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)*	**26 November 2018**
Applicant's or agent's file reference **374292**	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP2018/070408	**27 July 2018**	**05 September 2017**

International Patent Classification (IPC) or both national classification and IPC
G08G 1/0967(2006.01)i; ***G08G 1/16***(2006.01)i

Applicant
ROBERT BOSCH 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

TRANSLATION

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2018/070408

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - [x] 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:

TRANSLATION

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2018/070408

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	3, 4	YES
	Claims	1, 2, 5-10	NO
Inventive step (IS)	Claims		YES
	Claims	1-10	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations :

See Supplemental Box

TRANSLATION

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2018/070408

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

TRANSLATION

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2018/070408

Supplemental Box

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

Box V

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

[1]

Reference is made to the following documents:

D1	US 2017/124876 A1 (ROGERS SHARON D [US]) 4 May 2017 (2017-05-04)
D2	EP 1 738 339 A1 (DANA CORP [US]) 3 January 2007 (2007-01-03)
D3	US 2010/194558 A1 (TOH CHAI KEONG [US]) 5 August 2010 (2010-08-05)
D4	EP 1 049 065 A1 (RENAULT [FR]) 2 November 2000 (2000-11-02)
D5	ES 2 366 513 A1 (INTA INST NAC DE TECNICA AEROESPACIAL [ES]) 21 October 2011 (2011-10-21) * The references to this document apply for the appended machine translation.

[2] Claim 1

[2.1]

The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claim 1 is not novel (PCT Article 33(2)).

[1] D1 discloses a method for reducing a

traffic hazard arising from a hazard source, characterized by the following features (see paragraph [0002], wherein the hazard source is a road vehicle (figure 2 (20)):

- a system close to the hazard source detects the traffic hazard (see paragraphs [0003, 0004]) by means of the detection and warning of road warnings (figure 2 (20)) and wherein the system 10 in figure 2 contains the hazard vehicle module (paragraph [0004])),

- the system transmits a warning of the traffic hazard wirelessly to at least one adjacent road vehicle (see paragraph [0003] for the warning that is received from and provided by the standard vehicle module; paragraph [0004]: the location of the hazard source transmits the location of the hazard vehicle of the hazard vehicle, wherein the transmission occurs locally in a region around the hazard vehicle.) and

- the warning specifies at least one location of the hazard source and a driving direction affected by the traffic hazard (paragraph [0004]: the warning contains the information on the hazard vehicle such as location or distance, travel direction and/or the type of hazard.).

[2]

D2 (EP1738339) also discloses a method for reducing a traffic hazard arising from a hazard source, characterized by the following features (the method for detecting a traffic hazard and for transferring a wireless warning to other vehicles by means of an intelligent transport system; see figure 5 having the hazard source 206 or figure 21 (320)):

- a system close to the hazard source detects the traffic hazard (detection of the traffic hazard by the detection vehicle 200 (figure 5) or 300 (figure 21); see also paragraph [0056]),

Supplemental Box

- the system transmits a warning of the traffic hazard wirelessly to at least one adjacent road vehicle (see paragraph [0056] together with figure 5, wherein adjacent vehicles 212, 214, 218 wirelessly receive a warning (209). See also paragraph [0124] together with figure 21 for warning message 38) and

- the warning specifies at least one location of the hazard source and a driving direction affected by the traffic hazard (see the last sentence in paragraph [0125] about the location and direction information contained in the warning message 38. See also paragraph [0094])

[3]

D3 (US2010194558) also discloses a method for reducing a traffic hazard arising from a hazard source, characterized by the following features (the method for transmitting a warning message (paragraph [0031]), wherein a vehicle, which detects a hazard, transmits a warning message, which is transmitted again by other vehicles, which serve as relay nodes, according to different zones; see, for example, figures 1, 3 having the hazard source 110 or also figure 2):

- a system close to the hazard source detects the traffic hazard (see paragraph [0031]: the detection of the hazard is carried out by a vehicle (defined as a source node)),

- the system transmits a warning of the traffic hazard wirelessly to at least one adjacent road vehicle (see paragraph [0031] for transmitting the warning message and paragraphs [0002, 0003] for wireless transmission of the warning message) and

- the warning specifies at least one location of the hazard source and a driving direction affected by the traffic hazard (paragraph [0034] on the location of the hazard source and, for example, claim 8 on the driving direction. See also figures 1, 3, 4A on the different zones, which are defined by the system from figure 2, and in paragraphs [0044 to 0049]. See also figure 4B (410) for travel direction information in the warning message)

[4]

D5 (ES 2 366 513 A1) also discloses the subject matter of claim 1; see in particular the method from claim 17 and the system from claim 1 together with figure 4, wherein a hazard (50) is detected and an alarm is transmitted to vehicles 60 (with repetition) and wherein the alarm message contains the position of the hazard source 50 and an indication of the travel direction (implicit because the transmission of the alarm occurs in a direction as shown in figure 4).

