Cellco Partnership d/b/a Verizon Wireless v. General Access Solutions, Ltd.

Petitioner's Demonstratives



IPR2023-01147

U.S. Patent No. 9,426,794

Verizon Exhibit 1026
Verizon v. GAS IPR2023-01147

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Instituted Grounds

- **Ground 1**: Claims 1–4 and 6 Anticipated by or Obvious over Palmer (Ex. 1004)
- **Ground 2**: Claims 1–6 Obvious over Hohnstein (Ex. 1005) and Palmer
- **Ground 3**: Claims 1–6 Obvious over Palmer and Mahany (Ex. 1006)
- **Ground 4**: Claims 1–4 and 6 Obvious over Palmer and Agrawal (Ex. 1007)
- **Ground 5**: Claim 5 Obvious over Palmer, Agrawal, and Mahany
- **Ground 6**: Claims 1–6 Obvious over Hohnstein and Agrawal

Pet. 4; Inst. 50.

Roadmap

- The Challenged Claims and ’794 Patent Disclosure
- Disputed Issues with Respect to the Palmer Grounds (1, 3–5)
- Disputed Issues with Respect to the Hohnstein Grounds (2, 6)

The Challenged '794 Patent Claims

Claim 1

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

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.

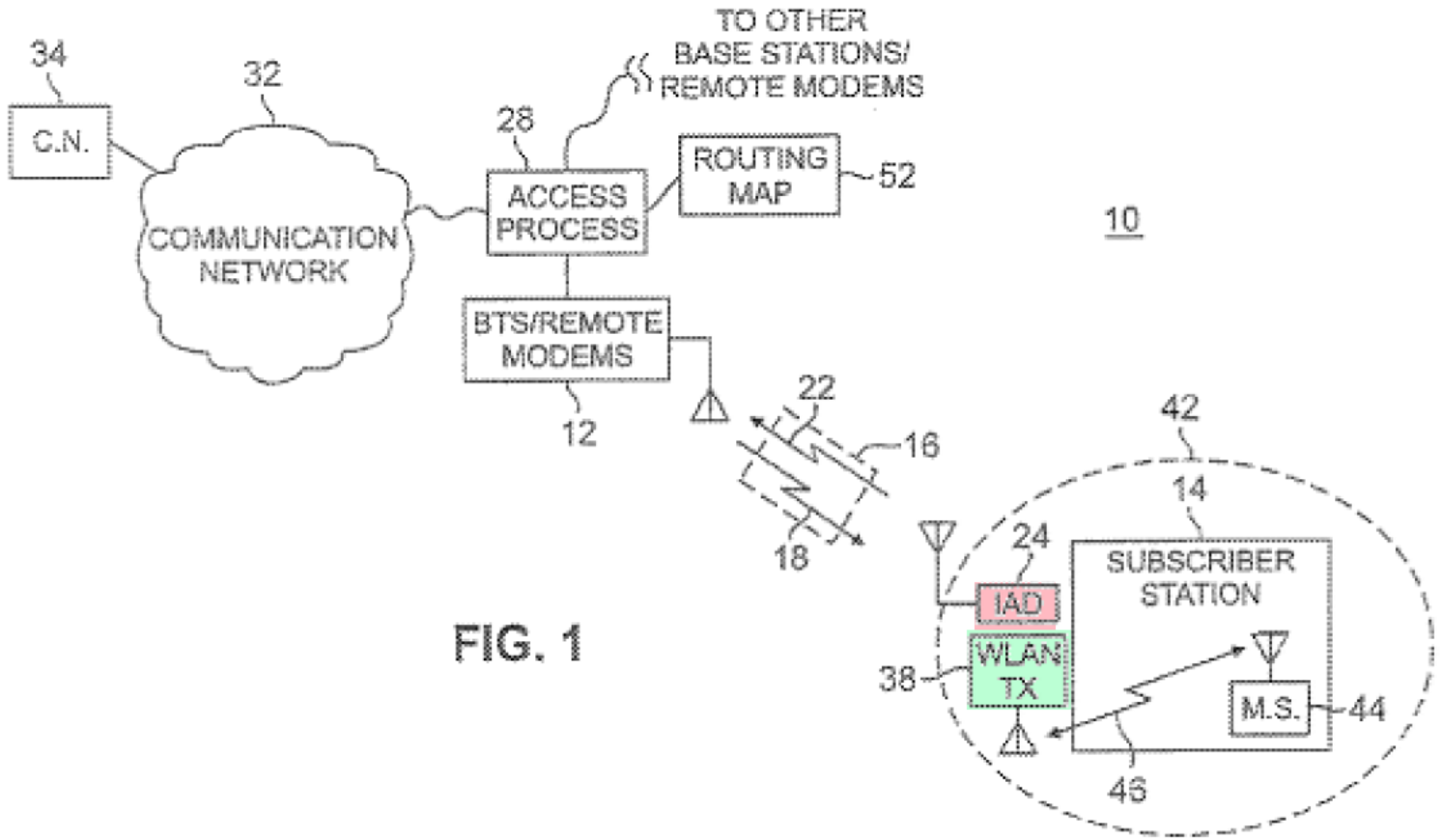


FIG. 1

'794 Patent, cl. 1, Fig. 1 (annotated).

The Challenged '794 Patent Claims

Claims 2–5

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

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

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

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

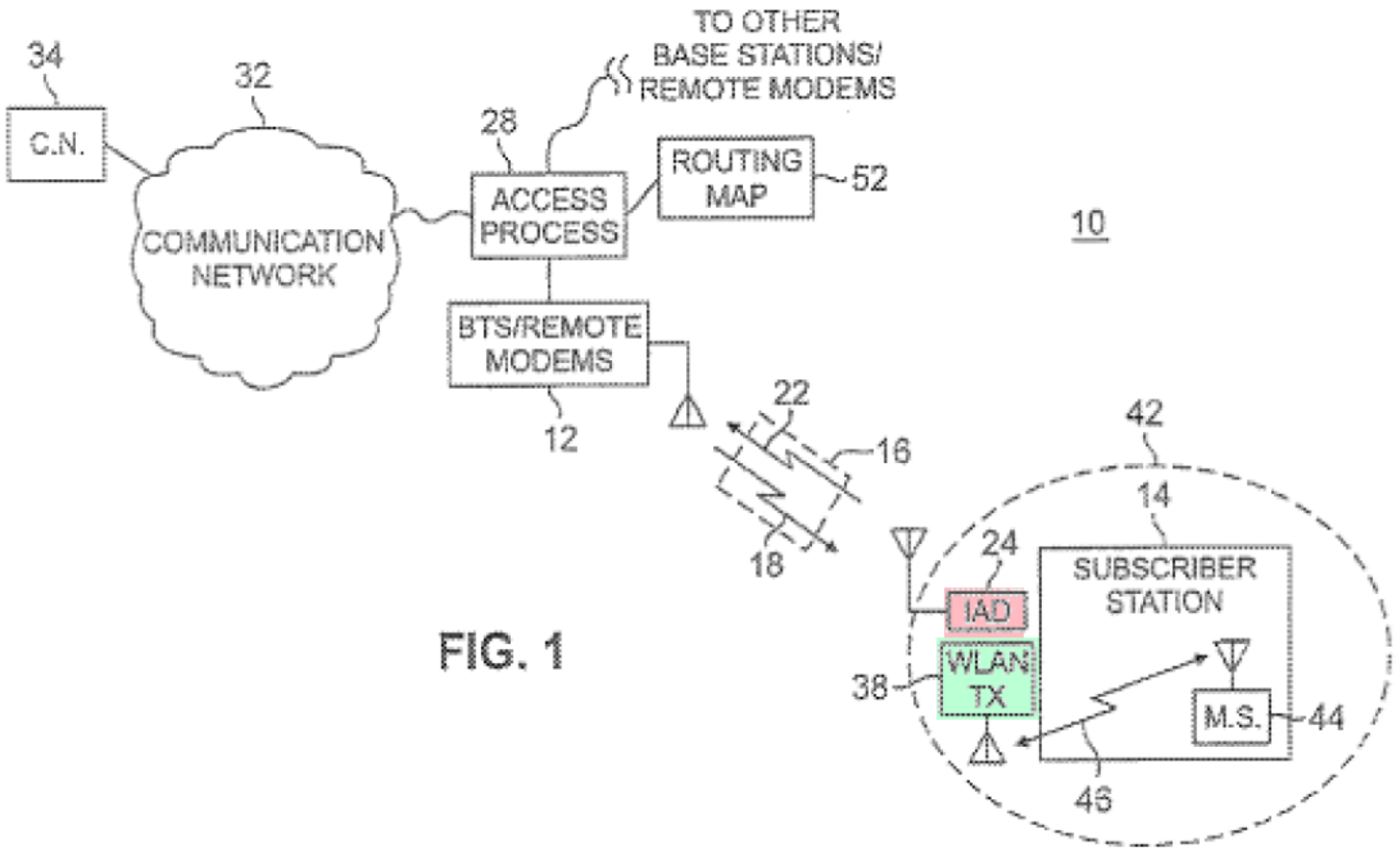


FIG. 1

'794 Patent, cls. 2–5, Fig. 1 (annotated).

The Challenged '794 Patent Claims

Claim 6

6. 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

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, 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.

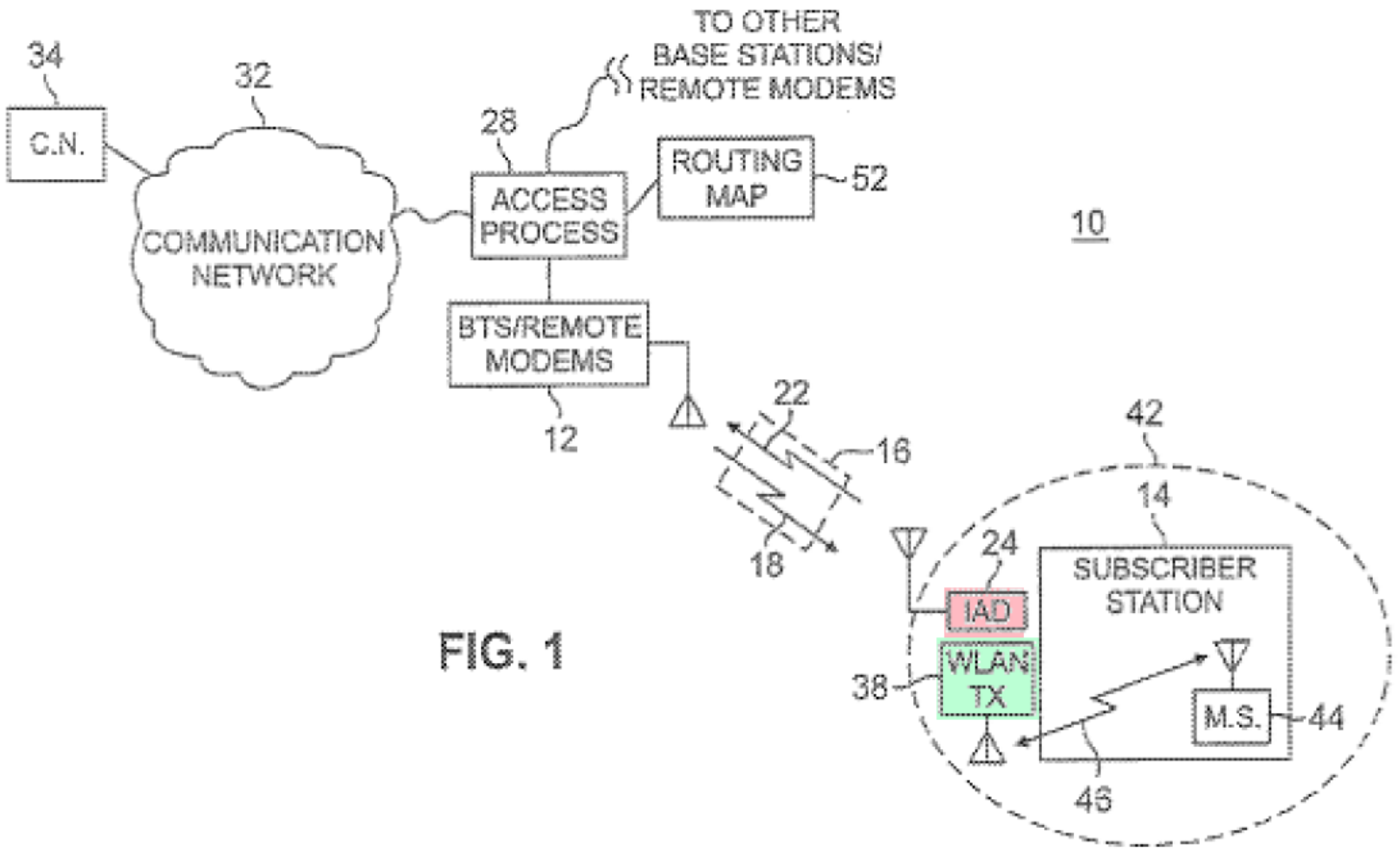


FIG. 1

'794 Patent, cl. 6, Fig. 1 (annotated).

'794 Patent Disclosure

Claim 1

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
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.

The only passage relevant to the second transceiver monitoring and routing

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.

'794 Patent, 8:56–9:3, cl. 1.

'794 Patent Disputed Claim Limitations

Claim 1

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
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.

GAS disputes that the prior art discloses:

- WAN protocol;
- A device including a first and a second transceiver;
- Second transceiver "monitoring"; and
- Second transceiver "routing."

'794 Patent, cl 1.

Ground 1: Palmer

GAS disputes:

1. Whether Palmer discloses a “wide area wireless communication protocol.”
2. Whether Palmer discloses a device including a first and a second transceiver.
3. Whether Palmer discloses the second transceiver “monitoring.”
4. Whether Palmer discloses the second transceiver “routing.”

Ground 1: Palmer

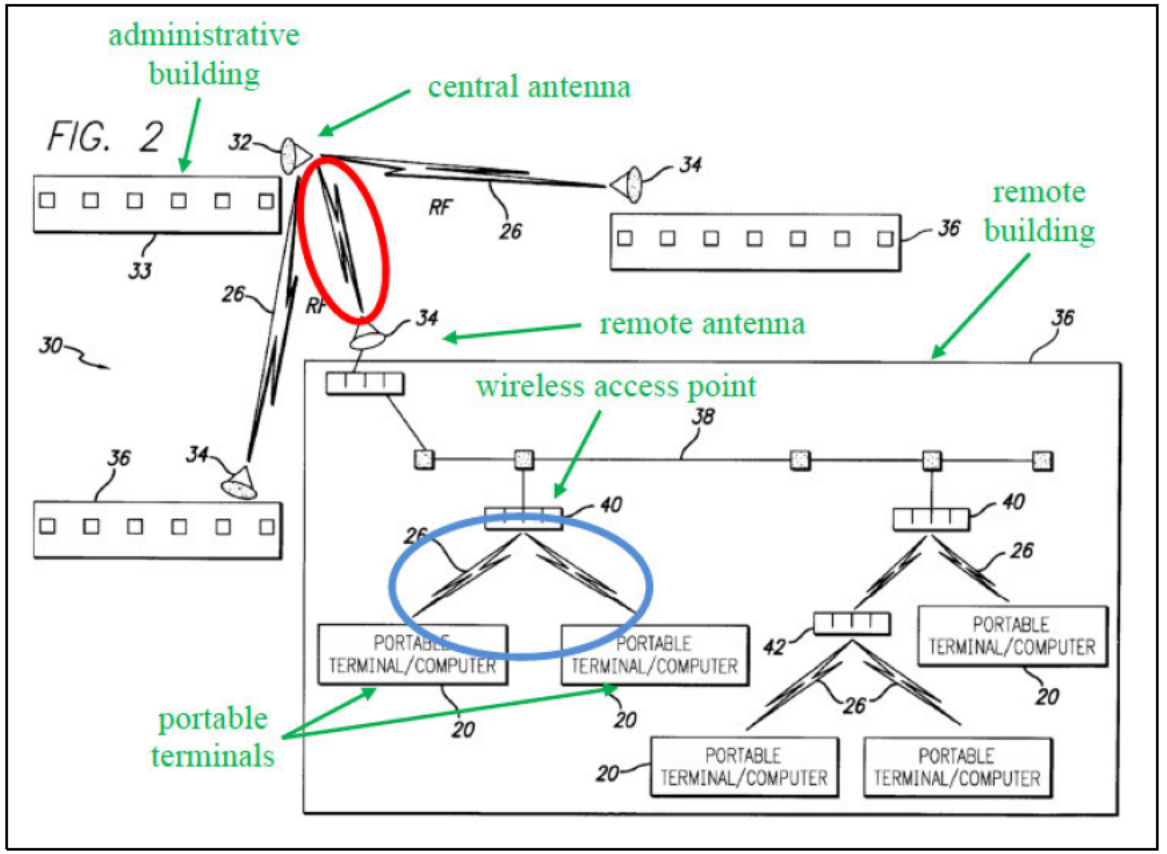
GAS disputes:

1. Whether Palmer discloses a “wide area wireless communication protocol.”
2. Whether Palmer discloses a device including a first and a second transceiver.
3. Whether Palmer discloses the second transceiver “monitoring.”
4. Whether Palmer discloses the second transceiver “routing.”

