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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOSHIBA CORPORATION
Petitioner

v.

OPTICAL DEVICES, LLC
Patent Owner

Case No. IPR2014-01446
U.S. Patent 7,196,979

PATENT OWNER'S PRELIMINARY RESPONSE PURSUANT TO 37 C.F.R. § 42.107

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Pursuant to 37 C.F.R. § 42.107, the Patent Owner, Optical Devices LLC ("OD") hereby submits the following Preliminary Response to Toshiba Corporation's ("Petitioner") Petition seeking *inter partes* review of claims 1-18 of U.S. Patent No. 7,196,979 ("the '979 Patent"). This filing is timely under 35 U.S.C. § 313 and 37 C.F.R. § 42.107, as it is being filed within three months of the mailing date of the Notice of Filing Date Accorded to the Petition (Paper 3), mailed September 12, 2014.

I. INTRODUCTION

The Petition for IPR of the '979 patent should not be instituted. The basis for the Petition rests squarely on the teachings of an alleged prior art reference that lacks material limitations in all of the independent claims.

Petitioner has the burden of proof to establish that it is entitled to its requested relief. 37 C.F.R. § 42.20(c). Petitioner must demonstrate a reasonable likelihood that the '979 Patent claims at issue would have been unpatentable in view of the art cited in the Petition. *See* 37 C.F.R. § 42.108(c). In addition, Petitioner "must specify where each element of the claim is found in the prior art patents or printed publications relied upon." 37 C.F.R. § 42.104(b)(4). The Petition not only grossly mischaracterizes the claimed invention, but it also fails to specify how each element of the challenged claims are found in the alleged prior art.

The ‘979 Patent claims optical disk drives (ODDs) and methods for maintaining operating parameters for ODDs that use a digital signal processor (DSP) optimized for processing digital signals. The DSP is not—as Petitioner contends—a general purpose processor unit. In contrast to a general purpose processor, the DSP in the ‘979 Patent is an advanced processor with an architecture and/or hardware optimized for the computational operations needed for digital signal processing. The claimed ODDs and methods for maintaining operating parameters for ODDs receive digitized versions of photodetector output signals for servo control. Moreover, the claimed ODDs and methods for maintaining operating parameters for ODDs use the digitized versions of photodetector output signals to determine error signals for servo control—rather than feedback of the measurement of the actual reference signal. Specifically, the DSP claimed in the ‘979 Patent is used to form a focusing error signal (FES) and a tracking error signal (TES), which are then processed through servo algorithms to adjust focus and tracking in the ODD in order to achieve servo control.

Petitioner cannot meet its burden to prove that there is a reasonable likelihood that any of the claims challenged in this Petition are unpatentable. Petitioner’s challenges rely on three references: U.S. Pat. No. 6,204,787 (“Baird”), U.S. Pat. No. 5,251,194 (“Yoshimoto”), and Product Preview for ST TDA7522, “Digital Servo and Decoder” (“ST Datasheet”). However, as discussed below, Baird, Yoshimoto and ST Datasheet, alone or in combination, fail to disclose an ODD or a method for

maintaining operating parameters for an ODD that uses a DSP configured to form a focusing error signal and a tracking error signal from the digitized optical sensor signals/digital signals, and to process the error signals to adjust focus and tracking in the ODD as recited in the independent claims of the '979 Patent. Accordingly, the Board should reject the Petition in its entirety.[1]

II. ALLEGED GROUNDS

Petitioner has challenged claims of the '979 Patent (Ex. 1001) based on only, and limited to, the following alleged grounds (*see* Petition (Paper 1) at 3):

1. Claims 1-18 are allegedly rendered obvious by the combination of Baird (Ex. 1003) and Yoshimoto (Ex. 1004) under 35 U.S.C. §103.
2. In the alternative, if Challenge #1 is rejected, claims 1-18 are allegedly rendered obvious under 35 U.S.C. §103 over Baird, Yoshimoto and ST Datasheet (Ex. 1005).

Petitioner challenges claims 1-18 of the '979 Patent, of which claims 1 and 13 are independent.

[1] Should the Board institute proceedings in this matter, Patent Owner does not concede the legitimacy of any arguments in the Petition that are not specifically addressed herein. Patent Owner expressly reserves the right to rebut any arguments put forth in the Petition in its Patent Owner Response.

Independent claim 1 recites a method of maintaining operating parameters for an optical disk drive, comprising: providing a *digital signal processor configured to receive digitized optical sensor signals* from an optical pickup unit and *form a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals*, the digital signal processor configured with *servo algorithms that process TES and FES to adjust focus and tracking in the optical disk drive*; calibrating operating parameters of the servo algorithms to form calibrated parameters; storing the calibrated parameters; and operating the servo algorithms with the calibrated parameters.

Claim 2, which depends from claim 1, further recites storing the calibrated parameters includes writing parameters related to at least one of the calibrated parameters into a flash memory of the optical disk drive.

Claim 3, which depends from claim 1, further recites storing the calibrated parameters includes writing parameters related to at least one of the calibrated parameters onto an optical media.

Claim 4, which depends from claim 1, further recites storing the calibrated parameters includes *comparing the calibrated parameters with previously stored calibrated parameters; and recording the calibrated parameters if changes between the calibrated parameters and the previously stored calibrated parameters are below threshold values*.

