IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

MLMC, LTD.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civil Action No. 99-781-SLR
	)	
AIRTOUCH COMMUNICATIONS, INC. ALLTEL CORPORATION, GTE CORPORATION, GTE WIRELESS, INCORPORATED, PRIMECO PERSONAL COMMUNICATIONS, L.P., CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS, ALLTEL COMMUNICATIONS INC., 360 COMMUNICATIONS COMPANY, VODAFONE AIRTOUCH LICENSES, L.L.C., AND VERIZON WIRELESS (VAW), L.L.C.,	)	
	)	
Defendants.	)	

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MEMORANDUM OPINION

Dated: August 9, 2002
Wilmington, Delaware

ROBINSON, Chief Judge

I. INTRODUCTION

Plaintiff MLMC, Ltd. ("MLMC") is the assignee of U.S. Patent No. 4,829,554 (the "'554 patent") (issued May 9, 1989). (D.I. 563 at 279) On November 12, 1999, plaintiff filed a complaint alleging that defendants[1] infringe the '554 patent by operation of their analog cellular telephone systems, which include allegedly infringing equipment manufactured by Lucent Technologies, Inc.[2] The court has jurisdiction over this action pursuant to 35 U.S.C. §§ 271 and 281 and 28 U.S.C. § 1338(a).

After a seven-day jury trial commencing November 26, 2001, the jury rendered a verdict (1) finding that plaintiff had not proven by a preponderance of the evidence that defendants had infringed either claim 31 or claim 32 of the '554 patent and (2) finding that defendants had proven by clear and convincing evidence that the patent was invalid because Harris Corporation ("Harris"), the original assignee of the patent, had placed the invention on sale more than one year before the patent filing

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[1]Airtouch Communications, Inc.; Alltel Corporation; GTE Corporation; GTE Wireless, Incorporated; Primeco Personal Communications, L.P.; Cellco Partnership d/b/a Verizon Wireless; Alltel Communications Inc.; 360 Communications Company; Vodafone Airtouch Licenses, L.L.C.; and Verizon Wireless (VAW), L.L.C.

[2]The complaint also alleged infringement of U.S. Patent No. 4,555,805 (the "'805 patent"). The court granted summary judgment for defendants on noninfringement of the '805 patent before trial. (D.I. 513) The complaint also included cellular systems operating Motorola and Nortel equipment, but the claims related to Motorola and Nortel equipment have been settled by the parties.

date. (D.I. 540) At the close of evidence, plaintiff moved for judgment as a matter of law ("JMOL") under Federal Rule of Civil Procedure 50(b) on the issues of infringement and invalidity. (D.I. 567 at 1446-1451) The court reserved judgment on the JMOL motions. (Id. at 1456)

Currently before the court are plaintiff's renewed motions for judgment as a matter of law ("JMOL") on infringement and invalidity or, in the alternative, motions to grant a new trial. For the following reasons, the court shall deny plaintiff's motion for JMOL on infringement (D.I. 547-1); deny plaintiff's motion for a new trial on infringement (D.I. 547-2); grant plaintiff's motion for JMOL on invalidity (D.I. 546-1); and deny plaintiff's motion for a new trial on invalidity (D.I. 546-2).

II. BACKGROUND

A. Technology Description

The technology of the '554 patent relates to analog cellular telephone systems. The defendants employ analog cellular telephone systems as part of cellular telephone services they provide to their customers. Cellular telephone systems have three primary components: (1) mobile telephone units (also referred to as remote mobile stations); (2) base stations (also referred to as cell stations or central stations); and (3) a central control station (also referred to as a telephone switch, mobile switching station or mobile telephone switching office).

(D.I. 433 at 5; D.I. 563 at 323-4; D.I. 565 at 933) The central control station acts as an interface between the public telephone network and the cellular system base stations. The base station handles radio communications to and from mobile telephones located in the base station's geographic area (also known as a "cell").

Two basic kinds of information are communicated on a cellular telephone system: voice information (that is, voice or other information that users are communicating in a telephone call) and control information (that is, messages that set up and maintain a telephone call). (D.I. 565 at 936-937) A particular base station in a network communicates control information on one channel and establishes voice communications on separate voice channels. (Id. at 939-940) In addition, each base station monitors the location of mobile phones in other cells through a locate channel. (Id. at 945-946)

Each base station has two or more radio transceivers, each of which is configured to function as a voice radio, a control radio, or a locate radio. The voice radios transmit and receive voice communications. (Id. at 945) The control radio sends messages to and from the mobile phones to set up voice communications. When a mobile phone user wants to make a telephone call, the mobile phone sends an "access" message to the control radio. (D.I. 563 at 336) When someone on the land-line

telephone system or another cellular system wants to call a particular mobile phone, the control radio at the base station broadcasts a "paging" message with that mobile phone number out to the mobile phones in its area. (D.I. 565 at 944-945) The locate radio monitors the signals from mobile phones in the area so as to anticipate when a call will need to be transferred from one base station to another. (Id. at 945-946)

B. The '554 Patent Claims

The '554 patent application was filed January 31, 1985, making January 31, 1984 the "critical date." In general, the '554 patent describes a cellular mobile telephone system in which "channel assignment [i.e., to voice, control, or locate functions] and telephone call routing are controlled by a central control station and in which each communication channel is separately controlled at a cell station by a radio interface module ("RIM") associated therewith." ('554 patent, abstract) In other words, communications control is shared between the central control station and the radio interface modules ("RIMs") associated with each radio transceiver at the base station. The invention allows identical radios at a base station to be assigned various functions, including monitoring, paging, control, and communication, and enables a system to be customized for the size and demographics of the service area. ('554 patent, abstract; D.I. 565 at 959-961) At issue in this case are

limitations three and four of claim 31 and limitations four and five of claim 32. The full text of the claims, with the disputed limitations highlighted, are set out below.