Palmer Discloses WWAN Protocols in the Context of the ’794 Patent

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 **30** includes a central antenna **32** that communicates through RF links **26** to a plurality of remote antennas **34**. The central antenna **32** may be attached to an administration building **33** or other central location based upon the location of the 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

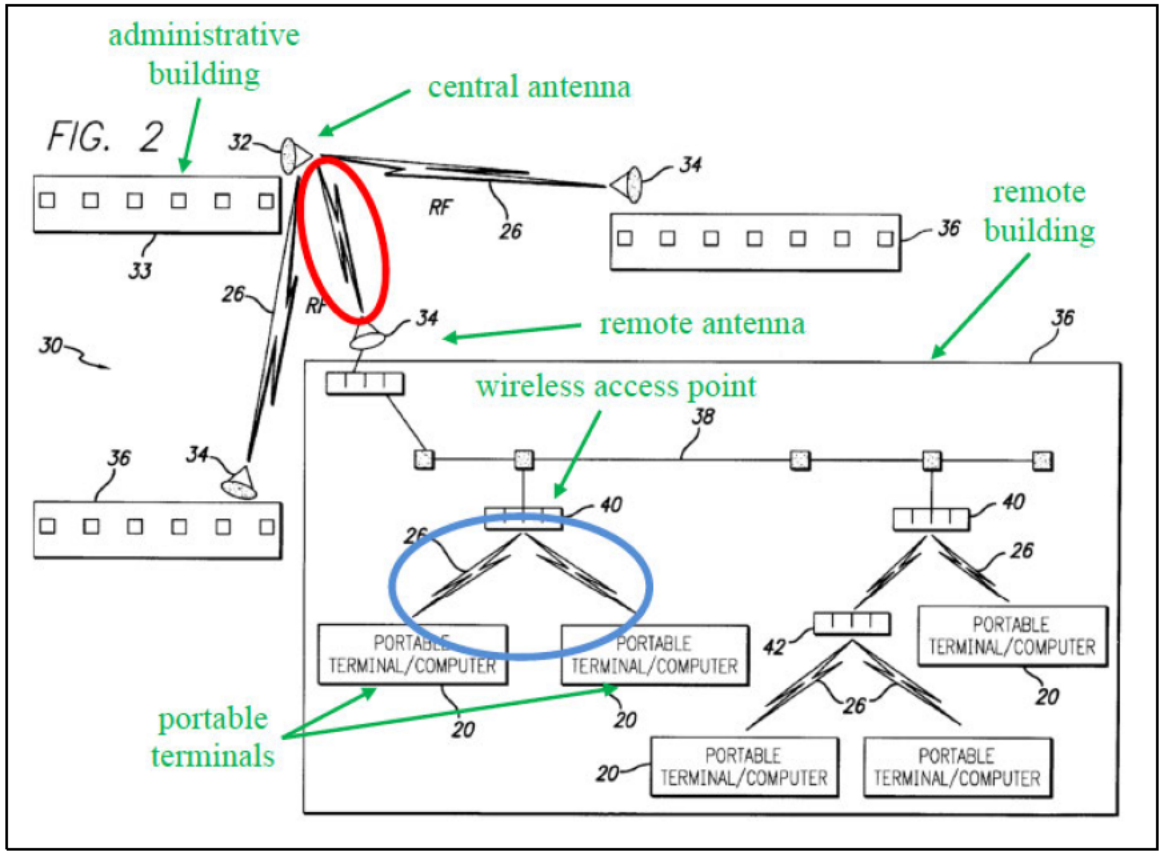


Pet. 12, 16–19; Reply 3–4; Ex. 1004, Fig. 2 (annotated), 4:53–65.

Palmer Discloses WWAN Protocols in the Context of the ′794 Patent

Palmer:

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 anticipate the rate shift and roam requirements, even as the communication environment evolves.



Pet. 12, 16–19; Reply 3–4; Ex. 1004, Fig. 2 (annotated), 2:47–57.

GAS's Expert's Own Definition of WAN Covers Palmer

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

Chrissan Declaration

A. WANs, LANs, and Cellular Base Stations

35. Computers, mobile phones, televisions, and other technology often work as part of a network. The specific network is a matter of design. Wide Area Networks (WANs) connect such things as mobile phones, fixed wireless devices and hotspot access points (e.g., MiFi devices) in large geographical areas such as a campus or city. Local Area Networks (LANs) connect computers, tablets, televisions, appliances, thermostats, alarm systems, and other devices in smaller areas, such as a single building or single portion of a building.

Reply 5–6; Ex. 1004 (Palmer), 4:53–57; Ex. 2007 (Chrissan Decl.) ¶ 35; *see also* Ex. 1002 (Almeroth Decl.) ¶¶ 78–79.

GAS's Expert's Own Definition of Protocol Covers Palmer

Chrissan Declaration

45. The '794 Patent thus claims a "two-layered" wireless communications system, in which the first layer consists of the wide area network established between the base station and the first transceiver and a plurality of wireless communication devices, and the second layer consists of the local area network established between the second transceiver and each of the same plurality of wireless communication devices and a plurality of mobile stations. Different protocols govern the communications in each layer of the combined network. A "protocol" is a term of art in the network architecture domain, generally meaning an established set of rules for transmissions to and from devices.

Reply 5–6; Ex. 2007 (Chrissan Decl.) ¶ 45.

GAS's Expert's Own Definition of Protocol Covers Palmer

Chrissan Deposition

A So am I agreeing that a ***protocol is a set of rules that devices use for transmissions between them***? Yeah, that's -- that's what the sentence says. ***That's my understanding of protocol***.

Q And what do you mean by "an established set of rules"?

A When devices communicate with each other, ***they need to have an established set of rules. Otherwise, they won't understand each other***.

Reply 5–6; Ex. 1017 (Chrissan Dep.) 36:2–15.

GAS's Expert's Own Definition of Protocol Covers Palmer

Chrissan Deposition

Q And these rules are required so that the receiver will understand what the transmitter is transmitting?

A That may be a paraphrase of one of my previous answers but generally the same as one of my previous answers.

Again, ***communication devices, for example, a transmitter transmitting into a receiver do have to operate by established set of rules***, often quite detailed rules, in order that the receiver can receive a reasonably good, if not very good, replicate or copy of what the transmitter intended to send, whether that be digital, analogue, or data of -- data and control fields of a – of various forms.

Reply 5–6; Ex. 1017 (Chrissan Dep.) 37:21–38:14

GAS Incorrectly Argues That Palmer Disparages WAN Protocols

Palmer *complements* industry standard network protocols

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 anticipate the rate shift and roam requirements, even as the communication environment evolves.

- **Palmer explains that network protocols complement its invention.**

> ***Fifth***, GAS incorrectly alleges that Palmer "disparages" existing protocols. POR, 33-34. GAS mischaracterizes Palmer, which teaches that its invention ***complements*** the protocols. The cited Palmer passage describes using industry standard network protocols with the invention to "reduce network connection losses." EX1004, 2:52-55. Thus, Palmer indicates that its invention will accompany these protocols such that there is no teaching away from the protocols.

- **GAS completely misreads Palmer.**

> Moreover, Petitioner's expert relied upon the portion of Palmer that actually **disparages** the existing "industry standard network protocols," and explains instead how its method differs from—and improves upon—those protocols.

Reply 6; POR 33–34; Ex. 1004 (Palmer), 2:52–55.

’794 Patent Specification Does Not Describe Any WAN Protocols

’794 Patent claim:

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***

   No “wide,” “WAN,” or “protocol” mentioned in specification



Reply 2; ’794 Patent, cl. 1.

Ground 1: Palmer

GAS disputes:

1. Whether Palmer discloses a "wide area wireless communication protocol."
2. Whether Palmer discloses a device including a first and a second transceiver.
3. Whether Palmer discloses the second transceiver "monitoring."
4. Whether Palmer discloses the second transceiver "routing."

Palmer Discloses or Makes Obvious "Coupled" Transceivers

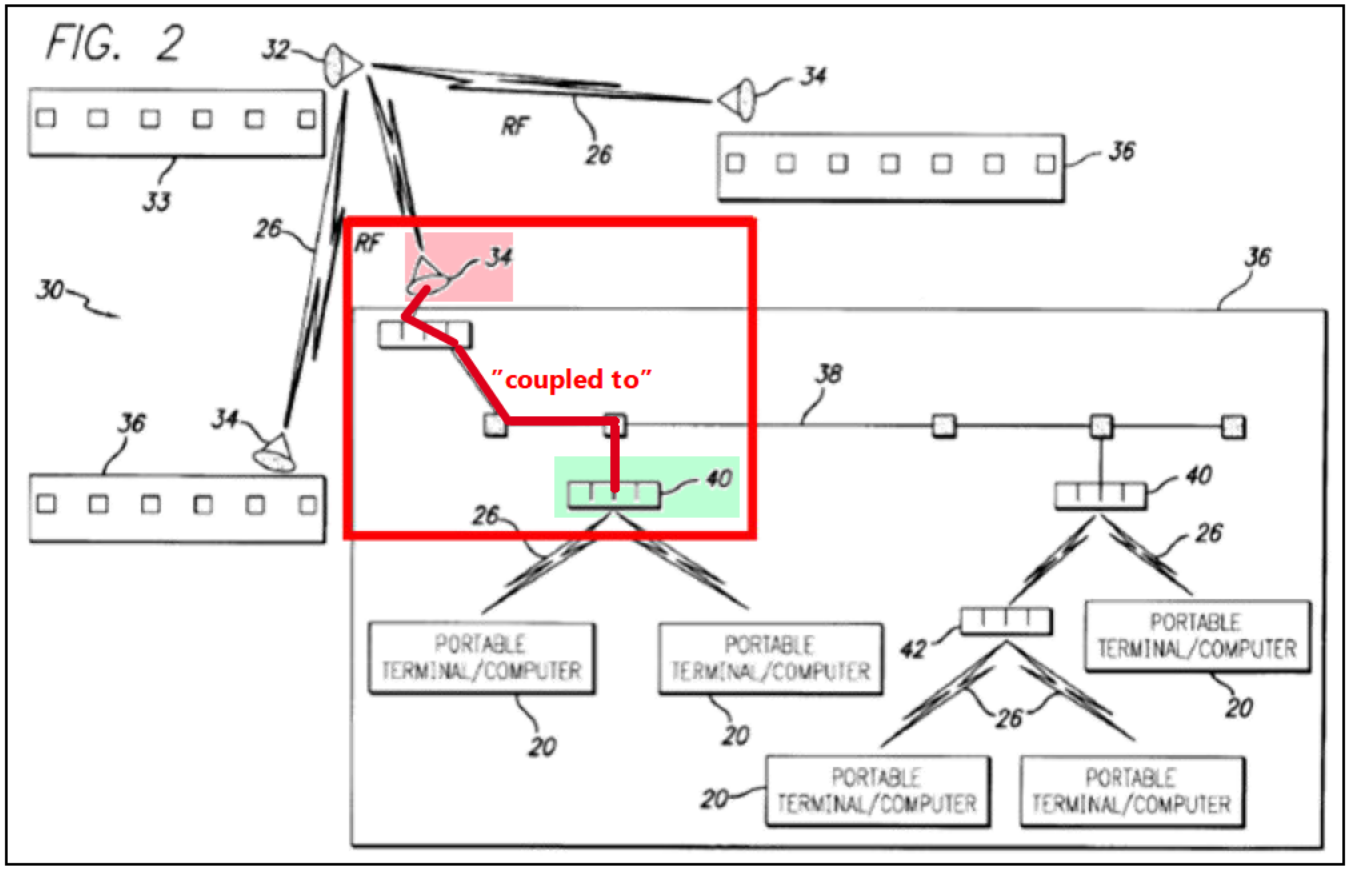
'794 Patent claim:

1. A wireless communication device, comprising:

   . . .

   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,

Palmer:

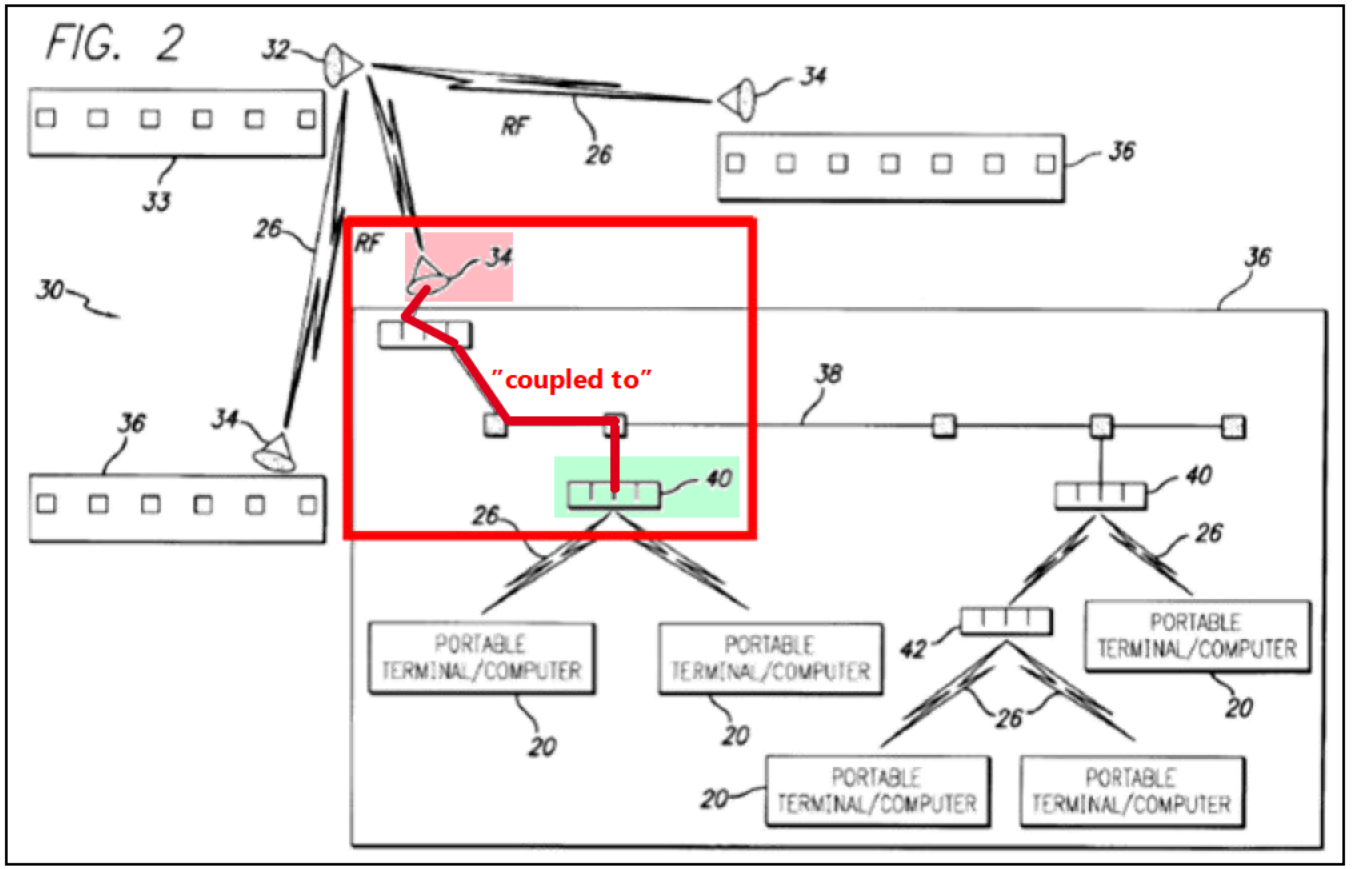


Pet. 20–22; Reply 7–11; '794 Patent, cl. 1; Ex. 1004, Fig. 2 (annotated).

Palmer Discloses or Makes Obvious "Coupled" Transceivers

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 **30** includes a central antenna **32** that communicates through RF links **26** to a plurality of remote antennas **34**. The central antenna **32** may be attached to an administration building **33** or other central location based upon the location of the 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**.

Palmer:



Pet. 2–22; Reply 7–11; '794 Patent, cl. 1; Ex. 1004, Fig. 2 (annotated), 4:53–6:9.

'794 Patent Discloses Transceivers as Separate "Device[s]"

'794 Patent specification:

In one aspect of the present invention, a WLAN transceiver, such as an access point, is installed at a subscriber station of a fixed wireless access communication system. A

Pursuant to an embodiment of the present invention, a WLAN (wireless local area network) transceiver **38** is positioned at the subscriber station **14** at the integrated access device **24** to be connected to the transceiver circuitry of the integrated access device.

In the exemplary implementation, an integrated access device (IAD) **24** forms a transceiver located at the subscriber station and at which forward link signals transmitted upon the forward link channels of the radio link are detectable and which generate reverse link signals for transmission upon the reverse link channels of the radio link. A separate IAD **24** is located at each subscriber station of the communication system.

