

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

HYTERA COMMUNICATIONS CO. LTD.,
Appellant

v.

MOTOROLA SOLUTIONS, INC.,
Cross-Appellant

**ANDREI IANCU, UNDER SECRETARY OF
COMMERCE FOR INTELLECTUAL PROPERTY
AND DIRECTOR OF THE UNITED STATES
PATENT AND TRADEMARK OFFICE,**
Intervenor

2019-2127, 2019-2189

Appeals from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2018-
00176.

Decided: January 19, 2021

TODD ROBERTS TUCKER, Calfee, Halter & Griswold
LLP, Cleveland, OH, for appellant. Also represented by
KYLE TIMOTHY DEIGHAN, JOSHUA FRIEDMAN, YIZHOU LIU,
MARK MCDUGALL, JOSHUA MICHAEL RYLAND.

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JOHN C. O'QUINN, Kirkland & Ellis LLP, Washington, DC, for cross-appellant. Also represented by HANNAH LAUREN BEDARD, JASON M. WILCOX; MICHAEL W. DE VRIES, YIMENG DOU, BENJAMIN A. HERBERT, Los Angeles, CA; AKSHAY S. DEORAS, New York, NY; ADAM R. ALPER, San Francisco, CA.

MONICA BARNES LATEEF, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA, for intervenor. Also represented by THOMAS W. KRAUSE, FARHEENA YASMEEN RASHEED.

Before NEWMAN, LOURIE, and HUGHES, *Circuit Judges*.

NEWMAN, *Circuit Judge*.

On *inter partes* review (“IPR”) petition filed by Hytera Communications Co. Ltd., the Patent Trial and Appeal Board (“PTAB” or “Board”) held that claims 1, 6, 7, and 12 of U.S. Patent No. 6,591,111 (“the ’111 patent”), owned by Motorola Solutions, Inc., are unpatentable on the ground of obviousness.¹ The Board also held that claims 11, 13, 15, and 16 are patentable.

Hytera appeals the Board’s decision that claims 11, 13, 15, and 16 are patentable, and Motorola conditionally cross-appeals the Board’s decision that claims 1, 6, 7, and 12 are unpatentable. We affirm the Board’s decisions.

BACKGROUND

The ’111 patent is titled “Group Radio Communication System and Method Using Interconnected Radio Sub-

¹ *Hytera Commc’ns Corp. v. Motorola Sols., Inc.*, No. IPR2018-00176, 2019 WL 2067140 (P.T.A.B. May 9, 2019) (“Board Op.”).

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networks.” Motorola describes the invention as providing two-way radio communication between networks that use different communication protocols, as well as expanding the reach of existing networks.

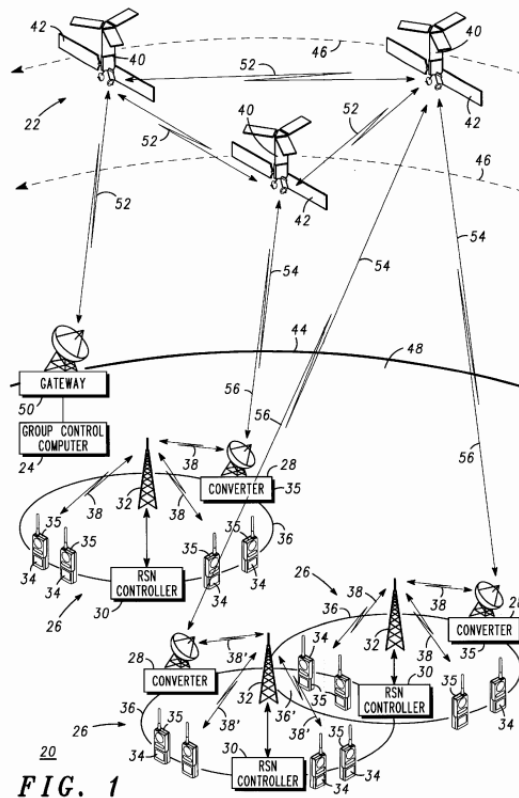
The invention concerns group radio communication systems where multiple communication sub-systems, referred to as “radio sub-networks,” are connected using “point-to-multipoint communications” that are coupled together through a “group controller” to form an overall network for point-to-multipoint communications. “Point-to-multipoint” (“PTM”) is defined as “a communication circuit in which a single signal goes from one originating group member to many destination or target group members.” ’111 patent, col.1, ll. 15–17. These communications are referred to as “monologs.” To facilitate communication between subsystems, a “group controller” is used to manage PTM communications between subscribers in radio sub-networks.

