January 18, 2017

The Honorable Michelle K. Lee
Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and
Trademark Office
600 Dulany Street
Alexandria, Virginia 22314

Via Electronic Mail to: 101Roundtable2@uspto.gov

Re: *Exploring the Legal Contours of Patent Subject Matter Eligibility*

Dear Under Secretary Lee,

I write on behalf of Digimarc Corporation. The following is feedback for the Second USPTO
roundtable on Patent Subject Matter Eligibility.

Digimarc is a publicly traded company, with 180 employees, whose business primarily concerns
image processing software.

Our innovations have led to over 1000 U.S. patents in the past 20 years. Digimarc's work in
image processing finds applications as diverse as authenticating drivers' licenses, hiding
redundant digital data signals across supermarket packaging to improve the speed and reliability
of item identification (imperceptible barcodes across an entire package), detecting nascent
cancers, and deterring the PC-based counterfeiting of banknotes.

Although the Office's periodic guidance to the Examining Corps has clarified some of the
confusion regarding application of *Alice* and *Bilski*, etc., additional guidance would be helpful in
certain technology areas – such as image processing.

Our patent applications sometimes receive § 101 rejections that are not supported by relevant
precedent. And uncertainty about the metes/bounds applied by the Patent Office in judging
eligibility can lead to uncertainty about the validity of issued patents. Responding to such
circumstances necessarily drives up our legal costs, and may leave valuable inventions without
patent protection. Without the potential of patent protection, we may be less likely to invest in
certain promising needs of the marketplace.

We present a statement of proposed guidance, which relates to Questions 7 (preemption), 15
(machine or transformation test) and 17 (patentability of computer related inventions). In
particular, we suggest that the next round of guidance to the Examining Corps specifically
address the processing of digital image signals, e.g., as follows:

> ***If a claim concerns a <u>practical application</u> of <u>digital signal manipulation</u>, which <u>electrically transforms</u> image data <u>representing a tangible and physical object into a different state</u>, then such circumstances should be regarded as a <u>useful and important clue</u> that the claim is patent-eligible.***

This proposed guidance is based on the Federal Circuit's *en banc* decision in *Bilski*, and its affirmance on other grounds by the Supreme Court. The above language is based on the Federal Circuit and Supreme Court *Bilski* decisions, as indicated by correspondence between the underlined terms and the discussion that follows.

<u>Discussion</u>

In its *Bilski* opinion, the Supreme Court cautioned against any patent eligibility standards that might "*create uncertainty as to the patentability of software, advanced diagnostic medicine techniques, and inventions based on linear programming, data compression, and the <u>manipulation of digital signals</u>.*"

While affirming the ineligibility result reached by the Federal Circuit, the Supreme Court held that the "machine-or-transformation" test is not the sole test for determining patent eligibility. Rather, the Court stated that <u>transforming an article into a different state</u> or thing constitutes "*<u>a useful and important clue</u>, an investigative tool, for determining*" patent eligibility.

In considering the "machine-or-transformation" test prior to the Supreme Court affirmance, the Federal Circuit's *Bilski* opinion discussed application of such test to image processing – drawing from the CCPA's *Abele* decision.

The CCPA found that *Abele's* claim 5 was directed solely to a mathematical algorithm: calculating a difference between two numbers, and displaying the result. The CCPA found dependent claim 6, however, to be patent-eligible, due to its additional limitations (both express, and construed by reference to the specification) requiring a CAT scanner producing an x-ray beam, which is passed through the body, yielding an attenuated x-ray <u>image</u> signal which revealed the configuration of the patient's body.[1]

The *en banc* Federal Circuit stated "*[Abele's] data clearly <u>represented physical and tangible objects</u>, namely the structure of bones, organs, and other body tissues. Thus, the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.*"

The *en banc* Federal Circuit went on to state:

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[1]   The Office recognizes *Abele* as precedential. *See, e.g., Chart of subject matter eligibility court decisions (updated December 15, 2016)*, https://www.uspto.gov/sites/default/files/documents/ieg-dec-2016-sme_crt_dec.xlsx. Office guidance instructs Examiners, in judging eligibility, to rely on precedential decisions that are most similar, based on factual circumstances, to the claims at issue. *See, e.g.,* Deputy Com'r Bahr Memo to Patent Examining Corps, May 4, 2016.