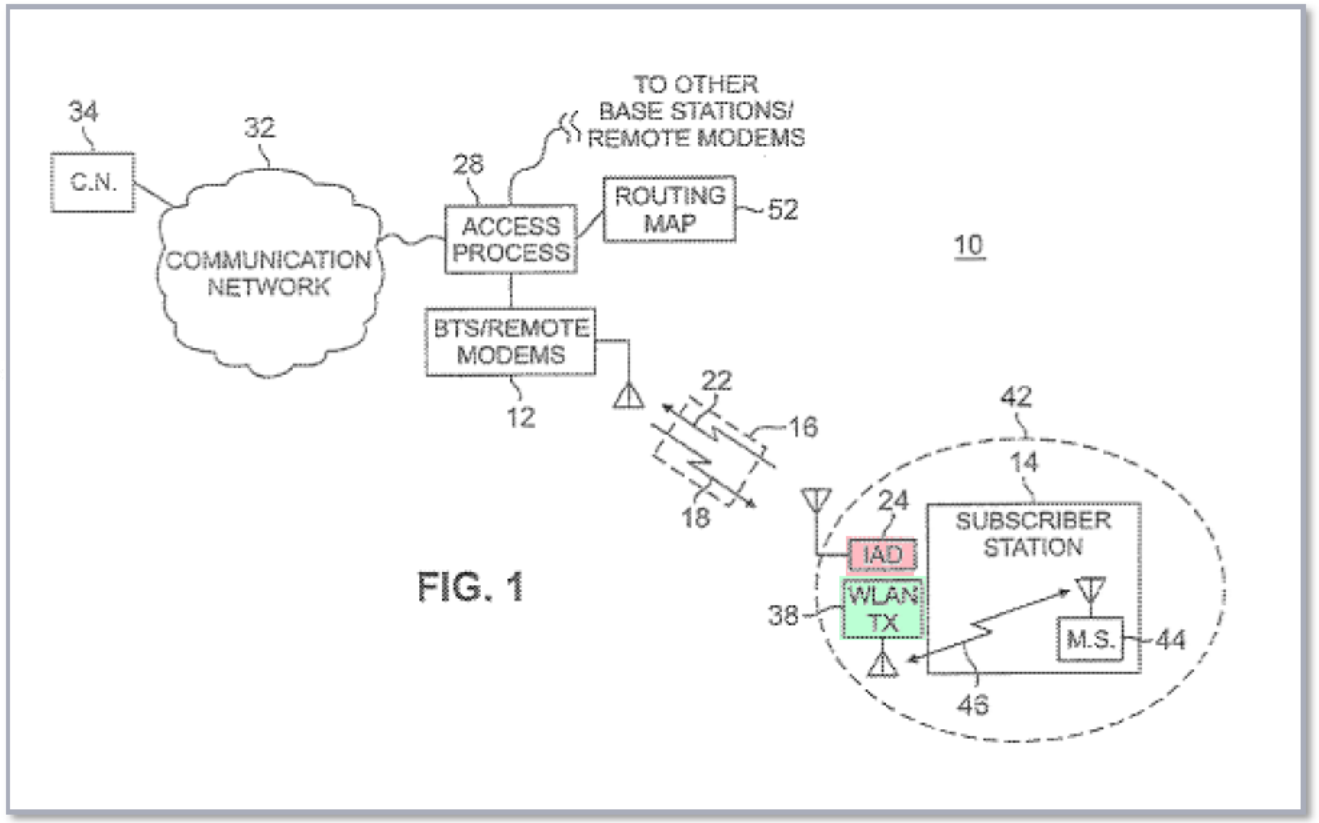


FIG. 1

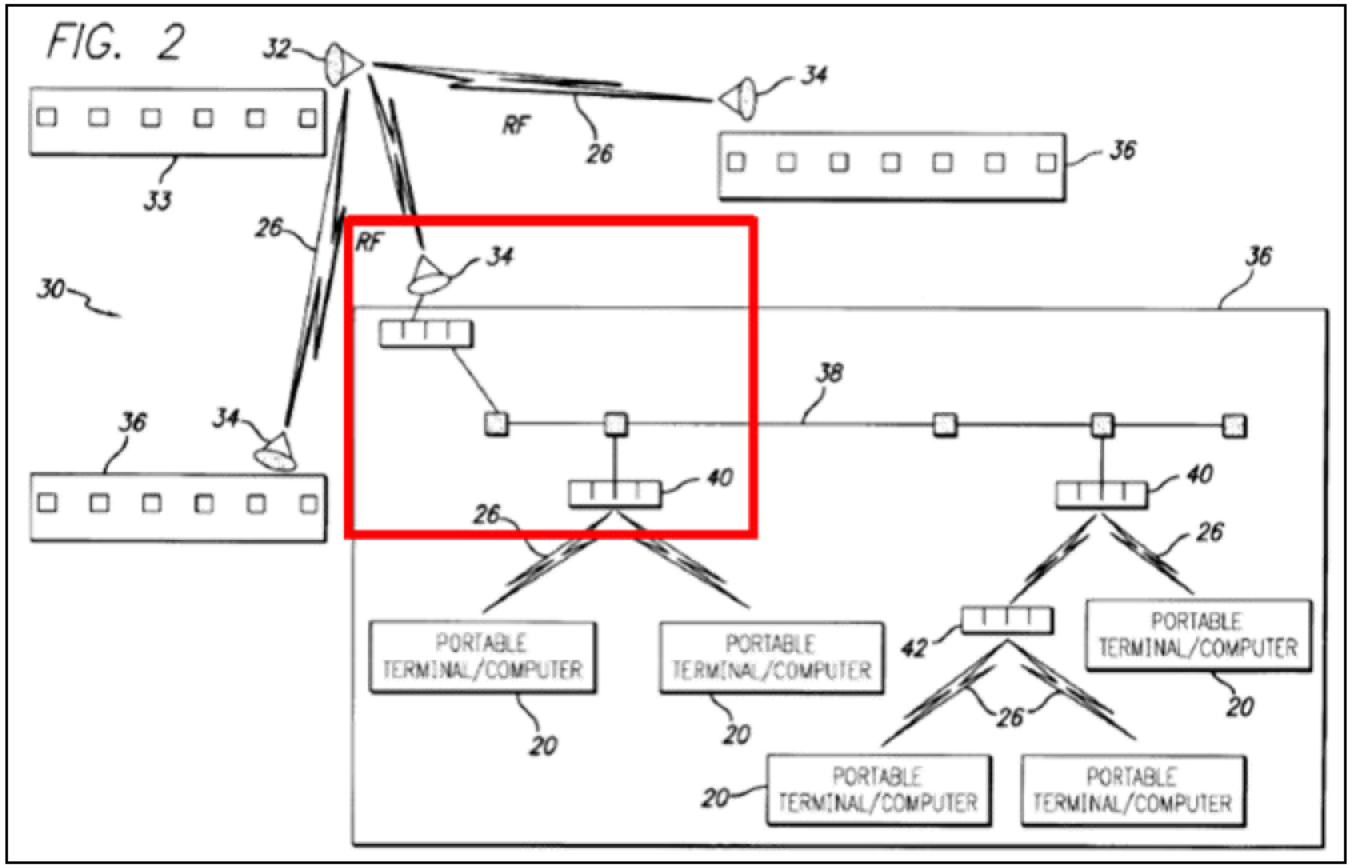
Reply 7–8; '794 Patent, Fig. 1 (annotated), 5:44–45; 7:36–37, 7:65–8:2, 8:33–36.

'794 Patent Does Not Exclude Palmer's Disclosure of Alleged "Additional Network" from Claim 1

Federal Circuit has held that claim scope is not limited to disclosed embodiments:

"[T]his court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment."

Hill-Rom Servs., Inc. v. Stryker Corp., 755 F.3d 1367, 1371 (Fed. Cir. 2014)



Reply 7–8; POR 37; Ex. 1004, Fig. 2 (annotated).

GAS Conceded Transceivers Separated by Additional Wireline Arrangement Can Comprise Claimed "Device"

'794 Patent claims:

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

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

GAS POR

56; EX2007, ¶77.) Specifically, Challenged Claim 2 recites that the two transceivers may be connected by a wireline connection (i.e., a cable); Challenged Claim 3 recites that they may be in separate enclosures that are detachable from each other; Challenged Claim 4 recites the device may be at a fixed site; and

Reply 7–8; '794 Patent, cls. 2, 3; POR 36.

Claim 5 Requires an Integrated Device; Claim 1 Plainly Does Not

'794 Patent claims:

1. A wireless communication device, comprising:

a first wireless transceiver operable to communicate with a base station,
. . . a second wireless transceiver coupled to the first wireless transceiver . . .

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

Petition

It is noted that since dependent claim 5 recites that certain device components "are part of an integrated device," the principle of claim differentiation holds that independent claim 1 is not so limited to require such integration. But to the extent the Board finds that claim 1 requires the device be an

Pet. 115; '794 Patent, cls. 1, 5.

It Would At Least Have Been Obvious to Combine Transceivers into a Single Device

MPEP § 2144.04

Patent claim directed to prior art components made integral is obvious.

See MPEP § 2144.04 (citing *In re Larson*, 340 F.2d 965, 968 (C.C.P.A. 1965) ("[T]he use of a one piece construction instead of the structure disclosed in [the prior art] would be *merely a matter of obvious engineering choice*.")).

Almeroth Declaration

72. A POSA would have appreciated that integrating multiple telecommunications equipment components into a single enclosure or frame (whether as a rack-mount style, a unified housing or case, etc.) would have been a simple matter of design choice using conventional packaging approaches. For instance, providing the device as a single dual-function product would have provided a benefit of avoiding the purchase of two separate components.

Pet. 74–75; Reply 9–11; Ex. 1002 (Almeroth Decl.) ¶¶ 70–72; Ex. 1024 (Almeroth Reply Decl.) ¶¶ 12–13; MPEP § 2144.04.

Ground 1: Palmer

GAS disputes:

1. Whether Palmer discloses a "wide area wireless communication protocol."
2. Whether Palmer discloses a device including a first and a second transceiver.
3. Whether Palmer discloses the second transceiver "monitoring."
4. Whether Palmer discloses the second transceiver "routing."

Palmer Discloses or Makes Obvious Second Transceiver Monitoring

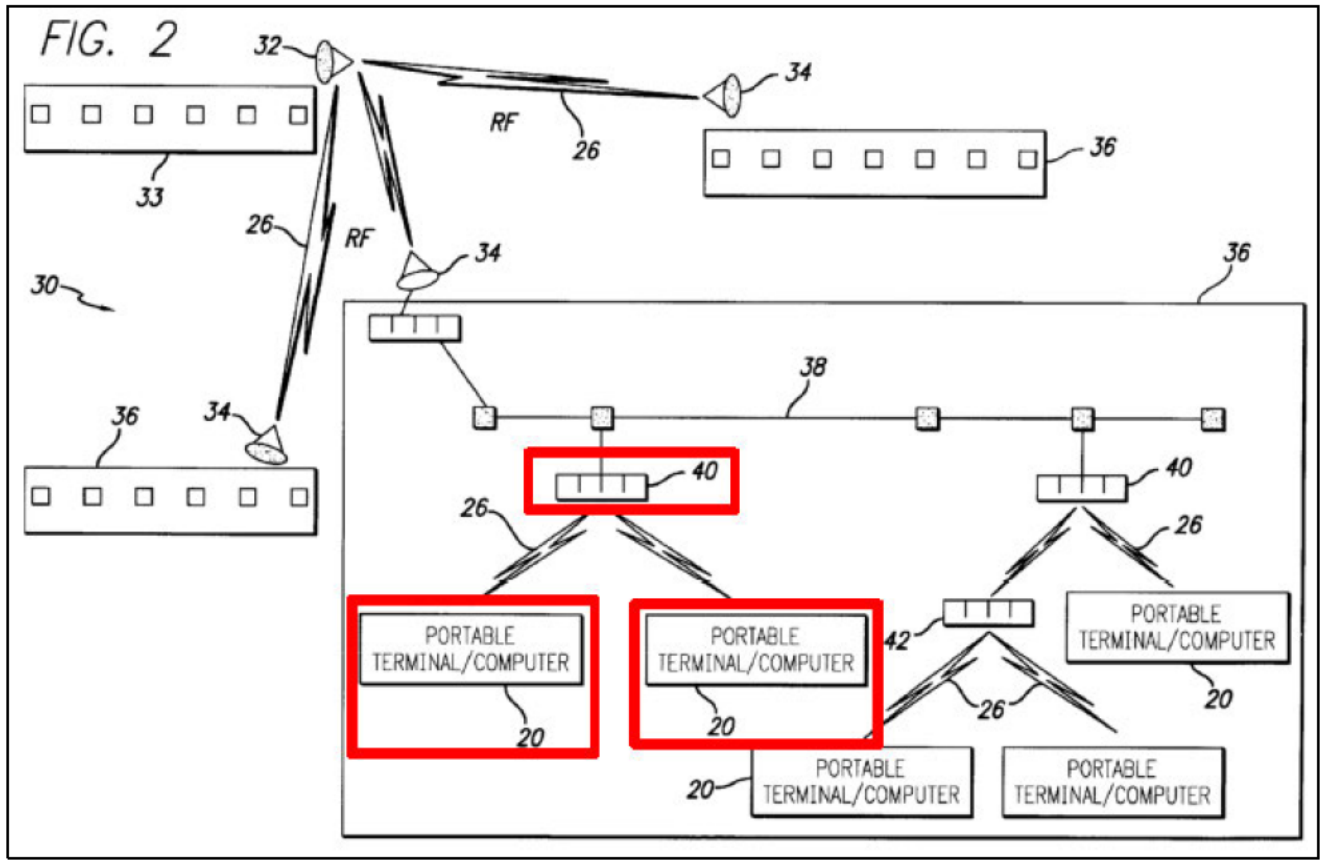
'794 Patent claim:

1. A wireless communication device, comprising:

   . . .

   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.

Palmer:



Pet. 24–27; Reply 12–18;'794 Patent, cl. 1; Ex. 1004 (Palmer), Fig. 2 (annotated).

Palmer Discloses Signal Characteristic Monitoring

Palmer discloses dynamic roaming of mobile stations between WLAN coverage areas in response to signal conditions:

[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 measurements may include but are not limited to: ***1) signal-to-noise ratio (SNR)***, 2) bit error rate (BER), 3) number of transmission retries (NTR), 4) ***received signal strength indicator (RSSI)***, 5) bit energy-to-noise density (Eb /N0), 6) global position information (GPS), and 7) cell congestion information (also known as load factor).

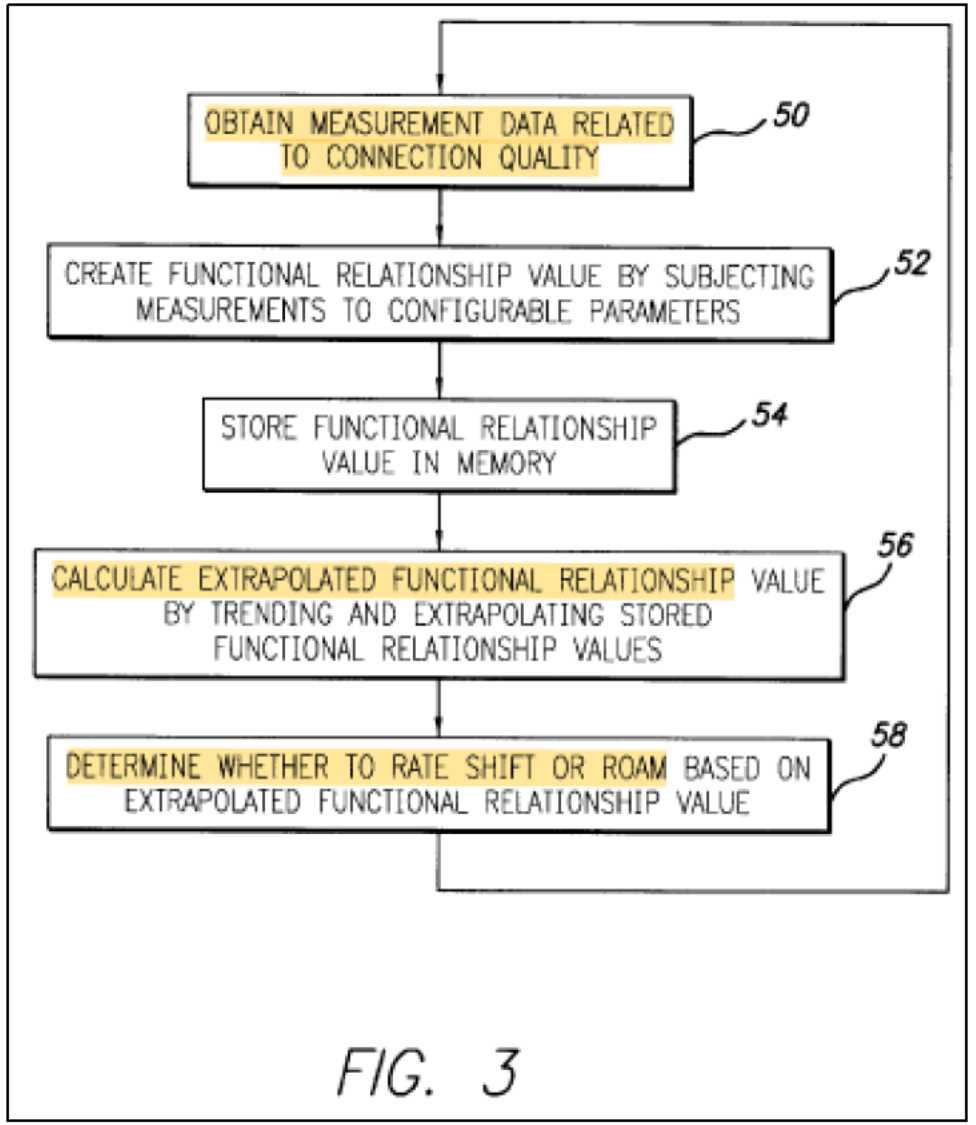


FIG. 3

Pet. 24–26; Reply 12–15; Ex. 1004, Fig. 3 (annotated), 5:37–49; 6:45–47.

Palmer Mirrors '794 Patent's Purported "Monitoring" Disclosure

'794 Patent specification:

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 only passage relevant to the second transceiver monitoring and routing

Palmer:

For the examples discussed above, the wireless communications can consist of voice or data information, as known in the art. The wireless connection should be transparent to the mobile worker as the wireless communication device **20** roams from cell to cell or rate shifts. There should be no loss of connection or service degradation and it should appear as if there is a wired connection. If the RF connection begins to degrade, a determination should be made as to whether communication performance would improve by transmitting at a lower information rate or roaming to another cell offering a higher quality RF connection. This determination could be made by the wireless communication device **20** having a processor and a memory, with the processor executing a stored program for carrying out the method steps discussed below. Alternatively, the method steps may be performed centrally, for example, by the network or a central host processor.

. . .

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-

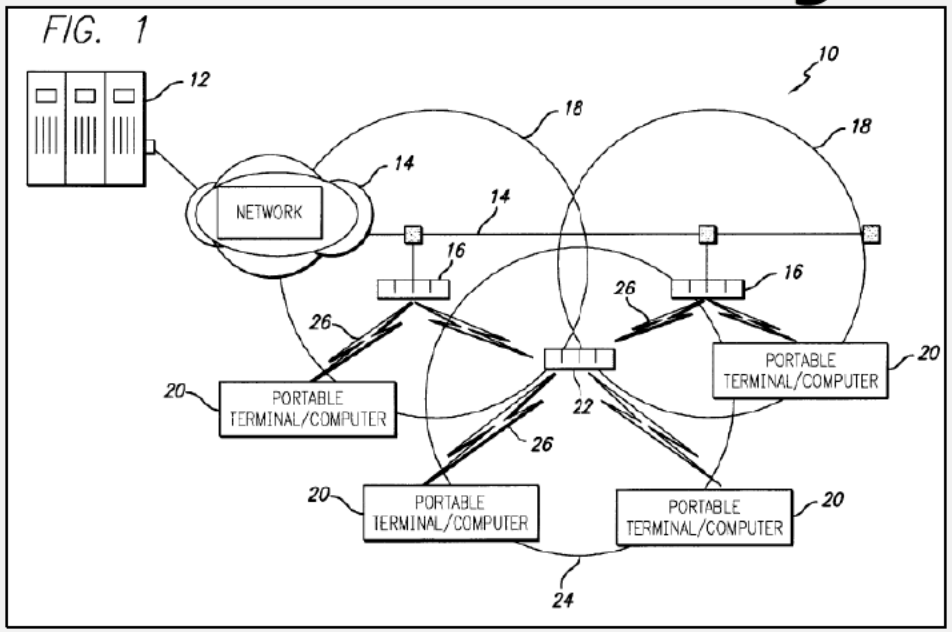
Reply 12–15; Ex. 1023 (Trial Tr.) 1119:9–1120:6; '794 Patent, 8:61–9:3; Ex. 1004 (Palmer), 5:20–36, 5:40–43.