Claim 5, which depends from claim 4, further recites including *recording the previously stored calibrated parameters adjusted by a maximum value if changes between the calibrated parameters and the previously stored calibrated parameters are above the threshold values*.

Claim 9, which depends from claim 5, further recites that the plurality of media types includes a writeable type.

Claim 10, which depends from claim 5, further recites that the plurality of media types includes a premastered type.

Claim 6, which depends from claim 1, further recites storing the calibrated parameters includes averaging the calibrated parameters with previously stored calibrated parameters and recording the average.

Claim 7, which depends from claim 1, further recites that the calibrating optical parameters includes calibrating the optical parameters over a plurality of zones on an optical media.

Claim 8, which depends from claim 1, further recites that the calibrating optical parameters includes calibrating the optical parameters over a plurality of media types on an optical media.

Claim 12, which depends from claim 8, further recites that the plurality of operating conditions includes a read operating condition and a write operating condition.

Independent claim 13 recites an optical disk drive, comprising: an optical pick-up unit; an analog-to-digital converter coupled to digitize signals from detectors in the optical pick-up unit to provide digital signals; *at least one processor configured to form a focusing error signal (FES) and a tracking error signal (TES) from the digital signals*, the at least one processor being configured with *servo algorithms that process TES and FES to adjust focus and tracking in the optical disk drive*; wherein the at least one processor executes an algorithm that calibrates operating parameters for the servo algorithms to form calibrated parameters; and stores the calibrated parameters.

Claim 14, which depends from claim 13, further recites that the optical disk drive includes a flash memory and wherein the at least one processor stores parameters related to at least one of the calibrated parameters into the flash memory.

Claim 15, which depends from claim 13, further recites that the *at least one processor stores parameters related to at least one of the calibrated parameters onto an optical media*.

Claim 16, which depends from claim 13, further recites that the *at least one processor stores averages between the calibrated parameters and previously stored parameters*.

Claim 17, which depends from claim 13, further recites that the *at least one processor stores the calibrated parameters if the calibrated parameters differ from previously stored parameters by less than a threshold value*.

Claim 18, which depends from claim 13, further recites that the *at least one processor* *stores previously stored parameters adjusted by maximum values if the calibrated parameters differ from previously stored parameters by a threshold value*.

III. CLAIM CONSTRUCTION

Claim terms are presumed to be given their ordinary and customary meaning as would be understood by one of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*).

In an *inter partes* review, a claim of an unexpired patent is construed using the "broadest reasonable construction in light of the specification." 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). A claim term is given its ordinary and customary meaning in the context of the specification as it would be understood by one of ordinary skill in the art. *Phillips*, 415 F.3d at 1313; *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The broadest reasonable construction of the claim language must take into account any definitions presented in the specification. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d at 1364 (citing *In re Bass*, 314 F.3d 575, 577 (Fed. Cir. 2002)). Indeed, the specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315.

Patent Owner disagrees with all of Petitioner's proposed claim constructions set forth in the Petition.

A. "Digital Signal Processor" and "At Least One Processor"

Independent claim 1 recites the term "digital signal processor" ("DSP"). Independent claim 13 and dependent claims 14-18 recite the term "at least one processor." Patent Owner submits that the term "digital signal processor" or "at least one processor" should be construed as "programmable microprocessor optimized for processing digital signals using programmed commands."

Petitioner's proposed claim interpretation of the term "digital signal processor" is wrong, unreasonable, and overly broad because it makes no distinction between a DSP and a general purpose processor. Specifically, Petitioner construes a DSP as a "non-dedicated programmable device that processes digital signals by executing program code." Paper 1 at 25. Importantly, the '979 Patent expressly distinguishes between a DSP and a general purpose processor. *See, e.g.*, Ex. 1001, FIG. 4D and 15:43–49 ("Since DSP 416 operates much faster, but has lower overall capabilities (e.g., code and data storage space), than microprocessor 432 . . ."); *id.* at 44:55–60; FIG. 11; *id.* at 46:8–11; *id.* at 46:40–41; Ex. 1010 at p. 596 (defining "digital signal processor" as "[a] specialized digital microprocessor used to efficiently and rapidly perform calculations on digitized signals. . ."). Thus, a DSP is a "programmable microprocessor optimized for processing digital signals using programmed

commands." Paper 1 at 25. Indeed, the claimed DSP includes specialized architecture and/or hardware *optimized* for the computational operations needed for processing digital signals using programmed commands. As such, a DSP can be used as a "servo processor," but since a "servo processor" can be a general purpose processor, it is not necessarily a DSP.

Because Petitioner's construction encompasses a general purpose processor, is contrary to the intrinsic evidence, and fails to specify the specialized architecture and/or hardware optimized for processing digital signals required for a DSP, it should be rejected as overly broad and unreasonable.

Independent claim 13 and dependent claims 14-18 recite the term "at least one processor." Petitioner contends that "the Board should construe the term 'at least one processor' in the same manner that it construes 'digital signal processor.'" Paper 1 at 28. Therefore, Petitioner's argument that the term "at least one processor" means "at least one non-dedicated programmable device that processes digital signals by executing program code" should also be rejected for the same reasons discussed above. *Id*. Instead, consistent with the proper construction of the term "DSP," the term "at least one processor" means at least a "programmable microprocessor optimized for processing digital signals using programmed commands." *Id*.

