

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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*Ex parte* MOHAMMAD N. BUKHARI

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Appeal No. 2002-0067  
Application No. 08/721,921

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ON BRIEF<sup>1</sup>

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Before THOMAS, BARRY, and LEVY, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL

A patent examiner rejected claims 1-4, 7-11, 13, 14, 16-21, and 23-25. The appellant appeals therefrom under 35 U.S.C. § 134(a). We reverse.

BACKGROUND

The invention at issue on appeal relates to satellite communications. The appellant explains that a very small aperture terminal ("VSAT") communicates with a central hub via a satellite. The VSAT includes a directional antenna for exchanging signals with the satellite, an outdoor unit ("ODU") near the antenna for transmitting a

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<sup>1</sup>An oral hearing was waived. (Paper No. 28.)

modulated carrier, and an indoor unit ("IDU") for generating the modulated carrier. An inter-facility link ("IFL") carries signals between the ODU and the IDU. (Spec. at 1.)

According to the appellant, a transmission circuit in the ODU needs a certain level of input DC voltage to operate. A faulty or improper IFL will not provide a sufficient input DC voltage to the ODU. (*Id.* at 1-2.)

The appellant explains that two types of transmission circuits are available for use in the ODU. The first type, an intelligent transmission circuit, includes a processor that can detect the input DC voltage and communicate with the IDU over the IFL. More specifically, the processor can inform the IDU that the DC voltage input is insufficient. So notified, an installer can check the IFL for irregularities. Unfortunately, the installer must travel indoors to the IDU to learn of the problem. (*Id.* at 2.)

The second type, a dumb transmission circuit, cannot communicate with the IDU. Because the dumb transmission circuit cannot inform the IDU that the DC voltage input is insufficient, explains the appellant, an installer may not learn that the IFL is faulty. When an attempt to transmit fails, he may incorrectly assume that the VSAT terminal is faulty. (*Id.*)

Accordingly, the appellant's invention can inform an installer of an ODU that a IFL is faulty without requiring him to travel indoors to an associated IDU. More specifically, the ODU includes a dumb transmission circuit and a voltage detector. (*Id.*) The latter detects voltages insufficient to operate the former. A signal generator responsive to an output from the voltage detector generates an external output to indicate the insufficiency. (*Id.* at 14.)

A further understanding of the invention can be achieved by reading the following claim.

1. A method of indicating a malfunction of a communications link connecting an indoor unit and an outdoor unit of a communications system, wherein the outdoor unit comprises a dumb transmission circuit, the method comprising the steps of:

a. detecting the malfunction of the communications link at the outdoor unit; and

b. indicating the malfunction with an external output at the outdoor unit.

Claims 1-4, 7-11, 13, 14, 16-21, and 23-25 stand rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,724,645 ("Na").

## OPINION

Rather than reiterate the positions of the examiner or the appellant *in toto*, we address the main point of contention therebetween. Admitting that "Na does not disclose detecting and indicating a malfunction of the communication link at the outdoor unit, instead of in the indoor unit," (Examiner's Answer at 4), the examiner concludes, "it would have been very obvious at the time the claimed invention was made to move the malfunction detector and indication of Na from the indoor unit from the outdoor unit [sic] for the purpose of outdoor unit [sic] to detect the presence of an abnormal connection of the cable in order for the manufacturer of the outdoor unit to [sic] reduce [sic] cost for returns of their outdoor unit by customers who believe that their outdoor units are malfunctioning, but actually, it was an abnormal connection of the cable." (*Id.*) The appellant argues, "the Na patent fails to teach, suggest or otherwise render obvious an apparatus or method for indicating *at an outdoor unit* whether a malfunction in a communication link between indoor and outdoor units has occurred. . . ." (Appeal Br. at 4.)

"Analysis begins with a key legal question -- *what is the invention claimed?*" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). In answering the question, "the Board must give claims their broadest

reasonable construction. . . ." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000).

