

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Hisense USA Corporation

Petitioner,

v.

Brightplus Ventures LLC,

Patent Owner

Case No. IPR2023-01411

U.S. Patent No. 7,872,705

**PATENT OWNER'S REVISED CONTINGENT MOTION TO AMEND
UNDER 37 C.F.R. § 42.121**

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I. INTRODUCTION

Patent Owner Brightplus Ventures LLC (“Brightplus” or “Patent Owner”) respectfully submits this contingent request to substitute claims 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, and 45 for challenged claims of U.S. Patent No. 7,872,705 (the “705 Patent”). In the instituted trial, the Petitioner Hisense USA Corporation (“Hisense” or “Petitioner”) has challenged the patentability of claims 1, 2, 5, 6, 9, 11, 13, 14, 16, 17, 22, 28, 29, 31, 32, 33, and 34. Patent Owner submits that this Motion satisfies the statutory and regulatory requirements for a motion to amend the claims under 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121 because the proposed amendments: (i) do not enlarge the scope of the claims or introduce new subject matter; (ii) are responsive to at least one ground of patentability instituted in this proceeding; (iii) are supported by the disclosure of the originally-filed application; and (iv) are patentable over the closest known prior art Johnson, Suzuki, and Fine references asserted in the Petition.

II. MOTION TO AMEND IS CONTINGENT

Patent Owner submits that this Motion is contingent upon a finding in a final written decision that any of the challenged claims are unpatentable. Specifically, Patent Owner requests the contingencies indicated in Appendix A.

III. A REASONABLE NUMBER OF CLAIMS ARE AMENDED

Under 37 C.F.R. §42.121(a)(3), a motion to amend may propose a

reasonable number of substitute claims for each challenged claim. Generally, it is presumed “that only one substitute claim would be needed to replace each challenged claim,” but that presumption may be rebutted upon a showing of need. 37 C.F.R. § 42.121(a)(3); *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4-5 (PTAB Feb. 25, 2019). “An amendment under this subsection may not enlarge the scope of the claims of the patent or introduce new matter.” 35 U.S.C. § 316(d)(3); *Pulse Elecs., Inc. v. U.D. Elec. Corp.*, No. 3:20-cv-01676-BEN-DEB, 2021 U.S. Dist. LEXIS 69938, at *22 (S.D. Cal. 2021). In this Revised Motion to Amend, Patent Owner proposes no more than 1 substitute claim for each challenged claim 35-45. Hence, Patent Owner proposes a reasonable number of substitute claims. See Prelim. Guidance at 5.

IV. THE PROPOSED AMENDMENTS RESPOND TO A GROUND OF UNPATENTABILITY INVOLVED IN THIS TRIAL

While Patent Owner submits new and additional limitations in Claims 35, as well as additional amendments 36-45, the Board’s Preliminary Guidance is still applicable to this Revised Motion to Amend. For example, the Board recognized that “proposed substitute claims 35-48 recite new limitations, and new combinations of limitations, that directly respond to the grounds of unpatentability involved in the trial” (Prelim. Guidance at 5). Similarly, Patent Owner has incorporated into this Revised Motion to Amend arguments as to why the art cited in Petitioner’s original grounds and the additional art cited in Petitioner

Opposition to Patent Owner Contingent Motion to Amend does not teach the limitations in proposed substitute claims 35-45. Additionally, all of the proposed substitute claims are to modify the claims included in Petitioner's original grounds, namely claims 1-2, 5-6, 11, 13-14, 17, 28, and 32-33.

V. THE PROPOSED AMENDMENTS DO NOT SEEK TO ENLARGE THE SCOPE OF THE CHALLENGED CLAIMS

While Claims 35-49 include new limitations not previously presented, Patent Owner submits the proposed substitute claims do not expand the scope of the claims. The Board explained that '705 claims require "at least one waveguide element comprising a plurality of light entry regions" and "two light-emitting sources emitting into one waveguide element." (Prelim Guidance at 7-10). Proposed substitute independent claims 35 and 42 both require the first and second waveguides to comprise a first and second plurality of light entry regions, respectively. Additionally, Proposed substitute independent claims 35 requires two light emitting sources each comprising a plurality of LEDs arranged to emit light into each waveguide element. Patent Owner submits that amended claims address the deficiencies recognized by the board and therefore do not expand the scope of original claim 1. Further, proposed substitute independent claim 35 retains all limitations of corresponding original claim 1 and further includes additional limitations as compared to the original claim. Consequently, even though proposed dependent claims 36-45 may have certain limitations removed, proposed dependent

claims 36-45 do not enlarge the scope of the challenged patent. (Prelim. Guidance at 5). Also, *See Lectrosonics v. Zaxcom*, IPR2018-01129, Paper 15 at 6–7 (PTAB, Feb. 25, 2019) (“A substitute claim will meet the requirements of § 42.121(a)(2)(i) and (ii) if it narrows the scope of at least one claim of the patent, for example, the challenged claim it replaces, in a way that is responsive to a ground of unpatentability involved in the trial.” (emphasis added)).

