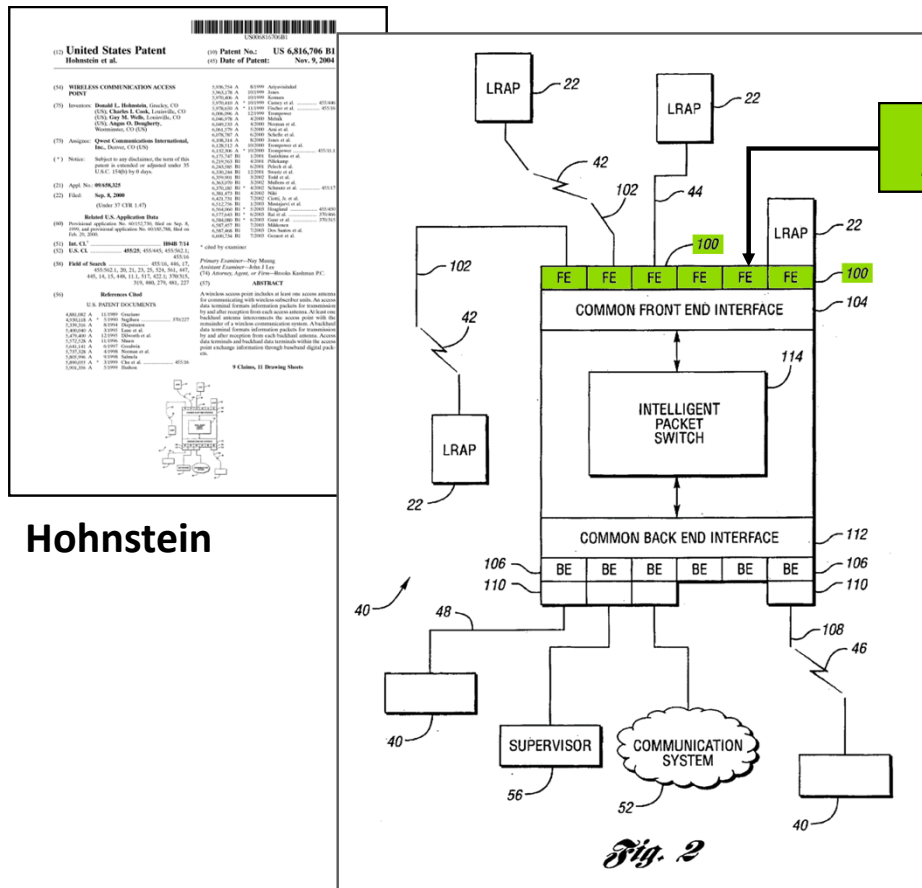
'794 Patent

Devices utilizing a single wide area wireless communication protocol typically use a common front end as in Figure 2 of the '794 Patent.

Ex. 1001 at Fig. 2; POR at 19-21, 48-51; Sur-Reply at 21-22.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Different Front End Interfaces = Different Protocols



Front End Interfaces

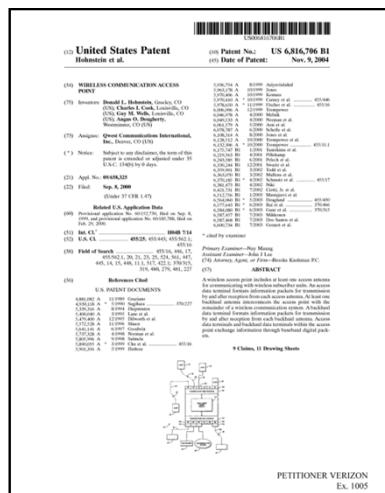
Hohnstein's different front end interfaces imply different protocols

Ex. 1005 at Fig.2.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Hohnstein's Point-to-Point System Only Discusses Packet Protocols, Not a WWAN Protocol

Hohnstein never mentions utilizing a wide area wireless communication protocol, only discusses packet protocols:



Hohnstein

distribution point 40 with access point 22. Front end interface 100 operates using a standard packet switching protocol such as, for example, ATM25. Each front end communication interface 100 passes information packets through common front end switch interface 104 operating under a packet protocol such as ATM, TCP/IP, 802.x, or the like.