Claim 31 reads:

> A mobile communication system for establishing telephone communication between a station in a telephone exchange and a mobile telephone unit, comprising:
> a central control station including switching means to interconnect a plurality of voice circuits to the trunk circuits of a telephone exchange;
> a plurality of cell stations each serving one of a plurality of zones which together define a service area and each having a plurality of communication channels assigned thereto, said communication channels including a plurality of voice channels and at least one central channel,
> **each of said cell stations having a plurality of radio transceivers capable of communicating on the plurality of communication channels and capable of providing paging signals for mobile units,**
> **each of said transceivers having an associated radio interface module ("RIM") for interconnecting said transceiver and one of said voice circuits, for supplying paging signals for said mobile units, and for enabling dynamic assignment of one of said RIMs to supply paging commands.**

Claim 32 reads:

> A cell station for a cellular mobile radio telephone system for establishing and maintaining communications between a telephone switch and a plurality of mobile radio telephone units over radio frequency channels within the cell station range of operation, the cell station comprising:
> a plurality of radio frequency channels of different frequencies,
> each radio frequency channel including a separate transceiver connected between transmit and receiver antenna means common to all of the channels,

each channel having a separate control circuit that is adapted to control the operation of its associated transceiver to complete radio frequency communication paths to mobile units as instructed by the telephone switch;

means in each of said control circuits for receiving instruction from said telephone switch for presetting the operation mode of said control circuit as a control channel used to establish initial communications with a mobile unit or as a voice channel over which continuous communication is maintained with the mobile unit once an initial communication path is established; and

means in each of the said control circuits for processing voice signals and converting data signals into form to be communicated between the telephone switch and an associated transceiver.

C. The Accused Cellular Telephone Systems

The accused cellular telephone systems use equipment manufactured by Lucent Technologies, Inc. called the "Lucent Series II." The Lucent Series II includes components that correspond to the central control station and the base station of the '554 patent.

The Lucent Series II base station contains multiple radio transceivers, each associated with a radio control unit ("RCU"). The radio transceivers can be assigned various "personalities," including voice or control functions. The Lucent Series II base station also contains a centralized radio control complex ("RCC"). The RCC exerts various control functions over the individual radio transceivers and communications channels and communicates with the central control station.

D. The Cellstar System

The Cellstar is a cellular mobile telephone system developed and marketed by Harris in the early 1980s. The '554 patent resulted from the development of the Cellstar. (D.I. 564 at 669) Thus, defendants' assertions that the '554 invention was on sale before the critical date are based on Harris' development and marketing of the Cellstar.

III. STANDARD OF REVIEW

A. Motion for Judgment as a Matter of Law

To prevail on a renewed motion for judgment as a matter of law following a jury trial, the moving party "'must show that the jury's findings, presumed or express, are not supported by substantial evidence or, if they were, that the legal conclusion(s) implied [by] the jury's verdict cannot in law be supported by those findings.'" Pannu v. Iolab Corp., 155 F.3d 1344, 1348 (Fed. Cir. 1998) (quoting Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 893 (Fed. Cir. 1984)). "'Substantial' evidence is such relevant evidence from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review." Perkin-Elmer Corp., 732 F.2d at 893. In assessing the sufficiency of the evidence, the court must give the non-moving party, "as [the] verdict winner, the benefit of all logical inferences that could be drawn from the evidence presented, resolve all conflicts in

the evidence in his favor and, in general, view the record in the light most favorable to him." Williamson v. Consol. Rail Corp., 926 F.2d 1344, 1348 (3d Cir. 1991); Perkin-Elmer Corp., 732 F.2d at 893. When considering the sufficiency of evidence, the court must also take into account the required quantum of proof; for a patent invalidity verdict, the quantum of proof is clear and convincing evidence, because a patent is presumed valid. Juicy Whip, Inc. v. Orange Bang, Inc., 292 F.3d 728, 736 (Fed. Cir. 2002). In addition, the court may not determine the credibility of the witnesses nor "substitute its choice for that of the jury between conflicting elements of the evidence." Perkin-Elmer Corp., 732 F.2d at 893. In sum, the court must determine whether the evidence reasonably supports the jury's verdict. See Dawn Equip. Co. v. Ky. Farms Inc., 140 F.3d 1009, 1014 (Fed. Cir. 1998).

B. Motion for a New Trial

Federal Rule of Civil Procedure 59(a) provides, in pertinent part:

> A new trial may be granted to all or any of the parties and on all or part of the issues in an action in which there has been a trial by jury, for any of the reasons for which new trials have heretofore been granted in actions at law in the courts of the United States.

Fed. R. Civ. P. 59(a). The decision to grant or deny a new trial is within the sound discretion of the trial court. See Allied

Chem. Corp. v. Daiflon, Inc., 449 U.S. 33, 36 (1980); Olefins Trading, Inc. v. Han Yang Chem. Corp., 9 F.3d 282, 290 (3d Cir. 1993). Unlike for a JMOL motion, the court need not view the evidence in the light most favorable to the verdict winner when considering a motion for a new trial. See Valentin v. Crozer-Chester Medical Center, 986 F. Supp. 292, 298 (E.D. Pa. 1997) (citing Magee v. General Motors Corp., 213 F.2d 899, 900 (3d Cir. 1954)); see also 9A Wright & Miller, Federal Practice and Procedure § 2531 (2d ed. 1994) ("On a motion for new trial the court may consider the credibility of witnesses and the weight of the evidence."). Among the most common reasons for granting a new trial are: (1) the jury's verdict is against the clear weight of the evidence, and a new trial must be granted to prevent a miscarriage of justice; (2) newly-discovered evidence exists that would likely alter the outcome of the trial; (3) improper conduct by an attorney or the court unfairly influenced the verdict; or (4) the jury's verdict was facially inconsistent. See Zarow-Smith v. N.J. Transit Rail Operations, Inc., 953 F. Supp. 581, 584-585 (D.N.J. 1997) (citations omitted). The court must proceed cautiously, mindful that it should not simply substitute its own judgment of the facts and the credibility of the witnesses for those of the jury. Rather, the court should grant a new trial on the basis that the verdict was against the weight of the evidence only where a miscarriage of justice would

result if the verdict were to stand. See Williamson, 926 F.2d at 1352; EEOC v. Del. Dep't of Health and Soc. Servs., 865 F.2d 1408, 1413 (3d Cir. 1989).

