

**PATENT COOPERATION TREATY**

**TRANSLATION**

From the  
INTERNATIONAL SEARCHING AUTHORITY

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	<b>23.06.2015</b>
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Applicant's or agent's file reference <b>00-50128WO</b>
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<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/JP2015/001717</b>	International filing date (day/month/year) <b>26.03.2015</b>	Priority date (day/month/year) <b>27.03.2014</b>
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International Patent Classification (IPC) or both national classification and IPC <b>G02B15/20 (2006.01) i</b>
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Applicant <b>NIKON CORPORATION</b>
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1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2015/001717

Box No. I      Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
  - the international application in the language in which it was filed
  - a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
  
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
  
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
  - a. (means)
    - on paper
    - in electronic form
  
  - b. (time)
    - in the international application as filed
    - together with the international application in electronic form
    - subsequently to this Authority for the purposes of search
  
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
  
5. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2015/001717

Box No. IV Lack of unity of invention

1.  In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:
- paid additional fees
  - paid additional fees under protest and, where applicable, the protest fee
  - paid additional fees under protest but the applicable protest fee was not paid
  - not paid additional fees
2.  This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- complied with
  - not complied with for the following reasons:  
  
[See Supplemental Box]
4. Consequently, this opinion has been established in respect of the following parts of the international application:
- all parts
  - the parts relating to claims Nos. 1-21, 42-47

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2015/001717

<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>		
1.	Statement		
	Novelty (N)	Claims _____	YES
		Claims <u>1-21, 42-47</u>	NO
	Inventive step (IS)	Claims _____	YES
		Claims <u>1-21, 42-47</u>	NO
	Industrial applicability (IA)	Claims <u>1-21, 42-47</u>	YES
		Claims _____	NO
2.	Citations and explanations:		
	<p>Document 1: JP 63-278013 A (OLYMPUS OPTICAL CO., LTD.) 15 November 1988, entire text, all drawings, particularly examples 1-4</p> <p>Document 2: JP 2005-141056 A (CANON INC.) 02 June 2005, entire text, all drawings, particularly example 4 (numerical value example 4)</p> <p>Document 3: JP 7-27978 A (NIKON CORP.) 31 January 1995, entire text, all drawings, particularly example 1</p> <p>Document 4: JP 2009-251118 A (PANASONIC CORP.) 29 October 2009, entire text, all drawings, particularly carrying-out mode 1 (numerical value example 1) to carrying-out mode 7 (numerical value example 7), carrying-out mode 10 (numerical value example 10) to carrying-out mode 11 (numerical value example 11)</p> <p>Document 5: JP 59-219711 A (NIPPON KOGAKU KOGYO K.K.) 11 December 1984, entire text, all drawings, particularly examples 1-3</p>		

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2015/001717

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Claims 1, 2, 4, 11, 17, 42, 43

The invention as in claims 1, 2, 4, 11, 17, 42, and 43 lacks novelty and does not involve an inventive step in the light of any of documents 1-5.

Documents 1-5 each disclose a zoom lens, an imaging apparatus provided with the zoom lens, and a method for manufacturing the zoom lens that possess the features set forth in the invention as in claims 1 and 42, and satisfy the conditional formula set forth in claims 1 and 42, or, if the zoom range disclosed in each document were reduced, the reduced zoom range would presumably satisfy said conditional formula.

The invention as in claims 1, 17, and 42 does not differ in any noteworthy manner from the inventions disclosed in documents 1-5.

In addition, documents 1-5 disclose zoom lenses that exhibit the features set forth for the invention as in claim 2 and that presumably satisfy the conditional formulas set forth in claims 4, 11, and 43.

Claims 3 and 7

The invention as in claims 3 and 7 lacks novelty and does not involve an inventive step in the light of document 4.

Document 4 discloses an invention possessing the invention-defining features of the invention as in claims 3 and 7.

Claims 5 and 44

The invention as in claims 5 and 44 lacks novelty and does not involve an inventive step in the light of

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2015/001717

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

document 1, 2, or 4.

Documents 1, 2, and 4 disclose zoom lenses that presumably satisfy the conditional formulas set forth in claims 5 and 44.

Claims 6 and 45

The invention as in claims 6 and 45 lacks novelty and does not involve an inventive step in the light of document 1, 2, 4, or 5.

Documents 1, 2, 4, and 5 disclose zoom lenses that presumably satisfy the conditional formulas set forth in claims 6 and 45.

Claims 8 and 9

The invention as in claims 8 and 9 lacks novelty and does not involve an inventive step in the light of document 2 or 4.

Documents 2 and 4 disclose zoom lenses that exhibit the features set forth for the invention as in claim 8 and that presumably satisfy the conditional formula set forth in claim 9.

Claim 10

The invention as in claim 10 lacks novelty with respect to document 5, and does not involve an inventive step in the light of documents 1-5.

Document 5 discloses an invention possessing the invention-defining features of the invention as in claim 10.

The value of the half angle of view in a wide-angle state is a design matter that could be addressed, as appropriate, by a person skilled in the art.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2015/001717

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Claims 12, 13, 18, 19, 20, 21, 46, and 47

The invention as in claims 12, 13, 18, 19, 20, 21, 46, and 47 lacks novelty and does not involve an inventive step in the light of document 3 or 4.

