

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
22 June 2006 (22.06.2006)

PCT

(10) International Publication Number
WO 2006/065524 A3(51) International Patent Classification:
H04N 9/31 (2006.01)(21) International Application Number:
PCT/US2005/043093(22) International Filing Date:
28 November 2005 (28.11.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/011,736 14 December 2004 (14.12.2004) US(71) Applicant (for all designated States except US): **COHERENT, INC.** [US/US]; 5100 Patrick Henry Drive, Santa Clara, CA 95054 (US).

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

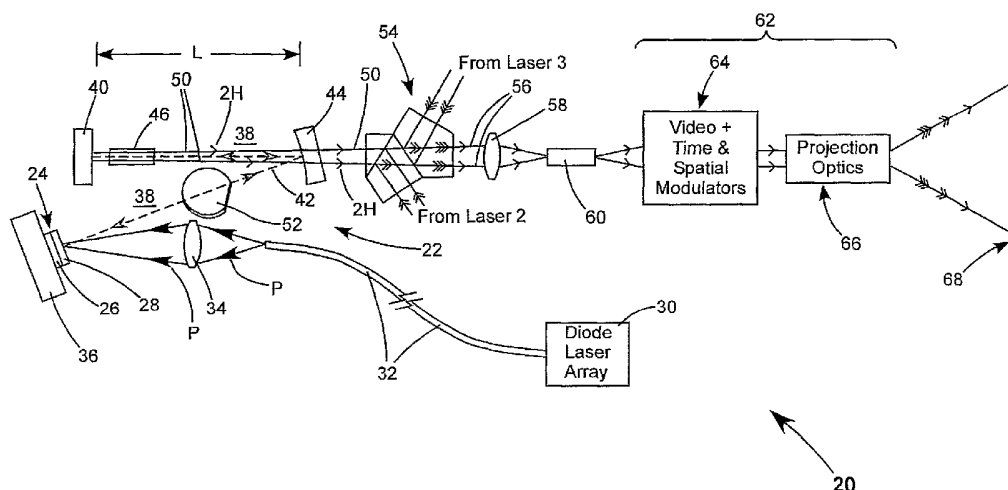
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: LASER ILLUMINATED PROJECTION DISPLAYS



(57) **Abstract:** A projection video display includes at least one laser for delivering a light beam. The display includes a beam homogenizer and a condenser lens. A scanning arrangement is provided for scanning the light in beam in a particular pattern over the condenser lens in a manner that effectively increases the beam divergence. The scanned beam is homogenized by a beam homogenizer and a spatial light modulator is arranged to receive the homogenized scanned light beam and spatially modulate the beam in accordance with a component of an image to be displayed. Projection optics are projecting the homogenized scanned light beam onto a screen. The scanning provides that the homogenized scanned light beam at the screen has a coherence radius less than the original coherence radius of the beam. The reduced coherence radius contributes to minimizing speckle contrast in the image displayed on the screen. The screen includes one or more features providing a further contribution to minimizing speckle contrast in the displayed image. In one example, the screen includes a transparent cell containing a liquid having light scattering particles in suspension.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

14 September 2006

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2005/043093

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04N9/31

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H04N G03B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	paragraph [0040] - paragraph [0047] paragraphs [0033], [0054] -----	2,3,14, 15, 17-33, 35-49
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Y	US 6 081 381 A (SHALAPENOK ET AL) 27 June 2000 (2000-06-27)	2
A	column 7, line 40 - line 60 ----- -/--	1,32,39, 50

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
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- *&* document member of the same patent family

Date of the actual completion of the international search

14 July 2006

Date of mailing of the international search report

24/07/2006

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2005/043093

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/043093

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-13

means for increasing the apparent beam divergence.

2. claims: 14-20, 32-38

a screen having a plurality of raised features.

3. claims: 21-31, 39-49, 50-54

a screen including a transparent cell containing a transparent fluid having particles therein.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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