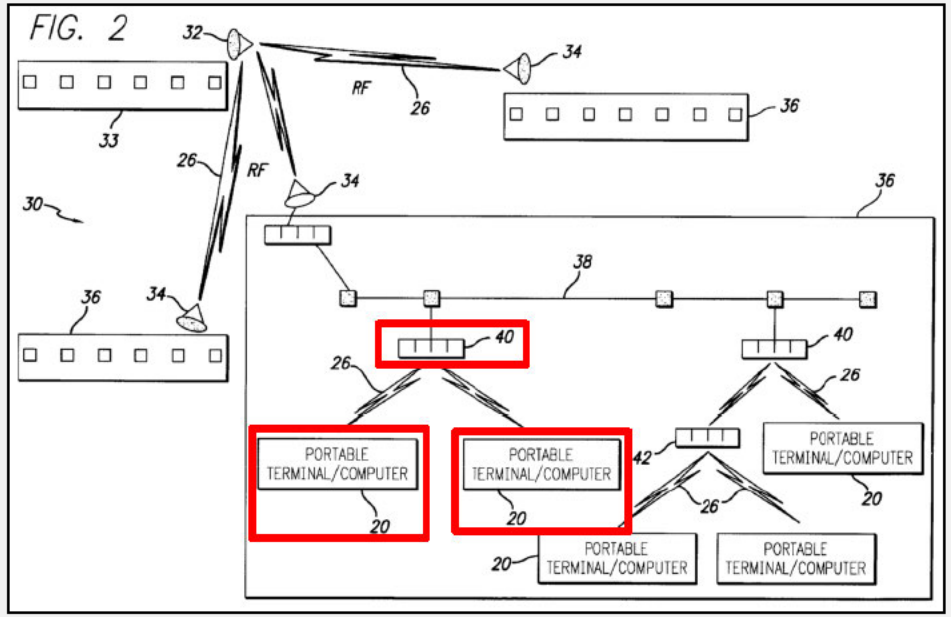
Palmer Discloses or Makes Obvious Second Transceiver Monitoring

Almeroth Declaration

95. Palmer's access point 40 performs such monitoring, as Palmer describes the monitoring being performed "by the network," and the access point 40 is part of the network and the specific component directly interacting wirelessly with the portable terminals 20 and therefore collecting such measurements.

96. Moreover, even if Palmer's access point 40 is deemed to not to be the component performing the monitoring, it would have nonetheless been obvious to a POSA to select the access point 40 to perform the monitoring. The access point 40 is the component that directly communicates with the portable terminals 20, and therefore the access point 40 would have been the most logical component to handle the monitoring of the signal connection between itself and the portable terminal. A POSA would have appreciated having Palmer's access point 40 perform the monitoring functions described in Palmer, would have been a simple matter of design choice among a finite and limited number of possible components to perform these functions, incorporates known techniques with expected outcomes, and would have been an appropriate component for performing the monitoring functions described in Palmer.





Pet. 24–27; Ex. 1002 (Almeroth Decl.) ¶¶ 95–96; Ex. 1004 (Palmer), Figs. 1, 2 (annotated).

Palmer Discloses or Makes Obvious Second Transceiver Monitoring

Chrissan Deposition

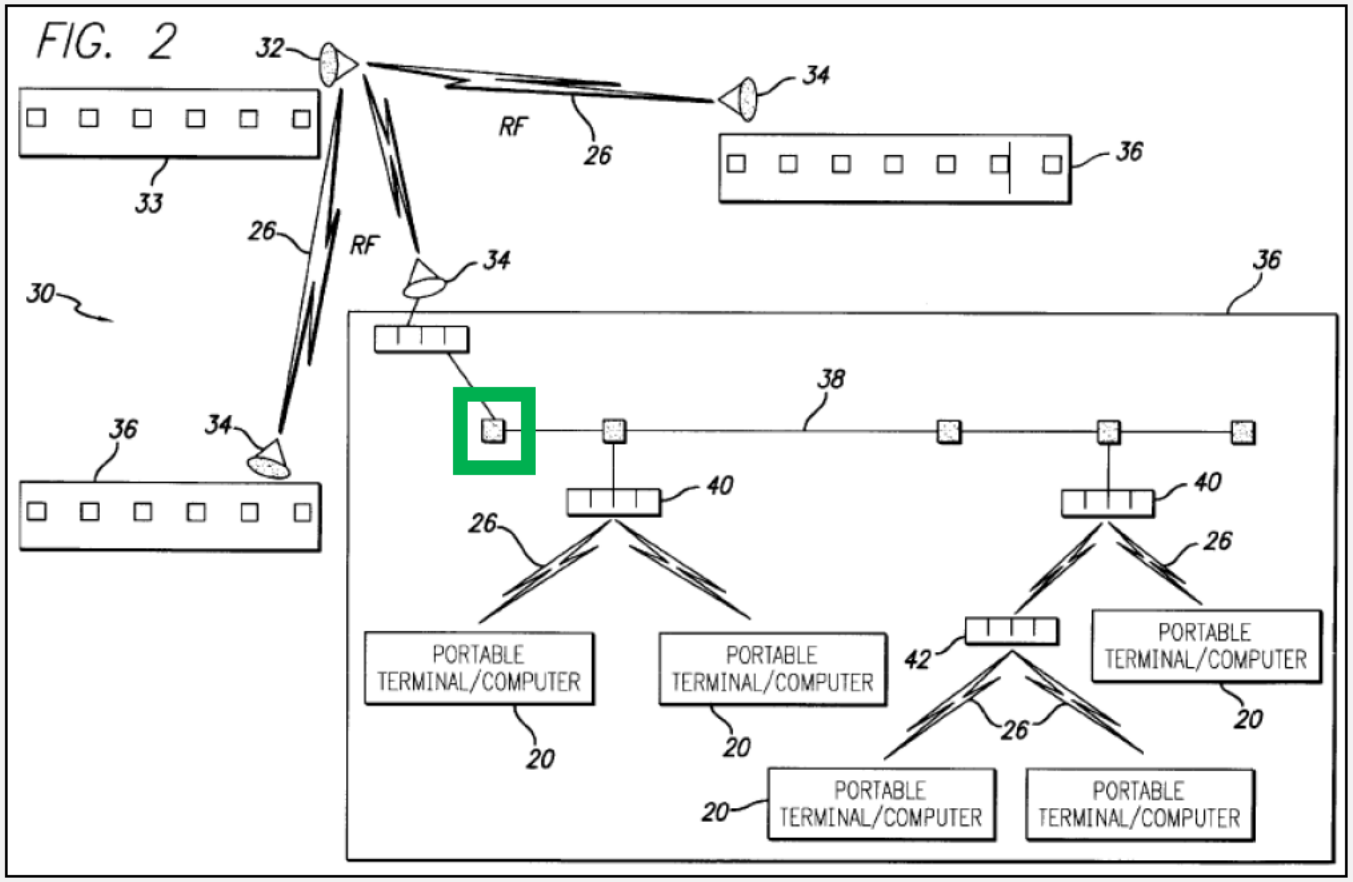
Q How would a device in the Administration Building 33 perform measurements of the wireless link between Portable Terminal 20 and Access Point 40, which is located in a different buildings?

A ***The network and central host processor would likely be 33. Possibly, it could be that unmarked box in Palmer***.

. . .

A That unmarked, undescribed box does appear to be connected to a wireline network 38 to Access Point 40 that is also on that wireline network.

Palmer



Reply 13–15; Ex. 1017 (Chrissan Dep.) at 86:19–90:6, 72:21–73:16; Ex. 1004 (Palmer), Fig. 2 (annotated).

Ground 1: Palmer

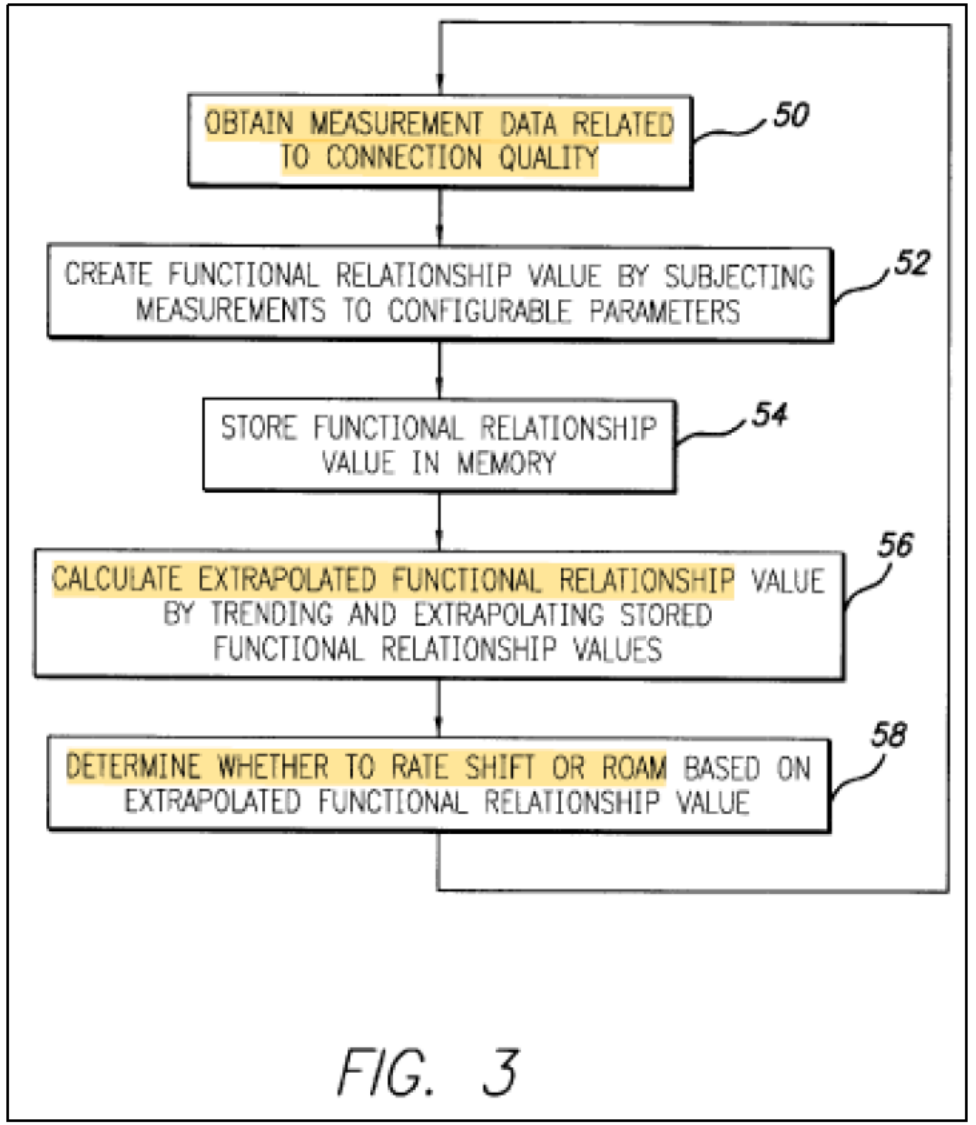
GAS disputes:

1. Whether Palmer discloses a "wide area wireless communication protocol."
2. Whether Palmer discloses a device including a first and a second transceiver.
3. Whether Palmer discloses the second transceiver "monitoring."
4. Whether Palmer discloses the second transceiver "routing."

Palmer Discloses or Makes Obvious Routing to Multiple Mobile Stations

Palmer discloses dynamic roaming of mobile stations between WLAN coverage areas in response to signal conditions:

[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 measurements may include but are not limited to: 1) signal-to-noise ratio (SNR), 2) bit error rate (BER), 3) number of transmission retries (NTR), 4) received signal strength indicator (RSSI), 5) bit energy-to-noise density (Eb /N0), 6) global position information (GPS), and 7) cell congestion information (also known as load factor).

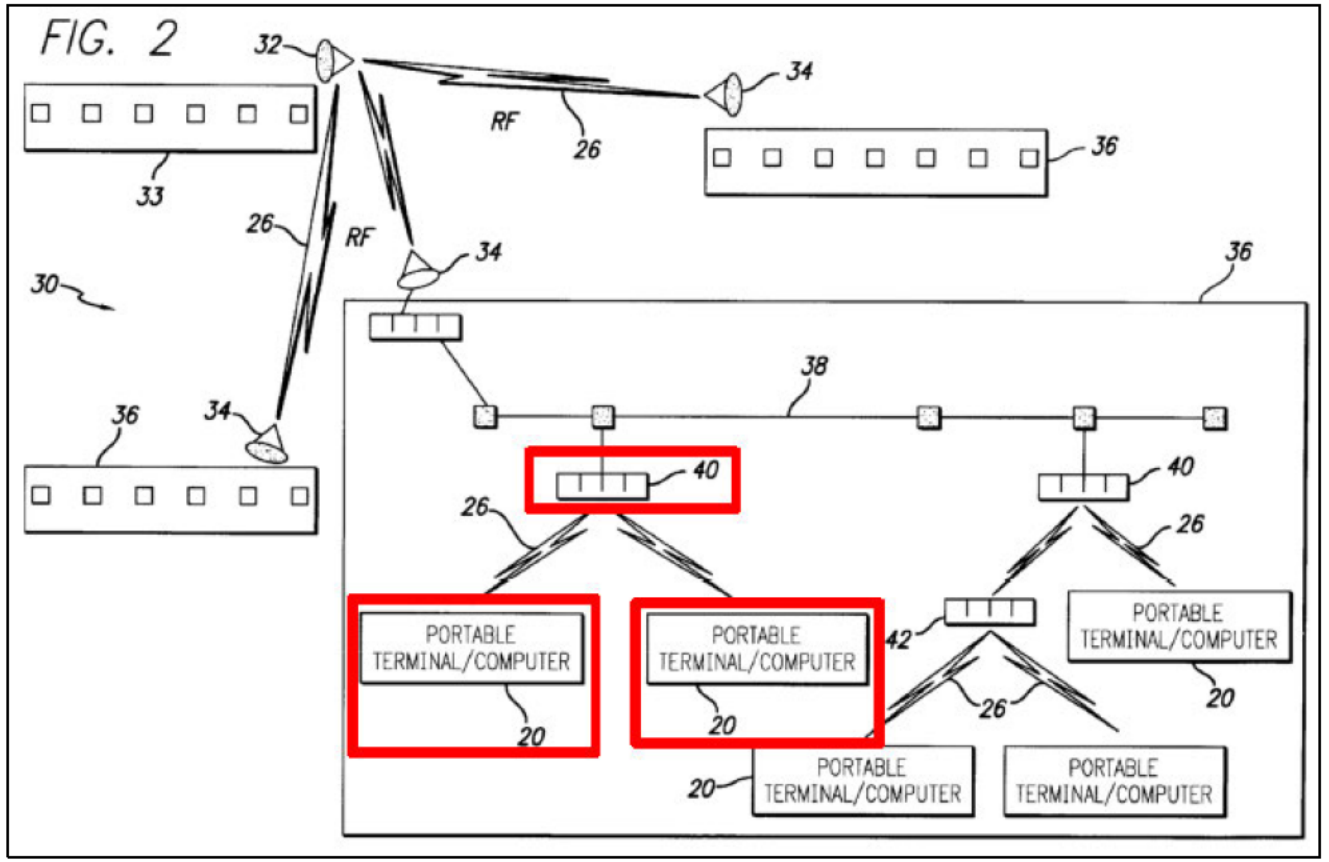


Pet. 24–27; Reply 16–18; Ex. 1004, Fig. 3 (annotated), 5:37–49; 6:45–47.

Palmer Discloses or Makes Obvious Second Transceiver Routing

Palmer discloses access point making roaming decision based on RF stability:

For the examples discussed above, the wireless communications can consist of voice or data information, as known in the art. The wireless connection should be transparent to the mobile worker as the wireless communication device **20** roams from cell to cell or rate shifts. There should be no loss of connection or service degradation and it should appear as if there is a wired connection. If the RF connection begins to degrade, a determination should be made as to whether communication performance would improve by transmitting at a lower information rate or roaming to another cell offering a higher quality RF connection. This determination could be made by the wireless communication device **20** having a processor and a memory, with the processor executing a stored program for carrying out the method steps discussed below. Alternatively, the method steps may be performed centrally, for example, by the network or a central host processor.