VI. THE PROPOSED AMENDMENTS DO NOT INTRODUCE NEW SUBJECT MATTER

All the substitute claims are supported by the originally filed disclosure of the ‘705 Patent (EX 1002 at 1-42). While the amended claims 35-45 include additional limitations, PO submits that that the Board’s commentary is applicable to this revised motion to amend, “Patent Owner has shown a reasonable likelihood that there is adequate written description support in the original disclosure of the ‘705 patent” (Prelim Guidance at 10).

claim language	Originally filed disclosure (U.S. App 11/829,912 – Ex. 1002 at 1-42)
claim 35	
b) at least ~~one~~ <u>a first waveguide element and a second waveguide element comprising a first plurality of light entry regions and a second plurality of light entry regions, respectively;</u>	Ex. 1002 at pgs. 4-5 at ¶¶0014-0015; pg. 8 at ¶0033; pg. 9 at ¶¶0036-0037; pg. 16 at ¶0051.
c) ~~a first and second~~ <u>light-emitting sources, each comprising a respective first plurality of LEDs arranged in a respective first strip and positioned to emit light into the</u>	See above, claim element 35.b and Ex. 1002 at pg.11-12 at ¶¶0042-0043; pgs. 12-13 at ¶0045.

at least one <u>first</u> waveguide element at a <u>respective first and second</u> light entry regions of the <u>first</u> plurality of light entry regions;-	
<u>d) the first waveguide element comprising a first transmissive portion;</u>	Ex. 1002 at pg. 12-13 at ¶¶0045-0046; pgs. 15-16 at ¶0050.
<u>d.a) wherein the light emitted by the first light emitting source enters the first waveguide element at the first light entry region and exits at the first transmissive surface;</u>	see above, claim 35(d), and Ex. 1002 at pg. 10 at ¶0039.
<u>d.b) wherein the light emitted by the first light emitting source is distributed across the entire first transmissive surface;</u>	see above, claim element 35.d.a.
e) ~~a second~~ <u>third and fourth</u> light-emitting sources, <u>each</u> comprising a ~~second~~ respective plurality of LEDs arranged in a <u>respective second</u> strip and positioned to emit light into the ~~at least one second~~ waveguide element at a <u>respective first and second</u> light entry regions of the plurality of <u>second</u> light entry regions;	See above, claim element 35.c.
<u>f) the second waveguide element comprising a transmissive portion;</u>	see above, claim element 35.d.
<u>f.a) wherein the light emitted by the third light emitting source enters the second waveguide element at the first light entry region and exits at the second transmissive surface;</u>	see above, claim element 35.d.a.
<u>f.b) wherein the light emitted by the third light emitting source is distributed across the entire second transmissive surface; and</u>	see above, claim element 35.d.a.

claim 36	
36. wherein the LCD panel has a viewable surface area, ~~the at least one waveguide element has a transmissive surface and the first and second transmissive surfaces each comprise a surface is approximately the same size area that is less than the viewable surface area.~~	Ex. 1002 at pg. 8 at ¶0033; pg. 9 at ¶0037; pg. 11 at ¶0042; pgs. 12-13 at ¶0045; pg. 16 at ¶0051
claim 37	
37. embodied in a television or computer monitor, <u>wherein each of the first and second waveguide elements are positioned to light a respective portion of the LCD panel.</u>	see above, claim 36; and Ex. 1002 at pg. 9 at ¶0035
claim 38	
38. <u>wherein the first waveguide element comprises first internal reflection guides that guide the light from the first light emitting source to the first transmissive surface; and</u> <u>wherein the second waveguide element comprises second internal reflection guides that guide the light from the third light emitting source to the second transmissive surface.</u>	Ex. 1002 at pg. 10 at ¶0039
claim 39	
39. wherein ~~any of the first light-emitting source and the third light-emitting source is optically coupled to the at least one waveguide element~~ <u>are embedded within a surface of the first and second waveguide, respectively.</u>	Ex. 1002 at pg. 17 at ¶0054

