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Datasheet for the decision of 13 January 2015

Case Number: T 0472/10 - 3.4.01

Application Number: 03716632.9

Publication Number: 1488478

IPC: H01Q21/06, H01Q3/26, H04K3/00, G01S13/00

Language of the proceedings: EN

Title of invention:
OPEN LOOP ARRAY ANTENNA BEAM STEERING ARCHITECTURE

Applicant:
Exelis, Inc.

Headword:

Relevant legal provisions:
EPC Art. 123(2)
EPC 1973 Art. 84

Keyword:
Amendments - added subject-matter (yes)
Claims - clarity (no)

Decisions cited:

Catchword:

Beschwerdekammern
Boards of Appeal
Chambres de recours

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Case Number: T 0472/10 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 13 January 2015

Appellant: (Applicant)	Exelis, Inc. 1650 Tysons Boulevard, Suite 1700 McLean, VA 22102 (US)
Representative:	Steimle, Josef Magenbauer & Kollegen Patentanwälte Plochinger Straße 109 73730 Esslingen (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 5 November 2009 refusing European patent application No. 03716632.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Assi
Members:	T. Zinke
	M. Vogel

Summary of Facts and Submissions

I. The appeal filed on 15 January 2010 lies from the decision of the Examining Division, posted on 05 November 2009, refusing European patent application No. 03 716 632.9 published with the publication No. 1 488 478 (WO-A-03/079043). The appeal fee was paid on the same day. The statement setting out the grounds of appeal was filed on 19 February 2010.

II. In the decision under appeal, the examining division held that the application according to a main request and a first auxiliary request then on file did not meet the requirements of Articles 84, 54(1),(2) and 56 EPC 1973. Further, the examining division decided not to admit into the proceedings a second auxiliary request and a third auxiliary request (Rule 137(3) EPC), since the claims were not prima facie allowable in view of the identified clarity problems of the main request and the first auxiliary request.

III. In the notice of appeal the appellant (applicant) only stated that an appeal against that decision was filed.

IV. With the statement setting out the grounds of appeal the appellant filed amended claims 1-5 and amended description pages 1-4 as a *"basis for the further proceedings"*.
In the Board's understanding, which was not contested by the appellant, the appellant requested that the decision under appeal be set aside and a patent be granted based on claims 1-5 as filed with the grounds of appeal and a correspondingly amended description.

Moreover, the appellant submitted that "*the issues of Article 84 EPC should no longer apply*" in view of the

amendments made and disagreed with the examining division's argumentation with regard to novelty and inventive step.

V. With a communication of 21 July 2014 the appellant was summonsed to oral proceedings to take place on 13 January 2015. In a letter dated 21 August 2014 the representative of the appellant informed the Board that neither the representative nor the appellant intended to attend the oral proceedings and requested a decision according to the state of the file.

On 22 October 2014 the Board issued a communication under Article 15(1) RPBA in order to give the appellant an opportunity to present its comments on objections concerning the application (Article 113(1) EPC 1973).

VI. The oral proceedings took place as scheduled in the absence of the appellant.

VII. Claim 1 on file reads as follows:
"An antenna beam steering system, comprising:
a plurality of beam steering phase shifters (111) to delay phase of an RF signal in order to control direction of transmission;
wherein the plurality of beam steering phase shifters (111) are operatively connected to a polarization control module (200) for controlling the polarization state of the RF signal;
a plurality of power amplifier modules (120) operatively connected to the output of the plurality of beam steering phase shifters (111) so that the RF signal is directionally focused prior to amplification; and

a plurality of dual polarizing radiators (131) operatively connected to the output of the plurality of power amplifier modules (120);
Wherein said polarization control module (200) consist of:
(1) a dual polarizing antenna (201) for receiving an intercepted radar signal;
(2) a receive polarimeter (202) for measuring the polarization of said signal;
(3) a transmit polarimeter (205) for generating an output to the plurality of beam steering phase shifters (111) based on the measured polarization; and
an omnidirectional antenna (301) for receiving a signal base and providing the signal base to the transmit polarimeter (205)."

