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EXAMINER	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ZHU WEN, YU ZUO, and HONG-WEI KONG

Appeal 2018-006639
Application 13/947,210
Technology Center 2800

Before JEFFREY R. SNAY, MERRELL C. CASHION, JR., and SHELDON M. MCGEE, *Administrative Patent Judges.*

MCGEE, *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 1–20 under 35 U.S.C. § 101.

We have jurisdiction. 35 U.S.C. § 6(b).

We reverse.

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[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Keysight Technologies, Inc. Appeal Br. 3.

BACKGROUND

The claims are directed to a multilevel triggering system for outputting a complex trigger signal (claim 1), a signal analysis instrument employing the triggering system (claim 16), and a non-transitory computer readable medium storing software to be used in the signal analysis instrument (claim 11). Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A multilevel triggering system of a signal analysis instrument for outputting a complex trigger signal, the system comprising:
>
> a trigger controlled buffer configured to receive and buffer an input signal;
>
> a plurality of triggering function modules, each triggering function module being configured to perform a corresponding triggering function for detecting a corresponding triggering condition; and
>
> a triggering matrix comprising a plurality of triggering levels configured to receive at least a portion of the buffered input signal from the trigger controlled buffer, each triggering level being configurable to include at least one trigger block and each trigger block being configurable to implement one of the plurality of triggering function modules, each trigger block generating a corresponding block trigger when the triggering condition of the corresponding triggering function module is detected in the received buffered input signal,
>
> wherein each triggering level of the plurality of triggering levels is configured to generate a corresponding level trigger when the at least one trigger block in the triggering level generates the corresponding block trigger, and
>
> wherein the triggering matrix is configured to generate the complex trigger signal when the plurality of triggering levels generate corresponding level triggers.

STATEMENT OF THE CASE

The Examiner determines that independent claims 1, 11, and 16 "are directed to an abstract idea in the form of a multilevel triggering system for outputting a complex triggering signal." Final Act. 3. For support, the Examiner states that the claims require

> performing a plurality of triggering functions for detecting a corresponding triggering condition, and a triggering matrix comprising a plurality of triggering levels configured to receive at least a portion of the buffered input signal from the trigger controlled buffer, each triggering level including at least one trigger block and each trigger block implementing one of the triggering functions, each trigger block generating a block trigger when the triggering condition of the corresponding triggering function module is detected in a buffered input signal, wherein each triggering level is configured to generate a corresponding level trigger when the trigger block in the triggering level generates the corresponding block trigger, and wherein the triggering matrix is configured to generate the complex trigger signal when the plurality of triggering levels generate corresponding level triggers.

Id. The Examiner asserts that this amounts to a "series of steps which could be carried out manually or mentally," and "comprise data gathering and processing steps which correspond to concepts identified as an abstract idea, or ideas, in the form of a mathematical formula similar to those found to be non-patent eligible in, e.g., *Alice Corp.*, *Electric Power Group*, *FairWarning*, and *Parker v. Flook*." *Id.*

OPINION

In January 2019, the U.S. Patent and Trademark Office (USPTO) published revised guidance on the application of § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019)

("2019 Revised Guidance").[2] "All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance." *Id.* at 51; *see also* October 2019 Update at 1.

Under the 2019 Revised Guidance and the October 2019 Update, we first look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes) ("Step 2A, Prong One"); and, if so,
>
> (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h) (9th ed. Rev. 08.2017, Jan. 2018)) ("Step 2A, Prong Two").[3]

2019 Revised Guidance, 84 Fed. Reg. at 52–55.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look, under Step 2B, to whether the claim:

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[2] In response to received public comments, the Office issued further guidance on October 17, 2019, clarifying the 2019 Revised Guidance. USPTO, *October 2019 Update: Subject Matter Eligibility* (the "October 2019 Update") (available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf).

[3] This evaluation is performed by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception, and (b) evaluating those additional elements individually and in combination to determine whether the claim as a whole integrates the exception into a practical application. *See* 2019 Revised Guidance - Section III(A)(2), 84 Fed. Reg. 54–55.

(3) adds a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)); or

(4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

2019 Revised Guidance, 84 Fed. Reg. at 52–56.

The Examiner's rejection was issued prior to the 2019 Revised Guidance. We nevertheless apply the Revised Guidance to the claims at issue here, and determine that the claims do not recite an abstract idea. Specifically, our analysis under Step 2A, Prong One reveals that claims 1–20 do not recite a mathematical concept, a method of organizing human activity,[4] or a mental process.

Step 2A, Prong One

Although the Examiner asserts (Final Act. 3) that independent claims 1, 11, and 16 recite method steps that "could be carried out . . . mentally," we fail to see how such steps could practically be performed in the human mind. *See* the October 2019 Update at 7 ("Claims do not recite a mental process when they do not contain limitations that can practically be performed in the human mind, for instance when the human mind is not equipped to perform the claim limitations."). The steps identified by the Examiner—i.e., "performing a plurality of triggering functions," "each trigger block implementing one of the plurality of triggering function modules," "generating a corresponding block trigger," "each triggering level

[4] The Examiner does not assert that the claims are directed to a method of organizing human activity. We agree.

generates a corresponding level trigger," and "generating a complex trigger signal" (Final Act. 3)—are not of the type that can practically be carried out in the human mind. Rather, these triggering functions are carried out by "signal analysis instruments, such as spectrum analyzers, oscilloscopes and the like." Spec. ¶ 2.

Furthermore, although the Examiner states that the claims recite "data gathering and processing steps . . . in the form of a mathematical formula" (Final Act. 3), we see no mathematical concept recited in the claims consistent with the 2019 Revised Guidance or the October 2019 Update.

> When determining whether a claim recites a mathematical concept (i.e., mathematical relationships, mathematical formulas or equations, and mathematical calculations), examiners should consider whether the claim recites a mathematical concept or *merely includes limitations that are based on or involve a mathematical concept*. A claim *does not recite a mathematical concept* . . . if it is *only based on or involves a mathematical concept*.

October 2019 Update at 3 (emphasis added).

Here, the Specification is unclear whether one or more mathematical calculations or formulae are involved in carrying out the various claimed functions (e.g., "detecting a corresponding triggering condition"). *See* Spec. ¶9 (discussing how, in one embodiment, a RF downconverter receives an input signal and provides "a downconverted analog input signal"); *id.* ¶30 (explaining how first and second "logical expressions are combined to provide the customized complex triggering function (according to an overall logical expression) for generating the complex trigger signal when the combined complex triggering conditions are detected."). Even if one or more mathematical calculations or formulae were somehow involved in carrying out the various claimed functions, however, we are not persuaded

that would compel us to reach a conclusion that the claims, as a whole, recite a mathematical *concept*, and, thus, an abstract idea.

Because we have determined that the independent claims do not recite an abstract idea, the eligibility analysis ends here, and we need not address Step 2A, Prong Two.

CONCLUSION

The Examiner's rejection is reversed.

DECISION SUMMARY

Claims Rejected	**35 U.S.C. §**	**Basis**	**Affirmed**	**Reversed**
1–20	101	Subject Matter Eligibility		1–20

REVERSED