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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* BOON LOONG NG

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Appeal 2018-008992  
Application 13/543,172  
Technology Center 2400

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Before IRVIN E. BRANCH, ADAM J. PYONIN, and  
DAVID J. CUTITTA II, *Administrative Patent Judges*.

PYONIN, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the  
Examiner's rejection. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> 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 LENOVO  
INNOVATIONS LIMITED (HONG KONG). Appeal Br. 3.

## STATEMENT OF THE CASE

### *Introduction*

The Application is directed to wireless communication systems using “a method for determining and transmitting Channel Quality Indicator Reference Signals (CQI-RS)” in order to measure and report a “Channel Quality Indicator (CQI).” Spec. 1:14–22. Claims 1, 2, 4–16, and 18–29 are pending; claims 1, 14, 15, and 28 are independent. App. Br. 11–14. Claim 1 is reproduced below for reference (emphasis and bracketed lettering added):

1. A method implemented in a base station used in a wireless communications system, comprising:
  - [a] *transmitting to a user equipment (UE) two channel quality indicator (CQI) reference signals using two resource elements per transmission layer within a resource block; and*
  - [b] receiving from the user equipment a report determined according to said two CQI reference signals;  
wherein the value of the subframe offset is within a range from 0 ms to  $(T_{\text{CQI-RS}} - 1)$  ms, where  $T_{\text{CQI-RS}}$  denotes a CQI reference signal transmission period.

### *Rejections*

Claims 1, 2, 4, 9, 12, 14–16, 18, 23, 26, and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over ZTE, “Discussion of CQI-RS design for LTE-A CoMP”, R1-090632, 2/13/2009, evidenced by Ad Hoc chairman, “Way forward on CoMP and MIMO DL RS” R1-090529, 3gpp tsg rani #55b, Ljubljana, Slovenia, Jan. 12-16, 2009, (Ad Hoc), Shen (US 2009/0067391 A1, published Mar. 12, 2009), and Onggosanusi (US 2009/0238256 A1, published Sept. 24, 2009). Final Act. 3–14.

Claims 5–8, 10, 11, 13, 19–22, 24, 25, 27, and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over various combinations of ZTE, Shen, Onggosanusi, and other prior art references. Final Act. 14–23.

#### ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments. Arguments Appellant could have made but chose not to make are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). We are not persuaded the Examiner’s rejection is in error; we adopt the Examiner’s findings and conclusions as our own, and we add the following primarily for emphasis.

Appellant argues “any hypothetical combination of ZTE, Shen, and Onggosanusi does not disclose or suggest” the claim 1 limitations of [a] “transmitting to a user equipment (UE) two channel quality indicator (CQI) reference signals using two resource elements per transmission layer within a resource block,” and [b] “receiving from the user equipment a report determined according to said two CQI reference signals.” Reply Br. 2; *see also* App. Br. 8.

Regarding limitation [a], Appellant contends “ZTE does not teach that any channel quality indicator resource signals are transmitted from a base station to a user equipment.” App. Br. 7. Appellant further contends “Shen does not teach that any channel quality indicator resource signals are transmitted from a base station to a user equipment” and “Onggosanusi [does not] overcome the deficiencies of ZTE.” *Id.* at 8.

We are not persuaded the Examiner errs in finding limitation [a] of claim 1 to be obvious in view of the combined teachings of the cited

references. The Examiner finds “Shen teaches ‘two CQI reference signals using two resource elements per transmission layer (table 2, R1=1 equivalent of single transmission layer, subframe contains CQI RS 1 and CQI RS 1s),” where each “CQI RS” refers to a channel quality indicator reference signal. Final Act. 2; Shen Table 2, ¶ 6; *see also* Shen ¶¶ 5, 8. Appellant does not show this finding is in error. *See* App. Br. 8.

The Examiner further finds downlink (i.e., “to a user equipment” as claimed) transmission of reference signals to be obvious in view of the disclosure of ZTE. Ans. 2. We agree, as one of ordinary skill would understand ZTE teaches reference signals in the context of a meeting about the “DL RS [which] stands for ‘downlink reference signal,’ [and] which is sent from a base station to a user equipment.” Ans. 2; ZTE § 1, Reference [3]; *see also* Final Act. 3–4. That is, ZTE refers to a “meeting [regarding] the way forward [3] that allows for two new types of” reference signals, and ZTE teaches the particular meeting’s “way forward” is for “DL RS.” ZTE § 1, Reference [3]. Appellant does not challenge the Examiner’s reliance on the meeting referenced by ZTE. *See* Final Act. 3; App. Br. 7. Nor does Appellant challenge the Examiner’s combination analysis. Accordingly, we are not persuaded the Examiner errs.<sup>2</sup>

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<sup>2</sup> Further with respect to limitation [a] of claim 1, the cited portions of ZTE teach a “cell-specific reference signal.” ZTE § 1 (introduction); Final Act. 3; *see also* App. Br. 7 (“ZTE discloses that cell-specific reference signals (CRS) are RS for channel measurement and data demodulation.”). We agree with the Examiner that one of ordinary skill would understand ZTE’s cell-specific reference signal teaches or suggests transmitting—from a base station “to a user equipment (UE)”—as claimed. Ans. 2; ZTE § 1; *cf.* Spec. 1:25–26 (“Currently, . . . CQI/PMI measurement is performed based on the cell-specific reference signals (CRS). Each CRS is associated with transmit antenna ports at the eNB [(evolved Node B)].”).

We also are not persuaded the Examiner errs in finding limitation [b] of claim 1 to be obvious in view of the combined teachings of the cited references. Appellant’s argument for this limitation relies on the arguments presented for limitation [a]. *See* App. Br. 9 (“Indeed, Shen does not teach or suggest transmitting to a user equipment two CQI reference signals, and therefore cannot teach receiving a report from the user equipment according to the two nonexistent CQI reference signals.”). Thus, for the same reasons as discussed above, we do not find the Examiner errs in determining the recited “receiving from the user equipment a report determined according to said two CQI reference signals” is taught or suggested by the combination of cited references. *See* Final Act. 4; Shen ¶ 28 (“Channel quality indicator (CQI) needs to be fed back in uplink (UL).”).

We are not persuaded the Examiner errs in finding ZTE and Shen teach or suggest the disputed limitations of independent claim 1. Appellant does not challenge the Examiner’s reliance on Onggosanusi for additional limitations. *See* App. Br. 8–9. Nor does Appellant separately argue the rejections of independent claims 14, 15, 18, or the dependent claims. *See* App. Br. 9. Accordingly, we sustain the Examiner’s rejections of claims 1, 2, 4–16, and 18–29.

CONCLUSION

<b>Claim(s) Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 2, 4, 9, 12, 14–16, 18, 23, 26, and 28	§ 103	ZTE, Shen, Onggosanusi	1, 2, 4, 9, 12, 14–16, 18, 23, 26, and 28	
5–8, 10, 11, 13, 19–22, 24, 25, 27, and 29	§ 103	various combinations of ZTE, Shen, Onggosanusi, and other prior art references	5–8, 10, 11, 13, 19–22, 24, 25, 27, and 29	
<b>Overall Outcome</b>			1, 2, 4–16, and 18–29	

TIME PERIOD FOR RESPONSE

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

AFFIRMED