IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

NEXTG NETWORKS, INC, a Delaware corporation,

Plaintiff and Counter-Defendant,

v

NEWPATH NETWORKS, LLC, a New Jersey limited liability corporation,

Defendant and Counter-Plaintiff.
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No C08-1565 VRW

ORDER

This suit focuses on United States Patent No 5,682,256 ('256 Patent) which describes a communication system with all transceivers centralized at a base station. This order addresses the claim construction of the '256 Patent.

I

On March 21, 2008, NextG Networks, Inc ("NextG") filed a complaint against NewPath Networks, LLC ("NewPath") for infringement of the '256 Patent. Doc #1. On May 15, 2008, NewPath filed an answer to the complaint and a counterclaim for, among

others, a declaratory judgment of invalidity of the '256 Patent. Doc #7. After filing a joint claim construction statement, Doc #50, the parties filed claim construction briefs to support their proposed construction of a number of disputed claim terms. Docs #53, #58 and #68. This order construes the disputed terms.

II

Claim construction is an issue of law and it begins "with the words of the claim." Nystrom v TREX Co, Inc, 424 F3d 1136, 1142 (Fed Cir 2005). Claim terms are "generally given their ordinary and customary meaning" unless the patent specification or file history contains a clearly stated "special definition." Vitronics Corp v Conceptronic, Inc, 90 F3d 1576, 1582 (Fed Cir 1996). Moreover, "the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips v AWH Corp, 415 F3d 1303, 1313 (Fed Cir 2005). Such a person understands the claim term by "looking at the ordinary meaning in the context of the written description and the prosecution history." Medrad, Inc v MRI Devices Corp, 401 F3d 1313, 1319 (Fed Cir 2005). References to "preferred embodiments" in the written description and prosecution history are not claim limitations. Laitram Corp v Cambridge Wire Cloth Co, 863 F2d 855, 865 (Fed Cir 1988).

Relatedly, each claim is presumed to have a different scope. Kraft Foods, Inc v Int'l Trading Co, 203 F3d 1362, 1368 (Fed Cir 2000). The doctrine of "claim differentiation" cannot, however, be applied to reclaim subject matter surrendered during

prosecution. Fantasy Sports Properties, Inc v Sportsline.com, Inc, 287 F3d 1108, 1115-16 (Fed Cir 2002). If a limitation on claim scope is premised upon subject matter surrendered during prosecution, the "disclaimer * * * must be both clear and unmistakable." Sorenson v ITC, 427 F3d 1375, 1378-79 (Fed Cir 2005).

Further, it is appropriate "for a court to consult trustworthy extrinsic evidence to ensure that the claim construction it is tending to from the patent file is not inconsistent with clearly expressed, plainly apposite and widely held understandings in the pertinent technical field." Pitney Bowes, Inc v Hewlett-Packard Co, 182 F3d 1298, 1309 (Fed Cir 1999). Extrinsic evidence "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Phillips, 415 F3d at 1317. All extrinsic evidence should be evaluated in light of the intrinsic evidence. Id at 1319.

With these principles in mind, the court now turns to the construction of the disputed claim language of the '256 Patent.

III

As the '256 Patent describes, a cellular communication system includes radio transceivers, located at base stations, which communicate with a fixed communication network. Doc #50-2 Exh A at 9 ('256 Patent at 1:10-19). As the number of mobile users in the system increases, the number of base stations with radio transceivers must increase to accommodate the increased radio

traffic. Id (1:24–30). The difficulties associated with equipping the base stations and finding suitable locations make increasing the capacity of cellular communication systems complicated and expensive. Id (1:26-36).

The '256 Patent describes a communication system in which all transceivers are centrally located at base centers* and communicate with fixed radio ports via a fiber optic network. Id (1:40-47, 2:1-5). The fixed radio ports transmit and receive radio carriers to and from roaming radio equipment. Id (2:50-52). To facilitate transmission of radio frequency ("RF") signals over fiber optics, "radio/optical interfaces" modulate the RF signals onto optical signals and demodulate RF signals from the optical signals. Id (2:48-50).

