



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/420,306	03/14/2012	Miho MAEDA	395616US2DIV	3252
22850	7590	01/30/2020	EXAMINER	
OBLON, MCCLELLAND, MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			ABELSON, RONALD B	
			ART UNIT	PAPER NUMBER
			2476	
			NOTIFICATION DATE	DELIVERY MODE
			01/30/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OBLONPAT@OBLON.COM
iahmadi@oblon.com
patentdocket@oblon.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MIHO MAEDA, MITSURU MOCHIZUKI,
YASUSHI IWANE, TETSUYA MISHUKU,
MASAAKI KUSANO, RYOICHI FUJIE, SHIGENORI TANI,
KEIKO TADA, NORIYUKI FUKUI, and MICHIAKI TAKANO

Appeal 2018-005087
Application 13/420,306
Technology Center 2400

Before JOSEPH L. DIXON, STEVEN M. AMUNDSON, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

AMUNDSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ seeks our review under 35 U.S.C. § 134(a) from a final rejection of claims 1, 2, and 11. Claims 5–10 are objected to. We have jurisdiction under 35 U.S.C. § 6(b). On January 23, 2020, Appellant’s counsel presented arguments at an oral hearing.

We reverse.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42 (2017). Appellant identifies the real party in interest as Mitsubishi Electric Corporation. Appeal Br. 1.

STATEMENT OF THE CASE

The Invention

According to the Specification, the invention “relates to a mobile communications system in which a base station carries out radio communications with a plurality of mobile terminals by controlling the transmission rates, the transmission powers (the permitted transmission powers and maximum permitted transmission powers), the transmission timings,” and “the available frequencies” of the plurality of mobile terminals. Spec. ¶ 1.² In one embodiment, the system “prevent[s] the case in which an Ack signal/Nack signal is transmitted at the same time when a CQI [Channel Quality Indicator] signal is transmitted.” *Id.* ¶ 302. The system prevents simultaneous signal transmission because “PAPR (Peak-to-Average-Power Ratio) becomes large when an Ack signal/Nack signal is transmitted at the same time when a CQI signal is transmitted.” *Id.* ¶ 300. A large Peak-to-Average-Power Ratio may cause problems, “such as increase in the power consumption, reduction in the transmission power, and increase in the adjacent channel leakage power.” *Id.*

Exemplary Claim

Independent claim 1 exemplifies the subject matter of independent claims 2 and 11. Claim 1 reads as follows:

1. A mobile communication system comprising:
a mobile terminal; and

² This decision uses the following abbreviations: “Spec.” for the Specification, filed March 14, 2012; “Final Act.” for the Final Office Action, mailed July 26, 2017; “Appeal Br.” for the Appeal Brief, filed December 8, 2017; “Ans.” for the Examiner’s Answer, mailed February 5, 2018; and “Reply Br.” for the Reply Brief, filed April 5, 2018.

a base station,

wherein when the mobile terminal and the base station carry out radio communication with each other, the mobile terminal measures quality of a downlink communication path and periodically transmits a result of the measurement of the quality to the base station with a predetermined transmission cycle, and the base station carries out downlink scheduling according to the result of the measurement of the quality, and

wherein when a periodic timing at which to transmit the result of the measurement of the quality to the base station coincides with a timing at which to transmit a positive response signal or a negative response signal to the base station, the mobile terminal transmits the positive response signal or the negative response at a start of the transmission cycle signal and does not transmit, at said start, the result of the measurement of the quality.

Appeal Br. 9 (Claims App.).

The Prior Art Supporting the Rejection on Appeal

As evidence of unpatentability, the Examiner relies on the following prior art:

Sakata	US 6,311,061 B1	Oct. 30, 2001
Fukui	US 2004/0067757 A1	Apr. 8, 2004
Iochi	US 2006/0111119 A1	May 25, 2006

The Rejection on Appeal

Claims 1, 2, and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Fukui, Sakata, and Iochi. Final Act. 2–5; Ans. 2–4.

ANALYSIS

We have reviewed the rejection of claims 1, 2, and 11 in light of Appellant’s arguments that the Examiner erred. Based on the record before us and for the reasons explained below, we concur with Appellant’s

contentions that the Examiner erred in finding that the cited portions of the references teach or suggest every limitation in claims 1, 2, and 11.