B. "Digital Signals"

Independent claim 13 recites the term "digital signals." Patent Owner submits that the term "digital signals" should be construed as "signals in which a photodetector output signal has been digitized." Support for this construction can be found throughout the specification. *See, e.g.*, Ex. 1001 at 17:43–51.

Petitioner proposes this term be construed as "digitized signals, each corresponding to a photodetector output signal." Petitioner's proposed construction improperly requires a "one-to-one" correspondence between the photodetector signals and the digital signals. Paper 1 at 29. Neither the plain language of the claim nor the '979 Patent requires any "one-to-one" correspondence requirement. Indeed, the term "digital signals" does not implicitly or explicit require such a limitation. Therefore, the broadest reasonable interpretation for the term "digital signals" should be "signals in which a photodetector output signal has been digitized."

C. "Focusing Error Signal"

Independent claims 1 and 13 recite the term "focusing error signal." Patent Owner submits that the term "focusing error signal" should be construed as "a digital signal representing an out of focus condition." Support for this construction can be found throughout the specification. *See, e.g.*, Ex. 1001 at FIGs. 2G, 2H, 2I, 2J, 2K, 2L, 2M, 2N, 2O, 2P, 2Q, 2R, FIG. 5A, FIG. 5B, 21:50–22:1, 27:51–67.

Petitioner's proposed construction, "calculated variation in the distance between the optical pickup unit and the optical media," (Paper 1 at 29) is unreasonable and overly broad in that it encompasses both analog and digital signals. There can be no dispute that the claimed "focusing error signal" must be a digital signal because it is determined by the claimed *digital* signal processor or DSP. Thus, Petitioner's construction is incorrect, and broadest reasonable interpretation for the term "focusing error signal" should be "a digital signal representing an out of focus condition."

D. "Tracking Error Signal"

Independent claims 1 and 13 recite the term "tracking error signal." Patent Owner submits that the term "tracking error signal" should be construed as "a digital signal representing an off-track condition." Support for this construction can be found throughout the specification. *See, e.g.*, Ex. 1001 at FIGs. 2G, 2H, 2I, 2J, 2K, 2L, 2M, 2N, 2O, 2P, 2Q, 2R, FIG. 5A, FIG. 5B, 21:50–22:1, 27:51–67.

Petitioner's proposed construction, "calculated variation in the tracking motion of the optical pickup unit," (Paper 1 at 30) is unreasonable and overly broad in that it encompasses both analog and digital signals. There can be no dispute that the claimed "tracking error signal" must be a digital signal because it is determined by the claimed *digital* signal processor or DSP. Thus, Petitioner's construction is incorrect, and broadest reasonable interpretation for the term "tracking error signal" should be "a digital signal representing an off-track condition."

E. "A Digital Signal Processor Configured To … Form A Focusing Error Signal (FES) And A Tracking Error Signal (TES) From The Digitized Optical Sensor Signals"; "At Least One Processor Configured To Form A Focusing Error Signal (FES) And A Tracking Error Signal (TES) From The Digital Signals"

Independent claim 1 recites the term "a digital signal processor configured to … form a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals." Patent Owner submits that this term should be construed as "a digital signal processor configured to … use programmed commands to calculate a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals." Independent claim 13 recites "at least one processor configured to form a focusing error signal (FES) and a tracking error signal (TES) from the digital signals." Patent Owner submits that this term should be construed as "at least one processor configured to use programmed commands to calculate a focusing error signal (FES) and a tracking error signal (TES) from the digital signals."

Petitioner's proposed constructions are overly narrow requiring that the digital signal processor "include program code." Paper 1 at 30-32. Such an unnecessarily narrow construction would require that program code be included within the digital signal processor (in addition to the digital signal processor using program commands to calculate a focusing error signal and/or a tracking error signal from the received digital signals). Patent owner opposes such an unnecessarily narrow construction.

F. "Parameters Related To At Least One Of The Calibrated Parameters"

Dependent claims 2-3 and 14-15 recite the term "parameters related to at least one of the calibrated parameters." Patent Owner submits that this term should be construed in accordance with its ordinary and customary meaning, which is "parameters associated with at least one of the calibrated parameters."

Petitioner has not proposed its own claim construction of this term. Petitioner has applied Patent Owner's proposed construction. Paper 1 at 32-33.

Patent Owner expressly reserves its right to argue for the proper constructions of other claim terms proposed by Petitioner as well as any other term should this proceeding be instituted. No particular construction is admitted or offered for any term not expressly construed herein.

IV. THE PETITION FAILS TO DEMONSTRATE A REASONABLE LIKELIHOOD THAT PETITIONER WOULD PREVAIL WITH RESPECT TO ANY OF THE CLAIMS AT ISSUE.

A. Challenge #1 Fails Because Baird In View Of Yoshimoto Does Not Disclose Material Limitations In All Of The Independent Claims.

Challenge #1 asserts that claims 1-18 are allegedly rendered obvious by the combination of Baird and Yoshimoto. Paper 1 at 3. Challenge #1 must fail because Baird in view of Yoshimoto does not disclose a DSP configured to "form a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals," and configured with "servo algorithms that process TES and FES to adjust focus and tracking in the optical disk drive," as claimed in independent claim 1 and

similarly claimed in independent claim 13, either expressly or inherently. *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) ("A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.").

1. Summary of Baird

Baird "relates in general to analog modulators and in particular, to circuits and methods for gain ranging in an analog modulator and systems using the same." Ex. 1003 at 1:33–36. Baird discloses an optical disk playback system for a personal computer, including a drive manager integrated circuit (IC). *Id.* at 3:24–27 and FIG. 1. The IC includes two principal processing paths, a data channel and a servo channel. *Id.* at 3:38–40. Among other things, Baird discloses that the envelope detector 208 and the phase error detector in the DPLL 213 in the data channel generate error signals. *Id.* at 4:29–32, 4:49–52. The error signal generated by the envelope detectors 208 indicates an offset error in the transimpedance amplifiers, diodes, attenuators 201 and VGAs 202. *See id*. at 3:67–4:3. The error signal generated by the phase error detector indicates a phase error of the input signals. *Id*. at 4:49–54. The servo channel in Baird includes a general purpose servo control processor, SCP 304. *Id*. at 6:12–15. In contrast to the data channel, Baird does not disclose that the servo channel or the SCP determines or generates any error signals.

2. Baird fails to disclose the claimed DSP.

When the claimed "digital signal processor" is properly construed, Baird does not and cannot anticipate the '979 Patent claims. As discussed above, a DSP is a "programmable microprocessor optimized for processing digital signals using programmed commands." Paper 1 at 25. Petitioner's argument is premised on erroneously conflating the claimed DSP with a general purpose processor. Petitioner's construction of the term DSP is unreasonable because it makes no distinction between a DSP and a general purpose processor. Therefore, Petitioner's argument as well as its construction of the term DSP should be rejected as overly broad and unreasonable.

Baird fails to disclose a DSP as claimed in independent claim 1 and similarly claimed in independent claim 13.[2] Petitioner contends that the "on-board servo control processor (SCP) 304" in Baird is the claimed DSP. Paper 1 at 39. Baird, however, merely discloses that "[s]ervo data processing is performed by on-board servo control processor (SCP) 304, which receives its instruction set from the user selected local microcontroller 106 through interface 107 and RAM 305." Ex. 1003 at

[2] Although claim 13 claims "at least one processor," Petitioner states that "the Board should construe the term 'at least one processor' in the same manner that it construes 'digital signal processor.'" Paper 1 at 28.

6:12–15. Baird fails to disclose that the SCP 304 is optimized for processing digital signals or contains any specialized structure optimized for digital signal processing. Without any specialized architecture and/or hardware to *optimize* computational needs for processing digital signals, the SCP 304 is nothing more than a general purpose processor used for servo control.

3. Baird fails to disclose that the DSP is "configured to form a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals."

It is undisputed that Baird fails to expressly disclose that the DSP is configured to "form a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals," as claimed in independent claim 1 and similarly claimed in independent claim 13. In fact, Baird does not even mention a focusing error signal or a tracking error signal. The specification of the '979 Patent expressly describes, in detail, how a focusing error signal and a tracking error signal are determined. *See, e.g.*, Ex. 1001 at FIGs. 2G, 2H, 2I, 2J, 2K, 2L, 2M, 2N, 2O, 2P, 2Q, 2R, FIG. 5A, FIG. 5B, col. 21, lines 50 to col. 22, line 1; col. 27, lines 51–67.

Although Baird discloses some error signals, none of these are the claimed focusing error signals or tracking error signals, according to either construction recited in the Petition. *See* Paper 1 at 29-30. Specifically, Baird discloses that the envelope detectors 208 and the phase error detector in the DPLL 213 generate error signals. Ex. 1003 at 4:29–32, 49–52. The error signal generated by the envelope detectors 208

indicates an offset error in the transimpedance amplifiers, diodes, attenuators 201 and VGAs 202. *See id*. at 3:67–4:3. The error signal generated by the phase error detector indicates a phase error of the input signals. *Id*. at 4:49–54. However, neither of these error signals constitutes the claimed focusing error signal or tracking error signal because they are determined by circuitry in the "data channel," rather than the "servo channel"—where the SCP (304) resides. *Id.* at FIGs. 1, 2 and 4:26–34, 4:42–56.

Petitioner construes the focusing error signal to mean "calculated variation in the distance between the optical pickup unit and the optical media" and the tracking error signal to mean "calculated variation in the tracking motion of the optical pickup unit." Paper 1 at 29-30. Thus, neither of the error signals disclosed in Baird meets Petitioner's own definition of the claimed focusing error signal or tracking error signal. Moreover, the claims of the '979 Patent require that the DSP determine the focusing and tracking error signals. But, in Baird, neither the envelope detector nor the phase error detector constitutes a DSP.

Instead, Petitioner's argument that Baird discloses a focusing error signal and a tracking error signal is based *entirely* on inherency. Paper 1 at 41-42. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). Petitioner fails to meet this burden.