A “packet switched data communication network” connects the group controller and sub-networks. A “converter” translates communications between the radio sub-network and the packet switched data communication network. “Radio sub-network controllers” route communications into and out of a sub-network and resolve conflicts between communications in the sub-network.

With this communication system, subscribers in a radio sub-network (such as a city police department) can communicate with subscribers in a different radio sub-network (such as a federal agency), with communications coordinated so that radios in the different networks do not attempt to transmit at the same time, and can duplicate and distribute transmissions between networks if the existing infrastructure is not capable of supporting one-to-many transmissions on its own. Figure 1 depicts a communication network where a group controller is coupled to multiple radio-subnetworks with radio sub-network controllers,

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and coordinates between call requests that come from the subscribers in each sub-network. Converters translate between the protocols used in the radio sub-networks and the data communication protocol used by the group controller, and translate between incompatible protocols:



Claims 1, 6, 7, 11, and 12, are system claims. Independent claim 1 is for a “group radio communication system” and requires multiple radio sub-networks, a group controller, a packet switched data communication network, and a radio sub-network controller:

1. A group radio communication system comprising:

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a first radio sub-network configured to implement point-to-multipoint communication sessions within said first radio sub-network;

a second radio sub-network configured to implement point-to-multipoint communication sessions within said second radio sub-network; and

a group controller in data communication with said first radio sub-network and said second radio sub-network, said group controller being configured to manage a common point-to-multipoint communication session involving said first radio sub-network and said second radio sub-network;

a packet switched data communication network coupled between said first radio sub-network and said group controller and between said second radio sub-network and said group controller;

a radio sub-network controller associated with each of said first and second radio sub-networks and a plurality of subscriber radios in communication with said radio sub-network controller, and

each of said radio sub-network controllers is configured to resolve conflicts between substantially concurrent requests from said plurality of subscriber radios in communication with said radio sub-network controller to be origination points for a point-to-multipoint monolog and to provide subscriber traffic distribution to said plurality of subscriber radios in communication with said radio sub-network controller.

'111 patent, col. 11, ll. 21–50.

Dependent claims 6 and 7 additionally require “converters” to translate between the radio sub-networks and the packet switched data communication networks. Dependent claim 11 additionally requires that the sub-

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networks have “overlapping radio coverage areas.” Dependent claim 12 requires that the sub-networks have “non-overlapping coverage areas.”

Claims 13, 15, and 16 are method claims. Independent claim 13 is for a “method of implementing a common point-to-multipoint communication session involving first and second radio sub-networks.” Claim 13 recites:

13. A method of implementing a common point-to-multipoint communication session involving first and second radio sub-networks, said method comprising:

coupling said first radio sub-network to a packet switched communication network;

coupling said second radio sub-network to said packet switched communication network;

coupling a group controller to said data communication network;

routing a point-to-multipoint monolog from said first radio sub-network through said group controller to said second radio sub-network;

converting said point-to-multipoint monolog into packets for distribution through said packet switched data communication network and said group controller;

receiving said point-to-multipoint monolog at a first converter configured to communicate in said first radio sub-network using a communication protocol established for said first radio sub-network; and

transmitting said point-to-multipoint monolog as packets over said packet switched data communication network using a protocol established for said packet switched data communication network.

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'111 patent, col. 13, ll. 1–24.

Dependent claim 15 additionally requires “incompatible communication protocols.” Dependent claim 16 additionally requires that the radio-subnetworks have “non-overlapping radio coverage areas.”

Hytera filed a petition for *inter partes* review of claims 1, 6, 7, 11, 12, 13, 15, and 16 as unpatentable as obvious in view of: (1) U.S. Patent No. 5,987,331 (“Grube”) in combination with U.S. Patent No. 5,398,248 (“Shepherd”); and (2) Patent Cooperation Treaty Publication No. 99/63773 (“Stubbs”) in combination with U.S. Patent No. 5,659,881 (“Kent”). The Board decided that claims 1, 6, 7, and 12 are unpatentable, and that claims 11, 13, 15, and 16 are patentable. Hytera appeals as to claims 11, 13, 15, and 16, and Motorola conditionally cross-appeals as to claims 1, 6, 7, and 12.

DISCUSSION

On appeal, we review *de novo* the Board’s construction or interpretation of a claim, or term of a claim. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 332–33 (2015). Any subsidiary factual findings are reviewed for support by substantial evidence. *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). Substantial evidence is such evidence as a reasonable mind might accept as adequate to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938).

