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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte XIANGHUA WANG and XUAN FENG

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Appeal 2019-000637
Application 14/713,808
Technology Center 2400

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Before CARL W. WHITEHEAD JR., MELISSA A. HAAPALA, and
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

SZPONDOWSKI, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the

Examiner's decision to reject claims 1, 2, 5, 6, 8, and 9, constituting all

claims currently pending in the application. We have jurisdiction under

35 U.S.C. § 6(b).

We AFFIRM.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37
C.F.R. § 1.42. Appellant identifies the real party in interest as Huawei
Technologies Co., Ltd. Appeal Br. 2.

STATEMENT OF THE CASE

Appellant's invention generally "relates to radio communication technologies, and in particular, to a method and apparatus for sending control signaling." Spec. ¶ 2. Claim 1, reproduced below, is representative of the claimed subject matter:

1. A method of signaling comprising:

receiving, by a terminal, control signaling sent from a base station (BS); and

sending, by the terminal, a packet according to the received control signaling to the BS,

wherein the control signaling comprises an NDI [New Data Indicator] field and a field that includes N bits,

wherein a first state of the field indicated by all the N bits is indicative of a payload size and a second state of the field indicated by all the N bits is indicative of a Redundancy Version (RV).

REJECTIONS

Claims 1, 5, 8, and 9 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over the combination of Kim et al. (US 7,426,201 B2; issued Sept. 16, 2008) ("Kim") and Liu (US 2005/0237932 A1; published Oct. 27, 2005). Final Act. 3–6.

Claims 2 and 6 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over the combination of Kim, Liu, and Wang et al. (US 2009/021376 A1; published Aug. 27, 2009) ("Wang"). Final Act. 6–7.

ANALYSIS

Issue: Did the Examiner err in finding the combination of Kim and Liu teaches or suggests "the control signaling comprises . . . a field that includes N bits, wherein a first state of the field indicated by all the N bits is indicative of a payload size and a second state of the field indicated by all the N bits is indicative of a Redundancy Version (RV)," as recited in independent claim 1 and commensurately recited in independent claim 5?

The Examiner relies on Kim to teach the disputed limitation. Final Act. 3–4; Ans. 5–6. Kim is generally directed to transmitting and receiving control information on a shared control channel. Kim 1:22–23. Kim discloses that the High Speed-Shared Control Channel ("HS-SCCH") delivers control information, including transport block set size ("TBSS"), transport channel identity ("TrCH ID"), NDI, and redundancy version ("RV"). Kim 2:37–46. THE HS-SCCH includes Hybrid Automatic Retransmission Request ("HARQ") information (which includes RV and NDI), where "HARQ is a link control scheme for retransmission of an initial packet having errors in order to compensate for the errors." Kim 1:42, 2:4–6, 2:29–33, 2:49–50. Before transmitting data, a HARQ controller determines an NDI, a HARQ Process ID, and an RV, and a transport channel & block determiner determines the TrCH ID & TBSS for transmission of the user data. Kim 8:60–64. The NDI indicates whether a data packet is being initially transmitted or retransmitted. Kim 8:66–9:2. Different control information – either RV or TrCH ID & TBSS – will be transmitted, depending on whether the data packet is initially transmitted or retransmitted, through the use of a common field. Kim 8:65–67, 10:59–65.

Kim describes

> [a]t an initial transmission, that is, when the NDI 716 is N(l: true), the HARQ controller 706 determines to transmit the TrCH ID & TBSS 722 in a common field of the HS-SCCH. At a retransmission, that is, when the NDI 716 is C(0: false), the HARQ controller 706 determines to transmit the RV 720 in the common field of the HS-SCCH. Then, the HARQ controller 706 controls a switch 724 to switch to the determined control information. The common field containing the RV 720 or the TrCH ID & TBSS 722 is a novel field proposed in the present invention and will be described later with reference to FIGS. 8A, 8B, and 8C.

Kim 9:2–12; *see also* Kim 9:34–63. Table 2 of Kim indicates that the common field, TrCH ID + TBSS or RV, is 6 bits. Kim indicates that "[s]ince only the 2-bit RV is transmitted at a retransmission of a data packet, 4 bits are saved from the 6-bit common field." Kim 11:17–19. The Examiner finds this common field teaches the claimed "field that includes N bits" and Kim's TBSS teaches the claimed "first state of the field indicated by all the N bits is indicative of a payload size." Final Act. 3–4; Ans. 9. The Examiner further finds Kim's RV teaches the claimed "second state of the field indicated by all the N bits is indicative of a Redundancy Version (RV)." Final Act. 4; Ans. 9–10.

