

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference P16014pct	FOR FURTHER ACTION		See item 4 below
International application No. PCT/AT2017/060008	International filing date (<i>day/month/year</i>) 24 January 2017 (24.01.2017)	Priority date (<i>day/month/year</i>) 05 February 2016 (05.02.2016)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant ZKW GROUP GMBH			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 9 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input checked="" type="checkbox"/>	Box No. VI	Certain documents cited	<input checked="" type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application																						

	Date of issuance of this report 07 August 2018 (07.08.2018)
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From the INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing <i>(day/month/year)</i> 12 April 2017	
Applicant's or agent's file reference P16014pct	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/AT2017/060008	International filing date <i>(day/month/year)</i> 24 January 2017
Priority date <i>(day/month/year)</i> 05 February 2016	
International Patent Classification (IPC) or both national classification and IPC F21S 8/12(2006.01)i; B60Q 1/076(2006.01)i	
Applicant ZKW GROUP GMBH	

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 and 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/	Date of completion of this opinion	Authorized officer

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/AT2017/060008

Box No. I Basis of the 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:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
 - on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).
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 forming part of 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.

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Box No. V	Reasoned statement under Rule 43 <i>bis</i> .1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-10 _____	YES
	Claims	_____	NO
Inventive step (IS)	Claims	1-10 _____	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	1-10 _____	YES
	Claims	_____	NO
2. Citations and explanations :			
See Supplemental Box			

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/AT2017/060008

Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
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See Form 210

2. Non-written disclosures (Rules 43bis.1 and 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/AT2017/060008**Box No. VII Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

See Supplemental Box

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/AT2017/060008**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:

See Supplemental Box

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/AT2017/060008

Supplemental Box

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

Continuation of:

Box VIII**Certain observations on the international application**

The application does not meet the requirements of PCT Article 6 because claims 1 and 9 are not clear. The following features are considered to be essential to the definition of the invention:

- the concept of a reflector having two reflector positions is missing from claim 1. The current wording "light coming from the light source striking the absorption surface and being absorbed there" can be interpreted to mean that the light source of the module illuminates **only** the absorption surface, and not the road. The features of claim 3 could be used for clarification.
 - claim 1 is missing the concept of the sensor being stationary with respect to the headlight casing, whereas the light module or mirror device is moved relative to the headlight casing by the actuator (only in this way could the mirror device be set in position with respect to the casing). The features of claim 4 could be used for clarification.
 - the features specifying/explaining/describing **how** this zero position is actually achieved are missing from claim 9. The features of claim 10 could be used for clarification.
- Since independent claims 1 and 9 do not contain these features, these claims do not satisfy the requirement of PCT Article 6 in conjunction with PCT Rule 6.3(b) that each independent claim must contain all the technical features essential to the definition of the invention.

Box V**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1	EP 1 433 655 A2 (CHIKOH INDUSTRIES LTD [JP]) 30 June 2004 (2004-06-30)
D2	DE 197 37 653 A1 (PATENT TREUHAND GES FUER ELEKTRISCHE GLUEHLAMPEN MBH [DE]) 4 March 1999 (1999-03-04)
D3	WO 02/063206 A2 (TIDAL PHOTONICS INC [CA]; MACKINNON NICHOLAS B [CA]; MACAULAY CALUM E) 15 August 2002 (2002-08-15)
D4	DE 10 2014 001201 A1 (AUDI AG [DE]) 30 July 2015 (2015-07-30)
D5	JP 2016 162682 A (DENSO CORP) 5 September 2016 (2016-09-05)

[1] Independent claim 1

[1.1] D1 is considered to be the prior art closest to the subject matter of claim 1 and discloses:

a headlight for vehicles (figure 2), comprising at least one light module (figures 2 and 38) having at least one light source (10) and at least one mirror device (2), an actuator (implicit) being associated with the light module, by means of which actuator the light module can be pivoted in order to set an angular position that is preset for operation,

[1.2] The subject matter of claim 1 therefore differs by virtue of:

- an absorption surface having an opening,

Supplemental Box

- light coming from the light source striking the absorption surface and being absorbed there, with the exception of light that passes through the opening as a limited light beam,
- and a light-sensitive sensor that is positioned behind the opening in the line of sight of the mirror device and
- is configured to detect the light beam passing through the opening in order to identify a zero position of the angular position of the light module.

[1.3] Therefore, the subject matter of claim 1 is novel (PCT Article 33(2)).

[1.4] The problem addressed by the present invention can therefore be considered that of using the presence of an absorber to make it possible to identify a zero position of the mirror device with respect to the headlight casing.

[1.5] The solution to this problem, as proposed in claim 1 of the present application, involves an inventive step (PCT Article 33(3)) for the following reasons:

The prior art does not disclose an absorber that absorbs the light beams from the "OFF" pixels of a digital micromirror device (DMD) (see D2 and D4) or apparatuses (see D1, D2 and D3) that replace the absorber in order to re-use the light from the "OFF" pixels of the DMD. No document discloses or suggests the concept of referencing a DMD with respect to the headlight casing using an opening in the DMD absorber. All the cited documents implicitly or explicitly assume that a digital micromirror device is referenced by traditional means (common support frame having adjusting screws). Neither the technical problem nor the technical effect of the invention have been previously disclosed.

[2] **Dependent claims**

Claims 2-8 and 10 are dependent on claim 1 and claim 9, respectively, and therefore likewise meet the PCT requirements in respect of novelty and inventive step (see the objections under point 1).

Box VII

Certain defects in the international application

Contrary to the requirements of PCT Rule 5.1(a)(ii), the description does not cite D1 or D3 or indicate the relevant prior art disclosed therein.