IV. DISCUSSION

A. JMOL on Infringement

In the motions at bar, plaintiff challenges the jury verdict finding that defendants did not infringe claim 31 and claim 32 of its '554 patent through their use of the Lucent Series II in their analog cellular telephone networks.

"A patent infringement analysis involves two steps: claim construction and application of the properly construed claim to the accused product." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1355 (Fed. Cir. 2000). Claim construction is a question of law while infringement is a question of fact. Id. The patentee must establish infringement by a preponderance of the evidence. See, e.g., Braun Inc. v. Dynamics Corp., 975 F.2d 815, 819 (Fed. Cir. 1992). "To establish literal infringement, every limitation set forth in a claim must be found in an accused product, exactly." Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1575 (Fed. Cir. 1995).[3] In considering the relevant motion, the court thus evaluates whether substantial evidence

[3]Infringement by equivalence is not an issue in the motions at bar because plaintiff abandoned its Doctrine of Equivalents claims during trial. (D.I. 565 at 773-775) The jury was instructed only on literal infringement.

supports the jury's determination that at least one of the limitations in each of the asserted claims is not found in the accused products, "exactly."

At trial, defendants contested whether the third and fourth limitations of claim 31 and the fourth and fifth limitations of claim 32 were found in the Lucent Series II, apparently conceding the claim preambles and the other limitations. (D.I. 565 at 990-91, 1003; D.I. 566 at 1081) Accordingly, the court will examine the evidence only as it applies to the contested limitations.

The parties focus their arguments on a key architectural feature of the Lucent Series II base station, the RCC, and its role in controlling the functions of the individual radio transceivers at the base station. Defendants argue that the role the RCC plays in sending control instructions to individual radios precludes a finding of literal infringement, because the '554 patent claims at issue require the radio control instructions to be sent by the central control station to the control circuitry associated with the individual radios, not from a centralized base station controller. (D.I. 554 at 4-13) Plaintiff, on the other hand, argues that the Lucent Series II has both a central control station and control circuitry associated with each radio transceiver as disclosed by the patent claims. The RCC simply represents an additional feature of the

Lucent Series II that does not need to be considered in the infringement analysis. (D.I. 549 at 12-15)

The third and fourth limitations of claim 31 and the fourth limitation of claim 32, as construed by the court, require in part that the radio transceiver and its associated "RIM" (claim 31) or "control circuit" (claim 32) receive certain control instructions or commands from the central control station. Specifically, these instructions tell the radio transceiver what its "personality" is, that is, whether it is a voice radio, a control radio, or a locate radio.

In the third limitation of claim 31, the court construed the phrase "plurality of radio transceivers capable of communicating on the plurality of communications channels and capable of providing paging signals for mobile units" as follows:

> The transceivers can be commanded to provide any one of several functions upon **receipt of instructions from the central control station**, including the function of establishing a communication connection between a mobile unit and the central control station.

(D.I. 507 at 2, citing '554 patent, col. 31, lns. 1-5) (emphasis added) Similarly, the court construed "interconnecting said transceiver and one of said voice circuits for supplying paging signals" in limitation four of claim 31 to mean:

> A single RIM connected to a single voice circuit and a single transceiver is **downloaded with instructions from**

> **the central control station** for operation as the central channel.[4]

(D.I. 507 at 2-3, citing '554 patent, col. 14, lns. 61-68; col. 31, lns. 23-36) (emphasis added) The court construed "enabling dynamic assignment of one of said RIMs to supply paging commands" of the same limitation as follows:

> Any channel, with its associated RIM, transceiver and voice circuit, can function as the central channel **in response to separate commands from the central control station**.

(D.I. 507 at 3, citing '554 patent, col. 5, lns. 3-13; col. 31, lns. 1-5; col. 32, lns. 16-42) (emphasis added)

The fourth limitation of claim 32 contains similar language:

> [M]eans in each of said control circuits[5] for **receiving instructions from said telephone switch** for presetting the operation mode of said control circuit as a control channel used to establish initial communications with a mobile unit or as a voice channel over which continuous communication is maintained with

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[4]The court has construed "central channel" to mean "a radio frequency channel assigned to carry control signals to establish, as opposed to maintain, communication connections between the central control station and the mobile units." ('554 patent, col. 31, lns. 23-36) In short, the central channel is the paging and access channel.

[5]"Control circuits" in this limitation refers to the third limitation of claim 32, which reads "each channel having a separate control circuit that is adapted to control the operation of its associated transceiver to complete radio frequency communication paths to mobile units as instructed by the telephone switch." The court construed this to mean "each channel is operated via a separate control circuit consistent with the instructions downloaded from the central control station." ('554 patent, col. 5, lns. 3-13; col. 14, lns. 61-68; col. 31, lns. 1-5; col. 32, lns. 16-42)

> the mobile unit once an initial communication path is established;

(emphasis added) The court construed the limitation to mean:

> Circuitry that **downloads instructions from the central control station** to preset the operation of the channel associated with each control circuit in a mode dedicated to transmitting data to establish initial communications or in a mode dedicated to transmitting voice and data signals for maintaining communications; the structures associated with this function are the interface circuit, the bus, and the microprocessor subsystem.

('554 patent, col. 31, lns. 23-53; col. 32, lns. 61-63; col. 33, lns. 65-68) (emphasis added) In each instance cited above, the source of the radio control instructions is identified as the central control station.