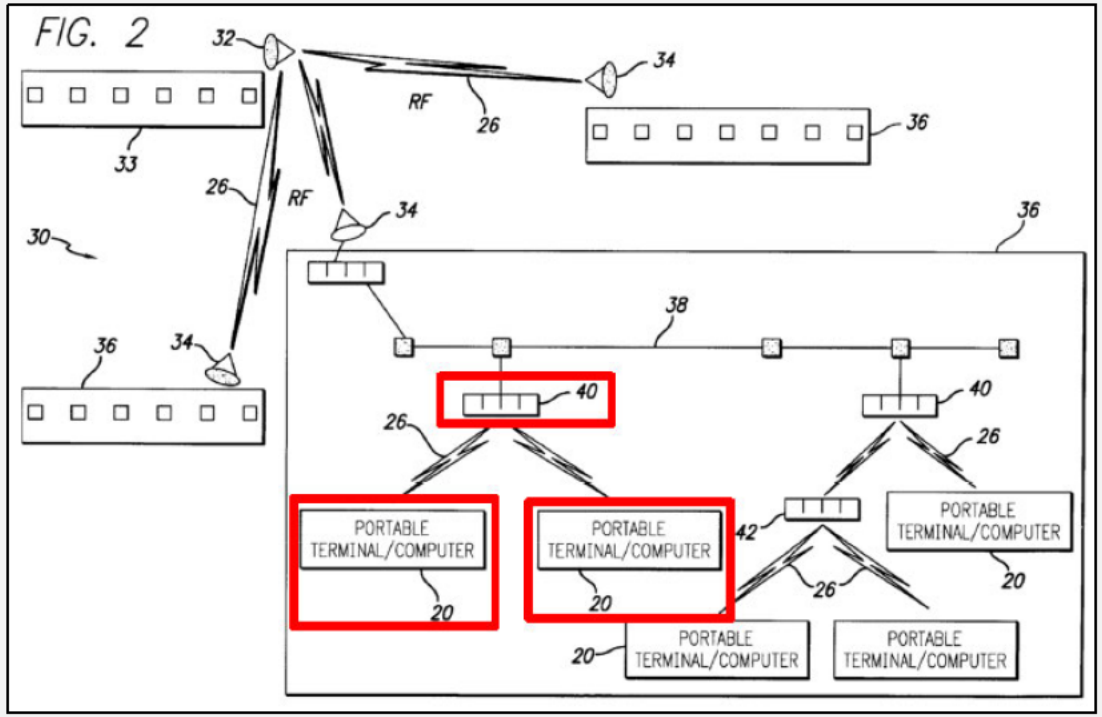
Pet. 24–27; Reply 16–18; Ex. 1004, Fig. 2 (annotated), 5:2–36.

Palmer Discloses or Makes Obvious Second Transceiver Routing

Almeroth Declaration

98. Palmer's access point 40 routes information to the first mobile station and the second mobile station, respectively, based on the monitored first signal characteristics and the second characteristics, as the access point 40 determines whether roaming by a portable terminal 20 should take place and routes data packets accordingly. For instance, Palmer describes that the access point 40 determines when the wireless RF connection (which include both transmissions and receptions) between itself and the portable terminal 20 becomes unstable based on the measurements, and determines whether or not to reduce the data rate or to hand off the wireless connection to another access point.

Palmer



Pet. 25–27; Reply 12–18; Ex. 1002 (Almeroth Decl.) ¶¶ 96–97; Ex. 1004 (Palmer), Fig. 2 (annotated).

Palmer Mirrors '794 Patent's Purported "Routing" Disclosure

'794 Patent specification:

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 only passage relevant to the second transceiver monitoring and routing

Palmer:

For the examples discussed above, the wireless communications can consist of voice or data information, as known in the art. The wireless connection should be transparent to the mobile worker as the wireless communication device **20** roams from cell to cell or rate shifts. There should be no loss of connection or service degradation and it should appear as if there is a wired connection. If the RF connection begins to degrade, a determination should be made as to whether communication performance would improve by transmitting at a lower information rate or roaming to another cell offering a higher quality RF connection. This determination could be made by the wireless communication device **20** having a processor and a memory, with the processor executing a stored program for carrying out the method steps discussed below. Alternatively, the method steps may be performed centrally, for example, by the network or a central host processor.

. . .

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-

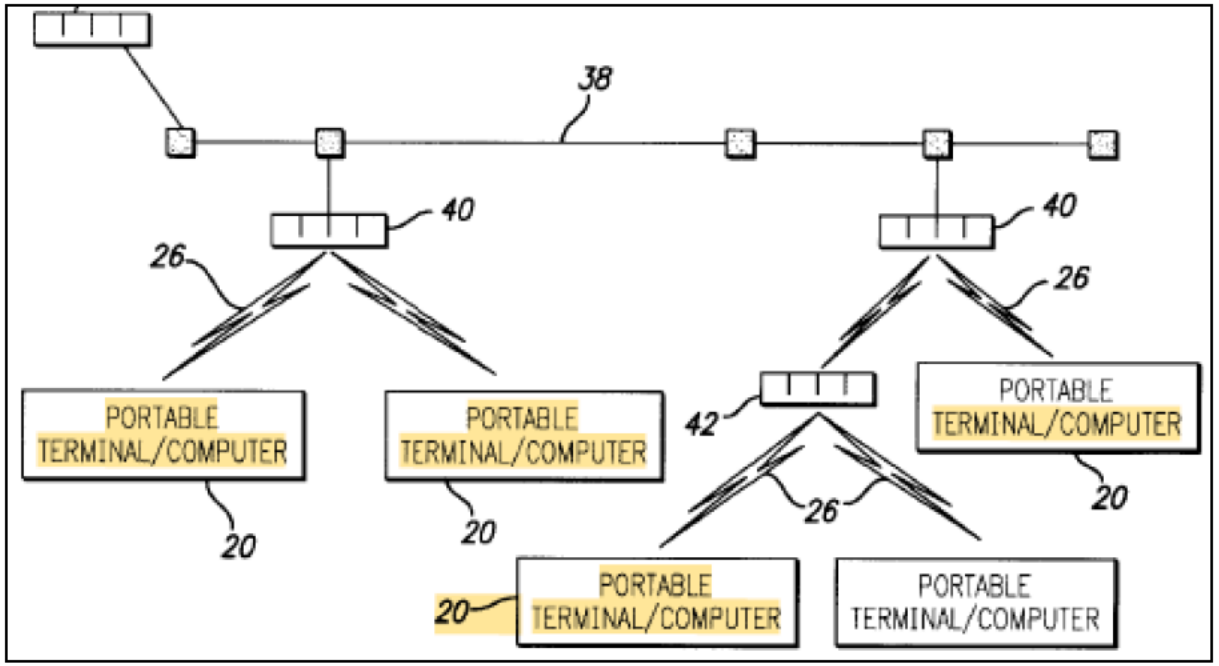
Reply 12–15;'794 Patent, 8:61–9:3; Ex. 1023 (Trial Tr.) 1119:9–1120:6; Ex. 1004 (Palmer), 5:20–36, 5:40–43.

Palmer Discloses or Makes Obvious Routing to Multiple Mobile Stations

Almeroth Declaration

86. A POSA would have therefore understood based on these teachings in Palmer that a local area wireless communication protocol is used for the wireless transmissions between the access point 40 and the multiple portable terminals 20 (which are WLAN transmissions).

Palmer discloses multiple portable terminals operating in the same manner:



Pet. 24–27; Reply 12–18; Ex. 1002 (Almeroth Decl.) ¶ 86; Ex. 1004, Fig. 2 (annotated).

Palmer Discloses or Makes Obvious Second Transceiver "Routing" Based on Signal Characteristics

Paul Struhsaker ('794 Patent inventor) testified "all WLANs" perform the claimed "routing":

Q. ***[Y]ou did not write in this patent anything about the second transceiver performing routing to the first and second mobile stations***. Correct?

A. It is not written like that.

Q. And it is not written like that -- it is not written in any words. Correct? In words.

A. The concept is sitting there in the document as WLAN, as any person skilled in the art at that time would know.

Q. Well, let me ask you this. The patent doesn't describe at all the WLAN performing this [routing] function. Right?

A. ***Because all WLANs perform that function*****.** Why would I describe what you could look up in a textbook?

Reply 17–18; Ex. 1023 (Trial Tr.) 269:9–21.

Ground 3: Palmer + Mahany

Mahany discloses a base station communicating with a plurality of wireless access devices in a WAN:

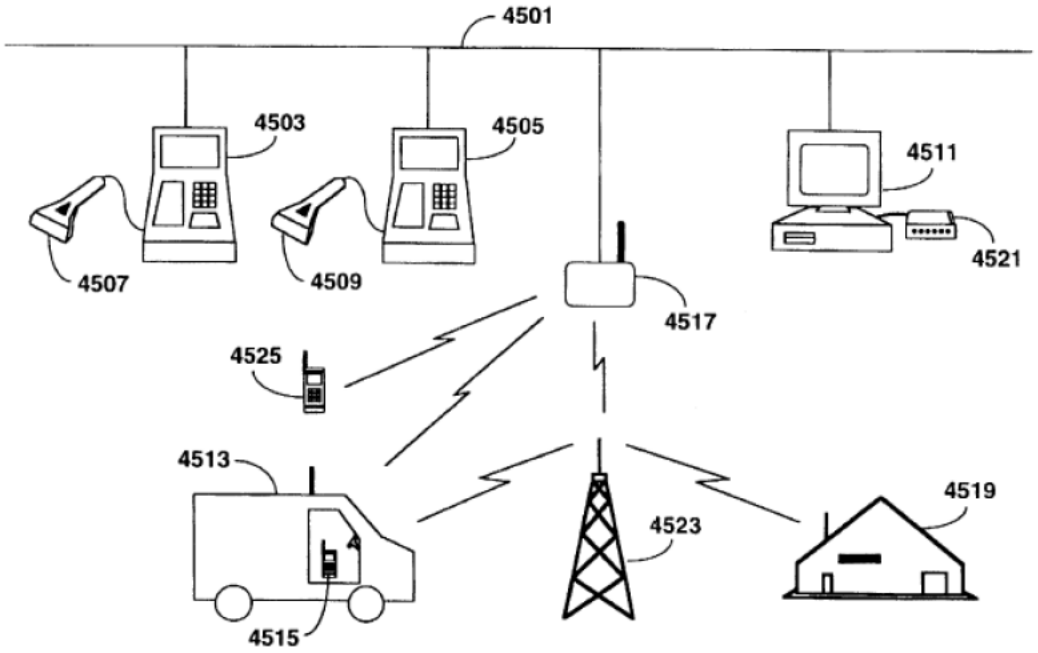
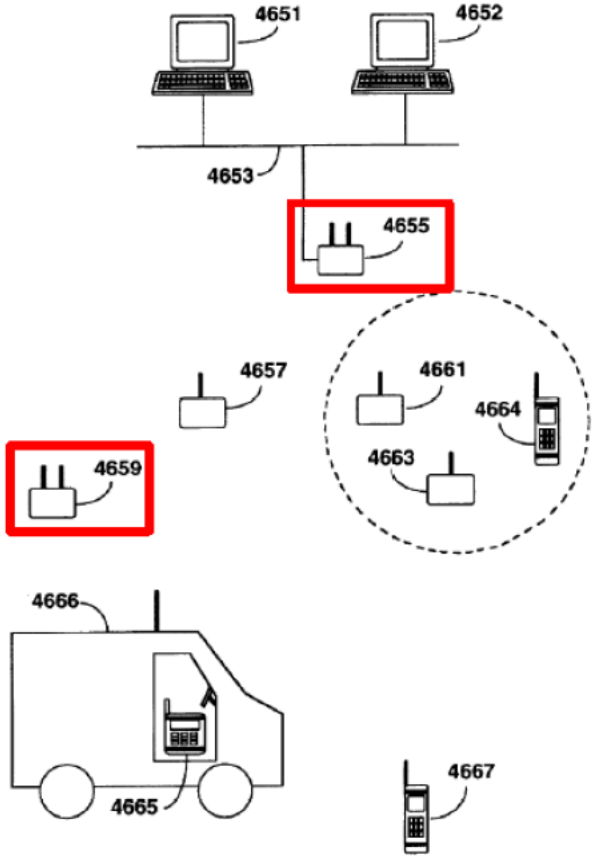


Fig. 45

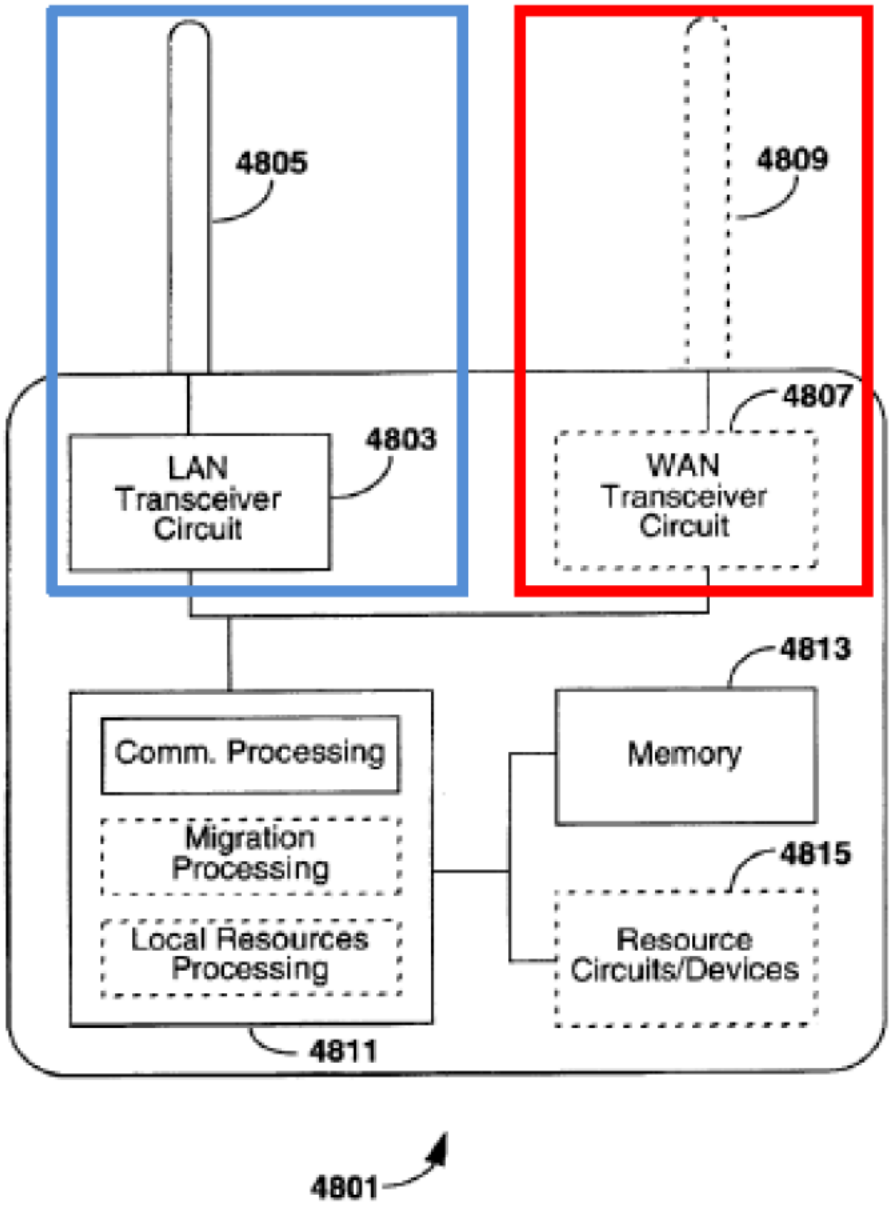


Pet. 67–75; Reply 28–30; Ex. 1006 (Mahany) at Figs. 45, 46 (annotated).

Ground 3: Palmer + Mahany

Mahany discloses an integrated device with WWAN/WLAN transceivers:

FIG. **48** is a schematic diagram of the access servers of FIGS. **46***a–b* illustrating an exemplary circuit layout which supports the functionality described in reference to FIGS. **47***a–b*. In particular, a typical access server, an access server **4801**, is configured with transceiver circuitry **4803** and associated antenna **4805** for participating in the premises, peripheral and/or wide area networks. In addition, another transceiver, a transceiver circuit **4807**, and associated antenna **4809** might be added, for example, to support WAN or cellular communications. Although not shown, interface circuitry for other wireless or wired communication links may be included in the access server configuration when needed.



Ex. 1006 (Mahany) at Fig. 48 (annotated), 75:8–20; Pet. 67–75; Reply 28–30.

Ground 3: Palmer + Mahany

GAS disputes:

1. Whether Mahany "disparages" WAN networks.

2. Motivation to combine Mahany with Palmer.

Mahany Does Not Teach Away

1. **Mahany does not "disparage[]" WAN networks:**
   a) Provides neutral statement on power consumption. Ex. 1006 at 3:15–18 (wireless "WANs require relatively higher transmission power" compared to WLAN).
   b) '794 Patent discloses the same limitations. Ex. 1001 at 4:64–5:2 ("Generally, the communication ranges of the mobile stations operable in such systems is relatively small as relatively low-power signals are originated at the mobile stations and, correspondingly, originated at the network.").

2. **Alleged optionality of WAN transceiver does not diminish obviousness**
   a) No basis for alleged optionality (besides dotted box in Figure 48).
   b) "[T]he teaching away inquiry does not focus on whether a person of ordinary skill in the art would have merely favored one disclosed option over another." *Bayer Pharma AG v. Watson Labs., Inc.*, 874 F.3d 1316, 1327 (Fed. Cir. 2017).

Pet. 67–75; Reply 28–30; '794 Patent, 4:64–5:2; Ex. 1006 (Mahany) at Fig. 48 (annotated), 75:8–20.

POSA Would Have Been Motivated to Combine Mahany with Palmer

Both experts agree that Mahany's WAN transceiver provides benefits:

Chrissan Deposition

Q And even if it is optional, there is a stated benefit of providing the WAN transceiver component, right?

ATTORNEY SPIRES: Object to form.

A In the topology, we must consider that in the context of Mahany. Now, Mahany is saying there is a benefit to adding it. It gives you long-distance connectivity when you're out of range of short-distance connectivity. According to Mahany, there is no other use.

Almeroth Declaration

36. Therefore, both Mahany and the '794 patent note that WLANs require relatively low transmission power compared to WWANs. Mahany does not "disparage" WANs any more than the '794 patent does, and a POSA would have recognized that in Mahany, adding a WWAN transceiver, even if "optional," would confer a benefit of maintaining connectivity when out of WLAN coverage range.

37. Therefore, a POSA would still have been motivated to incorporate the integration of WLAN and WWAN transceivers taught by Mahany, applied towards Palmer's remote antenna 34 and an individual access point 40.