Here, independent claim 1 specifies in pertinent part the following limitations: "detecting the malfunction of the communications link at the outdoor unit; and . . . indicating the malfunction with an external output at the outdoor unit." Claims 7, 17, and 23, the other independent claims, include similar limitations. Giving the independent claims their broadest, reasonable construction, the limitations require detecting **at an outdoor unit** a malfunction in a communication link between the outdoor unit and an indoor unit and indicating **at the outdoor unit** that the malfunction has occurred.

Having determined what subject matter is being claimed, the next inquiry is whether the subject matter would have been obvious. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992) (citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered

obvious." *Id.* at 1266, 23 USPQ2d at 1784 (citing *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991)).

Furthermore, "the factual inquiry whether to combine references must be thorough and searching." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). This factual question cannot "be resolved on subjective belief and unknown authority," *In re Lee*, 277 F.3d 1338, 1343-44, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002); "[i]t must be based on objective evidence of record." *Id.* at 1343, 61 USPQ2d at 1434. Although couched concerning combining references, we hold the same requirements apply to modifying references. Namely, the factual inquiry whether to modify references must be thorough and searching. The inquiry cannot be resolved on subjective belief and unknown authority; it must be based on objective evidence of record.

Here, Na discloses "a circuit for . . . identifying the continuity of an inter facility link (IFL) using a low frequency signal. . . ." Col. 1, ll. 11-15. The IFL connects "an indoor unit 100," col. 3, l. 23, with "[a]n outdoor unit 300. . . ." *Id.* at l. 50. The reference's circuit detects a malfunction of the IFL at its indoor unit. More specifically, "[t]he low-frequency signal transmitted from the indoor unit is fed back from the outdoor unit to the indoor unit via the RX cable, to then detected [sic]. Thus, the presence or

absence of an abnormal connection of an IFL cable can be **detected in the indoor unit.**" Col. 6, ll. 35-40 (emphasis added). Na's circuit then indicates at the indoor unit that the malfunction has occurred. Specifically, "[s]ince the presence or absence of the abnormal connection of the IFL cable can be easily **identified indoors** by using an LED, it is possible to detect abnormal parts quickly at the time when an abnormality occurs in the system, thereby saving time for repairing the malfunction." *Id.* at ll. 50-55.

Although modifying Na's outdoor unit to detect and identify an abnormal connection of the IFL cable may be possible, the examiner shows no objective evidence (e.g., a reference) that abnormal connections were detected or identified anywhere but indoors. To the contrary, the sole reference cited and applied by the examiner, Na, detects and identifies abnormalities indoors. Specifically, a "low-frequency signal transmitted from the indoor unit is fed back from the outdoor unit to the indoor unit via the RX cable, to then detected [sic]. Thus, the presence or absence of an abnormal connection of an IFL cable can be **detected in the indoor unit.**" Col. 6, ll. 35-40 (emphasis added). "[T]he presence or absence of the abnormal connection of the IFL cable can be easily **identified indoors** by using an LED. . . ." *Id.* at ll. 50-52.

Nor does the examiner show any objective evidence of the desirability of his proposed modification. Absent such evidence, his conclusion that the modification

would have reduced returns by customers who believed that their outdoor units were malfunctioning seems to be based **solely** on the appellant's disclosure that, because a dumb transmission circuit cannot inform an IDU that a DC voltage input is insufficient, an installer may incorrectly assume that a VSAT terminal is faulty. (Spec. at 2.) Therefore, we reverse the obviousness rejection of claim 1; of claims 2-4, which depend therefrom; of claim 7; of claims 8-11, 13, and 14, which depend therefrom; of claim 17; of claims 18-21, which depend therefrom; of claim 23; and of claims 24 and 25, which depend therefrom.

#### CONCLUSION

In summary, the rejection of claims 1-4, 7-11, 13, 14, 16-21, and 23-25 under § 103(a) is reversed.

REVERSED

JAMES D. THOMAS  
Administrative Patent Judge

LANCE LEONARD BARRY  
Administrative Patent Judge

STUART S. LEVY  
Administrative Patent Judge

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Appeal No. 2002-0067  
Application No. 08/721,921

Page 10

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