

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte DONALD B. DOHERTY, GREGORY S. PETTITT,  
VISHAL MARKANDEY and DANIEL J. MORGAN

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Appeal No. 2002-1468  
Application 09/038,219

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ON BRIEF

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Before HAIRSTON, FLEMING, and DIXON, Administrative Patent Judges.

FLEMING, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the final rejection of claims 18 through 25, all the claims pending in the instant application. Claims 1 through 17 have been canceled.

**Invention**

The present invention relates to reducing contouring artifacts that use a spatial light modulator display device. See page 1 of Appellants' specification. Figure 5 illustrates a

spatial-temporal dithering unit 50. The spatial-temporal dither signal is the sum of a signal from random value source 53 and a temporal dither table 54. See page 14 of Appellants' specification. A temporal dither may be accomplished by defining a 4x4 spatial pattern block that changes on a frame-by-frame basis and repeats every 4 frames. The following illustrates an example of such a pattern. The values A, B, C, and D represent the dither values 0.0, 0.25, 0.5, and 0.75, respectively. The pattern has a spatial variation to eliminate flicker. Each frame includes all four dither values, with pixel visiting all four dither values during the four frames. See page 13 of Appellants' specification. Also note that a table for each of the frames, frame 0, frame 1, frame 2, and frame 3 are shown on page 13. The M-bit video signal is fed to a summing device 52, where a spatial-temporal dither value and a random value source is added to the M-bit signal. See page 14 of Appellants' specification and figure 5. The random value dither breaks up spatial patterns but does not contribute a temporal component, which can tend to result in each pixel converging to a higher resolution signal over time. See page 15 of Appellants' specification.

Claim 18 is representative of Appellants' claimed invention and is reproduced as follows:

18. A dither unit for a display system that generates images with a linear display device having a predetermined display resolution, comprising:

a random value source;

a temporal dither value source;

a first logic circuit for adding values from said random value source and said temporal dither source to provide spatial-temporal dither values;

a second logic circuit for receiving a high resolution signal representing pixel values of said images, said high resolution signal having a resolution per pixel greater than the resolution of said display device, less significant bits of said high resolution signal representing an error component of said high resolution signal, said second logic circuit adding each pixel value of said high resolution signal to said spatial-temporal dither value to provide a dithered high resolution signal; and

truncation circuitry operable to truncate said dithered high resolution signal to provide a signal having the display resolution of said display.

#### **References**

The references relied on by the Examiner are as follows:

Lum	5,479,594	Dec. 26, 1995
Shimazaki	5,530,561	Jun. 25, 1996

#### **Rejection at Issue**

Claims 18 through 25 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shimazaki in view of Lum.

Appeal No. 2002-1468  
Application 09/038,219

Throughout our opinion, we make reference to the briefs<sup>1</sup> and the answer for the respective details thereof.

#### OPINION

With full consideration being given to the subject matter on appeal, the Examiner's rejection and the arguments of Appellants and the Examiner, for the reasons stated **infra**, we reverse the Examiner's rejection of claims 18 through 25 under 35 U.S.C. § 103.

Appellants point out that Appellants' claims require a random value source and a temporal dither value source. Appellants argue that no such structure is taught or suggested by Shimazaki and Lum. See pages 4 through 5 of the brief and the reply brief.

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a **prima facie** case of obviousness. **In re Oetiker**, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). **See also In re Piasecki**, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The Examiner can

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<sup>1</sup> Appellants filed a brief on February 1, 2001. Appellants filed a reply brief on May 7, 2001. The Examiner mailed out an office communication on May 31, 2001, stating that the reply brief has been entered.

Appeal No. 2002-1468  
Application 09/038,219

satisfy this burden by showing that some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art suggests the claimed subject matter. **In re Fine**, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Appellants. **Oetiker**, 977 F.2d at 1445, 24 USPQ2d at 1444. **See also Piasecki**, 745 F.2d at 1472, 223 USPQ at 788.

An obviousness analysis commences with a review and consideration of all the pertinent evidence and arguments. "In reviewing the [E]xaminer's decision on appeal, the Board must necessarily weigh all of the evidence and argument." **Oetiker**, 977 F.2d at 1445, 24 USPQ2d at 1444. "[T]he Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion." **In re Lee**, 277 F.3d 1338, 1344, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002).