Appellant argues "the common field of Kim does not use all six bits of the common field to convey RV." Appeal Br. 4. Appellant contends that only "two bits are used to convey RV, and the remaining four bits are available for another use." Appeal Br. 5. According to Appellant, there is no indication that these "dummy bits" should be assigned a particular value or be used to convey meaningful information. Appeal Br. 5. Appellant argues:

> *Hence, a mobile terminal receiving this common field cannot discern, based solely on the state of the common field, whether the information corresponds to TBSS+TrCH ID or RV+ Extra Bits.* In order to understand the meaning of the common field, the mobile terminal must rely on a separate NDI field, which indicates whether the common field should be interpreted as TBSS+TrCH ID or RV+Extra Bits. *See, id.*, column 9/lines 58-63 and column 10/lines 46-65. As such, the common field in Kim does not convey its meaning *based solely* on the state of the field itself.

Appeal Br. 6; *see also* Appeal Br. 7.

Appellant's arguments are not persuasive. Kim teaches a common field size of 6 bits, where, for retransmission of a data packet, only the 2 bit RV is transmitted, and the remaining 4 bits are saved for other purposes, such as including control information of another field, or a value preset between a user equipment and Node B. Kim 11:17–22; *see also* Kim 10:53–58 (describing additional purposes of "(1) to additionally transmit control information of another field . . . (2) to increase demodulation performance by bit insertion; (3) to be DTX-processed; and (4) to be inserted as dummy bits."). Appellant's argues Kim does not "specify the values these four bits can take," nor would it, because "a person having ordinary skill in the art would understand that dummy bits are not used to convey information but are rather placeholders used to fill up a field that is larger than what is required to hold the useful data . . . [so] [a]ssigning a particular value to dummy bits in order to convey information would be the antithesis of the commonly understood meaning of dummy bits." Appeal Br. 5–6. However, we are not persuaded by this argument as it is inconsistent with the disclosure in Appellant's Specification (cited in Appellant's Summary of Claimed Subject Matter), which provides an example "where the field

indicative of the payload size occupies 6 bits and the field indicative of the RV occupies 2 bits." Spec. ¶ 43; *see* Appeal Br. 2 (citing Spec. ¶¶ 43–45). In particular, the Specification states

> in a 6-bit field, 4 states whose foremost upper bits are all 0s can indicate 4 different RVs. That is, the 4 states 000000, 000001, 000010 and 000011 indicate RV1-RV4. Accordingly, the remaining 60 states (any bit in the 4 foremost upper bits of the remaining 60 states is non-zero) indicate 60 different payload sizes. Therefore, when the control signaling is received, it is practicable to judge whether the field in the control signaling indicates the payload size or the RV by only detecting the state code.

Spec. ¶ 44. We discern no meaningful difference between assigning four leading zeroes to the remaining four bits, as in the example provided in Appellant's Specification, or assigning some "value preset between a user equipment and Node B" or inserting dummy bits to those four bits, as described in Kim. *See, e.g.*, *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) ("[T]he analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ"). Accordingly, Appellant has not persuasively explained why Kim does not teach or suggest "a second state of the field indicated by all the N bits is indicative of a Redundancy Version (RV)."

Further, Appellant's arguments that Kim's mobile terminal must rely on a separate NDI field to convey the meaning of the common field, rather than relying solely on the state of the field itself, are not persuasive. Kim describes:

> It is determined from the NDI preceding the common field whether the common field contains the TrCH ID & TBSS

> or the RV. If the NDI is N(1: true), indicating initial
> transmission, the common field delivers the TrCH ID & TBSS,
> and if the NDI is C(0: false), indicating retransmission, the
> common field delivers the RV.

Kim 9:58–63; *see also* Kim 10:48–50 ("if N bits are used to deliver a TrCH

ID & TBSS and M bits are used to deliver an RV . . ."). Kim, therefore,

describes that the value in the NDI field (1 or 0) indicates initial or

retransmission and is used to determine if the common field *delivers* TrCH

ID & TBSS or RV. Claim 1 recites "a first state of the field *indicated by* all

the N bits is *indicative of* a payload size and a second state of the field

indicated by all the N bits is *indicative of* a Redundancy Version (RV)."

Appeal Br. 10 (emphasis added). The parameter in Kim's common field

will be either TrCH ID & TBSS or RV, thereby indicating the first or second

state of the field, depending on whether it is an initial transmission or a

retransmission. That the NDI field may *also* be used to indicate the state of

the field is not precluded by the claim language, which does not require that

the state of the field be indicated *solely* by all of the N bits indicating

payload size or Redundancy Version (RV).

 Accordingly, we are not persuaded the Examiner erred in rejecting

independent claims 1 and 5 under 35 U.S.C. § 103(a). For the same reasons,

we are not persuaded the Examiner erred in rejecting dependent claims 2, 6,

8, and 9, which were not separately argued. *See* Appeal Br. 8.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 5, 8, 9	103(a)	Kim, Liu	1, 5, 8, 9	
2, 6	103(a)	Kim, Liu, Wang	2, 6	
Overall Outcome			1, 2, 5, 6, 8, 9	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED