

NOTE: This disposition is nonprecedential.

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

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**HYTERA COMMUNICATIONS CO. LTD.,**  
*Appellant*

v.

**MOTOROLA SOLUTIONS, INC.,**  
*Appellee*

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

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2019-2126

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Appeal from the United States Patent and Trademark  
Office, Patent Trial and Appeal Board in No. IPR2018-  
00128.

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Decided: January 19, 2021

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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.

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

Hytera Communications Co. Ltd. appeals from the final written decision of the Patent Trial and Appeal Board holding that claims 1, 4–9, 12–15, and 18–19 of U.S. Patent No. 8,116,284 are not unpatentable. *Hytera Commc'ns Corp. Ltd. v. Motorola Sols., Inc.*, No. IPR2018-00128, 2019 WL 2062285 (P.T.A.B. May 9, 2019) (*Decision*). For the following reasons, we affirm.

## I

Motorola Solutions, Inc. owns U.S. Patent No. 8,116,284 (the '284 patent), which is directed to methods by which communication devices efficiently select timeslots in a time division multiple access (TDMA) wireless communication system. TDMA refers to a method of dividing a single frequency band into multiple channels by allocating regularly recurring periods of time or “timeslots.” Radios in the communication system are assigned a unique timeslot, and each radio transmits during its assigned timeslot. This allows two radios to simultaneously transmit on the same frequency.

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Communications systems, including TDMA systems, typically pool available channels using “trunking” methods. Some such prior art trunking methods used a common controller—a device that monitors and assigns channels to radios—to allocate trunked channels. ’284 patent 1:49–57. Other prior art systems did not use a common controller. For example, the European Telecommunications Standard Institute’s Digital Mobile Radio system teaches that a radio can have an assigned timeslot and communicate directly with another radio. J.A. 2077. However, if the radio’s assigned timeslot is in use, that radio must wait for the timeslot to become available. *Id.*

The ’284 patent claims a novel and more efficient method of selecting timeslots that neither relies on a common controller nor limits a radio to its assigned timeslot, and accordingly resolves inefficiencies inherent in reliance on those methods. Instead, the ’284 patent discloses a method—and corresponding devices and systems—in which each radio independently, but concurrently, searches for and temporarily selects an available timeslot if its assigned timeslot is occupied. *See* ’284 patent 5:40–44.

Hytera petitioned for inter partes review of claims 1, 4–9, 12–15, and 18–19 of the ’284 patent. Claim 1 of Motorola’s ’284 patent is representative:

1. A method for temporarily selecting a time division multiple access (TDMA) timeslot by a radio communication device to thereby allow the radio communication device to communicate, through at least one repeater station, with a talkgroup of other radio communication devices, the method comprising:

the radio communication device having an assigned default timeslot for communicating with the talkgroup;

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the radio communication device determining if the default timeslot is available for the radio communication device to communicate with the talkgroup;

the radio communication device searching for an available timeslot when the default timeslot is unavailable;

the radio communication device temporarily selecting the available timeslot as a temporary selected group timeslot for the talkgroup; and

the radio communication device re-selecting the default timeslot for communicating with the talkgroup when the default timeslot becomes available.

'284 patent 6:20–39. Hytera contended that the challenged claims were unpatentable: 1) as anticipated by U.S. Patent No. 6,529,740 (Ganuchau); 2) as anticipated by U.S. Patent No. 8,279,991 (Wiatrowski); and 3) as obvious over U.S. Patent No. 6,374,115 (Barnes) in light of U.S. Patent No. 5,790,527 (Janky).

Ganuchau describes a group radio communications system using satellites that act as repeaters, ground radios, and a group controller. The group controller produces and periodically updates a list of channels based on the locations of the satellites. Using that list, each ground radio determines whether its current channel is acceptable and, if it is not, it determines whether another channel on a different satellite will provide better signal quality. *Decision* at \*4–5.

Wiatrowski discloses methods for synchronizing radios to a “desired timeslot” in a TDMA communication system. *Id.* at \*8. Each radio in this system “selects a synchronization pattern associated with the desired timeslot that is mutually exclusive from synchronization patterns associated with other timeslots on the same frequency.” *Id.* By

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using an undesired timeslot as a reference, the method described in Wiatrowski ensures that the radio can transmit in the desired timeslot without interfering with transmissions in other timeslots. *Id.*; Wiatrowski 12:34–39.