In response, the Examiner agrees that Shimazaki does not teach a temporal dither value but argues that the output of element 26 of Shimazaki is equivalent to a temporal dither value source. See pages 5 and 6 of the Examiner's answer.

Appeal No. 2002-1468  
Application 09/038,219

As our reviewing court states, “[t]he terms used in the claims bear a “heavy presumption” that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art.” **Texas Digital Sys., Inc. v. Telegenix, Inc.**, 308 F.3d 1193, 1202, 64 USPQ2d 1812, 1817 (Fed. Cir. 2002) cert. Denied. 123 S.Ct. 2230 (2003).

Moreover, the intrinsic record also must be examined in every case to determine whether the presumption of ordinary and customary meaning is rebutted. Indeed, the intrinsic record may show that the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition. In such a case, the inconsistent dictionary definition must be rejected. [Citation omitted.] (“[A] common meaning, such as one expressed in a relevant dictionary, that flies in the face of the patent disclosure is undeserving of fealty.”); **Liebscher v. Boothroyd**, 258 F.2d 948, 951, 119 USPQ 133, 135 (CCPA 1958) (“Indiscriminate reliance on definitions found in dictionaries can often produce absurd results.”). In short, the presumption in favor of a dictionary definition will be overcome where the patentee, acting as his or her own lexicographer, has clearly set forth an explicit definition of the term different from its ordinary meaning. [Citations omitted.] Further, the presumption also will be rebutted if the inventor has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope. **See Teleflex**, 299 F.3d at 1324, 63 USPQ2d at 1380.

**Texas Digital Sys., Inc v. Telegenix, Inc.**, 308 F.3d at 1204, 64

USPQ2d at 1819.

Appellants' specification discloses two methods of reducing contour. In the first method, the high resolution error has an error component and a non-error (display resolution) component. The error component is comprised of the less significant bits of the pixel value, that is, the bits that are not part of the display resolution. For each pixel value, the error component of the previously processed pixel value is fed back and added to the random value. The sum is added to the high resolution value, and the resulting value is truncated to the display resolution. The truncated values comprise the signal that drives the spatial light modulator. See page 4 of Appellants' specification. We note that Appellants' claim 1 as originally filed is directed to this method. We further note that claim 1 has been canceled.

Another aspect of Appellants' invention is directed to dithering methods of reducing contouring. Like the high resolution error method just described, the dithering methods operate on a high resolution signal that has an error component. One or more dither signals are added to the high resolution signal, and no feedback is used. See page 4 of Appellants' specification. In the embodiment as claimed, the invention is directed to dithering methods of reducing contouring. The one

embodiment in which the claims before us are directed to, the dithering method operates on a high resolution signal that has error component. The random value signal is added to a spatial-temporal dither signal and the sum is added to the high resolution signal. Then, the signal is truncated to provide the drive signal for the spatial light modulator. Furthermore, the spatial-temporal dither signal is accomplished by 4x4 spatial pattern block that changes on a frame-by-frame basis and repeats every four frames. The table, illustrated on page 13, illustrates the dither pattern used. See pages 13 and 14 of Appellants' specification. Thus, as defined in the specification, a temporal digital value source operates on a completely different method than an error diffusion method.

We find that Shimazaki is directed to an error diffusion process. See column 1, lines 5 through 14 of Shimazaki. In particular, we find that figure 5 in which the Examiner has relied on is a block diagram of an error diffusing circuit. See column 4, lines 1 through 5 of Shimazaki. Furthermore, we find that Shimazaki fails to teach the use of dithering and in particular "[a] dither unit . . . comprising: a random value source; a temporal dither value source" as recited in claims 18 through 25 as well as "[a] method of generating images . . .

Appeal No. 2002-1468  
Application 09/038,219

comprising the steps of: providing a random of value source"; and  
"providing a temporal dither value source" as recited in  
Appellants' claims 21 through 24.

In view of the foregoing, we have not sustained the  
Examiner's rejection of claims 18 through 25 under 35 U.S.C.  
§ 103.

**REVERSED**

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
MICHAEL R. FLEMING	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
JOSEPH L. DIXON	)	
Administrative Patent Judge	)	

MRF:pgc

Appeal No. 2002-1468  
Application 09/038,219

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