Appellant’s arguments center on Fukui. *See* Appeal Br. 5–7; Reply Br. 4–7. Fukui’s Figure 6 is reproduced below:

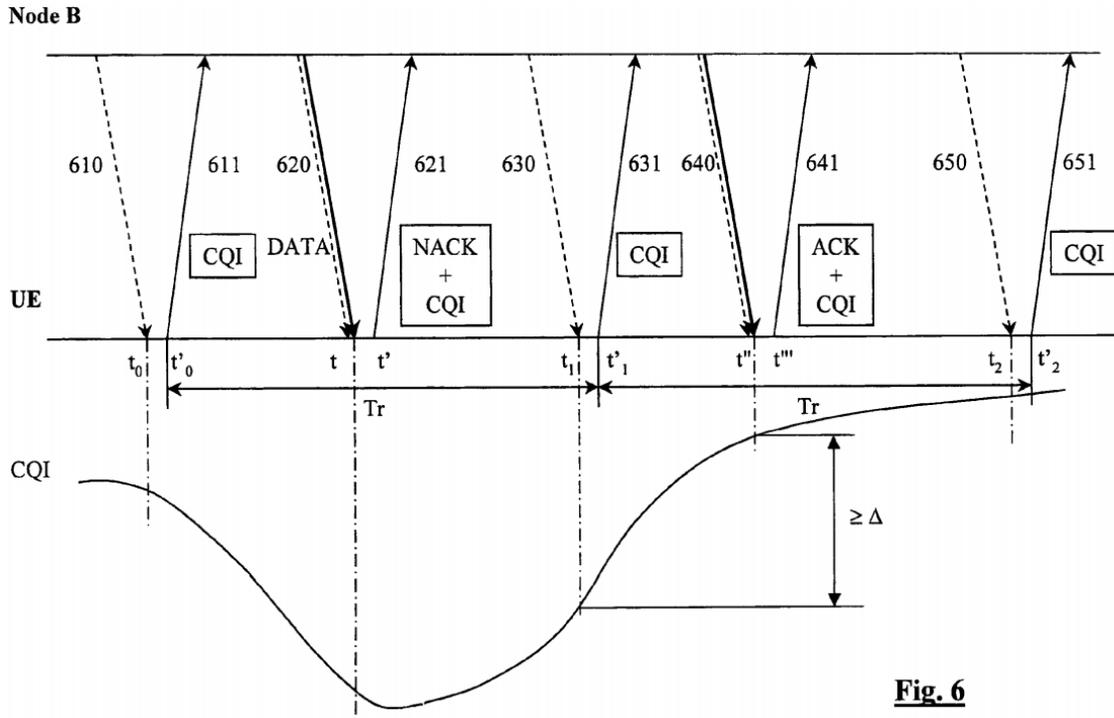


Figure 6 “depicts schematically a process for reporting a channel quality information.” Fukui ¶ 22; *see id.* ¶ 29.

As depicted in Figure 6, “a transmitter (Node B) transmits data subframes over a transmission channel and a receiver (UE)” returns either an ACK signal “when a received subframe is found free of errors” or a NACK signal “when a received subframe is found erroneous.” Fukui ¶ 23; *see id.* ¶ 6, code (57). In addition, the transmitter periodically transmits pilot symbols to the receiver. *Id.* ¶¶ 9, 23, 29, Fig. 6; *see id.* ¶¶ 7–8, code (57). The receiver uses the pilot symbols to determine CQI information. *Id.* ¶¶ 9, 23, 29. The receiver periodically transmits feedback signals containing CQI information to the transmitter. *See id.* ¶¶ 7–10, 23, 29–30, code (57), Fig. 6.

In Figure 6, dashed arrows represent pilot-symbol transmissions, thick arrows represent data transmissions, and plain arrows represent feedback-signal transmissions. Fukui ¶ 29. As an example, reference numerals 610, 630, and 650 associated with dashed arrows identify periodic pilot symbols, and reference numerals 611, 631, and 651 associated with plain arrows identify periodic feedback signals containing CQI information resulting from periodic pilot symbols 610, 630, and 650, respectively. *Id.* ¶¶ 29–30, Fig. 6. The receiver transmits feedback signals 611, 631, and 651 at times t'_0 , t'_1 , and t'_2 , respectively, with the interval T_r between transmissions. *Id.* ¶¶ 29–30, Fig. 6; *see id.* ¶¶ 8, 23.

As another example, reference numerals 620 and 640 associated with adjacent dashed and thick arrows identify pilot symbols and data. Fukui ¶¶ 29–30, Fig. 6. Further, reference numeral 621 associated with a plain arrow identifies a feedback signal containing a NACK signal and CQI information resulting from transmission 620, while reference numeral 641 associated with a plain arrow identifies a feedback signal containing an ACK signal and CQI information resulting from transmission 640. *Id.*

Appellant argues that the Examiner erred in rejecting claims 1, 2, and 11 because Fukui discloses periodically transmitting feedback signals containing CQI information but does not disclose transmitting an ACK signal or a NACK signal “at a start of the transmission cycle” for CQI information. Appeal Br. 5–6; *see* Reply Br. 4–6. Appellant describes Fukui’s transmission cycle as having the periodicity T_r . Appeal. Br. 6; Reply Br. 5.