Defendants introduced evidence at trial that the radio transceiver "personality" instructions in the Lucent Series II are sent from the RCC to the Radio Channel Unit ("RCU") associated with each radio transceiver, not from the central control station. Dr. Goodman, defendants' expert on cellular communication, testified that the Lucent Series II RCUs never receive any instructions or commands from the central control station, including instructions to change radio personalities. These instructions instead come from the RCC. (D.I. 565 at 988-989, 996-998) Plaintiff's expert, Mr. Sanders, did not disagree with this, admitting that the direct source of the radio personality instructions is the RCC. (D.I. 563 at 388, 395)

Nevertheless, plaintiff contends that the original source of the instructions is the Lucent Series II central control station, just as in the '554 patent, and the RCC simply functions as an intermediary that relays the instructions to the radio transceivers. (D.I. 549 at 3, 16) As plaintiff points out, the text of the claims and the court's construction never specify that the instructions must go directly from the central control station to the radio transceivers, only that they must come **from** the central control station. (Id. at 9-10, 14; D.I. 563 at 402)

As evidence that the instructions come **from** the central control station, thereby supporting a finding of infringement, plaintiff's expert, Mr. Sanders, relied on the "recent change and verify procedure" through which a technician at the central control station for the Lucent Series II modifies the base station configuration database. (D.I. 563 at 353, 357-358, 365-366, 374, 387; D.I. 565 at 998-1000) The database, which is maintained at the central control station and stored at both the central control station and the local base station RCC, designates the personality of each RCU/radio transceiver at the base station. (D.I. 565 at 1000-1001) If the database is changed through the recent change and verify procedure, the RCC then instructs individual RCUs/radio transceivers to change personality. (Id. at 1001, 1002)

Defendants' expert Dr. Goodman described the process as follows at trial:

> Q. What is recent change and verify?
>
> A. Recent change and verify is a set of operations that take place after somebody at the central control station . . . decides that . . . the radio channel units should change . . . their jobs. So somehow the [central control station] decides . . . who has some idea of what jobs [RCUs] should be doing.
>
> And eventually the [RCUs] change their jobs. The radio units might perform functions according to whatever the technician or the engineer at the mobile switching center thinks should happen.

(Id. at 999-1000)

> Q. Let's take a step back. How does the RCC know how to assign the radio channel units to various functions?
>
> A. The RCC has a database that essentially tells it what job each radio is doing, whether it's a locate radio or a control radio or a voice radio.
>
> Q. And is a copy of that [database] stored at the [central control station]?
>
> A. That's correct. The [central control station] also has that database so the [central control station] has a list of what's going on in all of its zones.
>
> Q. And the radio control complex could download that database from the [central control station] at the request of the radio control complex?
>
> A. Yes. So what happens is that if change takes place . . . is that a message goes out to the RCC and it says something is changed. It doesn't say what's changed, it just says I have a new list, a new database.
>
> And then the RCC, depending on its program, can ask for the list when it's ready, when it wants to. So

> each [RCC] finds out, wait a second, the [central control station] wants to send you something, so eventually the [RCC] gets around to asking for the new database, and the new database then arrives from the [central control station] and goes into the RCC's database. And then the RCC has to send--eventually it's going to send instructions to each of the individual radios, telling them what to do if it needs to. So it might not send instructions to all the radios. Maybe some of them are doing what they're supposed to anyway.

(Id. at 1000-1001)

Dr. Goodman opined that this process does not infringe the limitations of claim 31 because the RCC receives information from the central control station in database form only and has to then formulate instructions based on that information for the individual RCUs/radio transceivers:

> Q: Now why do you believe that that process doesn't satisfy the elements of Claim 31, the last two elements of Claim 31?
>
> A: . . . It's not clear that the RCC is receiving instructions. It receives a list of how things should be organized and, then based on this list, it formulates instructions and send[s] instructions to the individual radios.

(Id. at 1001-1002)

> Q. Could an individual RCU understand the information in the database?
>
> A. No, no. They're not programmed to. The database is just a list that has columns. It has shelf number, slot number and something about what's supposed to happen there. And the RCU can understand, okay? You're a control person now. . . . You're a voice person. . . . So the protocols, the languages, are entirely different.

(Id. at 1002-1003) Dr. Goodman based his noninfringement opinion for the fourth limitation of claim 32 on the same grounds as for claim 31:

> My reasoning is very similar to my reasoning for Claim 31, and in fact the technology they're describing [in claim 32], they're describing it a slightly different way, but it says that each control circuit has to download instructions from the central control station. And as we've seen, these control circuits just don't download instructions separately from the central control station.

(Id. at 1007)

Plaintiff's expert, Mr. Sanders, admitted during cross-examination that he did not know whether the information that the central control station sent to the RCC could be understood and acted upon by the RCU. (D.I. 563 at 391) He also agreed with Dr. Goodman that it is the RCC that actually downloads personality parameters directly to each RCU, stating "the RCU or the radio itself is taking on its personality based on instructions from the RCC." (Id. at 355) Nothing in Mr. Sanders' testimony contradicted Dr. Goodman's description of how the recent change and verify procedure works or how a radio's personality is changed. To support his infringement opinion, Sanders simply relied on the fact that the decision to change a radio's personality, as reflected in a recent change and verify procedure to update the configuration database, originates at the central control station, not the RCC. Sanders pointed out at trial, referring to a Lucent Series II technical document: "The

RCC cannot change [a] radio's personality on its own." (Id. at 353; PTX 9 at LUC 062879)

As discussed earlier, in considering a renewed JMOL motion the court must determine whether the evidence reasonably supports the jury's verdict. See Dawn Equip., 140 F.3d at 1014. Based on the evidence outlined above, the court concludes that a reasonable jury could find that changing radio personalities through the recent change and verify procedure is not the same as receiving instructions or commands "from the central control station" as required by the patent claims. As Dr. Goodman explained, the configuration database that gets updated through recent change and verify contains data for all the RCUs/radio transceivers in the base station, not separate instructions intended for individual radios. In sum, the testimony about the assignment and change of RCU/radio transceiver personality and Dr. Goodman's opinion of noninfringement provide substantial support for the jury's decision that the Lucent Series II does not infringe claim 31 or claim 32 of the '554 patent.

Evidence on several other issues also supports the jury's determination of noninfringement. First, the jury heard testimony from several of the '554 patent inventors that they intentionally avoided a centralized base station controller to make their system more cost effective and less vulnerable to failures. (D.I. 562 at 241, 247; D.I. 564 at 594-598, 604, 616-

618, 647-648, 657-659, 676-678, 691-692, 766-769) The patent specification itself distinguishes the '554 invention from previous technology in which there was common control of the radio transceivers and call setup. ('554 patent, col. 32, lns. 25-35; D.I. 565 at 971-974) The inventors sought to move the control functions from a centralized base station controller into the RIMs and the central base station. (D.I. 562 at 247) As a result, control over radio personalities was shared between the central control station and the individual RIMs. As Richard Rezpkowski, a co-inventor, acknowledged at trial:

> Q. For the control of the radios, of the functionality of the radios, in your Cellstar product just as in your patent, the only control at the base station was at the RIM; right?
>
> A. The only control that was of configuration control was negotiated between the RIM and the central control station.

(Id. at 244) A centralized base station control component that remained (at least in the Cellstar embodiment of the patent) was a timing/modem module, a device that received data from the central control station and passed it to the bus structure that interconnects the RCUs/radio transceivers in the base station. Rzepkowski described the timing/modem module as being "very cost effective and a small amount of centralized control," with functions analogous to a modem on a personal computer. (Id. at 227, 238) In sum, evidence that the '554 patent inventors intentionally designed away from a centralized base station

controller supports a conclusion that the Lucent Series II base station, which has a centralized base station controller, does not literally infringe the '554 patent claims.

Defendants also presented evidence that the RCUs in the Lucent Series II base station do not perform the various control functions that limitation four of claim 31 requires of the "RIM." The court construed "Radio interface module (RIM)" as follows:

> Electrical circuitry connected to individual transceivers in order **to provide the various control functions (data or communications) involved in the operation of each channel.**

(D.I. 507 at 2, citing '554 patent, col. 30, lns. 19-22, 61-68) (emphasis added) Dr. Goodman testified that the Lucent Series II RCUs have limited functionality and are not capable of controlling their respective channels alone. (D.I. 565 at 987-988) The RCUs and their associated radios are actually controlled by the RCC and, as a result, do not meet the requirements of claim 31. (Id. at 982-984, 987, 997-998) Plaintiff's expert, Mr. Sanders, conceded that the RCC exercises control over the radio transceivers; however, he also identified particular circuitry within the RCUs that he believed satisfied the claim requirements for a "RIM." (D.I. 563 at 359-360, citing PTX 6 at LUC 076972; 391-392) Despite this disagreement between the experts, a reasonable jury could conclude from the record evidence that the Lucent Series II base station did not include a

"RIM" and thus did not infringe the fourth limitation of claim 31.

Finally, record evidence supports a conclusion that the RCUs of the Lucent Series II do not contain "[c]ircuitry . . . that operates to translate . . . data signals between the central control station and the mobile units" as required by the fifth limitation of claim 32, as construed by the court. (D.I. 507 at 5, citing '554 patent, col. 31, lns. 37-53; col. 33, lns. 38-44, 56-7) Dr. Goodman testified that "the radio control units don't have circuitry that translates the data signals [received from mobile phones] into a form that could be communicated to the central control station" and, therefore, do not infringe the final claim limitation. (D.I. 565 at 1009) He noted that the RCUs only transmit data to the RCC, not to the central control station. (Id.) Goodman's testimony is not inconsistent with Sanders' testimony, in which Sanders identified structures in the RCU that provide for signal processing of the data received from mobile phones. (D.I. 563 at 375-376, citing PTX 6 at LUC 076972) Goodman merely points out that the RCC must translate the mobile phone data received from the RCU into a form that is transferable back to the central control station.

To summarize, the court concludes that record evidence reasonably supports the jury verdict of noninfringement. Furthermore, the court finds no reason to exercise its discretion

to grant a new trial under Rule 59(a). As discussed above, the evidence supports the jury verdict, and plaintiff has proffered no other basis for granting a new trial.

B. JMOL on Invalidity

Plaintiff challenges the jury verdict finding that the '554 patented invention was placed on sale before the critical date of January 31, 1984, a result which renders the '554 patent invalid under 35 U.S.C. § 102(b). The key dispute is whether the patent owner at the time, Harris Corporation, made a commercial offer for sale before the critical date.

An issued patent is presumed valid. See 35 U.S.C. § 282. To overcome this presumption, the party challenging validity bears the burden of proving by clear and convincing evidence that the invention fails to meet the requirements of patentability. See Hewlett-Packard Co. v. Bausch & Lomb, Inc., 909 F.2d 1464, 1467 (Fed. Cir. 1990). Clear and convincing evidence is evidence that "could place in the ultimate fact finder an abiding conviction that the truth of [the] factual contentions are 'highly probable.'" Colorado v. New Mexico, 467 U.S. 310, 316 (1984). In seeking to overturn a jury's verdict of invalidity, the movant needs to show "an absence of substantial evidence on the underlying facts supporting the jury's verdict," taking the clear and convincing quantum of proof into account. Juicy Whip, Inc., 292 F.3d at 736, 737.

Section 102(b) of the patent statute provides that a person shall be entitled to a patent unless

> the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.

35 U.S.C. § 102(b). The "on sale" bar to patent validity in § 102(b) of the patent statute is raised when: (1) a product incorporating or using an invention is the subject of a commercial offer for sale more than one year before the patent application date; and (2) the invention is ready for patenting. See Pfaff v. Wells Elecs., Inc., 525 U.S. 55, 67 (1998). Whether a product is on sale within the meaning of 102(b) "is a question of law with subsidiary issues of fact." In re Epstein, 32 F.3d 1559, 1564 (Fed. Cir. 1994).