Distribution point 40 also includes back end communication interfaces 106 for connecting distribution point 40 with additional distribution points 40, with supervisor 56, and, if distribution point 40 is a gateway 50, with telecommunication systems, private network systems, video distribution systems, the Internet, or the like. This may be typically referred to as backhaul communication. In one configuration of the present invention, back end interface 106 connects to antenna 108 for establishing radio link 46 with another distribution point 40. In another configuration, back end interface 104 accepts wireline link 44 connecting distribution point 40 with another distribution point 40. In a preferred embodiment, back end interface 106 accepts modules 110 for interfacing through a variety of protocols and media such as ATM25, DS1, DS3, OC3, 1000Base-T, 100Base-T, and the like. Each back end communication interface 106 passes information packets through common back end switch interface 112 operating under a packet protocol such as ATM, TCP/IP, or the like. In a preferred

Ex. 1005 at 8:43-67; POR at 50-51; Sur-Reply at 22.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Petitioner's Expert's Inconsistent Testimony

Dr. K. Almeroth Reply

“30. I disagree. Hohnstein uses the same reference numeral 42 to refer to these multiple wireless connections between a distribution point 40 and each of multiple access points 22. **A POSA would have understood that if these wireless connections were intended to be limited to different protocols, Hohnstein would have assigned distinct reference numerals for each of these multiple wireless connections and made some statement on the issue.**”

“31. Additionally, **under Dr. Chrissan's opinion that Hohnstein's wireless link 46 is a microwave link, a POSA would have understood that in Hohnstein then, the same type of microwave links may be used to form wireless links 42.** Hohnstein lacks any suggestion that multiple microwave links would be different protocols, let alone limited to different protocols.”

Ex. 1024 at ¶¶ 31-32; Sur-Reply at 22.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Hohnstein Teaches Using a Variety of WLAN Protocols

Hohnstein does not teach that wireless links 28 between access points 22 and multiple subscriber units 26 communicate according to a single WLAN protocol:

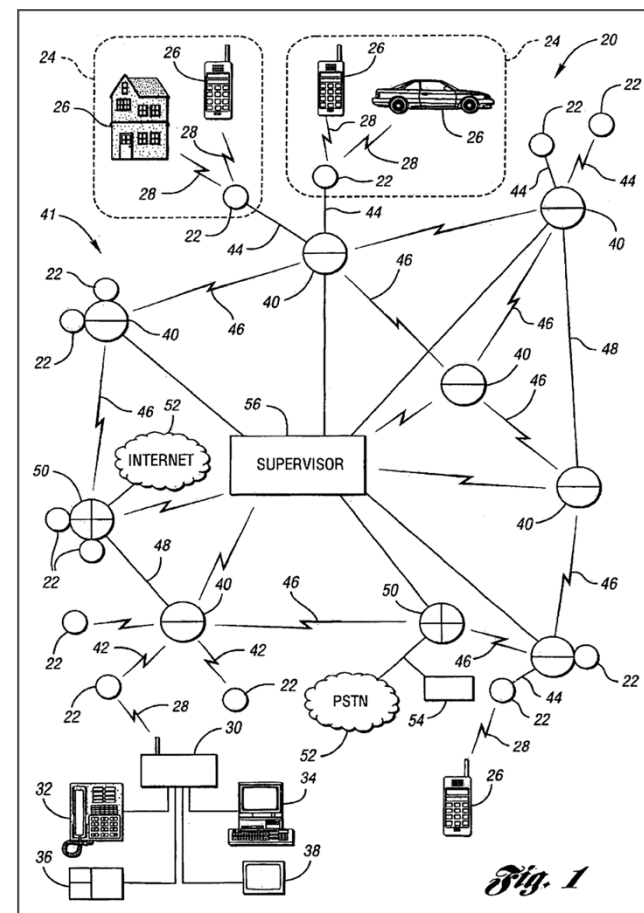
United States Patent
Hohnstein et al.

