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**Datasheet for the decision
of 18 February 2016**

Case Number: T 1440/11 - 3.4.01

Application Number: 07111046.4

Publication Number: 1873550

IPC: G01S5/14

Language of the proceedings: EN

Title of invention:

Method of detecting erroneous GPS ground speed on ground

Applicant:

Honeywell International Inc.

Headword:

Relevant legal provisions:

EPC Art. 123(2), 111(1)

EPC 1973 Art. 84, 83

Keyword:

Amendments - added subject-matter (no)

Claims - clarity (yes)

Sufficiency of disclosure - completeness of disclosure

Remittal to the department of first instance

Decisions cited:

Catchword:



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Case Number: T 1440/11 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 18 February 2016

Appellant: Honeywell International Inc.
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Representative: Houghton, Mark Phillip
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 17 February
2011 refusing European patent application No.
07111046.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Assi
Members: P. Fontenay
J. Geschwind

Summary of Facts and Submissions

- I. The present decision relates to the appeal which was filed against the decision of the examining division to refuse European patent application No. 07 111 046.4.

The impugned decision was remitted to the post on 17 February 2011.

- II. In the "Reasons" for the decision, the examining division held that the application according to a main request then on file did not fulfill the requirements of:
- Article 83 EPC 1973 because it did not contain sufficient information to allow a skilled person, using his common general knowledge, to carry out the invention within the whole technical area claimed,
 - Article 84 EPC 1973 because the claims were not supported by the description, and
 - Article 123(2) EPC because the description had been amended so as to extend beyond the content of the application as originally filed.

- III. The notice of appeal was filed on 18 April 2011. The appeal fee was paid on the same day. The statement of grounds of appeal was filed on 17 June 2011.

- IV. With the statement of grounds, the appellant requested that the decision under appeal be set aside and a patent be granted on the basis of various sets of claims according to a main request or one of first to third auxiliary requests.

As a further auxiliary request, the appellant requested that oral proceedings be appointed.

- V. In accordance with the appellant's request, summons to attend oral proceedings were issued.
- VI. In a communication of the Board pursuant to Article 15(1) RPBA, issued on 21 December 2015, the appellant was informed of the provisional opinion of the Board with regard to the requests then pending.

No real lack of clarity was identified in the reference to a "*predefined relationship between the determined change in GPS track information relative to the GPS ground speed*" in independent claims 1 and 6 of the main request. In particular, the Board did not share the view put forward by the examining division that the claimed wording merely referred to the problem to be solved by the claimed invention.

Although said "*predefined relationship*" between the determined change in GPS track information relative to the GPS ground speed was not explicitly divulged, it was considered that the skilled person would have had no difficulty in defining such relationship. In the Board's view, the general knowledge in the technical field of the invention would have compensated for the lack of details in the description and allowed the skilled person, considering the relevant parameters inherent to the plane in question and the degree of reliability expected for the ground speed, to elaborate such relationship.

The Board, however, raised doubts with regard to the particular embodiment of Figure 3 of the application. In this respect, the Board was not convinced that said embodiment constituted enabling disclosure. The appellant was therefore invited to expound in more

details on the role of units 162, 164 and 168 in order to generate the information required by unit 170.

- VII. With letter of reply dated 31 January 2016, the appellant filed a fourth auxiliary request and an amended version of the description valid for all the requests on file. The appellant further elaborated on the function fulfilled by the various units of Figure 3 of the application and on the ability of the system to provide unit 170 with all the information required to decide on the compatibility of the GPS track data and GPS ground speed, and thus on the reliability of the GPS ground speed.
- VIII. Oral proceedings before the Board took place on 18 February 2016 in the presence of the appellant's representative.
- IX. During the oral proceedings, the appellant submitted a new main request and a new first auxiliary request replacing all previous requests.

The appellant thus requests that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 10 of the main request filed during the oral proceedings.

As an alternative, the appellant requests that a patent be granted on the basis of claims 1 and 2 of the auxiliary request filed during the oral proceedings.

- X. Claim 1 of the appellant's main request reads:

" *A method for determining reliability of Global Positioning System (GPS) ground speed from an aircraft on the ground, the method comprising:*

receiving (106) GPS track information and GPS ground speed;

determining (106) a change in degrees in GPS track information;

determining (108) reliability of the GPS ground speed based on a predefined relationship between the determined change in GPS track information relative to the GPS ground speed."

Claims 2 to 5 of the main request depend on claim 1.

Independent claim 6 of the main request concerns a corresponding system for determining the reliability of GPS ground speed from an aircraft on the ground. It reads:

" A system (20, 160) for determining reliability of Global Positioning System (GPS) ground speed from an aircraft on the ground, the system comprising:

a first component (24) for receiving GPS track information and GPS ground speed;

a second component (162, 164, 168) for determining a change in degrees in GPS track information;

a third component (170) for determining reliability of the GPS ground speed based on a predefined relationship between the determined change in GPS track information relative to the GPS ground speed."

Claims 7 to 10 of the main request depend on independent claim 6.

The content of the first auxiliary request is not relevant for the present decision and is therefore not reproduced.