Specifically, Petitioner asserts that "[b]ecause Baird states that the servo control processor performs focus and tracking control loops, it is necessarily the case that a focus error and tracking error signal are generated." Paper 1 at 41-42. But, the Petitioner fails to explain how disclosure of focus and tracking control loops necessarily generates a focusing error signal and a tracking error signal. Indeed, the mere disclosure of focus and tracking control loops does not and cannot show that the missing focusing error signal and tracking error signal are "necessarily present" in Baird. Baird simply discloses that the servo control processor 304 receives servo data from photodiodes 101, processes the servo data under the instruction of the microcontroller 106, and provides control signals to the power amplifiers 102 through the DAC array 306 and spindle controls 307. Ex. 1003 at 5:63–6:25. There is no teaching in Baird that the servo control processor 304 determines *any* error signal, let alone a tracking error signal or a focusing error signal.

Indeed, the servo control loop disclosed in Baird can function to control the servo motors and actuators without using a focusing or tracking error signal. For example, the servo control loop in Baird can control the servo motors and actuators based on the measurement of an actual reference signal without determination and use of any error signal. The mere possibility that the focus and tracking control loops *may* determine focusing and tracking error signals does not establish inherency. *In re Robertson*, 169 F.3d at 745 ("Inherency, however, may not be established by

probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'"). Thus, Petitioner has failed to demonstrate that the focusing error signal and tracking error signals are "necessarily present" in Baird.

4. Baird fails to disclose that the DSP is "configured with servo algorithms that process TES and FES to adjust focus and tracking in the optical disk drive."

In addition, Baird fails to disclose that the DSP is configured with servo algorithms that process the tracking error signal and the focusing error signal to adjust focus and tracking in the optical disk drive, as claimed in independent claim 1 and similarly claimed in independent claim 13. Baird merely discloses that the SCP 304 produces outputs to a DAC 306 and a spindle control 307. Ex. 1003 at 6:24–25 ("Analog control signals are transmitted to power amplifiers 102 through DAC array 306 and spindle controls 307."). Indeed, Baird is completely silent as to how any error signals are processed through servo algorithms to adjust focus and tracking in the optical disk drive. Specifically, Baird does not teach how the "analog control signals" are generated by the SCP 304, how the SCP 304 is configured with servo algorithms, or how any tracking error signal or focusing error signal is processed through servo algorithms to adjust focus and tracking in the optical disk drive.

5. Yoshimoto is "old art" that has already been considered during prosecution and does not cure the fatal deficiencies of Baird.

Challenge #1 should be rejected because "the same or substantially the same prior art or arguments previously were presented to the Office." 35 U.S.C. § 325(d). There is no dispute that the same art Yoshimoto has already been considered by the examiner during prosecution of the '979 Patent. Paper 1 at 36. The Petition presents the same arguments with respect to Yoshimoto that were previously considered by the Office. In particular, the Petition cites to the same disclosure in Yoshimoto allegedly applied to the same claim limitations concerning calibration, which has been fully considered by the examiner during prosecution. *See* Paper 1 at 42-43 (Petitioner citing to FIG. 2 and corresponding description of FIG. 2 and col. 7, lines 55-56.); Ex. 1002 at 524 (examiner citing to col. 7, lines 39-56), 546 (examiner citing to FIG. 2).

Indeed, by citing to the same disclosure from the same art considered in the prosecution without any meaningful explanation or discussion, the Petition has done nothing more than repeat the same arguments already considered by the examiner, who properly allowed the challenged claims. Petitioner thus fails to demonstrate a reasonable likelihood that the '979 Patent claims at issue would have been unpatentable in view of Yoshimoto. *See* 37 C.F.R. § 42.108(c).

Moreover, Petitioner does not contend that Yoshimoto discloses the claimed DSP; therefore, Yoshimoto fails to cure the numerous deficiencies of Baird. Baird, alone or in combination with Yoshimoto, fails to disclose each and every element of independent claims 1 and 13. Accordingly, because claims 2-12 and 14-18 are

dependent claims, it follows that Baird in view of Yoshimoto fails to render obvious claim 2-12 and 14-18.

a. Baird in view of Yoshimoto fails to disclose claims 15-18 because neither reference discloses "at least one processor."

In addition, for the reasons discussed above, Baird in view of Yoshimoto fails to render obvious dependent claim 15 which expressly requires that "the *at least one processor* stores parameters related to at least one of the calibrated parameters onto an optical media," dependent claim 16 which expressly requires that "the *at least one processor* stores averages between the calibrated parameters and previously stored parameters," dependent claim 17 which expressly requires that "the *at least one processor* stores the calibrated parameters if the calibrated parameters differ from previously stored parameters by less than a threshold value," and dependent claim 18 which expressly requires that "the *at least one processor* stores previously stored parameters adjusted by maximum values if the calibrated parameters differ from previously stored parameters by a threshold value." Indeed, Petitioner fails to provide any evidence or explanation for how Baird in view of Yoshimoto renders dependent claims 15-18 obvious. *See* Paper 1 at 55.

b. Baird in view of Yoshimoto fails to disclose claims 4, 5, 17, and 18 because they require comparing calibrated parameters with previously stored calibrated parameters.