Several claim terms are in dispute, and the parties have stipulated to constructions of several other claim terms. See Doc #50. The court accepts the parties' stipulated constructions for purposes of this action. The terms in dispute are: "radio/optical interfaces;" "fixed radio ports;" "a fiber optic network for * * * carrying the RF signals by means of optical signals;" "RF-modulated optical signals;" "independently operated radio frequency (RF) transceivers;" "a fiber optic network for selectively interconnecting the RF transceivers and the fixed radio ports;" "a matrix switch for selectively interconnecting the transceivers and the radio ports;" "diversity operation;" "dynamic channel allocation;" and "trunked RF communication channels." Doc #50. In

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* Although the '256 Patent uses both British and American spellings, for consistency the court will use only American spellings.

addition, the parties agree that certain terms share the meanings of some claim terms in dispute. Id.

NextG alleges NewPath has infringed claims 1-4, 7, 8, 12-16, 19 and 20 of the '256 Patent. Doc #53 at 9. The disputed terms are found in asserted claims 1, 2, 13-15, 19 and 20. See Doc #50-2 Exh A at 11-12 ('256 Patent at 5:12-8:10). The relevant portions of each claim are presented below with disputed language underscored the first time it appears.

> 1. A communications system comprising: a base center having a plurality of independently operated radio frequency (RF) transceivers at the base center for providing a plurality of radio frequency (RF) communications links; a plurality of fixed radio ports through which RF signals can be transmitted and received over the air; a fiber optic network for selectively interconnecting the RF transceivers and the fixed radio ports, and for carrying the RF signals by means of optical signals; a plurality of radio/optical interfaces by which RF signals can be modulated onto and demodulated from one or more optical signals, which interfaces are between the RF transceivers and the fiber optic network, and between the fiber optic network and the fixed radio ports.
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> 2. A communications system comprising: a base center having a plurality of independently operated radio frequency (RF) transceivers for providing a plurality of radio frequency (RF) communications links; a plurality of fixed radio ports through which RF signals can be transmitted and received over the air; a fiber optic network for selectively interconnecting the RF transceivers and the fixed radio ports, and for carrying the RF signals by means of optical signals; a plurality of radio/optical interfaces by which RF signals can be modulated onto and demodulated from one or more optical signals, which interfaces are between the RF transceivers and the fiber optic network, and between the fiber optic network and the fixed radio ports; and a matrix switch for selectively interconnecting the transceivers and the radio ports through the fiber optic network.
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13. A communications system comprising:

a base center having a plurality of independently operated radio frequency (RF) transceivers at the base center for establishing at least one radio frequency (RF) communication link;

a plurality of remotely located, fixedly situated, radio frequency (RF) communication ports for transceiving radio frequency (RF) signals via the air;

an optical fiber network selectively connecting said base center with each of said remote RF communication ports;

an RF/optical signal interface at said base center connected between said optical fiber network and said radio frequency transceivers for converting RF-modulated optical signals to RF electrical signals and for converting RF electrical signals to RF-modulated optical signals; and

an RF/optical signal interface at each of said RF communication ports connected to said optical fiber network for converting RF-modulated optical signals to RF electrical signals and for converting RF electrical signals to RF-modulated optical signals.

14. A cellular communications system for interfacing with plural portable or mobile RF transceivers via plural fixed RF communication ports, said system comprising:

a plurality of trunked RF communication channels including a plurality of independently operated RF transceivers accessible at a base center location;

an optical fiber network selectively interconnecting said base center location to said fixed RF communication ports; and

an RF/optical signal interface at both said base center and said fixed RF communication ports for converting RF electrical signals to RF-modulated optical signals and for converting RF-modulated optical signals to RF electrical signals so that communications between the base center and the fixed RF communication ports is via RF-modulated optical signals,

whereby RF transceiver resources may be concentrated and commonly located at the base center for servicing a plurality of fixed RF communication ports.

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> 15. A cellular communications system having trunked RF communication channels at a base station interfacing with plural portable or mobile RF transceivers via plural fixed RF communication ports distributed among overlapping cellular communication zones, said system comprising:
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> an optical fiber network selectively interconnecting said base station and its trunked RF communication channels with said fixed RF communication ports; and
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> an RF/optical signal interface at each end of the fiber network for converting RF electrical signals to RF-modulated optical signals and vice versa.
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> * * *
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> 19. A communication system as in claim 2 wherein diversity operation is provided by combining or switching between two or more radio points in the matrix switching.
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> 20. A communication system as in claim 2 wherein dynamic channel allocation is controlled in the base center.