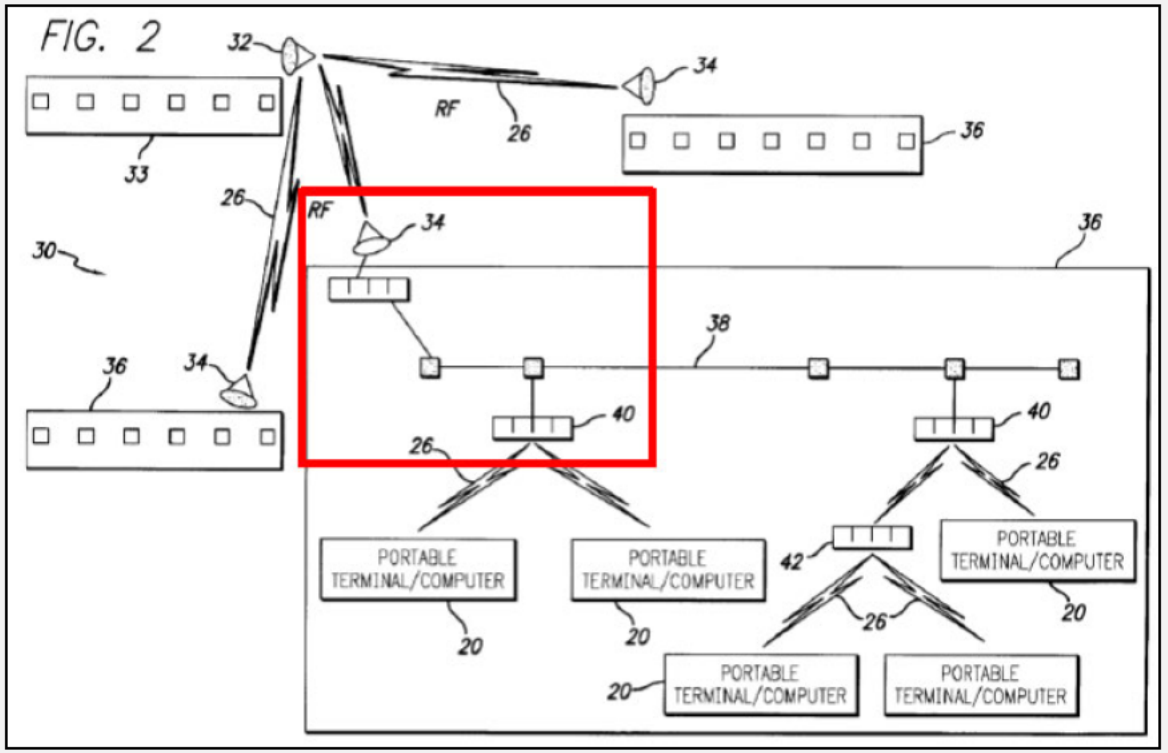
Reply 28–30; Ex. 1017 (Chrissan Dep.), 109:12–21; Ex. 1024 (Almeroth Reply Decl.) ¶¶ 36–37.

POSA Would Have Been Motivated to Combine Mahany with Palmer

Almeroth Declaration

72. A POSA would have appreciated that integrating multiple telecommunications equipment components into a single enclosure or frame (whether as a rack-mount style, a unified housing or case, etc.) would have been a simple matter of design choice using conventional packaging approaches. For instance, providing the device as a single dual-function product would have provided a benefit of avoiding the purchase of two separate components.

Palmer



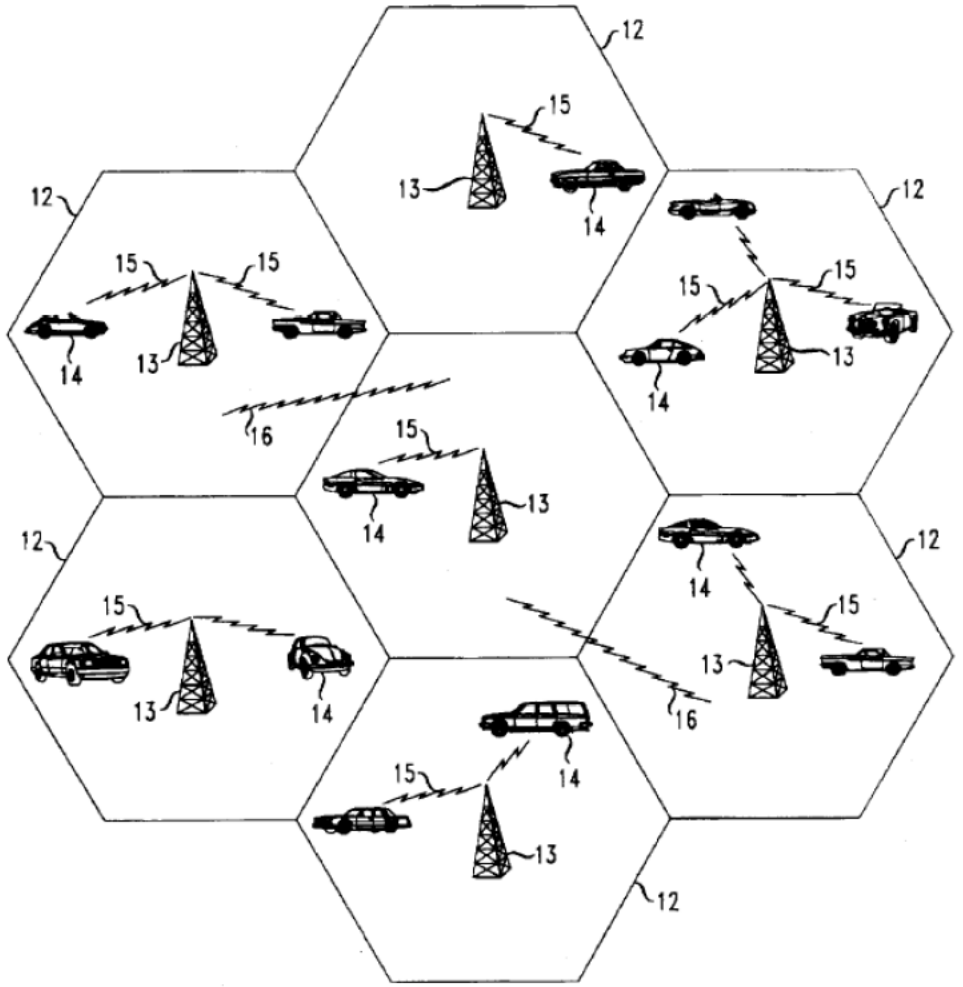
Reply 7–11; Ex. 1002 (Almeroth Decl.) ¶¶ 70–72; Ex. 1004 (Palmer), Fig. 2 (annotated).

Ground 4: Palmer + Agrawal

Agrawal discloses mobile station (i.e., receiver) measuring RSSI and other signal parameters and reporting them back to the transceiver:

In accordance with an illustrative embodiment of the present invention, each transmitter-receiver pair individually determines the appropriate power-code pair to use for its subsequent transmission. Specifically, based on parameter data received from the receiver, the transmitter chooses a power-code pair, and then communicates the chosen encoding scheme to the receiver. More particularly, the method of the illustrative embodiment described herein operates as follows. During a connection, the receiver periodically monitors the received signal strength and the average WER. When a connection between a transmitter and a receiver is established, the transmitter uses the monitored signal strength and the WER on the channel between the two for setting the power and the encoding levels. The choice of the

FIG. 1



Pet. 75–79; Reply 30; Ex. 1007 (Agrawal) at Fig. 1, 5:19–25.

Ground 4: Palmer + Agrawal

GAS disputes:

1. Whether Agrawal discloses monitoring signal characteristics.
2. Motivation to combine with Palmer.

Agrawal Mirrors '794 Patent's Purported "Monitoring" Disclosure

'794 Patent specification:

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 only passage relevant to the second transceiver monitoring and routing

Agrawal:

In accordance with an illustrative embodiment of the present invention, each transmitter-receiver pair individually determines the appropriate power-code pair to use for its subsequent transmission. Specifically, based on parameter data received from the receiver, the transmitter chooses a power-code pair, and then communicates the chosen encoding scheme to the receiver. More particularly, the method of the illustrative embodiment described herein operates as follows. During a connection, the receiver periodically monitors the received signal strength and the average WER. When a connection between a transmitter and a receiver is established, the transmitter uses the monitored signal strength and the WER on the channel between the two for setting the power and the encoding levels. The choice of the

. . .

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.

Pet. 78 n.14; Reply 12–15; '794 Patent, 8:61–9:3; Ex. 1023 (Trial Tr.) 1119:9–1120:6; Ex. 1007 (Agrawal), 5:39–44.

POSA Would Have Been Motivated to Combine Agrawal with Palmer

Almeroth Reply Declaration

39. I disagree. To begin, Dr. Chrissan creates a strawman by incorporating more of Agrwal's teachings than proposed. The issue is simply the idea of the hand off. In any event, while Agrawal's particular use of its disclosed monitoring is for a cellular system, a POSA would have recognized that such monitoring applies to a variety of wireless networking architectures, regardless of whether they are a WWAN or a WLAN. Notably, as I discuss in my Original Declaration, "Palmer and Agrawal both disclose using monitored signal characteristics to determine whether a downlink connection has degraded so as to necessitate reducing the connection's data rate." Ex. 1002, ¶210 (citing Ex. 1004, 5:10-49, 6:20-54; Ex. 1007, 5:26-29, 2:58-3:1). And "Palmer additionally utilizes these monitored signal characteristics to determine whether to switch (e.g., roam) a portable terminal 20 to another access point, while Agrawal describes its monitored signal characteristics indicating '[i]f the mobile unit is moving away from the base station.'" Ex. 1002, ¶210 (citing Ex. 1004, 5:10-49, 6:8-54; Ex. 1007, 5:36-47, 2:7-15).

Pet. 78–79; Reply 30; Ex. 1002 (Almeroth Decl.) ¶ 210; Ex. 1024 (Almeroth Reply Decl.) ¶¶ 38–40.

Ground 2: Hohnstein + Palmer

GAS disputes:

1. Whether Hohnstein discloses communicating using a WAN protocol with a base station.
2. Whether Hohnstein discloses the second transceiver "monitoring" or "routing."

Ground 2: Hohnstein + Palmer

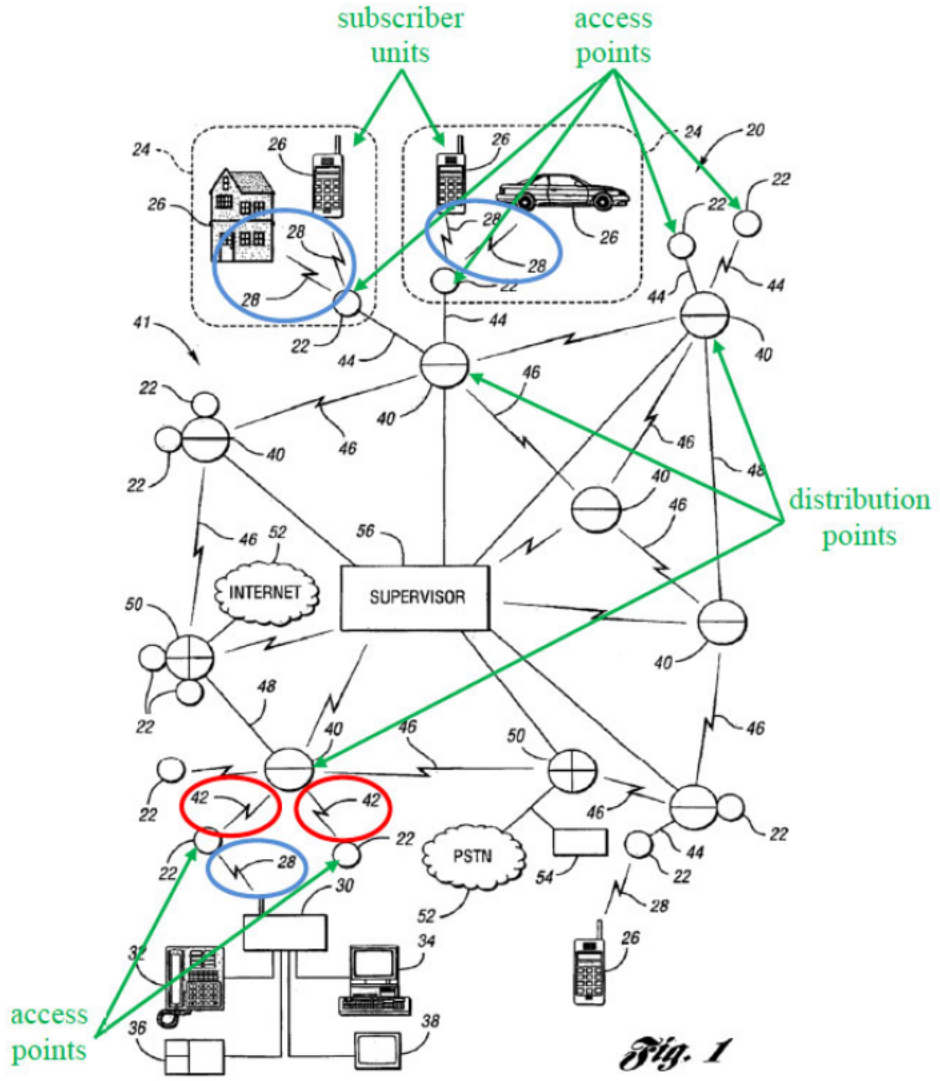
GAS disputes:

1. Whether Hohnstein discloses communicating using a WAN protocol with a base station.
2. Whether Hohnstein discloses the second transceiver "monitoring" or "routing."

Hohnstein Discloses or Makes Obvious Communicating Using a WWAN Protocol with a Base Station

Claim 1

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
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.



Pet. 33–66; Reply 18–26;'794 Patent, cl. 1; Ex. 1005 (Hohnstein) Fig. 1 (annotated).

Hohnstein Discloses or Makes Obvious Communicating Using a WWAN Protocol with a Base Station

Claim 1

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
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.

Access system 564 including:
- directional access antenna 57;
- omnidirectional antenna 574; and
- access data terminal 566

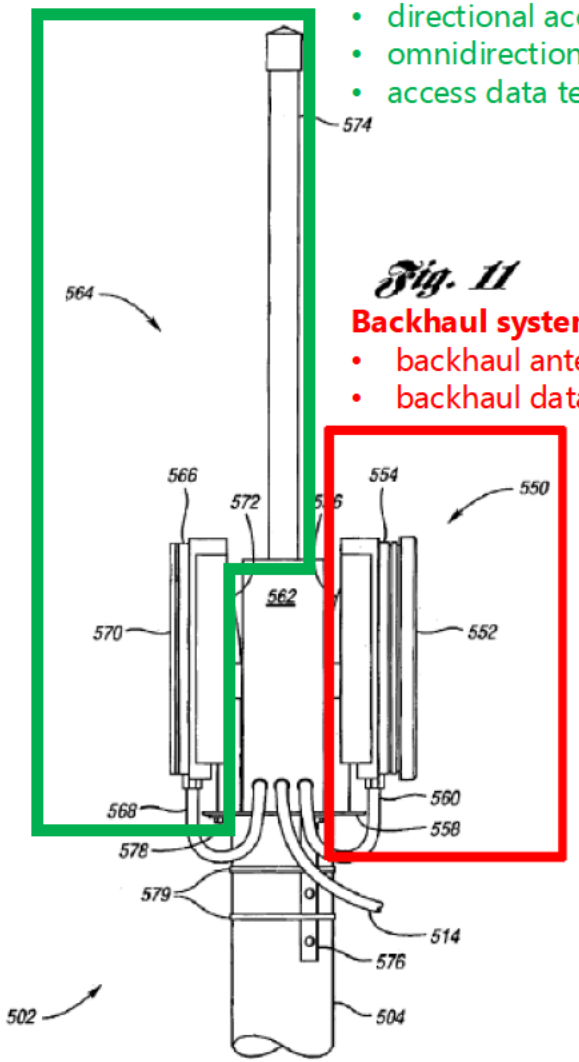


Fig. 11

Backhaul system 550 including:
- backhaul antenna 552 and
- backhaul data terminal 554

Pet. 40–66; Reply 18–26;'794 Patent, cl. 1; Ex. 1005 (Hohnstein) Fig. 11 (annotated).