Hytera argues that claims 11, 13, 15, and 16 would have been obvious over the combination of Stubbs and Kent, and also over the combination of Grube and Shepherd. Hytera raises three challenges to the Board’s decision: (1) the Board erred in finding that Stubbs does not teach “routing” monologs through a group controller; (2) the Board erred in finding that Stubbs does not teach “incompatible communication protocols”; and (3) the Board

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erred in finding the claims patentable over Grube and Shepherd.

Motorola states that if we find that Stubbs in combination with Kent teaches routing monologs through a group controller, Motorola conditionally cross-appeals the Board's invalidation of claims 1, 6, 7, and 12.

I

Claim 13 – Stubbs' routing of monologs

Hytera focuses on the "routing" limitation of claim 13, which requires "routing a point-to-multipoint monolog from said first radio sub-network through said group controller to said second radio sub-network." The Board found that this limitation is not taught by Stubbs, because the general packet radio service ("GPRS") system of Stubbs routes packets using the serving GPRS support node ("SGSN") and the gateway GPRS support node ("GGSN"), not the "packet handler" which corresponds to the recited group controller. Board Op. at *12; *see* Stubbs, 15:15–16 ("Data packets originated in the mobile station 8 are transmitted over the radio interface and via the BTS 6 and the BSC 4 to the SGSN 40.").

Hytera argues that all the '111 patent claims require that the group controller is located "between" the sub-networks, and thus communications between sub-networks must pass through the group controller. Hytera points to claim 1 which requires "a group controller in data communication" with the first and second radio sub-network, and "a packet switched data communication network coupled between" the first and second radio sub-network and the group controller. Hytera also points to the language of claim 1 requiring that the group controller "manage" a communication session involving the first and second radio sub-networks. Hytera thus argues that the group controller necessarily is located between the first and second sub-networks.

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Hytera further argues that the monologs must pass through the group controller if the group controller duplicates and distributes those monologs to the other radio sub-networks. Hytera points to an example in the '111 patent specification where a monolog received at the local converter for a radio sub-network is “sent to group controller 24,” and is “duplicat[ed] and distribut[ed] [] to all non-originating radio sub-networks 26 for the group.” '111 patent, col. 9, l. 46–col.10, l. 3. Hytera argues that because Stubbs' packet handler is between the radio sub-networks for the communication system, monologs must be routed through it, satisfying the “routing” limitation in claim 13, and rendering claim 13 unpatentable.

The Board found that Stubbs does not show a monolog routed from a first radio sub-network to a second radio sub-network through a group controller. There is no teaching in Stubbs that a monolog is routed through the packet handler; the only routing in Stubbs is through the support and gateway nodes. Hytera argues that the Board imputed into claim 13 a requirement that the “routing” step uses the group controller, where the claims only require routing “through” the group controller. Hytera states that the Board imposed an unduly narrow interpretation, thereby distinguishing Stubbs. However, the Board did not hold that the claims require that the routing step “uses” the group controller. Rather, the Board found that Stubbs does not route packets between its radio networks through the packet handler. The Board observed that, “when discussing this element” in its petition, Hytera “does not even mention the packet handler.” Board Op. at *12.

Hytera states that the Board did not “consider the ‘full record,’” and “ignored” some of Hytera's arguments. Hytera Br. 32–40. We do not discern such lapse, for the Board acknowledged Hytera's arguments, but deemed them unpersuasive. *Cf. Microsoft Corp. v. Parallel Networks Licensing, LLC*, 715 F. App'x 1013, 1021 (Fed. Cir. 2017)

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(finding that the Board wholly overlooked an argument presented in the petition).

We conclude that substantial evidence supports the Board's finding that Stubbs does not teach the "routing" limitation of claim 13. We affirm the Board's holding that claim 13 is patentable.²

II

Prior art uses with incompatible protocols

Hytera also challenges the Board's finding that Stubbs does not teach or render obvious radio sub-networks that have "incompatible communication protocols," as in system claim 11.

In addressing this claim element in its IPR petition, Hytera stated that "having different protocols among the sub-networks is an obvious design choice" and that "[t]he claims already require a converter, which would be pointless if there was only a single protocol across the entire network." Petition at 70. The Board disagreed, finding that the converter recited in claim 6 is used to convert between a radio sub-network and the packet-switched network, not between a first incompatible radio sub-network and a second incompatible radio sub-network, as required by claim 13. Board Op. at *11.