Doc #50 Exh A at 11-12 ('256 Patent at 5:12-8:10).

A

"Fixed radio ports;" "remotely located, fixedly situated, radio frequency (RF) communication ports;" "fixed RF communication ports"

The term "fixed radio ports" is found in claims 1 and 2 and non-asserted claim 6. Doc #50-2 Exh A at 11 ('256 Patent at 5:12-39, 5:47-6:2). The term "remotely located, fixedly situated, radio frequency (RF) communication ports" is found in claim 13. Id (6:20-43). The term "fixed RF communication ports" is found in claims 14 and 15. Id at 11-12 (6:44-7:7). The parties agree the terms should share the same construction, but the parties' proposed constructions differ.

NextG argues that "fixed radio port" be construed as "an apparatus in which RF signals can be transmitted and received over the air but which contains no radio frequency transceivers. Each

of the fixed radio ports is fixed in location and distributed over a geographic area." Doc #50 at 4. NewPath argues that "fixed radio ports" be construed as:

> Fixed ports that are remote from a base center and comprise: (i) a radio/optical interface configured to directly modulate RF carrier signals onto optical carrier signals using analog RF modulation and to directly demodulate RF carrier signals off of analog RF modulated optical carrier signals; and (ii) an antenna configured to directly receive and transmit the RF carrier signals that are modulated and demodulated onto and off of the optical carrier signals. The RF carrier signals are themselves modulated to carry communication signals, such as voice or data signals, but modulation/demodulation of the communication signals onto and off of the RF carrier signals does not occur at the fixed radio ports.
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> Fixed radio ports are not configured to perform any switching related to the selective interconnecting, do not include radio frequency transceivers (defined above) and do not include A/D or D/A converters. Fixed radio ports may include other electronic or optical components as are commonly used in RF antenna systems for the transmission of the RF signal to and from the antenna including, for example, amplifiers and attenuators.

Id.

A construction in which fixed radio ports transmit and receive RF signals over the air is consistent with the parties' proposals. In addition, "fixed in location" reflects the ordinary meaning of "fixed."

In support of its construction, NewPath points to an instance in the specification where the radio/optical interfaces are located at the fixed radio ports. Doc #50-2 Exh A at 9 ('256 Patent at **2:39-49**). Because this refers to one embodiment of the patented system, the court does not adopt the limitation. Laitram Corp, 863 F2d at 865. Further, the claim language places the radio/optical interfaces between the fiber optic network and the fixed radio ports, which permits the fixed radio ports and the

radio/optical interfaces to be separate elements. Doc #50 at 4. Additionally, NewPath argues that the patentee stated during prosecution that RF optical modulation and demodulation occur at the fixed radio ports. Doc #60-2 Exh C at 41 (Feb '93 Response at NGP 410). This statement provides no support for NewPath's proposed limitation, however, because the patentee was discussing only one embodiment of the patented system. Laitram Corp, 863 F2d at 865.

The parties disagree whether fixed radio ports require antennas. NextG argues that the specification merely suggests that the system "may possess an antenna that can be configured to directly receive and transmit RF signals" but that antennas are not required. Doc #53 at 11. NewPath asserts that antennas are required but does not make an argument to support its proposed construction. Accordingly, the court does not construe fixed radio ports to require an antenna.

NewPath proposes a construction that modulation/demodulation of the communication signals does not occur at the fixed radio ports based on statements made during prosecution. Doc #60-2 Exh C at 41 (Feb '93 Response at NGP 410) ("The only signal processing activity taking place at the radio ports is extraction of the radio carrier signal from the optical carrier (so that the extracted radio signal carrier may continue onwards and be transceived via the air link to a mobile unit)."). Similarly, NewPath argues the patentee expressly disclaimed digital conversion during prosecution, in particular in its discussion of prior art US Patent No 4,807,222 ("Amitay"). Doc #58 at 8-12. ("It is not true that Amitay in any way suggests that those RF signals be directly

modulated onto optical signals."). For the court to accept NewPath's proposed limitations, the prosecution history disclaimer would need to be clear and unmistakable. Sorenson, 427 F3d at 1378-79. Here, however, the patentee's statements during prosecution are not unambiguous, and the court declines to include NewPath's proposed limitation.