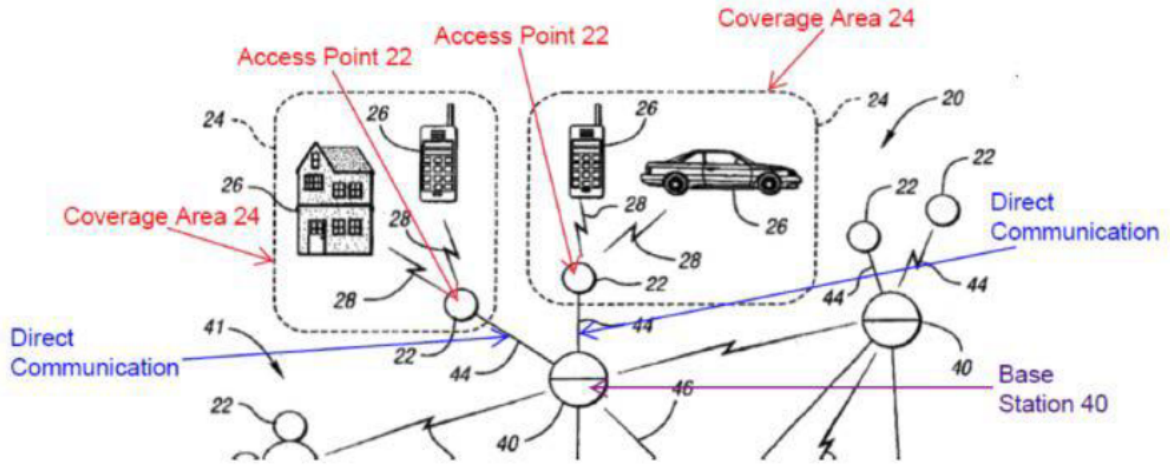
The Board Previously Found that Hohnstein Discloses Communicating Wirelessly with Base Stations

'555 Patent claim:

1. A wireless communication device, comprising:

a ***first transceiver in direct wireless communication with a terrestrial base station***, wherein the terrestrial base station is in direct wireless communication with a plurality of wireless communication devices

'555 Final Written Decision:



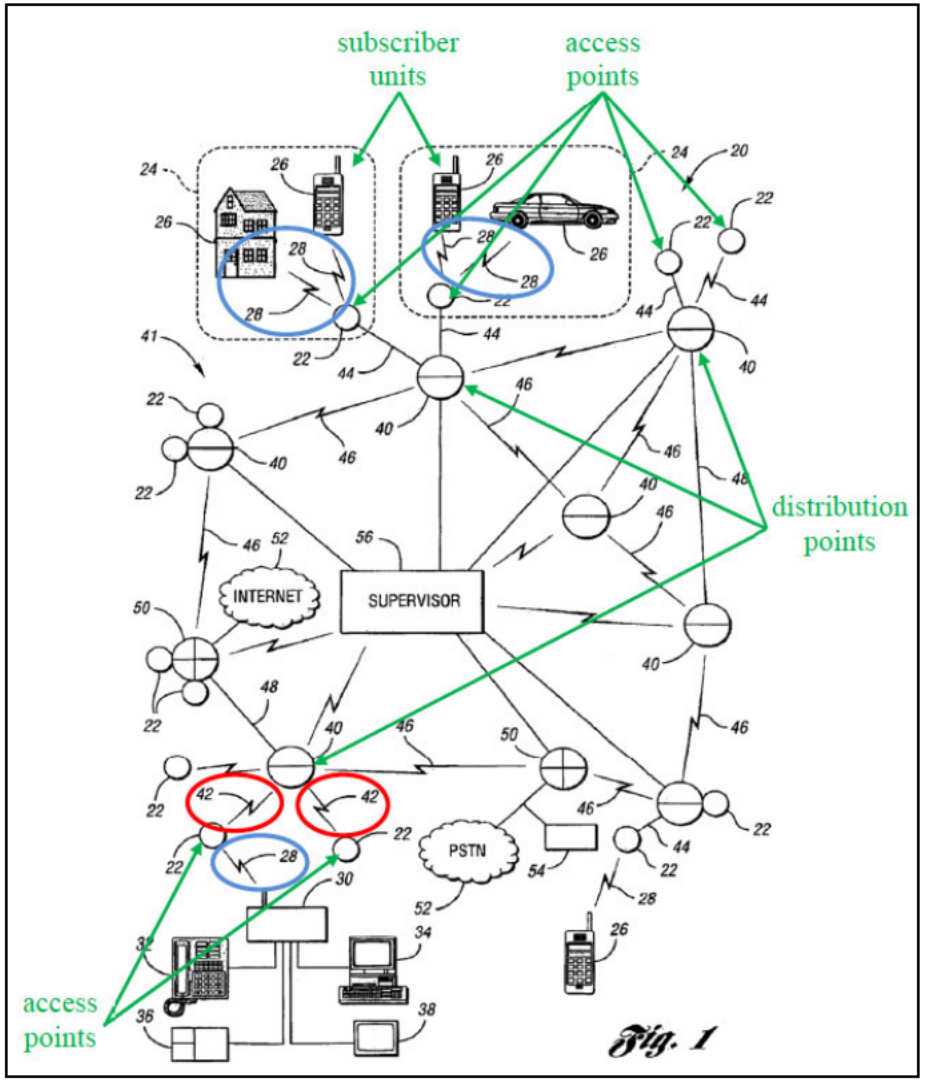
We find, on the basis of the evidence and explanation provided by Petitioner, that Hohnstein discloses "wherein the terrestrial base station is in direct wireless communication with a plurality of wireless communication devices."

Pet. 34; '555 Patent, cl.1; Ex. 1010 ('555 FWD) at 34.

The Board Found Base Station Is Not Affirmatively Recited

Institution Decision

Patent Owner relies on statements in the Specification for these purported requirements of a "base station," but does not explain adequately how or why any of those requirements should be read into the challenged claims. Additionally, we note that the base station of, for example, independent claim 1 is not affirmatively claimed structure of the claimed "wireless communication device," which is comprised of two transceivers. *See* Ex. 1001, 10:17–44. Rather, the recited base station serves to define the capabilities of the claimed first wireless transceiver, which must be operable to communicate with a base station according to a wide area wireless communication protocol. On the current record, we decline to read into the claims any further requirements concerning the base station beyond those expressly recited in the claims.



Reply 18–20; Paper 14 (Institution Decision) at 14–15.

GAS's Expert Conceded WANs Were Understood to Provide Point-to-Point Connections in 2001

Chrissan Declaration

36. Different types of wired and wireless networks qualify as a WAN. Examples of wireless WANs ("WWANs") at the time of the patent include RAM Mobile Data (using a Mobitex network), CDPD (Cellular Digital Packet Data), ARDIS (Advanced Radio Data Information Services) and satellite communication. Ex. 1006 at 45:44–45. At the time of the '794 Patent, WANs typically "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." *Id*. at 3:12–20. It was against this existing WAN backdrop that cellular wireless networks—

Point-to-multipoint base station neither claimed nor required

Reply 18–20; Ex. 2007 (Chrissan Decl.) ¶ 36.

'794 Patent Claims Do Not Preclude Multiple Interfaces Within the Claimed Device

Claim 1

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
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.

Whether Hohnstein discloses a point-to-multipoint connection has no bearing on the '794 Patent claims:

- Claim language does not distinguish
- Base station is not an "affirmatively claimed structure"
- GAS IPR expert admitted, "[a]t the time of the '794 Patent, ***WANs typically only provide point-to-point communications***."

POR 48–51; Reply 18–26; Ex. 1024 (Almeroth Reply Decl.) ¶¶ 29–31; Paper 14 (Institution Decision) 14–15; Ex. 2007 (Chrissan Decl.) ¶ 36.

Hohnstein Discloses or Makes Obvious First Wireless Transceiver Communicating According to a WAN Protocol

GAS expert admits Hohnstein discloses microwave links:

> A POSA would understand that the first passage Petitioner relies upon emphasizes that Hohnstein's links are point-to-point microwave links at 5.8, 6, 11, 18 and 23 and 24 GHz, as discussed previously. (EX2007, ¶107.) A POSA would

Telecommunication System Engineering **(3d Ed.) confirms microwave links provide WAN connectivity:**

> Line-of-sight (LOS) microwave provides broadband bearer connectivity over a link or series of links in tandem. We can take advantage of this "line-of-sight" phenomenon at frequencies from 150 MHz and upwards into the millimeter spectrum. Each link can be up to 30 miles (46 km) long or more depending on terrain topology. Some links extend over 100 miles (160 km). A

Reply 21–24; Ex. 2007 (Chrissan Decl.) ¶ 107; Ex. 1018 at 267.

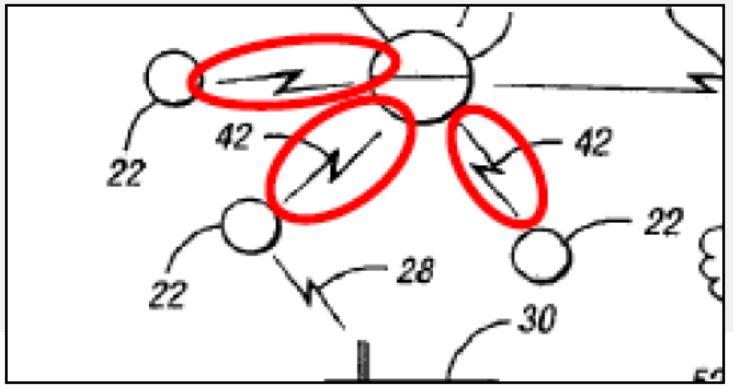
Hohnstein Describes Using a Common WAN Protocol

Almeroth Reply Declaration

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. Moreover, Hohnstein discloses, as one example, that each of these wireless links utilize an Asynchronous Transfer Mode (ATM) protocol, which is used for WAN communication. Ex. 1005, 11:12-49; Ex. 1019, p. 2 ("Several WAN protocols have been developed over time, including … ATM").

Ex. 1024 (Almeroth Reply Decl.) ¶¶ 29–31; Reply at 23–24.

Hohnstein Describes Using a Common WAN Protocol



Chrissan Deposition

Q And those lightning bolts [in Figure 1] are labeled --at least two out of the three are labeled using Reference Numeral 42, correct?

A Yes.

Q So is it accurate to say that that distribution point 40 communicates wirelessly with multiple access points 22?

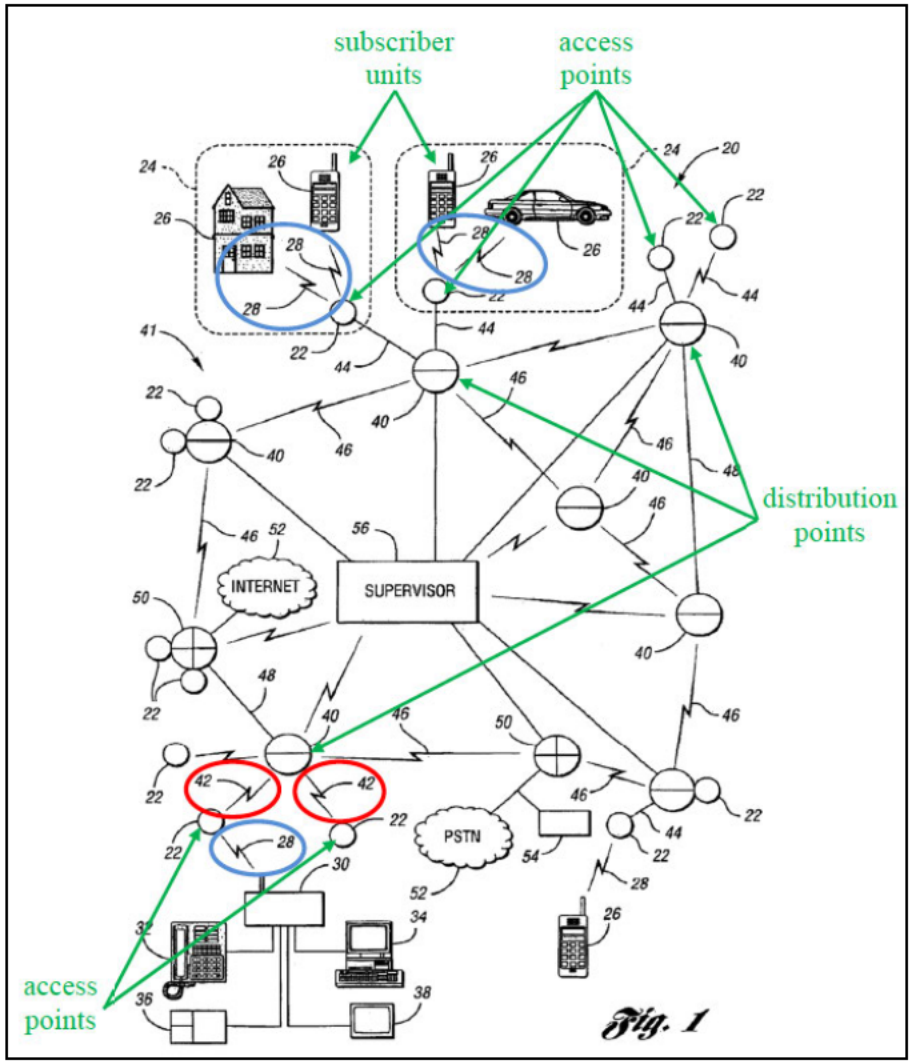
A Yes, it does. That is what's depicted here.

Reply 21–22; Ex. 1017 (Chrissan Dep.) at 92:13–95:3, Ex. 1005 (Hohnstein), Fig. 1 (annotated).

Hohnstein Discloses WLAN Protocols Between Access Point and Mobile Stations

Hohnstein:

Distribution points **40** may route packets within distribution point network **41** under a variety of protocols such as ATM, TCP/IP, 802.x, or the like. In a preferred embodiment, distribution point **40** includes an ATM/IP switch. Distribution point **40** then operates at both the IP routing and ATM switching layers or, in terms of the Open Systems Interconnection (OSI) standard, at both the network layer and the data link layer.



Pet. 33–66; Reply 18–26; Ex. 1005 (Hohnstein) Fig. 1 (annotated), 5:58–65.

Hohnstein Describes Using a Common WLAN Protocol

Almeroth Reply Declaration

33. I disagree. As I discuss in my Original Declaration, Hohnstein's access point 22 may be formed as illustrated in Fig. 11 and includes at least an omnidirectional access antenna 574 providing wireless connectivity with subscriber units 26. Ex. 1002, ¶¶142-45. Hohnstein discloses that the "[o]mnidirectional access antenna 574 may operate at 5.8 GHz providing 57.9 Mbps peak data rate to fixed and portable subscriber ***units*** 26." Ex. 1005, 16:27-29. As Hohnstein refers to plural subscriber "units," a POSA would have understood that the omnidirectional access antenna 574 provides concurrent wireless connectivity to the plural units. As each of these subscriber units 26 is wirelessly communicating at the same time with the omnidirectional access antenna 574, a POSA would have understood that the same wireless protocol is used for this communication—otherwise, any competing protocols may conflict with and interfere with one another, disrupting the wireless connections. Therefore, a POSA would have recognized that Hohnstein's omnidirectional access antenna 574 uses the same protocol for communicating with its connected devices.

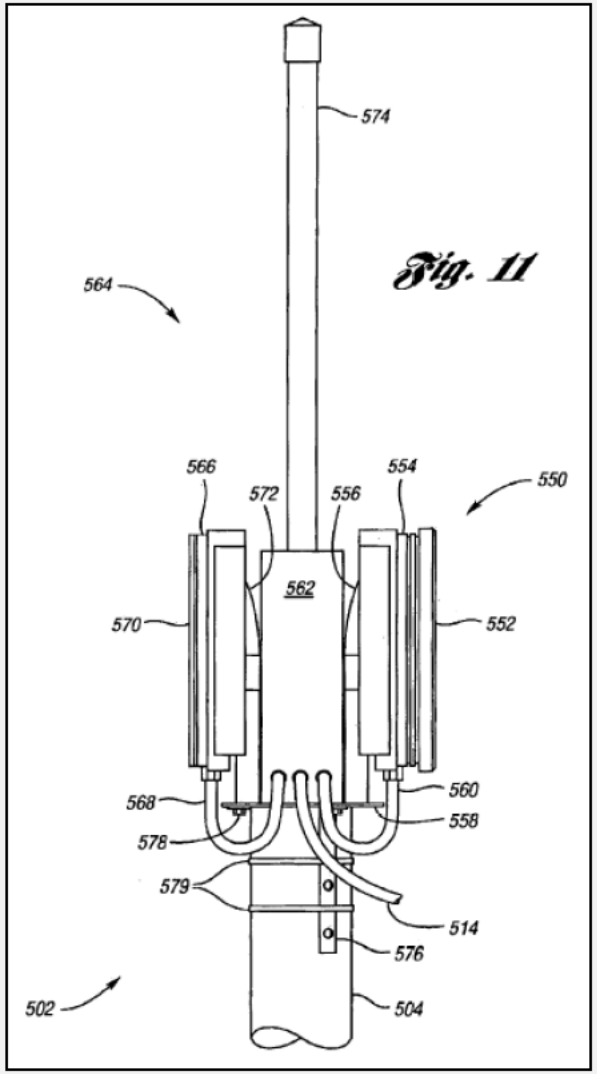


Fig. 11

Reply 26–27; Ex. 1024 (Almeroth Reply Decl.) ¶¶ 32–33.

GAS's Other Arguments on the Base Station Element Fail

GAS Allegation	Fact
Hohnstein discloses "mesh network" arrangement.	This is irrelevant, as mesh network is "simply a topology . . . independent of WAN or LAN." Ex. 1017 (Chrissan Dep.) 102:19–21, 101:9–102:5.
Hohnstein utilizes a single wireless technology across the network.	Hohnstein discloses (i) WAN wireless backhaul link between distribution point and access point (Ex. 1005 at 16:8–26) and (ii) local wireless link between access point and portable subscriber unit (*id.* at 16:30–32).
'794 Patent claims exclude multi-base station connection.	'794 Patent at 7:44–49 discloses "other implementations" in which base station is "configured in other manners."

POR 51–55; Reply 24–27.

Ground 2: Hohnstein + Palmer

GAS disputes:

1. Whether Hohnstein discloses communicating using a WAN protocol with a base station.

2. Whether Hohnstein discloses the second transceiver "monitoring" or "routing."

Hohnstein Discloses or Makes Obvious Second Transceiver "Monitoring"

Hohnstein discloses quality error bit rate updating based on location and other signal parameters:

In an embodiment of the present invention, a quality error bit rate is established for each subscriber unit **26**. This quality error bit rate may be based on the location of subscriber unit **26** within communication system **20**, the class of service assigned to subscriber unit **26**, the grade of service assigned to subscriber unit **26**, the data or transmission rate of service assigned to subscriber unit **26**, or any other suitable parameter. The quality error bit rate may be modified while subscriber unit **26** is within communication system **20** to reflect changing conditions such as noise, demand, connectivity, or any other suitable parameter. Applications providing services to subscriber unit **26** may adjust these services based on the quality error bit rate. For example, an application providing streaming audio and video may reduce the frame update rate as noise increases, guaranteeing successful transmission at a lower information rate. The information rate may be further reduced to provide only still pictures and audio if conditions continue to worsen. The information rate may also be automatically changed if subscriber unit **26** moves between coverage areas **24** with differing transmission capabilities or loads.

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.

In an embodiment of the present invention, bandwidth on communication link **28** is only consumed when packets containing information are transmitted. For example, each subscriber unit **26** surrenders bandwidth on communication link **28** when not sending or receiving an information packet. Packets to be transmitted are queued based on order of arrival, priority, a combination of arrival order and priority, or the like. Subscriber unit **26** monitors a signaling channel transmitted by access point **22** for each coverage area **24**. Subscriber unit **26** only consumes bandwidth when instructed to transmit by the signaling channel or when receiving packets.

Pet. 58–60; Ex. 1005 (Hohnstein), Fig. 8 (annotated), 5:1–21; 22–42.

Hohnstein Discloses or Makes Obvious Second Transceiver "Routing" Based on Signal Characteristics

Hohnstein discloses "forwarding" packets to other WLAN nodes based on mobile station location:

Referring now to FIG. **8**, a schematic drawing illustrating forwarding equivalency class updating to track a moving subscriber unit is shown. If subscriber unit **26** is mobile or portable, as indicated by U1 in FIG. **8**, subscriber unit **26** may move out of coverage area **24** for one access point **22** and into coverage area **24** for a new access point **22**. The address for subscriber unit **26** is then moved from FEC **402** of original access point **22** into FEC **402** for new access point **22**. In an embodiment, when original access point **22** is no longer in communication with subscriber unit **26**, original access point **22** broadcasts a message to distribution points **40** and supervisor **56**. If original access point **22** subsequently receives any packets for subscriber unit **26**, original access point forwards these packets back into distribution point network **41**. If the packets are sequentially indicated, such as IP packets, correct order will be established by subscriber unit **26** when packets are received.