Barnes teaches a frequency division multiple access system (FDMA) communication system in which each radio is assigned a home channel which occupies an entire frequency. Barnes 1:61–63, 8:22–25. When the home channel is unavailable, the radios will temporarily communicate on other frequencies. *Decision* at \*10.

Janky discloses TDMA, identifies certain advantages of TDMA over FDMA, and discloses methods which add TDMA capabilities to existing FDMA systems. *Id.*

After instituting inter partes review on all three grounds, the Board concluded that Hytera had failed to show by a preponderance of the evidence that the challenged claims were unpatentable. *Id.* at \*1. This appeal followed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

## II

Hytera raises four principal arguments on appeal which we address in turn.

### A

Hytera first argues that the Board improperly applied a new construction of the claim term “default timeslot” in concluding that the claims of the ’284 patent were not anticipated by Ganucheau. Anticipation is a factual finding which we review for substantial evidence. *HP Inc. v. MPHJ Tech. Invs., LLC*, 817 F.3d 1339, 1343 (Fed. Cir. 2016). “A finding is supported by substantial evidence if a reasonable mind might accept the evidence to support the finding.” *In re Ethicon, Inc.*, 844 F.3d 1344, 1349 (Fed. Cir. 2017). We review the Board’s claim constructions de novo and any underlying factual findings for substantial evidence. *In re*

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*Cuozzo Speed Techs, LLC*, 793 F.3d 1268, 1281 (Fed. Cir. 2015).

Hytera argues that the Board originally construed the claim term “default timeslot” as “including a timeslot that *changes* based on time, location, or other criteria” but then inappropriately narrowed that construction during its anticipation analysis to require instead “that default timeslot remain *unchanged* throughout the method.” Appellant’s Br. 39 (emphasis in original). Because the Board found that Ganucheau did not teach switching back to the default timeslot when the default timeslot becomes available, *Decision* at \*5–6, Hytera’s theory of anticipation by Ganucheau required that claim 1 of the ’284 patent be construed such that the “default timeslot” could change during the performance of the method. In other words, Hytera desired a construction of claim 1 in which “*the* default timeslot” that is re-selected in the final “re-selecting” step of the method could be a different timeslot from the original “default timeslot” recited in the first step of the method. ’284 patent 6:26–39 (emphasis added).

But, contrary to Hytera’s assertions, the Board never construed claim 1 in this fashion. Indeed, the construction Hytera urges would defy logic and basic rules of grammar. The “re-selecting” step of claim 1 uses the definite article “the” to refer to “default timeslot.” “Subsequent use of the definite articles ‘the’ or ‘said’ in a claim refers back to the same term recited earlier in the claim.” *Wi-Lan, Inc. v. Apple, Inc.*, 811 F.3d 455, 462 (Fed. Cir. 2016). The only antecedent basis for “the default timeslot” in the final, re-selecting step of claim 1 is the “assigned default timeslot” recited in the first step of the method. Even the testimony of Hytera’s own expert does not support the construction Hytera asserts. J.A. 1863–64 (describing the re-selecting step as “reselecting the default that’s going back to what was at least in [the first step]”). We agree with the Board’s construction of claim 1 such that the re-selecting step “require[s] that the *same* timeslot be selected again,” *Decision*

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at \*6, and conclude that the Board applied that construction consistently in its anticipation analysis.

Hytera additionally argues that the Board erred because it failed to credit the evidence provided by Hytera's expert in a supplemental report. Appellant's Br. 49–50. But the substantial evidence standard does not allow us to reweigh the evidence. *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016). The Board considered and discussed at length the teachings of Ganucheau, the testimony of Hytera's expert, and the testimony of Motorola's expert, and found that Motorola's expert “articulates the more compelling position, namely, that the re-selecting step cannot be met by selecting a new, different timeslot” as taught in Ganucheau. *Decision* at \*6 (internal quotations omitted). The Board's finding that the claims of the '284 patent were not anticipated by Ganucheau was supported by substantial evidence.