Finally, NewPath offers no argument to support its proposed limitation that "fixed radio ports" "[m]ay include other electronic or optical equipment." Moreover, the court rejects a construction which merely provides an example of fixed radio ports.

The court will construe "fixed radio port" to be "a radio port, fixed in location, that transmits and receives RF signals over the air."

B

"Radio/optical interfaces;" "RF/optical signal interface"

The term "radio/optical interfaces" appears in claims 1 and 2. Doc #50-2 Exh A at 11 ('256 Patent at 5:12-39). The term "RF/optical signal interface" appears in claims 13, 14 and 15. Id at 11-12 (6:20-7:7). The parties agree the terms should share the same construction, but the parties' proposed constructions differ.

NextG argues that "radio/optical interface" should be construed to be an "apparatus that places a radio frequency (RF) signal onto an optical carrier or conversely recovers an RF signal from an optical carrier." Doc #50 at 12. NewPath argues that "radio/optical interface" be construed as:

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> **The fiber optic network has RF to optical interfaces providing direct analog modulation of optical signals by an RF signal and direct demodulation of optical signals to produce RF signals. The RF signals must be directly modulated onto and demodulated off of the optical carrier signals without any intervening modification of the RF signals such as frequency shifting or digitizing of the RF signals.**
>
> **These limitations are not satisfied by a device configured to carry RF signals that have been converted into intermediate frequency signals or into digital signals which are then modulated onto optical carrier signals.**

Id.

The specification describes radio/ optical interfaces as capable of "plac[ing] an RF signal onto an optical carrier or conversely recover[ing] an RF signal from an optical carrier." Doc #50-2 Exh A at 9 ('256 Patent at 2:40-42). This description is consistent with both parties' constructions.

NewPath seeks to preclude digitized RF signals. As noted above, the court does not find the patentee "clearly and unmistakably" disclaimed digital conversion during prosecution. Additionally, NewPath provides no support for the "frequency switching" limitation, and its proposed last sentence is repetitive.

The court construes "radio/optical interface" to be "an apparatus capable of placing an RF signal onto an optical carrier or conversely recovering an RF signal from an optical carrier."

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C

"RF-modulated optical signals"

The term "RF-modulated optical signals" appears in claims 13, 14 and 15. Doc #50-2 Exh A at 11-12 ('256 Patent at 6:20-7:7). NextG argues that a "RF-modulated optical signal" be construed as an "optical signal where one or more property has been varied for the purpose of carrying an RF signal transmitted by a transceiver and where the optical signal can be converted back to an RF electrical signal without a transceiver." Doc #50 at 19. NewPath argues that "RF-modulated optical signals" be construed to be "optical signals which are directly modulated by radio frequency signals using analog techniques and which can be directly demodulated to produce the radio frequency signals using only an RF/optical signal interface. Optical signals that are modulated by a digital signal are not RF-modulated optical signals." Id.

A construction in which RF-modulated optical signals are optical signals modulated by radio frequency signals is consistent with both parties' constructions. NewPath again attempts to preclude digitized RF signals, but because the patentee did not clearly and unmistakably disclaim digital conversion during prosecution, the court declines to adopt this limitation.

The best construction the court can offer for the term "RF-modulated optical signals" is "optical signals modulated by radio frequency signals," but this construction merely reorders the words in the claim term. Because the parties fail to persuade the court to adopt an alternate construction, the court declines to construe the term.

D

"Independently operated radio frequency (RF) transceivers"

The term "[i]ndependently operated radio frequency (RF) transceivers" appears in claims 1, 2, 13 and 14. Doc #50-2 Exh A at 11 ('256 Patent at 5:12-39, 6:20-63). NextG argues that the term should be construed as a "radio frequency receiving and transmitting apparatus that can transmit and receive RF signals that are different [from] the other RF transceivers at the base center." Doc #50 at 26.

NewPath argues that the term should be construed as follows:

> "RF transceivers receive signals, such as digital baseband signals, and up convert them to RF frequency signals and receive RF frequency signals and down convert them to signals, such as base band digital signals. Electronic or optical devices which merely pass an RF signal, such as attenuators, amplifiers, isolators, combiners, analog optical modulators, and switches are not RF transceivers."