Reasons for the Decision

1. *Text applicable*

It is noted that the revised version of the Convention (EPC 2000) does not apply to European patent applications pending at the time of its entry into force (13 December 2007), unless otherwise provided. In this decision, where Articles or Rules of the former version of the EPC apply, their citation is followed by the indication "1973".

2. *Admissibility of the appeal*

The appeal meets the requirements of Articles 106 to 108 EPC and Rule 99 EPC. It is thus admissible.

3. *Main request*

3.1 *Added subject-matter - Article 123(2) EPC*

Claim 1 derives primarily from original claim 1. The additional indication according to which the change in GPS track information is expressed in degrees derives from original paragraphs [0017] and [0019] of the application as published.

3.2 *Clarity - Article 84 EPC 1973*

It is the aim of the claimed invention to determine the reliability of the GPS ground speed from an aircraft on the ground. Although drafted in broad terms, the claimed subject-matter specifies how this aim is to be achieved, namely by defining a predefined relationship between the change in GPS track information and GPS ground speed, said relationship defining the border between two areas

indicative, respectively, of plausible situations or, in the contrary, of situations hardly conceivable.

Although constituting a core element of the claimed invention, the description neither provides explicit examples of said relationship nor includes any clear instructions for its elaboration.

The Board has, however, no doubt that the very purpose of the "*predefined relationship*" would make it clear for the skilled person that said relationship should reflect the limit of an area within which the two sources of information (GPS track data and GPS ground speed) may be considered compatible or not. In other terms, the skilled person would recognise that said predefined relationship should, primarily, reflect the limit of physically possible outcomes. It follows that this relationship is fully determinable by the application of basic principles of kinetics and dynamics applied to the particular situation of an aircraft on the ground (cf. comments under section sufficiency of disclosure).

Consequently, no lack of clarity results from the mere evocation of a "*predefined relationship*" in independent claims 1 and 6.

3.3 *Sufficiency of disclosure - Article 83 EPC 1973*

The evocation in independent claims 1 and 6 of a "*predefined relationship*" which is not further specified in the description does not constitute any obstacle for the skilled person to carry out the invention. Contrary to the view expressed by the examining division, the Board holds that common general knowledge regarding kinetics and dynamics indeed compensate for the lack of details in the description. It is namely well-known,

with regard to an aircraft moving on the ground, that a sudden change of direction, as might result from GPS track data, is unlikely to happen. This finding derives directly from Newton's second law of motion according to which the rate of change of the linear momentum (product of the mass and velocity) over time of an object is equal to the net force applied on that object.

It follows that the claimed "*predefined relationship*" could be determined without requiring any particular skills extending beyond what might be expected from the person in the art. Said relationship would obviously depend on the characteristics of the aircraft (mass and velocity at the time of measurement) and the level of reliability expected for the parameter actually considered (GPS ground speed).

The invention is thus considered to have been disclosed in a manner sufficiently clear and complete to be carried out by a person skilled in the art (article 83 EPC 1973).

3.4 *Embodiment of Figure 3 of the application*

Independently of the question of sufficiency of disclosure, the Board had to decide whether the system disclosed with regard to Figure 3 of the description indeed embodied the claimed invention.

The Board had initially expressed doubts, in this respect, since it considered that the combination of units 162, 164 and 168 in Figure 3 did not permit to generate the required GPS information, i.e. the relative angle between the direction indicated by the last GPS track data and the direction of the ground speed. In the Board's initial understanding two sets of coordinates

(GPS track data) would have, namely, not been sufficient to calculate said parameter.

The appellant was, however, able to convince the Board that the GPS track data referred to in the application did not correspond to GPS coordinates but to the actual direction of the plane relative to the North (true North or magnetic North). In other terms, the GPS track, according to this understanding, is as such indicative of a direction usually expressed in degrees with reference to the North (true North or magnetic North). It follows that the difference between two consecutive GPS track data indeed provides information as to the angular difference of consecutive GPS track measurements.

Evidence for this interpretation of the concept of "*GPS track information*" was provided during the oral proceedings. Concretely, reference was made to an article in "*Aeronautical Information manual, Official Guide to Basic Flight information and ATC procedures*", FAA, December 2015, pages PCG T-5, PCG F-4, PCG C-9, PCG A-1) and in "*Airlines Electronic Engineering Committee, ARINC, Airborne Global Positioning System Receiver, Arinc Characteristic 743*", March 1990, pages ii, 6, 23 and 14. In particular, the second article produced by the appellant and published before the filing date of the present application confirms the argumentation of the appellant.

The embodiment of Figure 3 is thus considered to embody the claimed invention as defined in independent claims 1 and 6 of the main request.

4. Remittal of the case

In view of the foregoing, claim 1 of the pending main request is considered to meet the requirements of Article 123(2) EPC, Article 84 EPC 1973 and Article 83 EPC 1973. The same applies mutatis mutandis to independent claim 6 of the main request.

At the oral proceedings the appellant was informed of the Board's intention to remit the case to the examining division for further prosecution on the basis of the main request (Article 111(1) EPC). The appellant had no objections.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the examining division for further prosecution on the basis of the main request (claims 1 to 10) filed during the oral proceedings before the Board.

The Registrar:

The Chairman:



R. Schumacher

G. Assi

Decision electronically authenticated