We further note for clarity that the <u>electronic transformation</u> of the data itself into a visual depiction in Abele was sufficient; the claim was not required to involve any transformation of the underlying physical object that the data represented. We believe this is faithful to the concern the Supreme Court articulated as the basis for the machine-or-transformation test, namely the prevention of pre-emption of fundamental principles. So long as the claimed process is limited to a <u>practical application</u> of a fundamental principle to transform specific data, and the claim is limited to a visual depiction that represents specific physical objects or substances, there is no danger that the scope of the claim would wholly pre-empt all uses of the principle.

Abele is sometimes cited in connection with the two-part test for patent eligibility established by the *Freeman* and *Walker* decisions. That two-part test examined (1) whether the claim recites an algorithm, and (2) whether the algorithm is applied in any manner to physical elements or process steps. Such test has been superseded, initially by the 1994 *en banc Alappat* decision, and then by still other decisions. Digimarc is not relying on this aspect of *Abele*, but rather on the *en banc Bilski* decision commenting on the facts of *Abele*, in an aspect not questioned by the Supreme Court in its affirmance.

In *Digitech*,[2] the Federal Circuit found patent claims relating to image processing to be ineligible. But in that case there was no "transformation" of image data. "*The claim generically recites a process of combining two data sets into a device profile; it does not claim the processor's use of that profile in the capturing, transforming, or rendering of a digital image.*"

In *McRo*,[3] the Federal Circuit found that claims directed to generating an animated video were patent-eligible, because they were directed to a technological improvement over prior, manual, animation techniques. The Court distinguished *Digitech* on the grounds that the McRo invention "*goes beyond merely organizing [existing] information into a new form.*"

In *Research Corporation*,[4] the Federal Circuit held that image processing – involving use of a "blue noise mask" – was patent eligible because it provided "specific applications or improvements to technologies in the marketplace," namely improvements concerning halftone image rendering.

Our proposed guidance supplements the criteria of *McRo* and *Research Corporation*, which are already in the USPTO's guidance to examiners, as evidence of patent eligibility.

Mayo and *Alice* established a two-step framework for analyzing § 101 eligibility. More recent decisions have noted that there is "considerable overlap" between step one (e.g., determining if the claim is directed to an abstract idea) and step two (e.g., determining if something "significantly more" is present).[5] The transformation of an image signal, representing a physical object, relates to both steps. Physical transformation is not abstract. And even if a claim is regarded as directed to an ineligible exception (e.g., a mathematical formula), the transformation

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[2]   758 F.3d 1344 (2014).
[3]   837 F.3d 1299 (2016).
[4]   627 F.3d 859 (2010).
[5]   *See, e.g., Amdocs (Israel) Limited v. Opennet Telecom, Inc.*, 761 F.3d 1329 (2014).

of a signal representing a physical object is evidence of "significantly more" to render the claim patent-eligible.

As *Mayo* and other decisions have made clear, preemption is a concern underlying judicial exceptions to § 101. In its guidance, the Office has indicated that issues of preemption are inherent in and resolved by the two step framework of *Alice* and *Mayo*.[6] But the linkage between preemption, and the two-step test, is sometimes obscure.

Preemption was highlighted by the *en banc* Federal Circuit in *Bilski*, in the context of the *Abele* example. In particular, Abele's practical application of his principle to specific image data, *i.e.*, representing a physical object, was the predicate to the Federal Circuit's conclusion that "*there is no danger that the scope of the claim would wholly pre-empt all uses of the principle*." So, too, should transformation of image data in other cases offer assurance that the scope of a claim does not pre-empt all uses of the involved principles, and thereby serve as evidence that the claim is patent-eligible.

Conclusion

"Transformation" has long served as evidence of patent eligibility. In *Bilski*, the Supreme Court affirmed the continued importance of such test, while opening the door to other tests as well. *Alice* did nothing to diminish the importance of "transformation" to the eligibility inquiry, earlier stated by the Court. The case law supports, and the Examining Corps would benefit by being reminded, that transformation of a *digital signal* representing a *physical object* serves as a useful and important clue of patent eligibility.

Thank you for the opportunity to present Digimarc's suggestion regarding Questions 7, 15 and 17, particularly addressing image signal processing innovations.

                                    Respectfully submitted,

                                        DIGIMARC, CORP.

By: _____

                                        Joel Meyer
                                        Executive Vice President,
                                        Intellectual Property

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[6]   *See, e.g.,* Deputy Com'r Bahr Memo to Patent Examining Corps., May 4, 2016, at page 7.