Patent No. 6,840,412
Date of Patent: 10/14/02

Abstract:
A system for establishing wireless links between access points and subscriber units using various protocols. The system includes a plurality of access points, each having a plurality of antennas. The access points are configured to establish wireless links with subscriber units using a plurality of different protocols. The system also includes a supervisor that manages the access points and the subscriber units.

Wireless link 28 may be **any form of electromagnetic signaling** not confined to a wire or cable, including energy radiated by antenna as well as visible and invisible light. As will be appreciated by one of ordinary skill in the art, wireless link 28 may be implemented by any access technology, including CDMA, TDMA, FDMA, OFDM, analog, and the like. Modulation techniques that may be used with the present invention include FSK, BPSK, QPSK, m-ary QAM, FM, AM, and the like. Further, the invention does not depend on modulation frequency or on the use of FDD or TDD. In a preferred embodiment, the access technology, frequency, and modulation method for establishing wireless link 28 are based, in part, on local geography, local regulations, noise and distortion sources, other operating wireless systems, cost, or any other suitable parameter. Subscriber unit 26 and access point 22 may establish wireless link 28 using a **plurality of combinations of access technology**, frequency, and modulation techniques.

Hohnstein



Ex. 1005 at Fig. 1, 4:29-46; POR at 57-59.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Hohnstein Summary

1 Does not disclose “a wide area wireless communication protocol.”

2 Does not disclose a second transceiver that communicates with the first and second mobile stations according to a single “local area wireless communication protocol.”

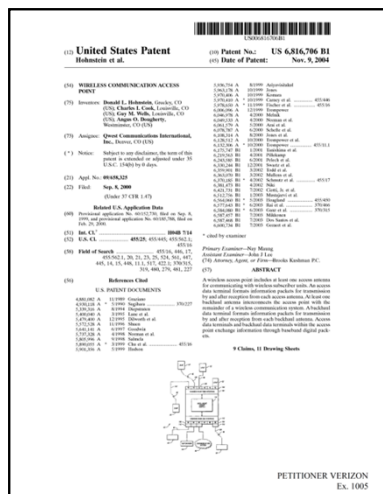
3 Does not disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

POR at 57-59.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

56

Hohnstein Does Not Disclose Communication Between an Access Point 22 and Two or More Subscriber Units 26 According to a Single WLAN Protocol



Hohnstein

Wireless link 28 may be any form of electromagnetic signaling not confined to a wire or cable, including energy radiated by antenna as well as visible and invisible light. As will be appreciated by one of ordinary skill in the art, wireless link 28 may be implemented by any access technology, including CDMA, TDMA, FDMA, OFDM, analog, and the like. Modulation techniques that may be used with the present invention include FSK, BPSK, QPSK, m-ary QAM, FM, AM, and the like. Further, the invention does not depend on modulation frequency or on the use of FDD or TDD. In a preferred embodiment, the access technology, frequency, and modulation method for establishing wireless link 28 are based, in part, on local geography, local regulations, noise and distortion sources, other operating wireless systems, cost, or any other suitable parameter. Subscriber unit 26 and access point 22 may establish wireless link 28 using a plurality of combinations of access technology, frequency, and modulation techniques.