Baird in view of Yoshimoto fails to render obvious dependent claim 4 which expressly requires "*comparing* the calibrated parameters with previously stored calibrated parameters; and recording the calibrated parameters *if changes between the calibrated parameters and the previously stored calibrated parameters are below threshold values*," dependent claim 5 which expressly requires "*recording the previously stored calibrated parameters adjusted by a maximum value if changes between the calibrated parameters and the previously stored calibrated parameters are above the threshold values*," dependent claim 17 which expressly requires that "the at least one processor stores the calibrated parameters *if the calibrated parameters differ from previously stored parameters by less than a threshold value*," and dependent claim 18 which expressly requires that "the at least one processor *stores previously stored parameters adjusted by maximum values if the calibrated parameters differ from previously stored parameters by a threshold value*."

Yoshimoto fails to disclose the limitations in claims 4, 5, 17, and 18. Petitioner contends that Yoshimoto discloses "obtaining calibration parameters upon the insertion of a disk and recording those parameters, then obtaining new calibration parameters, obtaining the average of the old parameter and the new parameter, and storing the average as the new calibration parameter." Paper 1 at 46. In so doing, Petitioner concedes that Yoshimoto fails to disclose the function of comparing calibrated parameters as required by claims 4, 5, 17, and 18 because the method of

Yoshimoto always computes and stores the "average of the old parameter and the new parameter." Indeed, the system and method described in Yoshimoto is fundamentally different than the inventions recited in claims 4, 5, 17, and 18.

Petitioner's untenable arguments hinge on two conclusory statements. First, Petitioner contends that "[i]t would have been obvious to also compare the two values and to use the new calibration parameter only if it differed from the old calibration parameter within a certain threshold. . . ." Paper 1 at 47-48 and 55. Second, Petitioner contends that "[i]t also would have been obvious that if the threshold is exceeded, that the system could use a maximum value instead of using the actual new calibration value. . . ." *Id.* at 48 and 55. Indeed, Petitioner's attorney argument fails to provide any evidence or explanation to support such a conclusion regarding the fundamentally different system and method described in Yoshimoto.

B. Challenge #2 Fails Because The ST Datasheet Is Not A "Printed Publication" And Fails To Cure The Deficiencies of Baird and Yoshimoto.

Tacitly acknowledging the infirmities of Challenge #1, Petitioner advances arguments in the alternative. Challenge #2 asserts that "[i]f Challenge #1 is rejected, claims 1-18 are rendered obvious by the combination of Baird, Yoshimoto, and the Product Preview for ST TDA7522, 'Digital Servo and Decoder,' May 1998 (the 'ST Datasheet')." Paper 1 at 3. But Challenge #2 similarly fails for a number of reasons: (1) there is no record evidence establishing that the ST Datasheet is a prior art "printed

publication" pursuant to black-letter law and (2) the ST Datasheet fails to disclose a DSP configured to "form a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals," and configured with "servo algorithms that process TES and FES to adjust focus and tracking in the optical disk drive," as claimed in independent claim 1 and similarly claimed in independent claim 13. Because the ST Datasheet does not qualify as prior art and also fails to cure the deficiencies of Baird and Yoshimoto, Challenge #2 should also be rejected.

Thus, because Baird, Yoshimoto, and the ST Datasheet all fail to disclose material limitations in independent claims 1 and 13, it follows that Baird in view of Yoshimoto and further in view of the ST Datasheet fails to render obvious the corresponding dependent claims 2-12 and 14-18 for at least the same reasons.

1. Summary of ST Datasheet

The ST Datasheet is a document entitled "TDA7522 Digital Servo & Decoder Product Preview" that purports to be "preliminary information on a new product now in development." *See* Ex. 1005 at 1.

2. The ST Datasheet is not a prior art "printed publication."

It is Petitioner's burden to establish that the ST Datasheet is a prior art "printed publication," and Petitioner has not met its burden. 35 U.S.C. § 311(b) (An *inter partes* review may be requested "only on the basis of prior art consisting of patents or printed publications."). The party seeking to introduce the reference "should produce

sufficient proof of its dissemination or that it has otherwise been available and accessible to persons concerned with the art to which the document relates and thus most likely to avail themselves of its contents." *In re Wyer*, 655 F. 2d 221, 227 (CCPA 1981). The Federal Circuit has held that "public accessibility" is the "touchstone" in determining whether a reference constitutes a "printed publication." *Kyocera Wireless Corp. v. ITC*, 545 F.3d 1340, 1350 (Fed. Cir. 2008); *In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986). "A reference is publicly accessible 'upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it . . . .'" *Kyocera Wireless,* 545 F.3d at 1350.

There is no evidence establishing that the ST Datasheet meets the prior art "printed publication" criteria established by the Federal Circuit. Petitioner cites to and relies on the ST Datasheet (Ex. 1005), Declaration of Dr. Richard Zech (Ex. 1006) and a Press Release (Ex. 1012), and in a conclusory fashion, asserts that "the ST Datasheet was published on May 1998 in the United States." Paper 1 at 56. But none of the documents relied on by Petitioner demonstrates that the ST Datasheet constitutes a "printed publication"—that it was publicly accessible, disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the

subject matter or art exercising reasonable diligence, could have located it by any date certain, let alone before the critical date of the '979 Patent.