Id.

The parties agree that RF transceivers receive and transmit RF signals. Doc #50 at 26. The court accepts that interpretation. "Independently operated" need not be construed beyond its ordinary meaning. Vitronics, 156 F3d at 1582. Accordingly, the court does not include "independently operated" in its construction.

In support of its construction, NewPath notes that the patentee stated in prosecution that conversion to and from RF occurs at the base station. Doc #68 at 23. NewPath's argument is unconvincing - all references are to modulation at the base station and do not specifically identify the transceivers as the equipment

performing the conversion. No reason exists to include specific examples of what the claim term precludes.

NextG's construction fails because it does not provide a role for the RF transceivers. If the RF transceivers simply transmit and receive RF signals, then they are no different from the fixed radio ports.

The parties agree that "RF transceivers" transmit and receive RF signals and do not explain why the term requires further construction. Accordingly, the court declines to construe the term.

E

"A fiber optic network for selectively interconnecting the RF transceivers and the fixed radio ports;" "an optical fiber network selectively connecting said base center with each of said remote RF communication ports;" "an optical fiber network selectively interconnecting said base center location to said fixed RF communication ports;" "an optical fiber network selectively interconnecting said base station and its trunked RF communication channels with said fixed RF communication ports"

The term "a fiber optic network for selectively interconnecting the RF transceivers and the fixed radio ports" appears in claims 1 and 2. See Doc #50-2 Exh A at 11 ('256 Patent at 5:12-49). The term "an optical fiber network selectively connecting said base center with each of said remote RF communication ports" appears in claim 13. See Doc #50-2 Exh A at 11 ('256 Patent at 6:20-43). The term "an optical fiber network selectively interconnecting said base center location to said fixed RF communication ports" appears in claim 14. See Doc #50-2 Exh A at 11 ('256 Patent at 6:44-62). The term "an optical fiber network selectively interconnecting said base station and its trunked RF

communication channels with said fixed RF communication ports" appears in claim 15. See Doc #50-2 Exh A at 11-12 ('256 Patent at 6:63-7:7). The parties agree the terms should share the same construction, but the parties' proposed constructions differ.

NextG argues that the term should be construed as an "arrangement of fiber optic cables and associated electrical and optical components allowing the interconnection between the radio frequency transceivers and fixed radio ports to be configurable such that radio frequency transceivers communicate with chosen fixed radio ports." Doc #50 at 29. NewPath argues that the term be construed as follows:

> The fiber optic network comprises an RF or optical switching matrix that is configured to selectively and dynamically connect each of the RF transceivers in the base station to each of the fixed radio ports.
>
> An optical network that hardwires one RF transceiver to one or more fixed radio ports and hardwires a second RF transceiver to another set of one or more fixed radio ports does not satisfy these limitations. One or more bandpass filters hardwired into connections to respective fixed radio ports does not satisfy these limitations. An optical network that must be physically rewired to connect an RF transceiver to a fixed radio port or to disconnect an RF transceiver from a fixed radio port does not satisfy these limitations. Equipment in an optical network that can be turned off for maintenance purposes does not satisfy these limitations of the claims. A matrix switch configured to selectively interconnect a plurality of inputs that are not radio frequency inputs or optical inputs carrying directly modulated RF signals with a plurality of outputs does not satisfy these limitations of the claims. Time and Frequency Division Multiplexing does not satisfy these limitations of the claims.

Id.

A construction in which the fiber optic network connects the RF transceivers and the fixed radio ports is consistent with the parties' proposals. NewPath argues that the '256 Patent's

specification makes frequent references to the NxM switch as the "central part of the base center." See, for example, Doc #50-2 Exh A at 10 ('256 Patent 3:11-15, 4:55-58). NewPath argues these references require a matrix switch limitation. Doc #58 at 10. Because the specification refers to a preferred embodiment, the court declines to read this limitation into the claims. Laitram Corp, 863 F2d at 865.