Ex. 1005 at 4:29-46; POR at 57-59; Ex. 2007 at ¶ 109.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

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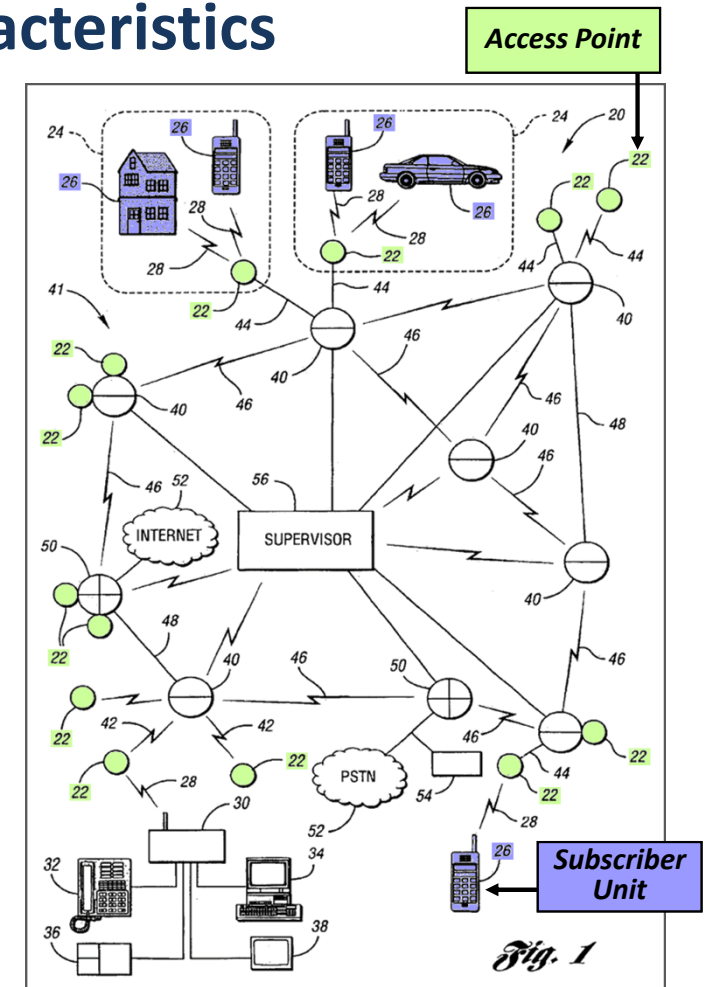
3 Does not disclose a second transceiver that monitors the signal characteristics of the first and second mobile stations and based on these characteristics, routes information to these mobile stations.

POR at 60-62; Sur-Reply at 25-26.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Hohnstein's access point 22 transmits a signaling channel—controlled by a central supervisor—to subscriber unit 26:

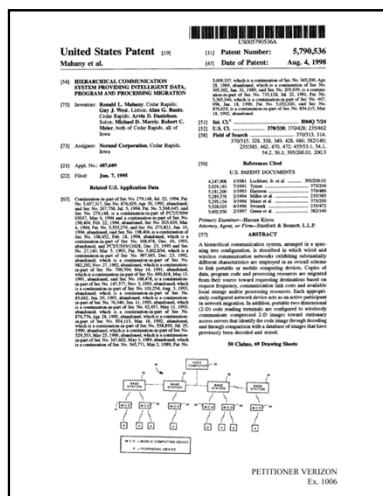
- Control of the information rate may be achieved by having subscriber unit 26 monitor a signaling channel transmitted by access point 22 for each coverage area 24. This signaling channel informs subscriber unit 26 when to transmit information, how much information to transmit, the information transmission rate, and the like. The signaling channel may be controlled by a central supervisor, described below.