Documents 3 and 4 each disclose a zoom lens that possesses the features set forth in the invention as in claim 12, and satisfies the conditional formula set forth in claim 13, or, if the zoom range disclosed in each document were reduced, the reduced zoom range would presumably satisfy said conditional formula.

Documents 3 and 4 also each disclose a zoom lens, an imaging apparatus provided with the zoom lens, and a method for manufacturing the zoom lens that possess the features set forth in the invention as in claims 18, 19, and 46, and satisfy the conditional formula set forth in claims 18, 20, 46, and 47, or, if the zoom range disclosed in each document were reduced, the reduced zoom range would presumably satisfy said conditional formula.

Claim 14

The invention as in claim 14 lacks novelty and does not involve an inventive step in the light of any of documents 1 and 3-5.

Documents 1 and 3-5 disclose zoom lenses that presumably satisfy the conditional formula set forth in claim 14.

Claims 15 and 16

The invention as in claims 15 and 16 lacks novelty and does not involve an inventive step in the light of document 1, 3, or 4.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2015/001717

**Box No. V**

**Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Documents 1, 3, and 4 disclose zoom lenses that presumably satisfy the conditional formulas set forth in claims 15 and 16.



**Box No. VIII**      **Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

(1) In connection with the lens group configuration of the zoom lens, claims 1, 18, 42, and 46 refer to the feature of "comprising... and a fourth lens group"; according to this wording, the zoom lens can potentially include an arbitrarily selected lens group apart from the first through fourth lens groups.

However, only the zoom lens constituted by first through fourth lens groups disclosed in the description is disclosed in the sense of PCT Article 5; thus, the invention as in claims 1, 18, 42, and 46 is not supported in the sense of PCT Article 6.

The same holds for the claims dependent upon claims 1, 18, 42, and 46.

This opinion was formulated on the basis of the scope of the matters supported by and disclosed in the description; i.e., the zoom lens specifically disclosed in the description, in which the lens group configuration comprises first through fourth lens groups.

(2) The wording of claims 1, 18, 42, and 46 is unclear with respect to the behavior of the second and subsequent lens groups when zooming with respect, for example, to changes in the intervals between adjacent lens groups, the zooming mechanism, and, simultaneously, the positions and boundaries distinguishing the lens groups adjacent to the second lens group.

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of: IV.

The invention of claims 1, 18, 42, and 46, the invention of claims 22 and 24, and the invention of claim 38 and 54 share the technical feature of:

a "zoom lens comprising, in order starting from nearest to an object, a first lens group having positive refracting power, a second lens group having negative refracting power, a third lens group having negative refracting power, and a fourth lens group having positive refracting power" (hereafter referred to as "feature 1").

However, said technical feature does not make a contribution of the prior art in view of the matters disclosed in document 1 (JP 2009-251118 A (PANASONIC CORP.) 29 October 2009, entire text, all drawings, particularly carrying-out mode (numerical value example) 1 to carrying-out mode (numerical value example) 11), which Applicant lists as a prior art document in the present PCT application, and therefore cannot be considered a special technical feature. The inventions share no other identical or corresponding special technical features.

Therefore, the claims are classified into three inventions comprising the special technical features described below on the basis of the special technical features as of the time the Invitation to Pay Fees was issued.

(Invention 1) Claims 1-21, 42-47

A zoom lens comprising feature 1, characterized in that:

zooming is performed by altering the spatial

**Supplemental Box**

interval between the first lens group and the second lens group; and

the zoom lens satisfies the following conditional formula:

$$0.60 < f4/fw < 1.15$$

wherein:

f4 is the focal length of the fourth lens group; and

fw is the focal length of the entire system in a wide-angle state when in infinity focus.

(Invention 2) Claims 22-37, 48-53

A zoom lens comprising feature 1, characterized in that:

focusing is performed by moving at least part of the third lens group along the optical axis direction; and

the zoom lens satisfies the following conditional formula:

$$0.249 < fw/f1 < 2.00;$$

wherein:

fw is the focal length of the entire system in a wide-angle state; and

f1 is the focal length of the first lens group.

Invention 2 is not an invention in an identical category including all the invention-defining features of claim 1, 18, 42, or 46.

Since there are no other reasons to consider it more efficient to examine invention 2 along with invention 1 as of the time the Invitation to Pay Fees was issued, invention 2 cannot be classified under invention 1.

(Invention 3) Claims 38-41, 54

**Supplemental Box**

A zoom lens comprising feature 1, characterized in that:

at least part of the fourth lens group is provided so as to be capable of moving in a manner so as to have a component in a direction orthogonal to the optical axis as an anti-vibration lens group for correcting image blur;

to zoom, the first lens group is moved along the optical axis direction; and

the zoom lens satisfies the following conditional formula:

$$1.00 < f1/f4 < 3.55;$$

wherein:

f1 is the focal length of the first lens group; and  
f4 is the focal length of the fourth lens group.

Invention 3 is not an invention in an identical category including all the invention-defining features of claim 1, 18, 22, 42, 46, or 48.

Since there are no other reasons to consider it more efficient to examine invention 3 along with invention 1 or 2 as of the time the Invitation to Pay Fees was issued, invention 3 cannot be classified under invention 1 or 2.