On the other hand, NextG argues that the doctrine of claim differentiation requires a finding that a matrix switch is not a limitation of claim 1. Doc #53 at 24. The limitation "a matrix switch" is introduced at claim 10, which is dependent on claim 1. Doc #50-2 Exh A at 11 ('256 Patent 5:12-24, 6:09-12). NewPath argues that claim differentiation does not apply because during prosecution the patentee repeatedly distinguished and disclaimed hardwired systems that lacked a matrix switch configured to interconnect any of the transceivers selectively to any of the fixed radio ports. Doc #58 at 15. The following is representative of the patentee's prosecution arguments:

> [T]he Examiner notes that Barnes et al teaches a switching matrix * * * such switch matrices are merely "conventional voice communication circuit switching matrices." * * * Such switches clearly have nothing to do with switching at RF/optical interfaces so as to facilitate the use of shared RF transceiver resources at a central site.

Doc #60-2 Exh D at 39-41 (May 93 Response at NGP 407-08). The statements do not amount to a clear and unmistakable disclaimer of hardwired systems or systems without a matrix switch.

In addition, the patentee stated "[t]he necessary switching at the central station to selectively connect transceivers and radio ports may be done in the RF domain or in the

optical domain." Doc #60-3 Exh H at 42-43 (Jan 96 Response at NGP 963-64). This, however, does not disclaim hardwired systems or systems without matrix switches. The statement requires that selective interconnection include switching but does not require a matrix switch.

The patentee also noted that "[n]one of the four references, either alone or in combination, teach or suggest numerous features of Applicants' invention, including (among other things) RF modulation of laser input and Applicant's matrix switch." Id at 43 (NGP 964). But this does not disclaim hardwired systems or systems without matrix switches. The patentee merely described differences between certain embodiments of the invention. None of these disclaimers is "clear and unmistakable." Accordingly, the court finds that the intrinsic evidence does not require a matrix switch.

NewPath argues that the interconnection must be dynamic. Doc #58 at 12-15. Selective interconnection is a required element of the system because it is included in all independent claims. See Doc #50-2 Exh A at 11-12 ('256 Patent at 5:12-7:6). Selective interconnection need not be dynamic, however. The specification states that "any of the carriers allocated to the service * * * can be dynamically assigned." Doc #50-2 Exh A at 10 ('256 Patent at 3:46-47). Again, this merely describes a preferred embodiment. Similarly, all NewPath's references to the prosecution history discuss embodiments of the system and therefore do not require dynamic interconnection. See, for example, Doc #60-2 Exh D at 49 (May 93 Response at NGP 571) ("[T]he RF radio transceivers * * *

can be dynamically allocated (via NxM switch 13) among the various ports.").

The patented system does not preclude hardwired switching. NewPath points to the specification in support of its argument to the contrary, but the specification merely describes possible embodiments of the system. See, for example, Doc #50-2 Exh A at 10 ('256 Patent at 3:40-43) ("[O]ther significant advantages include the possibility of handover between ports covering different zones or areas, by simply switching between optical carriers, i e, by switching within the NxM matrix 13."). The court thus declines to adopt a construction precluding hardwired switching.

NewPath's proposed construction precludes a system in which the fiber optic network can be turned off for maintenance. NextG argues that this is absurd. Doc #53 at 25. The court agrees.

NewPath's proposed construction precludes time and frequency division multiplexing, but time and frequency division multiplexing is specifically noted in the specification and claims. See Doc #50-2 Exh A at 9-11 ('256 Patent at 2:6-9,4:21-35, 5:39-43). Because NewPath provides no argument for precluding time and frequency multiplexing, the court rejects NewPath's proposed limitation.

NewPath proposes that "[a] matrix switch configured to selectively interconnect a plurality of inputs that are not radio frequency inputs or optical inputs carrying directly modulated RF signals with a plurality of outputs does not satisfy [the definition]." Again, NewPath attempts to preclude digital

conversion. The court rejects NewPath's proposed limitation because the patentee did not clearly and unmistakably disclaim digital conversion during prosecution.

Finally, the court finds "fiber optic network" to have a plain meaning and not to require construction. Moreover, the court observes that the contested "term" is a phrase rather than a claim term. Removal of "fiber optic network" from the phrase addresses this deficiency.

The court construes "selectively interconnecting the RF transceivers and the fixed radio ports" to be "interconnecting an RF transceiver and a fixed radio port by switching."

