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Paper 45
Date: June 19, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BAE SYSTEMS INFORMATION AND ELECTRONIC SYSTEMS INTEGRATION, INC.,
Petitioner,

v.

CHEETAH OMNI, LLC,
Patent Owner.

Case IPR2013-00175
Patent 7,633,673 B1

Before STEPHEN C. SIU, JUSTIN T. ARBES, and RAMA G. ELLURU,
Administrative Patent Judges.

ELLURU, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. BACKGROUND

Petitioner, BAE Systems Information and Electronic Systems Integration, Inc. ("BAE"), filed a petition on March 4, 2013, requesting *inter partes* review of claims 1, 4, 13–15, 17, and 19 of U.S. Patent No. 7,633,673 B1 ("the '673 patent"). (Paper 1, "Pet."). Patent Owner, Cheetah Omni, LLC ("Cheetah"), filed a preliminary response opposing institution of review. Paper 12. On July 3, 2013, we instituted an *inter partes* review of claims 1, 4, 13–15, 17, and 19 of the '673 patent (Paper 15) ("Dec. on Inst.").

Subsequent to institution, Cheetah filed a Patent Owner Response (Paper 27) ("PO Resp."), and BAE filed a Reply (Paper 30) ("Pet. Reply"). Along with its Patent Owner Response, Cheetah filed a Motion to Amend (Paper 28) ("Mot."). BAE filed an Opposition to Cheetah's Motion to Amend (Paper 31) ("Opp."), and Cheetah filed a Reply in support of its Motion (Paper 32) ("PO Reply"). BAE initially requested an oral hearing, which we granted, and Cheetah did not file a request for oral argument. Papers 43, 44. BAE subsequently contacted the Board to indicate its belief that a hearing was not necessary. Paper 44. Based on the parties' representations, we determined that a hearing was not necessary for a decision in this trial. *Id*.

The Board has jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons that follow, we determine that BAE has shown by a preponderance of the evidence that claims 1, 4, 13–15, 17, and 19 of the '673 patent are unpatentable, and we deny Cheetah's Motion to Amend.

A. The '673 Patent

The '673 patent is directed to systems and methods for generating infrared light with wavelength in the mid-infrared (IR) range. Ex. 1001, Title, Abstract. Some of the embodiments described by the '673 patent use a Raman wavelength shifter that is coupled to a pump laser to produce a longer wavelength. Ex. 1001, 14:65–67. A "Raman wavelength shifter" refers to any device that uses the Raman effect to shift a shorter optical signal wavelength to a longer optical signal wavelength. Ex. 1001, 15:1–3. "Raman effect" is caused by inelastic scattering of a photon during an interaction with an atom or molecule, causing the photon to gain or lose energy with a corresponding decrease or increase in wavelength, respectively. Pet. 13 (citing Ex. 1013).

B. Challenged Claims

Claims 1 and 13 are independent claims. The remaining challenged claims depend from either claim 1 or claim 13. Claim 1 is representative of the challenged claims and is reproduced below.

> 1. A mid-infrared light source, comprising:
>
> a multiplexer operable to combine a first laser signal and a second laser signal to generate a first optical signal, the first optical signal comprising one or more wavelengths;
>
> a gain fiber coupled to the multiplexer and operable to receive at least the first optical signal, the gain fiber comprising a first waveguide structure;
>
> a second waveguide structure coupled to the gain fiber and operable to wavelength shift at least one wavelength of the first optical signal to a longer wavelength optical signal, the longer wavelength optical signal comprising a wavelength in the range of 1.7 microns or more, the second waveguide structure comprising a wavelength shifting fiber coupled to a nonlinear element, wherein the wavelength shifting fiber operates to wavelength shift the at least one wavelength of the first optical signal to a second optical wavelength

and the nonlinear element operates to wavelength shift the second optical wavelength to the longer wavelength optical signal, and wherein the wavelength shifting fiber is substantially different than the nonlinear element.

C. Prior Art

The pending grounds of unpatentability in this *inter partes* review are based on the following prior art.

Patent No.	Filing Date	Issue Date	Exhibit No.
6,229, 828 ("Sanders")	July 27, 1998	May 8, 2001	1010

Pet. 8. BAE also relies on a declaration submitted by David A. Smith, Ph.D. ("Smith Decl.") (Ex. 1011).

D. Pending Grounds of Unpatentability

We instituted an *inter partes* review of the '673 patent based on the following grounds:

1. Claims 1, 4, 13, 15, 17, and 19 as anticipated by Sanders under 35 U.S.C. § 102(b); and
2. Claim 14 as unpatentable over Sanders under 35 U.S.C. § 103(a).

Dec. on Inst. 20.

II. ANALYSIS

A. Claim Construction

Consistent with the statute and the legislative history of the AIA, the Board interprets claims by applying the broadest reasonable construction in the context of the specification in which the claims reside. 37 C.F.R. § 42.100(b); *see* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). The words of the claim will be given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989). "There are only two exceptions to the general rule that a claim term is given its ordinary meaning: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *See Thorner v. Sony Computer Entm't Am. LLC,* 669 F.3d 1362, 1365 (Fed. Cir. 2012). "Although an inventor is indeed free to define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision." *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Also, we must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) ("limitations are not to be read into the claims from the specification").

1. "Gain fiber"

Independent claims 1 and 13 require "a gain fiber coupled to the multiplexer and operable to receive at least the first optical signal."

In our Decision to Institute, based on testimony by BAE's declarant and the '673 patent Specification, we interpreted "gain fiber" in claims 1 and 13 as "an

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