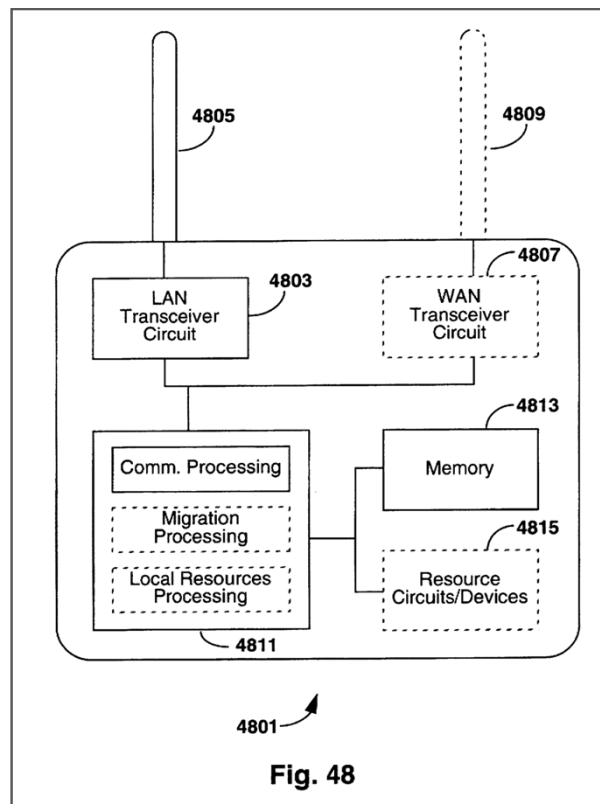
Mahany

Mahany's WAN Transceiver Does Not Communicate with its WAN Transceiver as Claimed

Mahany does not explain that its Figure 48 device is a pass-through device:



Mahany



- ◀ Data does not pass between the optional WAN and required LAN
- ◀ Data originates / terminates in the device using the LAN or WAN

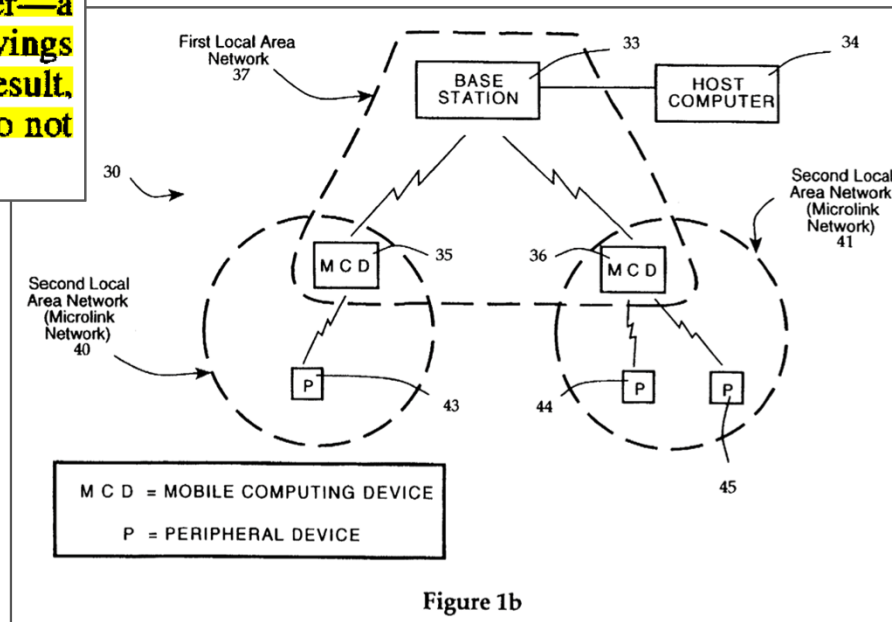
Ex. 1006 at Fig. 48; Sur-Reply at 26; POR at 67-68.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Mahany Disparages WANs

Mahany primarily teaches a hierarchy of LANS while disparaging WANS:

remote warehouse location. While permitting such transmissions, wide area networks (WANs) only provide point-to-point communications, use a narrow bandwidth, and often exhibit heavy communication traffic. Moreover, WANs require relatively higher transmission power—a negative factor in the ever increasing need for power savings associated with portable transceiving devices. As a result, WANs are generally slow and expensive, and simply do not provide an effective overall solution.



