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VIZIO, INC.*

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

NICHIA CORPORATION

Plaintiff and Counterclaim-
Defendant,

v.

VIZIO, INC.

Defendant and Counterclaim-
Plaintiff.

Case No. 8:16-cv-00545-SJO-MRW

**VIZIO, INC.'S PRELIMINARY
INVALIDITY CONTENTIONS**

B. Local Patent Rule 3-3(b): Whether Each Item Anticipates or Renders Obvious the Asserted Claims

Nichia asserts claims 1, 4, 7, and 8 of the '631 patent against VIZIO in this lawsuit. All of those claims are invalid because the '631 patent fails to meet one or more of the statutory requirements for patentability. The individual bases of invalidity for anticipation and obvious pursuant to 35 U.S.C. §§ 102 and 103 are provided below and in the claim charts attached as Exhibits 631-1 to 631-6.

1. Anticipation

The asserted claims of the '631 patent are invalid as anticipated under 35 U.S.C. § 102 in view of each of the prior art references identified above and in the claim charts included in Exhibits 631-1 to 631-6, which identify specific examples of where each limitation of the asserted claims is found in the prior art references. As explained above, the cited portions of prior art references identified in the attached claim charts are exemplary only and representative of the content and teaching of the prior art references, and should be understood in the context of the reference as a whole and as they would be understood by a person of ordinary skill in the art.

2. Obviousness

In accordance with Patent L.R. 3-3(b), prior art references rendering the asserted claims of the '631 patent obvious, alone or in combination with other references, are identified in Exhibits 631-1 to 631-6. Exhibits 631-1 to 631-6 include exemplary claim charts for the '631 patent showing specific combinations of references, including citations to relevant disclosures in those references. To the extent any limitation is deemed not to be exactly met, either explicitly or inherently, by an item of prior art listed above and in Exhibits 631-1 to 631-6, then any purported differences are such that the claimed subject matter as a whole would have been obvious to one skilled in the art at the time of the alleged invention, in

view of the state of the art and knowledge of those skilled in the art. The item of prior art would, therefore, render the relevant claims invalid for obviousness under 35 U.S.C. § 103(a).

As an overview of obviousness, the technology claimed in the asserted patents is a basic application of the fundamental color mixing concept that blue and yellow make white, applied in the field of LEDs. As early as 1704, Newton published a paper describing how white can be made either by mixing equal parts red, green, and blue or by combining blue and yellow. Over the next 300 years, this fundamental concept has been applied in various lighting fields using various materials. Phosphors are one such material. A phosphor absorbs light of one color and emits light of a different color. Because of this unique property, phosphors have been commonly used since at least the 1930s to mix colors. Broadly speaking, this color mixing is accomplished by placing a phosphor over a light source where the phosphor converts a portion of the light emitted by the light source to a different color and the remainder of light is emitted unaltered. The overall effect is the emission of light of different colors, which will be perceived by the eye as a mixture of these two colors.

In 1996, Yttrium Aluminum Garnet (“YAG”) was a well-known phosphor for absorbing blue light emission and converting it to yellow under harsh operating conditions. YAG was discovered in the 1960s by G. Blasse and A. Bril, researchers at Philips Research. Two research papers published in 1967 describe core characteristics of YAG, including that it absorbs blue light at about 460 nm and provides a bright yellow emission. Researchers thereafter combined YAG with blue light sources to make white light. For example, in 1969, researchers at Bell Labs applied YAG phosphors to blue-light-emitting lasers, as reflected in the Pinnow patent. In Pinnow, the YAG phosphor absorbed a portion of the blue laser light to create yellow light, which then mixed with the remaining blue light to create white

light. A 1971 publication by the Pinnow inventors explained that by “coating a viewing screen with existing organic and inorganic phosphors, it is possible to efficiently convert monochromatic blue or ultraviolet laser light into virtually any visible color including white.”

In the late 1970s, GE applied YAG to another commercial blue light source – high pressure mercury vapor lamps. Mercury vapor lamps emit light in the blue color region, with some lamps emitting too much blue. A 1977 article by Mary Hoffman at GE taught improved color rendition using YAG to convert a portion of the blue light emitted from mercury vapor lamps into yellow light. Hoffman specifically taught that YAG work efficiently at the high temperatures of high pressure mercury vapor lamps.

A 1986 Philips patent disclosed the use of YAG in low pressure mercury vapor lamps, known as compact florescent light bulbs. Philips taught the use of YAG Phosphors with blue mercury vapor lamps to emit white light at a given color temperature. Thus, prior to 1996, YAG had been used by two of largest lighting companies in the world, Philips and GE, and one of the leading research laboratories in the U.S., Bell Labs, to partially down-convert blue light emission into yellow light in order to make white light.

By 1996, it was also known to use Indium Gallium Nitride LED semiconductor chips as a blue-light-emitting source to combine with materials like YAG in order to produce white light. The first visible light LED, developed in 1962, emitted red light. By the early 1970s, green LEDs had also been developed. Thus, researchers focused on developing a blue LED. Those in the industry recognized the commercial importance of making a blue LED to make a highly efficient source of white light. However, the blue LED proved incredibly hard to make, and for over 20 years, the industry struggled to develop one. In the early 1990s, Shuji Nakamura, then at Nichia, along with other researchers finally

succeeded in developing a commercially viable blue LED. A March 1994 article by Nakamura announced that “candela-class high-brightness InGaN/AlGaIn DH blue LEDs with the luminous intensity of 1 cd were fabricated for the first time.” In recognition of their achievements in developing the blue LED, Nakamura and two others were awarded the 2014 Nobel Prize in Physics. The Nobel Committee recognized the industry’s struggle to make a blue LED, “which took three more decades to achieve.” The Nobel Committee also recognized “[t]he invention of efficient blue LEDs has led to white light sources for illumination.”

In view of the state of the art, it is clear that the alleged inventions claimed in the asserted patents did not advance LED art in any discernible way. The true breakthrough occurred when Professor Nakamura invented high intensity blue light LEDs. As Nichia’s expert in the *Everlight* litigation acknowledged, Nakamura’s new blue LEDs “were what gave everyone the incentive to move forward to create a simple blue plus yellow LED that emits white light.” In fact, Nichia’s litigation expert explained that, “after the demonstration of the blue LEDs, the development of the white LED was unstoppable.”

Nichia’s expert testified in a litigation involving two related patents, U.S. Patent Nos. 5,998,925 and 7,531,960, which Nichia had asserted against LED manufacturer Everlight Electronics Co. In that case, all asserted claims, including claims reciting a blue LED combined with a yellow phosphor to make white light using the partial down conversion approach, were found invalid over the prior art. Like the asserted claims of these related patents, the asserted patent claims here are invalid over the prior art.

The prior art reveals the immediate and obvious development of blue LEDs with the known yellow phosphors discussed above after Nakamura’s blue LEDs became commercially available in about 1994. By January 1996, prior art publications had already disclosed the combination of the new blue LED with

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