1. Commercial Offer for Sale

To establish a commercial offer for sale, one "must demonstrate by clear and convincing evidence that there was a definite sale or offer to sell more than one year before the application for the subject patent, and that the subject matter of the sale or offer to sell fully anticipated the claimed invention or would have rendered the claimed invention obvious by its addition to the prior art." STX, LLC v. Brine, Inc., 211 F.3d 588, 590 (Fed. Cir. 2000) (citations omitted); see also Scaltech, Inc. v. Retec/Tetra, L.L.C., 269 F.3d 1321, 1328 (Fed.

Cir. 2001). A single sale or even a single offer to sell is sufficient to trigger the on sale bar. See In re Caveney, 761 F.2d 671, 676 (Fed. Cir. 1985).

The existence of a commercial offer for sale is analyzed under the law of contracts as generally understood. Group One, Ltd. v. Hallmark Cards, Inc., 254 F.3d 1041, 1047 (Fed. Cir. 2001). "Only an offer which rises to the level of a commercial offer for sale, one which the other party could make into a binding contract by simple acceptance (assuming consideration), constitutes an offer for sale under § 102(b)." Id. at 1048. Courts should look to the "substantial body of general contract law," particularly the Uniform Commercial Code and the Restatement of Contracts, to determine whether a commercial offer to sell the claimed invention has been made. Id. at 1047-48.

The Restatement (Second) of Contracts defines an offer as follows:

> An offer is the manifestation of willingness to enter into a bargain, so made as to justify another person in understanding that his assent to that bargain is invited and will conclude it.

§ 24 (1981); see also Richard A. Lord, Williston on Contracts § 4:7, at 296-7 (4th ed. 1990) ("The only general test for determining in any particular case whether an offer exists is to ask whether the facts show that some performance was promised in positive terms in return for something requested by the person making the promise, and asking whether the person to whom the

manifestation is made might reasonably have supposed that by acting in accordance with it a contract could be concluded.") (citing Restatement (Second) of Contracts § 26). A communication cannot be considered an offer if it does not indicate an intent to be bound. Linear Technology Corp. v. Micrel, Inc., 275 F.3d 1040, 1050 (Fed. Cir. 2001) (citing Restatement (Second) Contracts § 26, "A manifestation of willingness to enter into a bargain is not an offer if the person to whom it is addressed knows or has reason to know that the person making it does not intend to conclude a bargain until he has made a further manifestation of assent.").

Whether an offer has been made depends on the words used and on the circumstances surrounding the communication. Williston § 4:7, at 291; Joseph M. Perillo, Corbin on Contracts § 2.2, at 106 (Rev. ed. 1993). In determining whether a communication is an offer, the court tries to determine the meaning given to words and actions by the speaker and actor, and to determine the meaning given to those words and actions by the person to whom they were communicated. Corbin § 2.2, at 107. Factors to consider include the ordinary meaning of the language; the context of any prior communications between the parties; whether the communication was private or to the general public; any previous course of dealings between the parties; local usage or usage of the trade; the relative completeness of the terms (the

more complete, the more likely it is an offer); the subject matter of the offer; and whether it is foreseeable that the recipient would rely upon it. Corbin § 2.2, at 109-110. "Language suggesting a legal offer, such as 'I offer' or 'I promise' can be contrasted with language suggesting more preliminary negotiations, such as 'I quote' or 'are you interested.' Differing phrases are evidence of differing intent, but no one phrase is necessarily controlling." Group One, 254 F.3d at 1048; see also Restatement (Second) of Contracts § 26, comment c.

Generally, price quotations are not offers, because a quotation leaves many terms necessary to a contract unexpressed, for example, time and place of delivery, terms of payment, and other matters usually agreed upon before closing a deal. Corbin § 2.5, at 123; see also Restatement (Second) of Contracts § 26, comment c. Nevertheless, if the quotation comes in reply to a specific request for an offer, contains language of commitment, or comes after prolonged negotiations, and the quotation contains detailed terms, it may be deemed an offer. Corbin § 2.5, at 126. An estimate is not considered to be an offer or a quotation. Id. at 126. However, a bid made in response to an invitation for bids is considered to be an offer. Williston § 4:10, at 338-9; Restatement (Second) of Contracts § 28, comment c.

Advertisements, catalogs, and other promotional materials are generally considered invitations to solicit offers or enter into a bargain, not offers themselves. Williston § 4:7, at 286-7; see also Restatement (Second) of Contracts § 26, comment b; Group One, 254 F.3d at 1048 ("[M]ere advertising and promoting of a product may be nothing more than an invitation for offers, while responding to such an invitation may itself be an offer"); Linear Technology, 275 F.3d at 1050 (finding that activities in preparation to sell, such as publication of preliminary data sheets and promotional information, do not communicate an intent to sell and thus, by themselves, cannot be offers to sell). Even a published price list is not considered to be an offer to sell goods at the published prices. Williston § 4:7 at 288; Restatement (Second) of Contracts § 26, comment b. Courts are generally reluctant to find offers from preliminary statements of intention, but where the property to be sold is accurately defined and the communication states prices and is directed at an individual rather than the public in general, it is more reasonable to interpret the communication as an offer to sell at that price. Williston § 4:7, at 293.

In the motion at bar, plaintiff argues that none of the pre-critical date communications from Harris Corporation to potential customers for its Cellstar system constituted an offer that "the other party could make into a binding contract by simple

acceptance." Group One, 254 F.3d at 1048. Plaintiff characterizes the alleged offers as mere quotations containing budgetary pricing that Harris never intended to be commercial offers for sale. Defendants, in contrast, characterize at least one of the pre-critical date communications between Harris and a potential customer as a competitive bid made in anticipation of the customer's purchase order, rather than simply a budgetary quote. Defendants also assert that the budgetary quotations were in fact offers, because Harris would have been willing to sell the equipment at the price quoted.