claim 40	
b) <u>at least a first waveguide element and a second waveguide element comprising a first plurality of light entry regions and a second plurality of light entry regions, respectively;</u>	see above, claim element 35.b.
c) <u>a first and second plurality of LEDs arranged in a respective strip wherein the first waveguide element is positioned to receive light emitted by the first and second plurality of LEDs;</u>	see above, claim element 35.c.
d) <u>a third and fourth plurality of LEDs arranged in a respective strip wherein the second waveguide element is positioned to receive a light emitted by the third and fourth plurality of LEDs; and</u>	see above, claim element 35.e.
claim 41	
41. <u>wherein the LCD panel has a viewable surface area and the first and second waveguide elements each have a transmissive surface comprising a surface area that is smaller than the viewable surface area.</u>	see above, claim 36.
claim 42	
42. <u>embodied in a television or computer monitor, wherein each of the first and second waveguide elements are positioned to light a portion of the LCD panel.</u>	see above, claim 37.
claim 43	
43. <u>each waveguide element comprises a hollow structure.</u>	see above, claim 38.
claim 44	
44. <u>the first plurality of LEDs and the third plurality of LEDs are embedded within a surface of and emit light into the first and second waveguide, respectively.</u>	see above, claim 39

claim 45	
<u>45. the light emitted by the first plurality of LEDs exits the first transmissive surface such that it is distributed across the entire first transmissive surface of the first waveguide element; and</u> <u>the light emitted by the third plurality of LEDs exits the second transmissive surface such that it is distributed across the entire second transmissive surface of the second waveguide element.</u>	see above, claim elements 35.d.b and 35.f.b.

VII. THE PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE

A. The Combination Of Zhou, Fine And Johnson Does Not Invalidate The Proposed Substitute Claims

The Board, in its Preliminary Guidance, agreed with Petitioner that the combination of Zhou and Fine, and Zhou, Fine and Johnson teaches the “first waveguide element and []second waveguide element respectively comprising a first light entry region and a second light entry region” (Prelim Guidance at 13-16). However, the combination of the three references does not teach two waveguide elements wherein two light-emitting sources each comprising a plurality of LEDs arranged in a respective strip emit light into the respective waveguide or that the light emitted by the light-emitting source is distributed across the entire transmissive surface of each waveguide as required by claim 35. Zhou discloses an optical waveguide plate 25 consisting of a plurality of waveguide cores 20 and that “a light beam 62, emitted from a light source 60, is

coupled into a waveguide core 20... Inside the waveguide core 20, the light beam 62a is confined in lateral y and z directions but is allowed to propagate freely along longitudinal x direction until it reaches a location where a light switch 30 is on.” Zhou further discloses that the light switch 30 extracts the light and reflects it back through the waveguide core (Zhou at 6:50-7:8). Zhou explains the importance of the light-extraction mechanism via the light switches, “[t]he mechanical light switch of the present invention produces an extremely high light-extraction efficiency. More than 99% of the light can be extracted from a waveguide into the light switch” (Zhou at 8:35-38). This embodiment is represented by Figs. 3, 14, 15, and 20. Thus, Zhou teaches that the light is confined and emitted from a specific surface; the light in Zhou is not distributed across the entire surface of waveguide cores 20. Therefore, Zhou’s waveguide cores 20 are not equivalent to waveguides as taught by claim 35. Fine and Johnson also do not disclose multiple waveguides wherein light is distributed across its entire surface, or that each waveguide has two lighting emitting sources, each comprising a plurality of LEDs arranged in a respective strip, emitting light therein. Thus, even if these waveguide cores 20 were to be combined with Fine and Johnson, the combination would not teach claims 35 or 45.

Zhou’s waveguide cores 20 do not include other elements or features therein. Similarly, neither Fine nor Johnson disclose components within the respective disclosed waveguide elements. Thus, the combination of the references

does not disclose claim 38, which requires internal reflection guides that guide the light to the transmissive surface of each waveguide element. Only Fine discloses LEDs embedded within the waveguide. Fine however does not disclose a “hollow structure” as required by claim 45. Fine and Johnson do not overcome this lack of disclosure, thus the combination does not render claim 45 obvious. Lastly, the additional claims 36-39 and 41-45 are not obvious given their dependency on claims 35 and 40.

B. There Is No Motivation To Combine Zhou, Fine And Johnson

As described above, Zhou’s invention teaches that the entire light wave traveling through the waveguide core 20 will be extracted and reflected at the “on” light switch and will not be emitted from another surface of Zhou’s waveguide. Thus, Zhou’s invention is integrally tied with selectively emitting light at specific regions of the waveguide core.