F

"A fiber optic network for * * * carrying the RF signals by means of optical signals"

The term "a fiber optic network for * * * carrying the RF signals by means of optical signals" appears in claims 1 and 2 and non-asserted claim 6. Doc #50-2 Exh A at 11 ('256 Patent at 5:12-39, 5:47-6:2). NextG seeks the following construction:

> The fiber optic network (an arrangement of fiber optic cables and associated electrical and optical components) carries optical signals where one or more properties of the optical signals have been varied for the purpose of carrying RF signals transmitted by transceivers and where the optical signals can be converted back to RF electrical signals without transceivers.

Doc #50 at 38.

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NewPath seeks the following construction:

> The fiber optic network has RF to optical interfaces providing direct analog modulation of optical signals by an RF signal and direct demodulation of optical signals to produce RF signals. The RF signals must be directly modulated onto and demodulated off of the optical carrier signals without any intervening modification of the RF signals such as frequency shifting or digitizing of the RF signals. These limitations are not satisfied by a network configured to carry RF signals that have been converted into intermediate frequency signals or into digital signals which are then modulated onto optical carrier signals.

Id.

The contested "term" is a phrase rather than a claim term. The individual terms within the phrase are plain: "fiber optic network," "RF signals" and "optical signals." The parties do not persuade the court to construe a phrase in which the individual terms are plain. Accordingly, the court declines to construe the phrase.

G

"A matrix switch for selectively interconnecting the transceivers and the radio ports"

The term "a matrix switch for selectively interconnecting the transceivers and the radio ports" appears in claim 2 and non-asserted claim 6. Doc #50-2 Exh A at 11 ('256 Patent at 5:25-39, 5:47-6:2). NextG argues that the term should be construed as "an apparatus that can be configured to allow signals presented at N inputs to be routed to one or more of M outputs, as determined by the user. The matrix switch is configured by the user to interconnect the radio frequency transceivers with chosen fixed radio ports." Doc #50 at 45. NewPath argues that the term should be construed per the proposed construction for "a fiber optic

network for selectively interconnecting the RF transceivers and the fixed radio ports." Id.

The only difference between this term and "a fiber optic network for selectively interconnecting the RF transceivers and the fixed radio ports" is that "a matrix switch" has replaced "a fiber optic network" in the phrase. As before, the court removes "a matrix switch" from the claim phrase. The court construes the term "selectively interconnecting the RF transceivers and the fixed radio ports" as before: "interconnecting an RF transceiver and a fixed radio port by switching."

H

"Diversity operation"

The term "diversity operation" appears in Claims 11 and 19. Doc #50-2 Exh A at 11-12 ('256 Patent at 5:12-16, 8:6-8). NextG argues that "diversity operation" should be construed as "[r]eceiving RF signals transmitted by a mobile device at more than one fixed radio port and utilizing each of the received signals to form a single signal." Doc #50 at 47. NewPath argues that "diversity operation" be construed as follows:

> Selection, at the base center, of one from or alternatively some combination of several simultaneously received RF signals from multiple fixed radio ports corresponding to an RF signal transmitted from a mobile/portable device and the selective transmission of the RF signal to the mobile/portable device through one or more radio ports in support of handover between fixed radio ports controlled by the base station.
>
> Macro diversity and handover utilize a switching and combining mechanism (e.g., matrix switch) to route and combine/switch RF signals to/from the RF transceivers.

Id.

A construction in which two or more RF signals are required is consistent with the parties' proposals. This comports with the ordinary meaning of "diversity."

NextG's limitation "utilizing each of the received signals to form a single signal" conflicts with NewPath's limitation "[s]election * * * of one from or alternatively some combination of * * * [the] received RF signals." The parties provide conflicting expert testimony on whether diversity operation requires using all of the received signals. Doc #54 at 27-28 (Nettleton Decl at ¶¶ 82-83); Doc #59 at 11 (Gilchrist Decl at ¶ 29). The evidence does not convince the court that either limitation should be read into the term.

NewPath provides little evidence to support its many limitations, arguing only that the following limitation added to dependent claims 11 and 19 mandates its proposed construction: "diversity operation is provided by combining or switching between two or more radio points in the matrix switch." Doc #58 at 26. NewPath does not explain how this limitation in a dependent claim requires the many additional limitations it seeks to include.