Through deposition excerpts played at trial, two Harris employees, Phil Weising and Edwin Read, testified about the marketing activities that Harris engaged in for the Cellstar system before the January 31, 1984 critical date. In 1983, there was significant competition to be a supplier of cellular radio telephone equipment. (D.I. 567 at 1422) Harris marketing employees made numerous proposals and presentations to potential customers, and brochures and data sheets were distributed at trade shows, in an effort to be selected as a cellular equipment supplier. (D.I. 566 at 1147-1158, 1163-1178)

During this time period, communications companies were filing competing proposals with the Federal Communications Commission ("FCC") to seek licenses to operate cellular telephone systems in particular service areas. Companies had to pass a

"sanity test" to show they had a business plan in place and the financing and technical ability to follow through on their plans if they were granted a license. (D.I. 567 at 1413-1414) As part of the filing process, the companies had to identify, among other things, which equipment they planned to use in their systems; they did not have to provide prices. (Id. at 1409) Nevertheless, the companies needed pricing to develop their own budgets and to obtain financing. (Id.) Weising, the manager of the applications engineering group at Harris beginning in August 1992 (D.I. 566 at 1138), described Harris' efforts to provide companies with "budgetary pricing" that they could use to seek the FCC licenses. (D.I. 567 at 1407-1409) In his testimony, Edwin Read stated that budgetary quotations were given not only for FCC purposes, but also for "marketing reasons," that is, "to open the door to a subsequent discussion about the product and with hopes of an eventual sale." (D.I. 566 at 1186)

Weising asserted that the budgetary quotations provided to potential customers were not intended as firm quotes or bids and were not offers to sell the Cellstar at the quoted price. (D.I. 567 at 1418) While Harris provided the quotes with the hope that the companies might then buy Cellstar equipment if they obtained licenses, Weising claimed "there was no commitment either way . . . all these quotations were for filing purposes, so there was no commitment on the part of either party to provide – they weren't

locked into us as a suppliers, and we were under no obligation to deliver them equipment at that price . . . ." (Id. at 1408) Edwin Read, who worked with Weising in the marketing group starting in September 1983, confirmed that budgetary pricing was subject to change, an "estimate," and that Harris "would not be ever held to that contractually . . . ." (D.I. 566 at 1162-1163, 1166, 1169, 1182)

As part of a request for a proposal or quotation, a potential customer would provide Harris with a number of subscribers by year and either a number of cell sites or a rough geographic area they wanted to serve. (D.I. 567 at 1414) Harris would use a budgetary pricing program to generate a listing of equipment required (e.g., a switch, number of cell sites, number of channels) and the price for that equipment. (Id. at 1414) For example, a quotation "would say Harris Digital Exchange, HDX, X number of dollars, Harris control stations, quantity five, X number of dollars, Radio channels, 52, X number of dollars." (Id. at 1415) The quotations did not contain detailed descriptions because "nobody was too concerned about technical details." (Id.) The letter accompanying the quotations "would start off Harris Corporation is pleased to provide the following budgetary pricing . . . just a quick little cover letter like that with computer pages attached to it . . . ." (Id. at 1415-1416)

Weising defined "budgetary" as "ballpark, best guess" and described the budgetary quotations provided in the 1982-1983 time period as merely "highly educated guesses," because the equipment and associated bills of materials did not exist yet. (Id. at 1417, 1418) While Read confirmed Weising's definition of budgetary pricing by calling such pricing an "estimate," he also testified that by the time he started in the marketing group in September 1983, Harris was doing "firm pricing . . . pricing that at the time we would have taken an order against." (D.I. 566 at 1182, 1187) Defendants cite this as evidence that Harris' budgetary quotations in late 1983 were definite enough to be considered commercial offers for sale.

Defendants also offered the testimony of an expert witness to support their contention that the budgetary quotations should be viewed as commercial offers for sale. The expert, Morton Stern, is a former employee of Motorola, a company that competed with Harris in soliciting customers for their cellular equipment.[6] Like Harris, Motorola issued budgetary quotations to potential customers to help with their FCC filings. (Id. at 1229-1232) Stern testified that budgetary prices were akin to

[6]Defendants' use of Motorola equipment was cited in the complaint as infringing the '554 patent but, as noted earlier, these claims were settled before trial. Motorola itself was never a named defendant to the action.

"list prices" from which the parties would negotiate downward, but never up. (Id. at 1231-1232) He was asked:

> Q: So for the service provider that wanted to buy the equipment at this budgetary price, there would have been no impediment to that?
>
> A: No, we would have been thrilled.

(Id. at 1232) He also asserted that companies "winning [a license] and specifying your equipment was, in essence, like committing themselves, committing to buying your equipment." (Id. at 1230) In his opinion, Harris was offering the Cellstar for sale before the critical date. (Id. at 1232-1233)

No actual budgetary quotations were offered into evidence, and no testimony was offered from any of the alleged recipients of the budgetary quotations. Stern testified as someone familiar with a direct competitor of Harris, that is, a company that was making similar budgetary proposals, not as someone familiar with the companies who actually requested and used the quotations.

When the record evidence is evaluated against traditional contract law principles, there is little evidence to support a conclusion that the budgetary quotations constituted commercial offers for sale. The Harris employees who testified on the point unequivocally stated that Harris intended the budgetary quotations as ballpark figures and estimates, not as offers to which they could be contractually bound. The context in which the quotations occurred supports their testimony. The budgetary

quotations were made primarily to help potential customers with the FCC filing process, not to negotiate a sales contract. Until a company received an FCC license, the need for a firm sales contract would not even exist. The fact that the quotes included prices, quantities, and very brief equipment descriptions does not in itself indicate a commercial offer of sale. The quotations were missing other terms typically included in a commercial contract, including delivery dates and payment terms. Furthermore, there is no evidence that words such as "I offer" were used in conjunction with the quotes; in fact, Weising testified that the letter accompanying the quotations clearly stated that the quotations were "budgetary pricing."