## B

Hytera's second argument is that the Board erred in finding that the claims of the '284 patent were not anticipated by Wiatrowski. As an initial matter, we hold that the Board's findings regarding the teachings of Wiatrowski were supported by substantial evidence. The Board found that Wiatrowski does not teach transmitting on an alternate or “undesired” timeslot as required by the challenged claims. *Decision* at \*9. In support of this finding, the Board credited the testimony of Motorola's expert, which it found aligned with its own independent review of Wiatrowski. *Id.*

Hytera further argues that the Board erred by failing to consider its argument, raised for the first time in a reply brief, that the claims of the '284 patent were anticipated by U.S. Patent Application No. 12/331,180 (the '180 application), which Wiatrowski incorporates by reference. While the Board noted that Hytera's belated presentation of this theory of invalidity was improper, the Board nonetheless “reviewed the cited disclosure of the '180 application.” *Id.*

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The Board found that the '180 application did not anticipate the claims of the '284 patent because it did not teach temporarily selecting an alternate timeslot before returning to the default timeslot. *Id.* Hytera's argument regarding the Board's application of waiver is thus without merit.

### C

Hytera next challenges the Board's conclusion that the challenged claims would not have been obvious over a combination of Barnes and Janky because a skilled artisan would not have been motivated to combine the references. While the Board's ultimate determination of obviousness is a legal conclusion which we review *de novo*, we review the Board's underlying factual findings for substantial evidence. *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). Such factual findings include the teachings of prior art and whether a person of ordinary skill in the art would have been motivated to combine prior art references. *In re Ethicon*, 844 F.3d at 1349.

Hytera's arguments on appeal, however, again do not address the substantial evidence standard. Hytera concedes that—assuming that Barnes teaches all elements of the challenged claims except for performing them on a TDMA system, a question which the Board did not reach—Barnes does not teach performing the claimed method on a TDMA system and instead teaches a method of selecting frequencies on an FDMA system. Appellant's Br. 34. Hytera therefore relied on combination with Janky to teach performing the method disclosed in Barnes on a TDMA system. *Id.*; J.A. 120–22. The Board analyzed Janky and considered expert testimony from both Hytera and Motorola on whether Janky taught performing the FDMA-based techniques disclosed in Barnes on a TDMA system and concluded that it did not. *Decision* at \*10–11. In support of that conclusion, the Board explained the significance of the distinction between *adding* TDMA to an FDMA system and *converting* an FDMA system to TDMA and noted that

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Janky taught only the former. *Id.* at \*10. The Board also cited the testimony of Motorola’s expert that an artisan would not have been motivated to combine Barnes with Janky for the sole reason Hytera asserted—to improve spectral efficiency—because “there were many ways to add efficiency and capacity,” such as by adding additional FDMA channels. *Id.* at \*11. The Board’s finding that an artisan would not have been motivated to combine Barnes and Janky was thus supported by substantial evidence.

Hytera nonetheless argues that the Board erred because its expert testified that an artisan would know that the methods disclosed in the ’284 patent could operate in the same manner on either a TDMA or FDMA system. Appellant’s Br. 35–36. But neither Hytera nor Hytera’s expert provided evidence of such understanding from “before the effective filing date of the claimed invention.” 35 U.S.C. § 103; *InTouch Techs., Inc. v. VGo Commc’ns, Inc.*, 751 F.3d 1327, 1353–54 (Fed. Cir. 2014). The Board correctly concluded that this reasoning was based on hindsight knowledge of the patented invention itself, *Decision* at \*11, and we affirm.

#### D

Finally, because we agree with the Board’s conclusion that the claims of the ’284 patent would not have been obvious, we do not reach Hytera’s challenges to various aspects of the Board’s analysis of secondary considerations of non-obviousness. *Hamilton Beach Brands, Inc. v. f’real Foods, LLC*, 908 F.3d 1328, 1343 (Fed. Cir. 2018).

#### III

We have considered Hytera’s remaining arguments and find them unpersuasive. The Board’s final written decision is affirmed.

**AFFIRMED**