Johnson discloses a “waveguide 20 [that] is made of a general planar material that is designed to accept light from one or more light sources and uniformly deliver light to the LCD stack 12.” (Johnson at 2:63-66). Zhou and Johnson are directly opposed in what they define as a waveguide with the former describing a layer that selectively directs light from a specific surface and the latter teaching a layer that spreads light uniformly across its surface. Petitioner has not presented a compelling reason as to why a POSITA would view these waveguides as similar embodiments or why they would look to modify Johnson to include

multiple waveguides in view of Zhou.

Similar to Johnson, Fine teaches a waveguide material capable of “propagating and diffusing the light until it exits through surface 16” (Johnson at 14:56-57). Fine discloses that the light should exit the surface 16, whereas Zhou discloses that the waveguide should confine the light and only emit according to the function of the light switch 30. As described above, Zhou discloses waveguide cores 20 that are coupled to light switches. The light waves in Zhou waveguides travel in the x direction until they are extracted and emitted by the light switch. These elements together allow for Zhou’s increased lighting efficiency. It is not apparent, therefore, why a POSITA would look to embed LEDs into the waveguide cores 20. Zhou’s disclosures illustrate LEDs outside of the waveguide core. More importantly, LEDs embedded within the waveguide cores 20 in Zhou would either block the light reflected by the light switch or would interfere with the light traveling through the waveguide in the x direction. Petitioner has not presented compelling evidence as to why a POSITA would be motivated to combine Fine and Zhou despite the disclosed discrepancies or how a POSITA would expect the combination to be successful.

C. The Combination Of Suzuki, Zhou And Fine Does Not Invalidate The Proposed Substitute Claims

The Board, in its Preliminary Guidance, agreed with Petitioner that the combination of Suzuki, Zhou, and Fine taught the multiple waveguide limitations

of claim 35. As described above the combination of Zhou and Fine does not disclose two waveguide elements wherein two light-emitting sources each comprising a plurality of LEDs arranged in a respective strip emit light into the respective waveguide or that the light emitted by the light-emitting source is distributed across the entire transmissive surface of each waveguide as required by claim 35. Suzuki does not cure these deficiencies, as it discloses a single waveguide element and does not disclose that the light emitted by a light emitting source is distributed across an entire transmissive surface of each waveguide. Suzuki also does not teach that the light guide includes internal layers or components. Thus, the Suzuki-Johnson-Fine combination does not render obvious claim 38, which requires internal reflection guides that guide the light to the transmissive surface of each waveguide element. As described above, neither Fine nor Zhou disclose waveguides with a hollow structure. Suzuki does not teach a hollow structure in the light guide 11, thus the combination of the references does not render claim 43 obvious. Lastly, the additional claims 36-39 and 41-45 are not obvious given their dependency on claims 35 and 40.

D. There Is No Motivation To Combine Suzuki, Zhou And Fine

As described above, Petitioner has not offered compelling evidence for why a POSITA would be motivated to combine Zhou and Fine. Petitioner's arguments have similar discrepancies with respect to the combination of Suzuki and Fine. Suzuki's light guide 11 is a "transparent member in the form of a rectangular thin

plate having a predetermined thickness... [and has] a light exit region” (Suzuki at 0025). According to Suzuki the light guide 11 is transparent and emits light from the exit region. This is the exact opposite of Zhou, which has a waveguide that contains light until it is extracted by a light switch. Zhou does not freely allow light to travel within the waveguide. Thus, it is not clear why a POSITA would look to combine the systems as they disclose different elements.

VIII. CONCLUSION

For the reasons set forth herein, Patent Owner submits that proposed substitute claims satisfy all of the statutory requirements for a motion to amend set forth in paragraphs (1) and (3) of 35 U.S.C. § 316(d) and paragraphs (a)(1), (a)(2), (a)(3), (b)(1) and (b)(2) of 37 C.F.R. § 42.121 and respectfully requests the Motion be granted contingent upon a finding that any of the challenged claims are unpatentable.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that the above-captioned Mandatory Notice was served on counsel of record for the Petitioner by filing this document through the Patent Review Processing System as well as by delivering a copy via electronic mail to:

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Dated November 21, 2024

/Neal Massand/
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APPENDIX A

(Proposed Amendments)

35. (proposed substitute for Claim 1) A liquid crystal display (LCD) system comprising:

a) an LCD panel;

b) at least ~~one~~ a first waveguide element and a second waveguide element comprising a first plurality of light entry regions and a second plurality of light entry regions, respectively;

c) a first and second light-emitting sources, each comprising a respective first plurality of LEDs arranged in a respective first strip and positioned to emit light into the ~~at least one~~ first waveguide element at a respective first and second light entry regions of the first plurality of light entry regions;-

d) the first waveguide element comprising a first transmissive surface;