Further, referencing Fukui’s Figure 6, Appellant asserts that the receiver periodically transmits feedback signals 611, 631, and 651

containing CQI information at regular times t'_0 , t'_1 , and t'_2 , respectively, with the interval T_r between transmissions. Reply Br. 5. In contrast to those periodic transmissions, Appellant asserts that the receiver (1) transmits feedback signal 621 containing a NACK signal and CQI information at time t' and (2) transmits feedback signal 641 containing an ACK signal and CQI information at time t''' . *Id.* at 4–5. Appellant then contends that times t' and t''' do not correspond to “the claimed transmission cycle or the claimed start of the transmission cycle.” Appeal Br. 6. Appellant also contends that “feedback transmissions 621 and 641 occur *in the middle of the interval T_r* ,” not “at a start of the transmission cycle” as required by claims 1, 2, and 11. Reply Br. 5. Appellant adds that Sakata and Iochi do not cure the deficiency in Fukui. *Id.* at 6.

The Examiner “maintains that t' and t''' may represent the start of a transmission cycle since they immediately follow the transmission of data from the Node B.” Ans. 6; *see* Final Act. 5–6. In addition, the Examiner determines that “CQI information is always transmitted at” times t' and t''' for feedback signals 621 and 641, respectively. Ans. 6 (citing Fukui ¶¶ 29–30, Fig. 6).

Based on the record before us, we agree with Appellant that the Examiner has not adequately explained how the cited portions of the references teach or suggest “periodically” transmitting a measurement of downlink quality with a “predetermined transmission cycle” and transmitting a positive or negative response signal at “the start of the [predetermined] transmission cycle” when the timing for transmitting the quality measurement “coincides” with the timing for transmitting the response signal as required by claims 1, 2, and 11.

Fukui discloses “periodically” transmitting feedback signals 611, 631, and 651 containing CQI information at regular times t'_0 , t'_1 , and t'_2 , respectively, i.e., transmitting with a “predetermined transmission cycle.” Fukui ¶¶ 7–10, 23, 29–30, code (57), Fig. 6. Fukui describes the “predetermined transmission cycle” as the “reporting period T_r separating two consecutive reporting times.” *Id.* ¶ 8. Fukui explains that “the scheduled times” for transmitting CQI information “are regularly distributed over time with a periodicity T_r .” *Id.* ¶ 23.

But Fukui does not disclose transmitting an ACK signal or a NACK signal at regular times t'_0 , t'_1 , and t'_2 . Fukui ¶¶ 29–30; *see id.* ¶ 25, Figs. 5–6. Instead, the receiver transmits an ACK signal or a NACK signal at irregular times, i.e., “each time” the receiver “receives a data subframe.” *Id.* ¶ 8. For instance in Figure 6, the NACK signal at time t' results from data transmission 620 at time t , while the ACK signal at time t'' results from data transmission 640 at time t'' . *Id.* ¶¶ 29–30, Fig. 6. Fukui does not disclose a periodic relationship between data transmissions, e.g., data transmission 620 at time t and data transmission 640 at time t'' . *Id.* ¶¶ 29–30. To the extent that the Examiner considers t' and t'' to represent the start of a transmission cycle, the Examiner has not shown that they represent the start of a transmission cycle that corresponds with a periodic transmission of “the measurement of the quality to the base station,” as required by claim 1.

In the cited portions, Fukui does not indicate that the receiver transmits an ACK signal or a NACK signal at “the start of the [predetermined] transmission cycle” for transmitting CQI information when the timing for transmitting the CQI information “coincides” with the timing for transmitting an ACK signal or a NACK. signal as required by claims 1,

2, and 11. Further, on this record, the Examiner has not shown how the secondary references—Sakata and Iochi—overcome this deficiency in Fukui. Hence, we do not sustain the § 103(a) rejection of claims 1, 2, and 11.³

Because this determination resolves the appeal for claims 1, 2, and 11, we need not address Appellant’s other arguments regarding Examiner error. *See, e.g., Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (explaining that an administrative agency may render a decision based on “a single dispositive issue”).

CONCLUSION

We reverse the rejection of claims 1, 2, and 11 under 35 U.S.C. § 103(a).

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 11	103(a)	Fukui, Sakata, Iochi		1, 2, 11

REVERSED

³ In the event of continued prosecution, the Examiner should consider the propriety of a rejection under 35 U.S.C. § 112 ¶ 2 for claim 1 because the phrase “the negative response at a start of the transmission cycle signal” in claim 1 refers to a “transmission cycle signal” rather than a “negative response signal,” unlike claims 2 and 11.