Reasons for the Decision

1. The appeal is admissible.

2. Added subject-matter (Article 123(2) EPC)

With the statement setting out the grounds of appeal the appellant filed amended claims 1-5 and provided, as basis for the amendments, the disclosure from page 9, line 20 to page 11, line 18. The Board, however, is unable to find a suitable basis in the original application for the following amendments.

2.1 In the new formulation of claim 1 the *"polarization control module (200)"* is specified in that it *"consists"* of further elements. Since the term *"consists"* is understood as meaning that no other elements are present in the polarization control module (200), this formulation is not supported by the

description of Figure 3 on original page 10, lines 3 to 6, wherein further components of the polarization control module (200) are mentioned, as e.g. *"a superhet dual channel receiver 203"* and *"a null adaptive tracker 204"*.

2.2 The use of the word *"and"* before the last feature of claim 1 can be understood to imply that the *"omnidirectional antenna"* is a part of the *"polarization control module"*. This is not supported by Figure 4 and the corresponding description on original page 11, lines 6 to 18.

2.3 The introduction of the *"omnidirectional antenna 301"* in claim 1 is understood to be based on originally filed Figure 4 and the corresponding description on original page 11, lines 6 to 18. In Figure 4 and the corresponding text, however, further elements are disclosed between the *"omnidirectional antenna 301"* and the *"transmit polarimeter"*, i.e. *"a receiver 302"*, *"a digital signal processor 303"* and *"a digital RF memory 304"*. There is no basis in the original documents for an antenna beam steering system without these further elements.

2.4 Claim 2 has been amended by introducing *"a null adaptive tracker (204) for tuning the received signal."* The Board, however, cannot find a basis for the amendment *"for tuning the received signal"* in the passages cited by the appellant in the statement setting out the grounds of appeals (i.e. original page 9, line 20 to page 11, line 18). In these passages it is only mentioned that the *"receive polarimeter 202, with the null adaptive tracker 204, measures the polarization of the incoming signal from dual polarizing antenna 201."*

2.5 Hence, the amendments do not meet the provision of Article 123(2) EPC.

3. Clarity (Article 84 EPC 1973)

3.1 In claim 1 at least two different signals are mentioned, i.e. an *"RF signal"* that is emitted from the antenna beam steering system and an *"intercepted radar signal"*, which is received by the system. In line 16 of claim 1 a reference to *"said signal"* is made, leaving it unclear whether the emitted or the received signal is meant. Further, in the last feature of claim 1 a further *"signal base"* is mentioned without any reference to the other two signals, leaving it unclear, what effect is achieved by this *"signal base"*.

3.2 As explained in the statement setting out the grounds of appeal (see page 2, first paragraph), the appellant added further features concerning the polarization control module in order to overcome the clarity objection of the examining division. According to the Board's view, however, there is missing that the polarization control module has to control not only the phase but also the amplitude of the signal components. According to the originally filed specification, the ratio of the amplitudes of the polarized components also plays a role in defining the signal's polarization state (see page 10, lines 8 to 10). Moreover, it is disclosed that *"the transmit polarimeter 205 then sets the amplitude and phase characteristics for the entire dual polarizing array."* (see page 10, lines 23 to 24). Hence, essential features are missing from the wording of claim 1.

3.3 In the Board's understanding a directionally focused RF signal is emitted from the plurality of dual polarizing radiators (131). Thus, it is unclear, how the *"RF signal"* could be already *"directionally focused prior to amplification"*, as stated in line 10 in claim 1.

3.4 Therefore, claim 1 lacks clarity.

4. The reasons for the present decision are all mentioned in the Board's communication of 22 October 2014. In the Board's view, at least some of the objections could have been overcome by suitable amendments. The appellant, however, failed to make any submissions in reply. Hence, the Board has no reason to take another view.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

R. Schumacher G. Assi

Decision electronically authenticated