In fact, contrary to Petitioner's assertion, the ST Datasheet does not even state that it was *published* in May 1998. Although the ST Datasheet lists "May 1998" on its face, the ST Datasheet provides no explanation as to what the date means. Ex. 1005 at 1. Moreover, the fact that the ST Datasheet merely describes "preliminary information on a new product now in development" shows more likely that the ST Datasheet was *not* publicly accessible in May 1998. *Id*. The preliminary nature of the information contained in the ST Datasheet is readily apparent on the face of the document: "Details are subject to change without notice." *Id.* Exhibit 1012 fares no better as it purports to be a French press release related to a potential product—as opposed to a publication. It also does not provide any evidence that the ST Datasheet was published on May 1998 or on any date certain; it makes no reference to the ST Datasheet whatsoever. Finally, the Declaration of Dr. Richard Zech merely assumes that the ST Datasheet qualifies as a prior art "printed publication," however, it is not based on any personal knowledge or relevant facts that would support such a conclusion. *See* Ex. 1006 at 53-54.

Because there is absolutely no evidence that the ST Datasheet constitutes a prior art "printed publication," institution of any ground relying in whole or in part on the ST Datasheet should be denied. *Synopsys, Inc. v. Mentor Graphics Corp.*,

IPR2012-00042, Paper 16, at *35–36 (Feb. 22, 2013) (denying institution in an IPR where petitioner did not establish that a given document was a prior art "printed publication").

3. The alleged combination of ST Datasheet and Baird would change the principle of operation of Baird.

In addition to not qualifying as prior art, the ST Datasheet describes a servo system that fundamentally differs from the servo system in Baird. Petitioner incorrectly asserts that a person of ordinary skill in the art could use the alleged DSP in the ST Datasheet in the design of Baird. The system in the ST Datasheet allegedly receives *combined* analog signals "A+C" and "B+D." In contrast, the system in Baird receives *individual* analog signals derived from each photodetector output signal. *See* Ex. 1003 at 5:63–64 ("Servo data is received from each of the six photodiodes 101 and then amplified by six VGAs 301."). The alleged combination would change the principle of operation of Baird, and thus the teachings of the ST Datasheet and Baird are not sufficient to render the claims *prima facie* obvious. *See In re Ratti*, 270 F.2d 810, 813 (CCPA 1959); MPEP 2143.01 VI.

4. The ST Datasheet fails to disclose the claimed DSP.

As discussed in detail above, in contrast to a general purpose processor, a DSP is a "programmable microprocessor optimized for processing digital signals using programmed commands." Paper 1 at 25. Petitioner contends that pages 1 and 7 of the ST Datasheet disclose the claimed DSP. Paper 1 at 56. However, neither page of the

ST Datasheet discloses a programmable microprocessor *optimized* for processing digital signals, or including any specialized architecture and/or hardware *optimized* for processing digital signals. Thus, Petitioner fails to establish that the ST Datasheet discloses a DSP as claimed in independent claim 1 and similarly claimed in independent claim 13.

In addition, for the reasons discussed above, Baird in view of Yoshimoto and further in view of the ST Datasheet fails to render obvious dependent claim 15 which expressly requires that "the *at least one processor* stores parameters related to at least one of the calibrated parameters onto an optical media," dependent claim 16 which expressly requires that "the *at least one processor* stores averages between the calibrated parameters and previously stored parameters," dependent claim 17 which expressly requires that "the *at least one processor* stores the calibrated parameters if the calibrated parameters differ from previously stored parameters by less than a threshold value," and dependent claim 18 which expressly requires that "the *at least one processor* stores previously stored parameters adjusted by maximum values if the calibrated parameters differ from previously stored parameters by a threshold value." Indeed, Petitioner fails to provide any evidence or explanation for how Baird in view of Yoshimoto and in further view of the ST Datasheet renders dependent claims 15-18 obvious. *See* Paper 1 at 56-59.

5. The ST Datasheet fails to disclose that the DSP is configured to "form a focusing error signal (FES) and a tracking error signal (TES) from the digitized optical sensor signals."

The ST Datasheet also fails to disclose that the DSP is configured to form a focusing error signal and a tracking error signal from the digitized optical sensor signals/digital signals as claimed in independent claims 1 and 13, according to either construction recited in the Petition. Paper 1 at 29. As discussed above, FIG. 2 of the ST Datasheet allegedly shows a system receiving analog signals "A+C" and "B+D" combined for the purposes of calculating an error signal as opposed to the individual analog signals recited in independent claims 1 and 13. The combined analog signals are then converted to combined digital signals. As a result, as shown in FIG. 2 of the ST Datasheet, the alleged DSP receives *combined* digital signals "AC" and "BD." The ST Datasheet fails to disclose that the alleged DSP in FIG. 2 forms any error signals from the "signals in which a version of a photodetector output signal has been digitized." Paper 1 at 29. Petitioner's argument even fails under its own claim construction because the ST Datasheet fails to disclose that the alleged DSP in FIG. 2 forms any error signals from the "digitized signals, each corresponding to a photodetector output signal." *Id*.