Another factor supporting a finding of no offer is that the budgetary quotations were generated by a standardized pricing program – in short, subscriber and cell site numbers provided by the potential customer were plugged in, and quotations were printed out. Although the quotes were individualized in that they were based on numbers provided by individual customers, they were more akin to "list prices" available to the general public than to pricing customized to a particular customer so as to manifest a "willingness to enter into a bargain." Restatement (Second) of Contracts § 24.

Finally, the record contains no testimony or documents from the recipients of Harris' budgetary quotations about what they

sought from Harris or what they believed Harris provided through its budgetary quotations. Although the ultimate test of an offer is whether a recipient could reasonably believe it was intended as a binding offer, testimony from the other parties to the alleged negotiations would certainly have been relevant and helpful in determining whether, under the circumstances, the budgetary quotations should be viewed as offers.

Defendants' primary evidence that Harris intended a commercial offer of sale was Stern's testimony that his company, Motorola (and by implication, Harris), would have been "thrilled" to sell their cellular equipment at the prices provided in the budgetary quotations they gave their potential customers, and Read's testimony, in response to a hypothetical question, that Harris would have been "very likely" to sell its equipment at the budgetary pricing if a customer were to come back later and offer to do so. However, without more, the court concludes that the evidence is not sufficient to support a finding by clear and convincing evidence that the budgetary quotes issued by Harris rise to the level of a commercial offer for sale.

Even if the budgetary quotations are not considered commercial offers to sell, defendants assert that Harris made at least one competitive bid to sell its equipment to an aspiring cellular telephone company that had already obtained an FCC permit. To support their contention, defendants offered an April

5, 1983 telephone record in which Phil Weising made notes about a telephone conversation with an employee from Associated Communications, a company to which Harris admittedly provided budgetary quotations on the Cellstar system. (D.I. 566 at 1140-1141-1144) Weising's written summary of the telephone call reads:

> Paul [Coppage] said that most bidders quote an equipment delivery of 1984 although 3 actually said delivery in 1983 with operation in 1984. Our delivery is unacceptable to them and Paul's opinion is that Harris won't get it because of that. He was very encouraging, however, and said that if all things were equal (i.e., delivery) Harris would be the definite choice. He also is confident that Motorola won't get it but would not say why at this time. Paul said that a final decision is imminent and that a P.O. will be issued no later than May 1st since Buffalo Telephone Company (the partnership company of CellCom (Associated) Western Union and Graphic Scanning) received their construction permit March 11th.

(DTX 236; D.I. 566 at 1143-1144) Defendants argue this telephone record shows that Harris was bidding against other companies in anticipation of an imminent purchase order from Associated Communications. They assert this could not have been a mere "budgetary quotation" used for the FCC filings, because the potential customer had already obtained its construction permit from the FCC. Defendants point to the delivery date reference to support its contention that Harris must have submitted a firm bid, including delivery date, to Associated Communications.

The author of the telephone record, Weising, explained at trial:

> Q: Okay. So in other words, Mr. Coppage had said that Associated Communications was, in words or substance, about to make a decision about who it was going to buy the equipment from; is that correct?
>
> A: That's what it appears, yes.
>
> Q: And one of the offers it was considering was one from Harris; is that correct?
>
> A: That's most likely, yes.
>
> Q: And the equipment that Harris had offered was Cellstar; is that correct?
>
> A: Yes, the equipment we're talking about is Cellstar.

(Id. at 1144)

The court agrees that this telephone record indicates Harris may have submitted a competitive bid in response to an invitation for bids, and that the bid may have included terms beyond what budgetary quotations provided, for example, delivery date. However, in his testimony, Weising never added any additional information about the contents or circumstances of the alleged "bid" beyond what is stated in the telephone record itself. The court concludes that this record, without more, is not substantial enough evidence for a reasonable jury to find by clear and convincing evidence that a commercial offer for sale occurred.

To summarize, the court concludes that record evidence does not reasonably support the jury verdict that the '554 patent was on sale before the critical date. As a result, defendants have not met their burden to prove the first prong of the Pfaff test by clear and convincing evidence, and the jury verdict of invalidity must be reversed. Furthermore, the court denies plaintiff's motion for a new trial under Rule 59(a). As discussed above, the record evidence cannot reasonably support a jury verdict of invalidity, thus the court shall enter judgment for plaintiff as a matter of law rather than granting a new trial.

V. CONCLUSION

For the reasons discussed above, the court shall deny plaintiff's motion for JMOL on infringement; deny plaintiff's motion for a new trial on infringement; grant plaintiff's motion for JMOL on invalidity; and deny plaintiff's motion for a new trial on invalidity. An appropriate order shall issue.

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

MLMC, LTD., Plaintiff,	)	
v.	)	Civil Action No. 99-781-SLR
AIRTOUCH COMMUNICATIONS, INC. ALLTEL CORPORATION, GTE CORPORATION, GTE WIRELESS, INCORPORATED, PRIMECO PERSONAL COMMUNICATIONS, L.P., CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS, ALLTEL COMMUNICATIONS INC., 360 COMMUNICATIONS COMPANY, VODAFONE AIRTOUCH LICENSES, L.L.C., AND VERIZON WIRELESS (VAW), L.L.C., Defendant.	)	

O R D E R

At Wilmington, this 9th day of August, 2002, consistent with the memorandum opinion issued this same day;

IT IS ORDERED that:

1. Plaintiff's motion for judgment as a matter of law on infringement of the '554 patent (D.I. 547-1) is denied.

2. Plaintiff's motion for a new trial on infringement of the '554 patent (D.I. 547-2) is denied.

3. Plaintiff's motion for judgment as a matter of law on invalidity of the '554 patent (D.I. 546-1) is granted.

4. Plaintiff's motion for a new trial on invalidity of the '554 patent (D.I. 546-2) is denied.

5. Defendants Alltel Corporation, Alltel Communications, Inc., and 360 Communications Company's motion for judgment as a matter of law (D.I. 538) is denied as moot.

Sue L. Robinson
United States District Judge