PATENT COOPERATION TREATY **TRANSLATION**

From the INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	**12 April 2018**
Applicant's or agent's file reference **24 707**	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP2018/050187	**04 January 2018**	**11 January 2017**

International Patent Classification (IPC) or both national classification and IPC
H01F 17/00(2006.01)i; ***H01F 27/29***(2006.01)i; ***H01F 27/255***(2006.01)i; ***H01F 27/26***(2006.01)i; ***H01F 27/30***(2006.01)i

Applicant
KASCHKE COMPONENTS 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 43*bis*.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 66.1*bis*(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

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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:

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

1. Statement

Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations :

See Supplemental Box

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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

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Supplemental Box

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

Reference is made to the following documents:

D1	DE 10 2014 002298 B3 (FRAUNHOFER GES ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E V [DE]) 8 January 2015 (2015-01-08)
D2	CN 201 138 608 Y (JUNDONG CAI [CN]) 22 October 2008 (2008-10-22)

[1] **Box VIII**

Certain observations on the international application

Clarity - PCT Article 6

The present set of claims does not meet the requirements of PCT Article 6 for the following reasons:

In claim 1, the wording "core made of an inductive material" is unclear. It is unclear what is meant by an " inductive material". An inductor is generally formed by means of a good conductor (for example, made of copper) in the form of a loop or coil. However, this material does not appear to be meant here. On page 5, paragraph 2, it is stated that the material is preferably a ferrite material. The expression "made of an inductive material" should therefore be clarified by reading "made of a ferrite material".

Claim 1 specifies that at least one of the printed circuit board parts comprises a first contact portion and a second contact portion, the first contact portion being connected to a first side, particularly to the upper side, of the second printed circuit board part, and the second contact portion being connected to a second side, which is different from the first side, particularly to the lower side, of the second printed circuit board part.

This also includes the possibility that the at least one printed circuit board part is the second printed circuit board part. But in this case, the second printed circuit board part would be connected to the first (upper) side and to the second (lower) side of the second printed circuit board, which second side is different from the first side, and this is obviously an inconsistency and is also not in accordance with the description.

Instead, it should be clarified in claim 1 that the first printed circuit board part comprises a first contact portion and a second contact portion, the first contact portion being connected to a first side, particularly to the upper side, of the second printed circuit board part, and the second contact portion being connected to a second side, which is different from the first side, particularly to the lower side, of the second printed circuit board part. This is also in accordance with the description.

With the wording "that the first printed circuit board part (clarified as stated above) comprises a first contact portion and a second contact portion, the first contact portion being connected to a first side, particularly to the upper side, of the second printed circuit board part, and the second contact portion being connected to a second side, which is different from the first side, particularly to the lower side, of the second printed circuit board part", claim 1 lacks essential features of the invention, without which a technical effect is not achieved and the problem addressed by the invention is not solved.

According to the present invention, as presented, for example, on page 3, paragraph 3, "the one printed circuit board part can be "placed around" the other printed circuit board part, as it were, as a result of which the conductor loop or the conductor loops are completed. When completing the conductor loop, conductor loop portions on both parts of the printed circuit board are brought into contact."

A "connection of the printed circuit board parts" as stated in claim 1 (it also being possible that only electrically insulating printed circuit board portions are thereby connected) is insufficient according to the invention and also does not achieve any technical effect and does not solve the problem addressed by the invention. Rather, it is necessary to clarify that thus the conductor loop or the conductor loops are completed, conductor loop portions on both parts of the printed circuit board being brought into contact when completing the conductor loop(s)." Without electrical contacting/completion, the connection of the conductor loop portions would have no effect.

Supplemental Box

Furthermore, it appears to be essential to the invention that a conductor loop is present on each of the two sides of the printed circuit board, because otherwise the connection (with "placement around") of the first printed circuit board part to the first and second sides of the second printed circuit board part would have no effect.

[2] **Box V**

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

[2.1] **Novelty - PCT Article 33(2)**

An inductive component according to claim 1, provided that it is clarified as stated above, is not disclosed in any of the laid-open applications D1 and D2.

D1 and D2 (cf. the passages cited in the search report) disclose an inductive component comprising at least one conductor loop arranged on a printed circuit board and at least one core which is made of a ferrite material and which inductively interacts with the conductor loop, the printed circuit board comprising an upper side, a lower side and narrow sides.

D2 also comprises at least two printed circuit board parts (1A, 2A; 4A, 5A, 6A), each of which has a part of the at least one conductor loop.

The subject matter of claim 1, provided that it is clarified as stated above, differs from the disclosure of D2 and D1 (at least) in that the first printed circuit board part comprises a first and a second contact portion, the first contact portion being connected to a first side, particularly to the upper side, of the second printed circuit board part, and the second contact portion being connected to a second side, which is different from the first side, particularly to the lower side, of the second printed circuit board part, thus the conductor loops, one of which is arranged on each side, being completed, conductor loop portions on both parts of the printed circuit board being brought into contact when completing the conductor loops.

The subject matter of claim 1, and that of dependent claims 2-15, provided that it is clarified as presented in point 1, is therefore considered to be novel over D1 and D2 (PCT Article 33(2)).

[2.2] **Inventive step - PCT Article 33(3)**

Proceeding from D2 or D1, the technical problem can be formulated as that of specifying an inductive component that enables a simple design and simple production.

Neither D2 nor D1 suggests, for this purpose, changing the structure of the inductive component of D2 or D1 in such a way that the aforementioned differentiating features of claim 1, provided that it is clarified as stated above, are implemented.

The subject matter of claim 1, and that of dependent claims 2-15, provided that it is clarified as presented in point 1, is therefore considered to be inventive in relation to D1 and D2 (PCT Article 33(3)).

[2.3] **Industrial applicability - PCT Article 33(4)**

The subject matter of claims 1-15 appears to be industrially applicable (PCT Article 33(4)).

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