Therefore, the subject matter of claim 1 is not novel.

[2.2]

Irrespective of the novelty objection raised above, the subject matter of claim 1 lacks inventive step for the following reasons:

D4 (EP1049065A1) is considered the closest prior art in this case and discloses a method for reducing a traffic hazard arising from a hazard source, characterized by the following features (see the abstract, the method for transmitting alarm information between vehicles):

- a system close to the hazard source detects the traffic hazard (see the references on detection of a hazard source in paragraphs [0001, 0069]),

- the system transmits a warning of the traffic hazard wirelessly to at least one adjacent road vehicle (see the abstract and figures 2, 5, 7) and [strikethrough>- the warning specifies at least one location of the hazard source and a driving direction affected by the traffic hazard <strikethrough].
The subject matter of claim 1 thus differs from the known method in that "- the warning specifies at least one location of the hazard source and a driving direction affected by the traffic hazard."
The affected driving direction is implicit, however, in that a transmission of the warning occurs backward in relation to the normal travel direction of the transmitting vehicle. In addition, including the location of the hazard source as an additional field in the transmitted warning message is an obvious choice to a person skilled in the art.

The subject matter of claim 1 therefore does not involve an inventive step.

[3] Claims 2, 5-10

Supplemental Box

The subject matter of claims 2 and 5 to 10 is not novel [N] (PCT Article 33(2))/not inventive [IS] (PCT Article 33(3)):

[N/IS]

- Claim 2:

[N]: D2: see in paragraph [0125] the information that messages 38 are transmitted according to the type of hazard (that is, hazard class), wherein the messages are transmitted as a direction message.

[IS]: D3: see the classification of the traffic hazard (for example, table 1 in paragraph [0043] or in paragraph [0034] having the traffic conditions, for example, and in paragraph [0115] having the warning due to an accident or an emergency brake), wherein the classification of the traffic hazard (that is, hazard type) is used as a criterion in order to define the transmission direction which, in this case, corresponds to a range (see paragraphs [0027, 0029, 0034, 0114-0115]).

[N]

- Claim 5:

- D1: see, for example, paragraph [0031], wherein the vehicle 22 determines whether a warning or the output of a warning is required. The assessment of the hazard occurs based on the received information (location of the hazard vehicle and/or location of one or more obstacles) of the warning system

- D2: see paragraph [0048] together with paragraph [0050]

- D3: see paragraph [0031], wherein the node which receives the warning message determines, on the basis of GPS location information and the distance to the transmitting node, the zone in which the node is located and whether the warning message is forwarded to other relay nodes.

- Claim 6:

- D3: see figure 6B and paragraph [0074].

- Claim 7:

- D3: these features are implicit from paragraph [0074], wherein the warning message is periodically transmitted.

- Claim 8:

- D3: see figure 2 and paragraph [0044].

- D5: see, for example, the computer means from figures 2 to 3.

- Claim 9:

- D3: these features are implicit from figure 2 and paragraph [0044];

- D5: memory means are implicit from the computer means; see the computer means from figures 2-3 and the corresponding passages of the description in the machine translation.

- Claim 10:

- D3: The system from figure 2; see also paragraph [0030, 0046].

- D5: The system from claim 1.

[4] Claims 3-4

Dependent claims 3 and 4 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step; see D1, D2, D3 and D4 and the relevant passages thereof indicated in the search report. See in particular:

- Claim 3:

D2 & D4 (EP1049065A1): see, for example, paragraph [0034] together with paragraph [0091], wherein the system (abstract) for determining alarm information between vehicles determines a range, which is dependent on the hazard class (defined by the number N of repetitions: see, for example, paragraphs [0029, 0034]), when forwarding a warning message

Supplemental Box

- Claim 4:

D2 & D4: said additional features relate to implementation details within the scope of possibility for a person skilled in the art.

Box VIII

Certain observations on the international application

[1]

It is clear from page 2, lines 15-22, and page 4, lines 5-7 of the description that the following features are essential to the definition of the invention:

- the classification of hazard types; and

- dynamic transmitting of the one range depending on the hazard types/hazard class.

(see also achieved technical effect and page 2, lines 20-22)

Since independent claim 1 does not contain these features, it does not meet 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.

It is noted that the missing features appear to correspond to the subject matter of claims 2+3.