We conclude that substantial evidence supports the Board's findings concerning these claims. The '111 patent

² Hytera also urges that since claim 1 was held unpatentable, claim 13 is also unpatentable. Motorola responds that since claim 13 was held patentable, claim 1 is also patentable. Motorola points out that claim 13, unlike claim 1, requires "routing a point-to-multipoint monolog from said first radio sub-network through said group controller to said second radio sub-network." We agree that this distinction supports treating these claims separately.

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describes converters that can translate between incompatible protocols, and Figure 1 depicts that the converters allow devices operating on protocol to communicate with devices in a different sub-network operating on protocol. The Board correctly found that Stubbs does not render obvious the presence of a converter to translate to a packet-switched network, and does not show capability of supporting incompatible protocols at the radio sub-network level.

III

The Grube/Shepherd prior art

Hytera's third general argument is that the claims are unpatentable over Grube in light of Shepherd. Hytera states that the Board erred in finding that Grube does not teach a group controller. Hytera states that the Board failed to apply its own construction of the term "group controller" and instead announced a new requirement of "active management." Hytera points to the inter-ward interface shown in Figure 3 of Grube as corresponding to the group controller, and argues that the '111 patent's material is not significantly different.

The Board construed "group controller" to mean "a computational device that manages a point-to-multipoint communication session," Board Op. at *15. The Board found that Grube's inter-ward interface "is merely a connection between ward controllers and does not perform any functions that 'manage' a PTM communication session." *Id.* The Board found that "Grube's inter-ward interface plays no active role in distributing message payloads among Grube's communication systems. Instead, message distribution is handled exclusively by switch 106a and associated components of ward controller 114a." *Id.*

Grube teaches: "The inter-ward interface 315 provides a communication path between the ward controllers 114A and B." Grube, col. 6, ll. 52–53. Grube further describes that this is a "physical interface" such as a "parallel data

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bus, multi-drop parallel data bus, a V.35 interface, an Ethernet interface, or other physical communication connection.” Grube, col. 6, ll. 53–56. Nothing in Grube describes the inter-ward interface as computational or managing a PTM communication session.

The plain and ordinary meaning of “manage” requires administering or regulating an activity. *Manage*, Black’s Law Dictionary (10th ed. 2014) (“1. To exercise executive, administrative, and supervisory powers. 2. To conduct, control, carry on, or supervise. 3. To regulate or administer a use or expenditure.”). The ’111 patent demonstrates that “manag[ing] a common point-to-multipoint communication session” by filtering packets by group, determining whether the packets received from a sub-network contain a monolog, duplicating and distributing the packets to other sub-networks for the group, and managing conflicts between sub-networks to ensure only one radio at a time is transmitting messages to the group. ’111 patent, col. 9, l. 29–col. 10, l. 53.

On the Board’s unchallenged definition of “group controller” to mean “a computational device that manages a point-to-multipoint communication session,” substantial evidence supports the Board’s finding that Grube’s inter-ward interface does not meet this definition.

IV

Some procedural aspects

“New argument” in the Reply

In its Reply filed in the PTAB, Hytera elaborated its argument concerning Stubbs, stating that Stubbs discloses the use of incompatible protocols as “exemplified by the encapsulation/decapsulation conversions in the GGSN and SGSN.” Reply at 18. Hytera’s Reply cited additional quotations from the Stubbs reference, that “flowed directly from its contention [in the Petition] that converters evidence incompatible protocols.” Hytera Br. 51. The Board

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declined to consider this information, calling it “new argument advanced in the Reply” without any reason “why this argument could not have been made in the Petition.” Board Op. at *11–12. It was error for the Board to refuse to consider information filed in Reply, although it was relevant to Motorola’s Response, for the Board is intended and expected fully to explore the issues, to justify the estoppel that Congress included in the America Invents Act.

In the interest of expediency, we have reviewed the information that the Board refused to consider. We conclude that this information does not change the result.

The question of “waiver”

Hytera argues that the Board adopted an argument that had been waived by Motorola: the argument that the inter-ward interface of Grube “refers merely to a connection between ward controllers” and thus does not function as a group controller. Hytera Br. 53–54.

Hytera acknowledges that this argument was presented by Motorola in its preliminary response, but Hytera states that Motorola did not develop the argument, and therefore that it could not be relied on by the Board. We do not discern error or inequity on the facts hereof, for the issue was initially mentioned by Motorola, and the record does not show that as to this aspect Hytera was foreclosed from stating its position.

CONCLUSION

We affirm the Board’s decision of patentability of claims 11, 13, 15, and 16. With this decision, Motorola does not request review of its conditional cross-appeal as to claims 1, 6, 7, and 12.

AFFIRMED