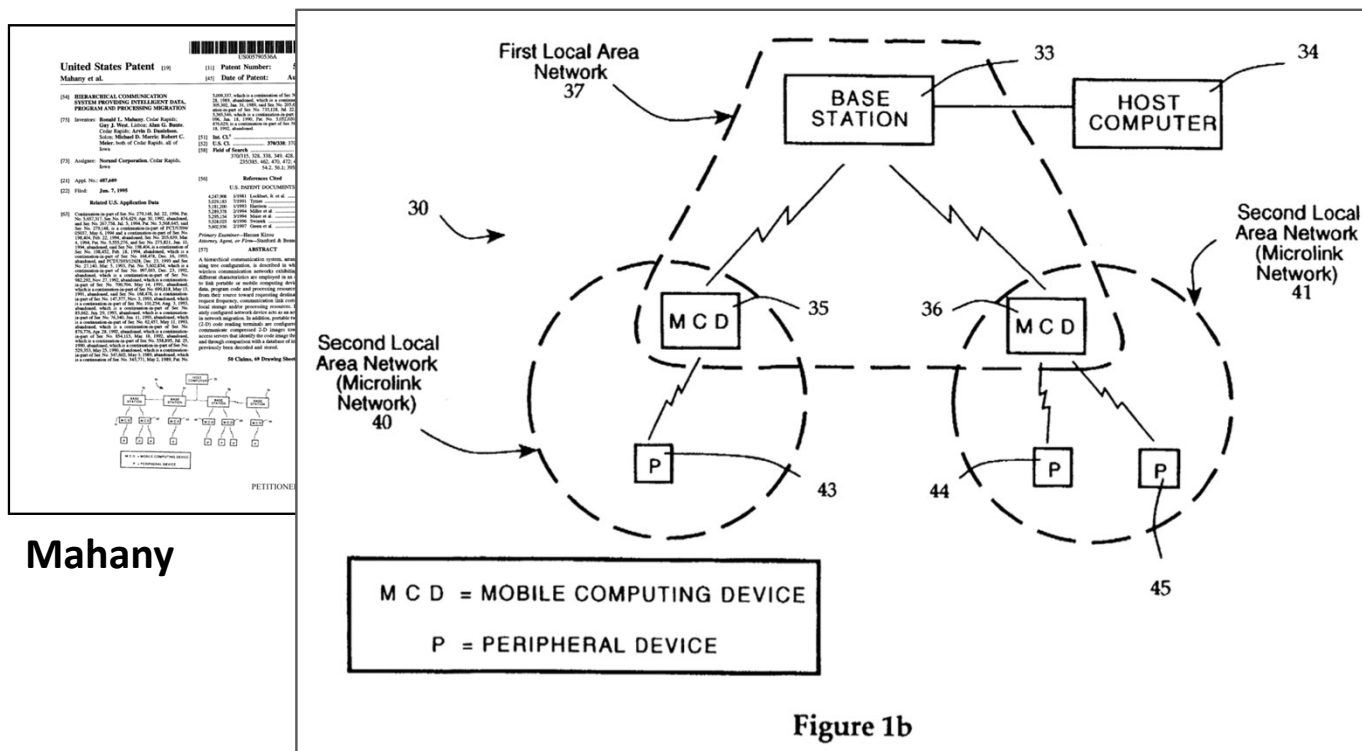
Mahany

Ex. 1006 at Fig. 1b, 3:14-21; POR at 22-24.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Mahany Does Not Contain the Claimed Base Station

Petitioner identifies Mahany's base stations as the claimed "wireless communication device"

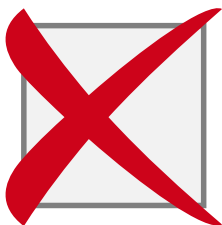


Mahany does not describe how its base station would communicate with the claimed base station that then communicates with a first wireless transceiver and other wireless communication devices, as claimed:

Ex. 1006 at Fig. 1b, 9:7-16; POR at 65-66.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Mahany Does Not Disclose Monitoring



Petitioner ***does not*** allege that Manhany discloses the claimed monitoring of signal characteristics of the first and second mobile stations that is missing from Palmer and Hohnstein.