Access point forwards packets back to network in response to mobile station roaming

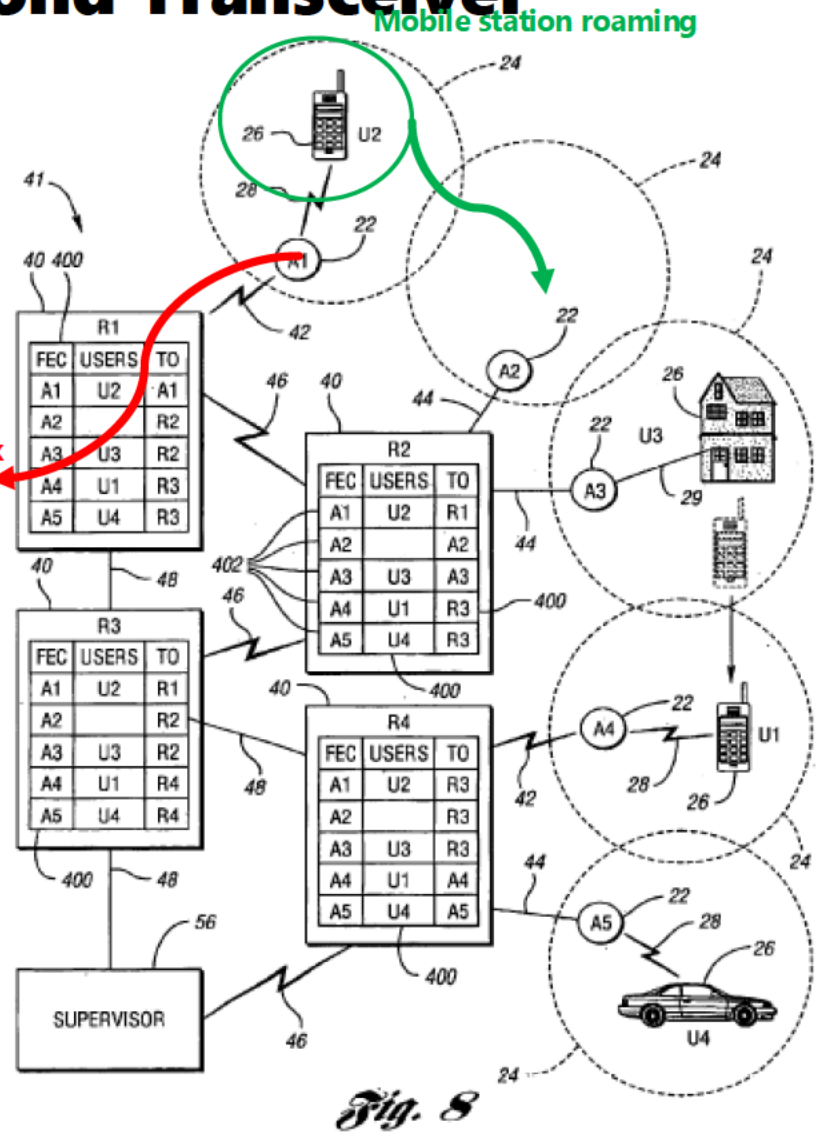


Fig. 8

Reply 27–28; Ex. 1005 (Hohnstein), Fig. 8 (annotated), 13:22–38.

Hohnstein Mirrors '794 Patent Disclosure on Handover

'794 Patent specification:

A routing map **52** is further shown in the figure. The routing map is functionally connected to the access process **28**. The routing map includes a listing of the mobile stations, such as the mobile station **46** operable to transceive communication signals pursuant to the WLAN service. Indexed together with the listing the mobile stations are the locations at which the mobile stations are positioned. When communications are to be effectuated with a particular mobile station, such as communications originated by the correspondent node **34**, the routing map is accessed and the communication signals are routed to the mobile stations at the position indicated in the routing map. And, when a handover is effectuated, information routed to a mobile station but not yet delivered is rerouted to the WLAN transceiver to which communications have been handed over.

Hohnstein:

Referring now to FIG. **8**, a schematic drawing illustrating forwarding equivalency class updating to track a moving subscriber unit is shown. If subscriber unit **26** is mobile or portable, as indicated by U1 in FIG. **8**, subscriber unit **26** may move out of coverage area **24** for one access point **22** and into coverage area **24** for a new access point **22**. The address for subscriber unit **26** is then moved from FEC **402** of original access point **22** into FEC **402** for new access point **22**. In an embodiment, when original access point **22** is no longer in communication with subscriber unit **26**, original access point **22** broadcasts a message to distribution points **40** and supervisor **56**. If original access point **22** subsequently receives any packets for subscriber unit **26**, original access point forwards these packets back into distribution point network **41**. If the packets are sequentially indicated, such as IP packets, correct order will be established by subscriber unit **26** when packets are received.

Reply 27–28; '794 Patent, 8:61–9:3; Ex. 1005 (Hohnstein), 13:22–38.

Hohnstein Discloses or Makes Obvious Second Transceiver "Routing" Based on Signal Characteristics

Paul Struhsaker ('794 Patent inventor) testified "all WLANs" perform the claimed "routing":

Q. ***[Y]ou did not write in this patent anything about the second transceiver performing routing to the first and second mobile stations***. Correct?

A. It is not written like that.

Q. And it is not written like that -- it is not written in any words. Correct? In words.

A. The concept is sitting there in the document as WLAN, as any person skilled in the art at that time would know.

Q. Well, let me ask you this. The patent doesn't describe at all the WLAN performing this [routing] function. Right?

A. ***Because all WLANs perform that function*****.** Why would I describe what you could look up in a textbook?

Reply 17–18; Ex. 1023 (Trial Tr.) 269:9–21.

Ground 5: Palmer + Agrawal + Mahany
Ground 6: Hohnstein + Agrawal

- General Access makes no argument specific to these grounds.

Reply 31.

ADDITIONAL SLIDES

POSA Would Have Been Motivated to Combine Transceivers in Single Device to Save Costs

'794 Patent specification acknowledges rack-assembly arrangement, known since 1923:

In the exemplary implementation, the integrated access device 24 forms a ***rack-assembly*** *having expansion slots to receive expansion cards thereat. And, the WLAN transceiver is mounted upon, or is otherwise formed at, an expansion card connectable to the expansion slot of the rack-assembly. Thereby the integrated access device together with the WLAN transceiver form an integrated device providing for two-way communication upon the radio link 16 as well as two-way communication upon the radio link 46.*

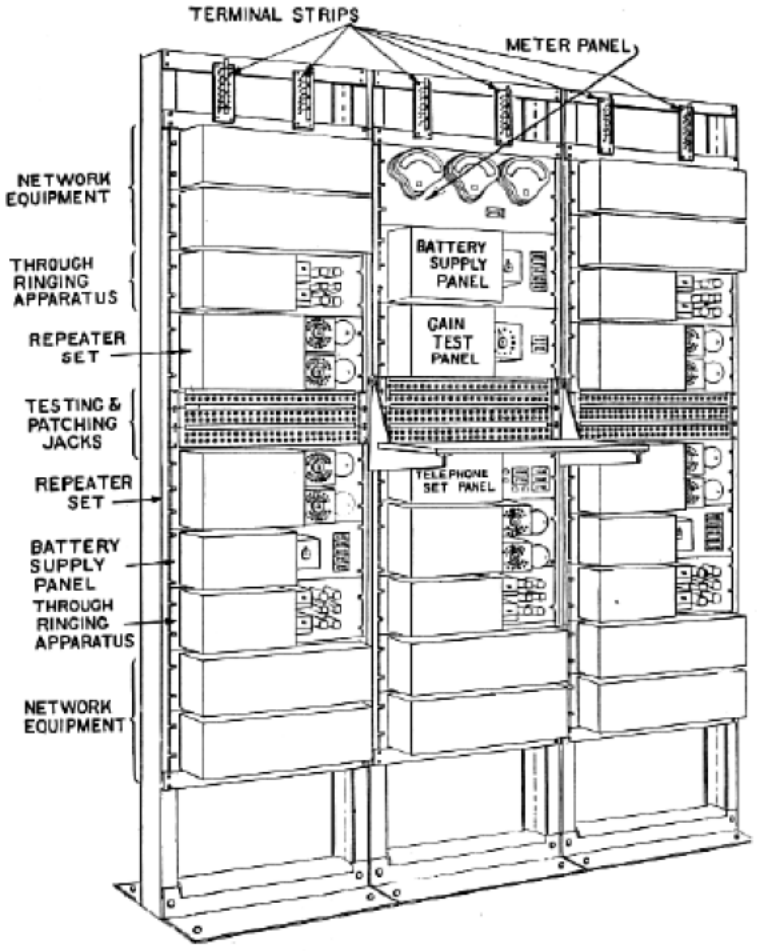
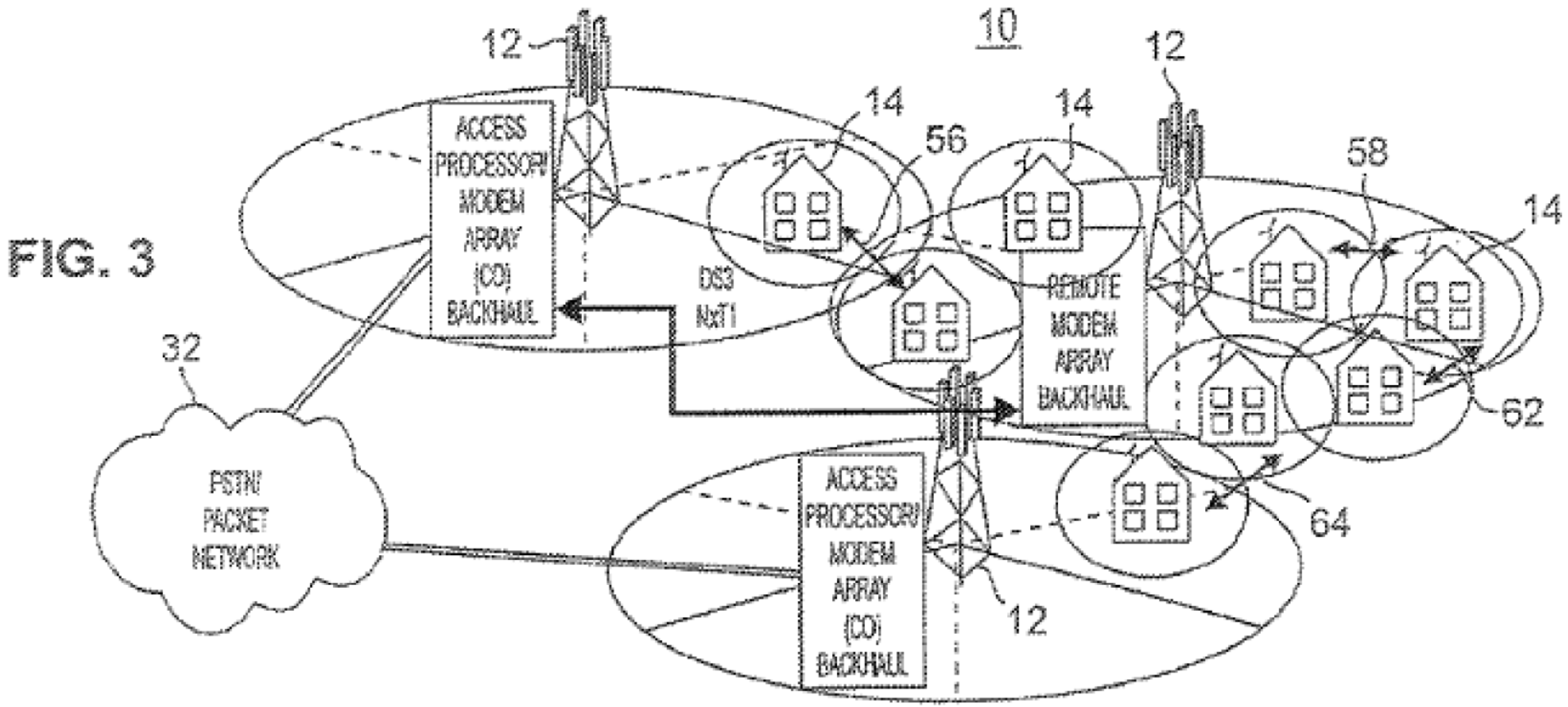


Fig. 7—Panel Mounted Repeaters as Arranged in a Small Installation

'794 Patent, 8:28–36; Reply 7–11; Ex. 1002 ¶¶ 70–72; Ex. 1013 at 114–15.

’794 Patent Disclosure

Figure 3



’794 Patent, 8:56–9:3, Claim 1.

GAS Expert Conceded Receiving Measurement Reports Is Monitoring

Chrissan Deposition

A. So, clearly, Palmer has some notion of the measurements being taken with respect to a wireless LAN.

. . .

Q How would a device in the Administration Building 33 perform measurements of the wireless link between Portable Terminal 20 and Access Point 40, which is located in a different buildings?

. . .

A. ***[A]ny 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.

. . .

Q And it's done in Administration Building 33 by that building receiving the measurement information from Portable Terminal 20?

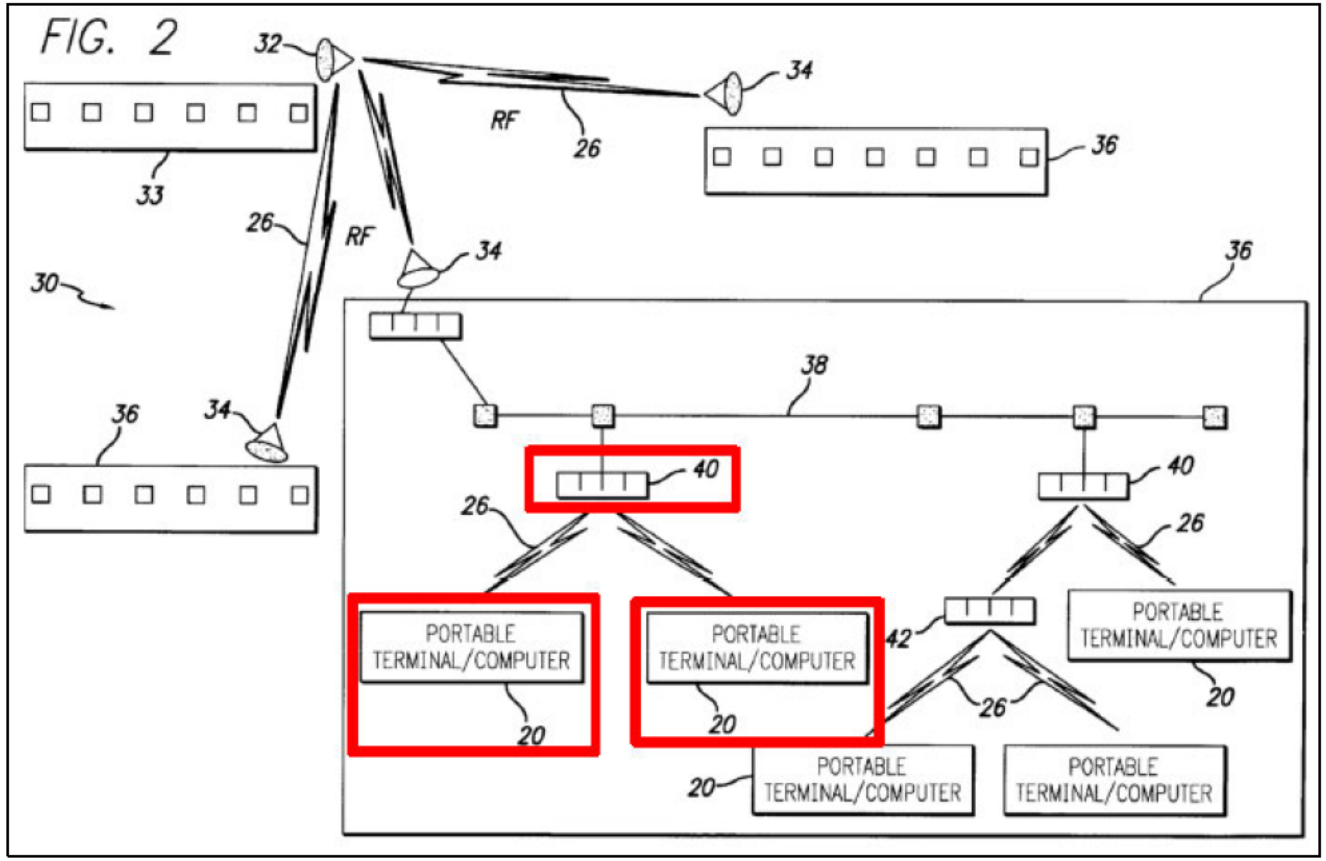
A ***That is one way -- that is one aspect that it could use, yes.***

Ex. 1017 (Chrissan Dep.) at 82:11–19, 86:19–90:18.

Palmer Discloses or Makes Obvious Second Transceiver Monitoring

Palmer:

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 consist of transmitter/receiver repeaters, as in FIG. **1**. The wired network **38** is then linked to the administration building **33** and its associated network through the remote antenna **34** to the central antenna **32** and finally through its link to a wired network (not shown) within the administration building **33**.



Pet. 24–27; Reply 12–18; Ex. 1004, Fig. 2 (annotated), 5:1–8.

Palmer Discloses or Makes Obvious Second Transceiver Monitoring

Almeroth Declaration

91. A POSA would have understood that a "bridge", including in Palmer's context, connects two or more network segments and forwards packets between them.

> **Bridge** 1. In classic terms, a bridge is a data communications device that ***connects two or more network segments and forwards packets between them***. …
> 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***.

Ex. 1011 at 126-27 (italicized emphasis added).[1]

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." Ex. 1004, 2:52-55.

Pet. 24–27; Ex. 1002 (Almeroth Decl.) ¶¶ 91–92.