-

wherein the light emitted by the first light emitting source enters the first waveguide element at the first light entry region and exits at the first transmissive surface;

wherein the light emitted by the first light emitting source is distributed across the entire first transmissive surface;

e) ~~a second~~ third and fourth light-emitting sources, each comprising a ~~second~~ respective plurality of LEDs arranged in a respective ~~second~~ strip and positioned to emit light into the ~~at least one~~ second waveguide element at a respective first and second light entry regions of the plurality of second light entry regions;

f) the second waveguide element comprising a second transmissive surface;

-

wherein the light emitted by the third light emitting source enters the second waveguide element at the first light entry region and exits at the second transmissive surface;

wherein the light emitted by the third light emitting source is distributed across the entire second transmissive surface; and

h) a common control circuit in electrical communication with at least one of the first plurality of LEDs and the second plurality of LEDs.

36. (proposed substitute for claim 2) The LCD system of claim ~~1~~ 35, wherein the

LCD panel has a viewable surface area, ~~the at least one waveguide element has a transmissive surface and the first and second transmissive surfaces each comprise a surface is approximately the same size~~ area that is less than the viewable surface area.

37. (proposed substitute for claim 32) The LCD system of claim 1 ~~35~~, embodied in a television or computer monitor, wherein each of the first and second waveguide elements are positioned to light a respective portion of the LCD panel.

38. (proposed substitute for claim 33) The LCD system of claim 1 ~~35, embodied in a computer monitor~~, wherein the first waveguide element comprises first internal reflection guides that guide the light from the first light emitting source to the first transmissive surface; and

wherein the second waveguide element comprises second internal reflection guides that guide the light from the third light emitting source to the second transmissive surface.

39. (proposed substitute for claim 17) The LCD system of claim 1 ~~35~~, wherein ~~any of the first light-emitting source and the third light-emitting source is optically coupled to the at least one waveguide element~~ are embedded within a surface of the first and second waveguide, respectively.

40. (proposed substitute for claim 6) ~~The LCD system of claim 1, wherein any of the first light emitting source and the second light emitting source comprises a plurality of direct LEDs.~~

A liquid crystal display (LCD) system comprising:

a) an LCD panel;

b) at least a first waveguide element and a second waveguide element comprising a first plurality of light entry regions and a second plurality of light entry regions, respectively;

c) a first and second plurality of LEDs arranged in a respective strip wherein the first waveguide element is positioned to receive light emitted by the first and second plurality of LEDs;

d) a third and fourth plurality of LEDs arranged in a respective strip wherein the second waveguide element is positioned to receive a light emitted by the third and fourth plurality of LEDs; and

e) a common control circuit in electrical communication with at least one of the

first plurality of LEDs and the second plurality of LEDs.

41. (proposed substitute for claim 11) The LCD system of claim ~~± 40~~, further comprising a common control circuit in electrical communication with each LED of at least one of the first plurality of LEDs and the second plurality of LEDs.

wherein the LCD panel has a viewable surface area and the first and second waveguide elements each have a transmissive surface comprising a surface area that is smaller than the viewable surface area.

42. (proposed substitute for claim 13) The LCD system of claim ~~± 40~~, wherein each LED of at least one of the first plurality of LEDs and the second plurality of LEDs is linearly arranged. embodied in a television or computer monitor, wherein each of the first and second waveguide elements are positioned to light a portion of the LCD panel.

43. (proposed substitute for claim 14) The LCD system of claim ~~± 40~~, wherein the common control circuit is in electrical communication with each of the first plurality of LEDs and the second plurality of LEDs, each waveguide element comprises a hollow structure.

44. (proposed substitute for claim 28) The LCD system of claim ~~± 40~~, wherein any of the first light emitting source and the second light emitting source is disposed along a center region of the LCD system behind the LCD panel, and is positioned to emit light into a back side of the at least one waveguide element. the first plurality of LEDs and the third plurality of LEDs are embedded within a surface of and emit light into the first and second waveguide, respectively.

45. (proposed substitute for claim 5) The LCD system of claim ~~± 41~~, wherein any of the first light emitting source and the second light emitting source comprises a plurality of LEDs adapted to emit any of white light and single color light.

the light emitted by the first plurality of LEDs exits the first transmissive surface such that it is distributed across the entire first transmissive surface of the first waveguide element; and

the light emitted by the third plurality of LEDs exits the second transmissive surface such that it is distributed across the entire second transmissive surface of the second waveguide element.