POR at 68; Petition at 70-73.

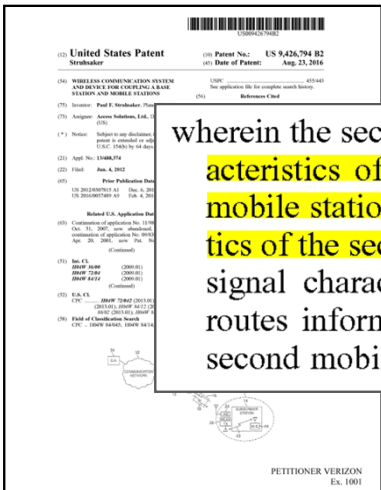
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Agrawal

Agrawal Does Not Disclose the Claimed Monitoring of Signal Characteristics

Petitioner alleges that a “receiver” that is part of a cellular system (not part of a WLAN) monitors some signal characteristics (right).

This does not disclose monitoring as claimed:



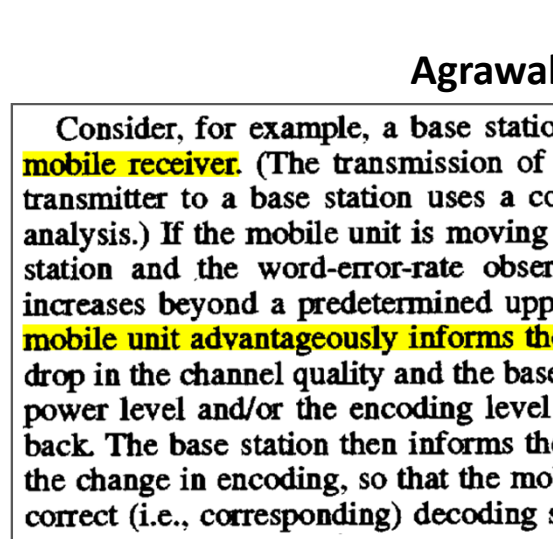
United States Patent
794 Patent
US 9,426,794 B2
Aug. 23, 2016

WHEREIN COMMUNICATION SYSTEM AND METHOD FOR COEXISTENCE OF A BASE STATION AND MOBILE STATION

wherein the second transceiver monitors first signal characteristics of the second downlink signal of the first mobile station and monitors second signal characteristics of the second mobile station, and based on the first signal characteristics and the second characteristics, routes information to the first mobile station and the second mobile station, respectively.

PETITIONER VERIZON
Ex. 1001

'794 Patent



United States Patent
Agrawal et al.
Patent Number: 5,722,851
Date of Patent: Feb. 24, 1998

ADAPTIVE POWER CONTROL AND CHANNEL SELECTION FOR MOBILE RADIO

Consider, for example, a base station sending data to a mobile receiver. (The transmission of data from a mobile transmitter to a base station uses a completely analogous analysis.) If the mobile unit is moving away from the base station and the word-error-rate observed by the mobile increases beyond a predetermined upper limit, WER_u, the mobile unit advantageously informs the base station of the drop in the channel quality and the base station changes the power level and/or the encoding level based on this feedback. The base station then informs the mobile receiver of the change in encoding, so that the mobile unit can use the correct (i.e., corresponding) decoding scheme.

PETITIONER VERIZON
Ex. 1007

Agrawal

Ex. 1001 at claim 1; Ex. 1007 at 5:36-46; POR at 68-70.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Petitioner does not allege that Agrawal routes information based on the claimed monitoring of signal characteristics that is missing from Palmer and Hohnstein:

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