The '256 Patent states that diversity could be achieved centrally through switching or combining two or more ports. Doc #50-2 at 10 ('256 Patent at 3:43-46). Because the radio ports are fixed in location, "switching or combining two or more ports" cannot be physical switching of the fixed radio ports. The court reads "ports," in this context, to refer to the RF signals. The extrinsic evidence supports this reading and, moreover, persuades the court that a person having ordinary skill in the art in 1988 would understand diversity operation to be limited to this

construction. Doc #55-15 Exh 14 at 4 (Weik Communications Standard Dictionary at 270) ("Diversity reception[:] * * * a resultant signal is obtained by a combination or selection, or both, of two or more independent sources of received signal energy.").

The court will construe "diversity operation" to be "combining or switching between two or more RF signals."

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"Dynamic channel allocation"

The term "dynamic channel allocation" appears in claims 12 and 20. Doc #50-2 Exh A at 11-12 ('256 Patent at 5:17-19, 8:9-10). NextG argues that "dynamic channel allocation" should be construed as "[a]ssigning the RF channels generated at the base center to chosen fixed radio ports." Doc #50 at 51. NewPath argues that "dynamic channel" be construed as follows:

> RF channel selection made by the base center on a call-by-call basis at call setup time based on a dynamic channel allocation algorithm which, for example, minimizes channel interference.
>
> Dynamic Channel Allocation as claimed requires the allocation and control of base center resources including the allocation of an RF transceiver, a path through the NxM switch and a mapping to a network connection (e.g., an ISDN voice call).

Id.

NextG supports its proposed construction by citing to the specification, which notes that "any of the carriers allocated to the service, rather than a given subset, can be dynamically assigned at the centralized base to a given zone or cell." Doc #50-2 Exh A at 10 ('256 Patent at 3:46-50). See also Id (3:50-56).

This supports a construction in which the dynamic allocation occurs in the base center.

NewPath provides little argument to support its proposed construction. NewPath only argues that NextG's definition would make claims 12 and 20 no different from the independent claims on which they depend, which already require selectively interconnecting the transceivers and the fixed radio ports. Doc #58 at 26. This is not true. Claim 1 does refer to a "fiber optic network for selectively interconnecting the transceivers and the fixed radio ports." NextG's definition of "dynamic channel allocation," however, provides a means for assigning the transceiver to fixed radio ports though a fiber optic network interconnection. Claim 1 only discusses the medium through which the interconnection is made – the fiber optic network.

The parties' constructions center on the role of "dynamic," but neither construction defines "channel allocation." Because the parties fail to persuade the court to construe "channel allocation," the court declines to do so. The specification requires "dynamic allocation" to refer to a variation of the channel allocation. See Doc #50-2 Exh A at 10 ('256 Patent at 3:48-52) ("[A]ny of the RF carriers * * * can be dynamically assigned by the centralized base * * * . Thus an RF carrier may be allocated to both zone 1 and zone 4 * * * . At another time, the RF carrier may be assigned to just zone 3."). In addition, the specification and claim language require "dynamic channel allocation" to occur at the base center. See id; id at 11-12 (6:17-19, 8:9-10).

The court will construe "dynamic channel allocation" to be "variation in channel allocation controlled by the base center."

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"Trunked RF communication channels"

The term "trunked RF communication channels" appears in claims 14 and 15. Doc #50-2 Exh A at 11-12 ('256 Patent at 6:43-7:7). NextG argues that the term should be construed as "[s]hared radio channels." Doc #50 at 55. NewPath argues that "[t]runked RF communication channels" be construed as "RF resources including RF transceivers, radio frequency channels and fixed radio ports that are shared across multiple subscribers (more than there are resources) and are dynamically allocated to subscribers on an as needed (i e, call-by-call) basis." Id.

A construction in which "trunked" means "shared" is consistent with the parties' proposals. Because the parties do not persuade the court to construe "RF communication channel," the court declines to do so.

Accordingly, the court construes "trunked RF communication channels" to be "shared RF communication channels."

IT IS SO ORDERED.

VAUGHN R WALKER
United States District Chief Judge