Petitioner alleges that the "TE" and "FE" shown in FIG. 2 of the ST Datasheet are the claimed tracking error signal and focusing error signal, respectively. Paper 1 at 57. But, nothing in the ST Datasheet discloses that "TE" is equivalent to the

claimed tracking error signal or that "FE" is equivalent to the claimed focusing error signal according to either construction recited in the Petition. Paper 1 at 29-30. FIG. 2 of the ST Datasheet ambiguously shows two arrows labeled "TE" and "FE" coming out of a box labeled "Adjustment," but the ST Datasheet fails to describe the functionality of the "Adjustment" box. Nor does the ST Datasheet disclose how "TE" and "FE" are generated or what they represent.

Thus, Petitioner's argument even fails under its own claim construction. The ST Datasheet fails to disclose that "TE" represents "calculated variation in the tracking motion of the optical pickup unit" or that "FE" represents "calculated variation in the distance between the optical pickup unit and the optical media," according to Petitioner's own claim construction. Paper 1 at 29-30. Moreover, because the ST Datasheet does not describe the functionality of the "Adjustment" box or how "FE" or "TE" is generated, the ST Datasheet fails to disclose that the "TE" and "FE" are determined from the digital signals, as claimed.

In addition, the ST Datasheet describes that a "DSP" portion of the SACDSP chip only performs "Digital Filter calculation[s]." Ex. 1005 at 16. The ST Datasheet describes a number of tasks that are performed by the SACDSP chip, including among other things, "Focusing and Tracking loop filter," "Sled Tracking control" and "Focus error, Tracking error generation." *Id.* at 16-17. However, the ST Datasheet only describes that the DSP portion of the SACDSP is responsible for "Digital Filter

execution of slave of ST7." *Id.* at 16. Thus, there is no disclosure in the ST Datasheet that teaches that any focusing error or tracking error generation is performed by the DSP portion of the SACDSP.

6. The ST Datasheet fails to disclose that the DSP is "configured with servo algorithms that process TES and FES to adjust focus and tracking in the optical disk drive."

In addition, the ST Datasheet fails to disclose that the DSP is configured with servo algorithms that process the tracking error signal and focusing error signal to adjust focus and tracking in the optical disk drive, as claimed in independent claim 1 and similarly claimed in independent claim 13. Petitioner contends that the alleged "DSP" in the ST Datasheet uses "TE" and "FE" for the track loop filter and focus loop filter, which in turn generate control signals used to control the focus actuator and track actuator. Paper 1 at 57. The ST Datasheet, however, does not disclose that the "DSP" produces tracking and focus control signals. The ST Datasheet merely shows that the "DSP" provides an output to the PDM/PWM in FIG. 2, but does not disclose that the output to the PDM/PWM includes a tracking control signal or a focus control signal. Moreover, the ST Datasheet does not disclose that the alleged "DSP" is configured with servo algorithms or how the output to the PDM/PWM is generated. In particular, the ST Datasheet does not disclose that the alleged "DSP" is configured with *servo algorithms* that process the tracking error signal and focusing error signal to adjust focus and tracking in the optical disk drive.

V. THE BOARD SHOULD REJECT PETITIONER'S CHALLENGE #2 AS REDUNDANT GROUNDS

Additionally, Petitioner's alternative argument, Challenge #2, should not be instituted because it is admittedly redundant to Challenge #1. *See Liberty Mutual Insurance Co. v. Progressive Casualty Insurance Co.,* CBM2012-00003, Paper 7 at 2 (Oct. 25, 2012) ("multiple grounds, which are presented in a redundant manner by a petitioner who makes no meaningful distinction between them, are contrary to the regulatory and statutory mandates, and therefore are not all entitled to consideration."). There can be no dispute that Challenge #2 is redundant to Challenge #1 because both challenges assert the same claims using the same primary prior art references (Baird and Yoshimoto), and Challenge #2 merely includes an additional alleged prior art reference (ST Datasheet). As such, pursuant to 37 C.F.R. § 42.1(b), Petitioner's redundant challenge should be rejected.

Petitioner has not articulated any "meaningful distinction in terms of relative strengths and weaknesses" with respect to the disclosure of the applied references to one or more claim limitations. *See Oracle Corp. v. Clouding IP, LLC*, IPR2013-00088, Paper 13 at 13 (June 13, 2013). Petitioner simply proposes Challenge #2 "[i]f the Board rejects Challenge #1." Paper 1 at 56. Petitioner states that "if the Board finds that the servo control processor of Baird does not determine a tracking error signal and a focus error signal and use those signals to generate a tracking control signal and focus control signal, then the Board should find that those elements are

rendered obvious by combining the teachings of the ST Datasheet with Baird and Yoshimoto." *Id*. at 57-58. Petitioner's conclusory statement fails to articulate any meaningful distinction regarding the strength and weakness of the ST Datasheet relative to Baird and/or Yoshimoto with respect to one or more claim limitations. Accordingly, Petitioner's redundant Challenge #2 should not be entitled to consideration.

VI. CONCLUSION

For the foregoing reasons, the Petition is fatally defective and fails to meet the minimum threshold required for institution of an *inter partes* review. Thus, the Board should deny the Petition in its entirety and not institute proceedings in this matter.

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CERTIFICATE OF SERVICE

I hereby certify that on this 12th day of December, 2014, a true and correct copy of the foregoing Patent Owner's Preliminary Response Pursuant To 37 C.F.R. § 42.107 was served on the following counsel for Petitioner Toshiba Corporation via email:

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