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(54) Title: BEAM SELECTION FOR A RADIO TRANSCEIVER DEVICE

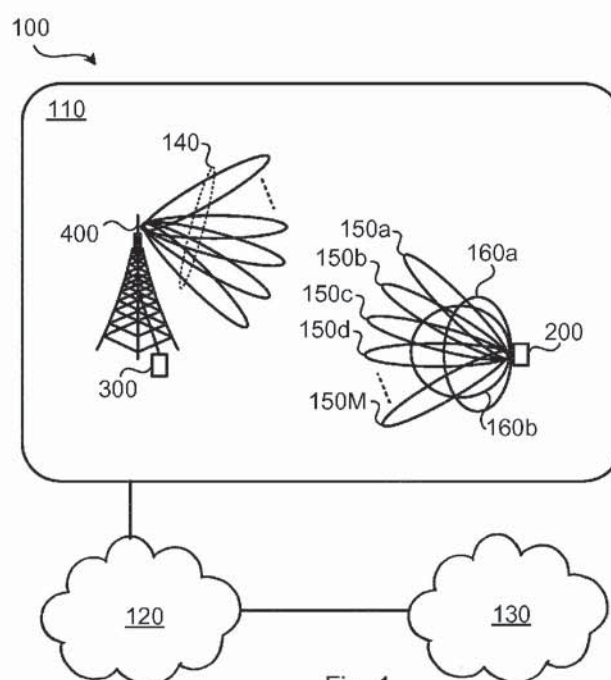


Fig. 1

(57) Abstract: There is provided mechanisms for beam selection. A method is performed by a first radio transceiver device. The method comprises obtaining link quality estimates of a radio signal conveyed to the first radio transceiver device from a second radio transceiver device by means of at least a first beam taken from a first beam set and a second beam. The second beam is wider than the first beam. The method comprises selecting which one of the first beam and the second beam to use for continued communications of radio signals with the second radio transceiver device in accordance with a comparison between the link quality estimates of the first beam and compensated link quality estimates of the second beam.

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

2019-03-05

Applicant's or agent's file reference P71456 WO1		FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/EP2017/063043	International filing date (day/month/year) 30.05.2017	Priority date (day/month/year)	
International Patent Classification (IPC) or national classification and IPC INV. H04B7/06			
Applicant Telefonaktiebolaget LM Ericsson (Publ)			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of <u>13</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ 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 Article 35(2) with regard to novelty, inventive step or 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			
Date of submission of the demand 27.02.2019		Date of completion of this report 31.07.2019	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465		Authorized officer Sieben, Stefan Telephone No. +49 89 2399-5826 	

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ 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 (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-25 as originally filed

Claims, Numbers

1-38 filed with the demand for preliminary international examination

Drawings, Sheets

1/4-4/4 as originally filed

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This report has been established:
- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2017/063043

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 17.07.2019 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - ☐ Additional relevant documents have been discovered during the top-up search.
 - ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.
7. ☐ Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded".

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-38</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-38</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-38</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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 separate sheet

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 separate sheet

Re Item V

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

Reference is made to the following document:

D1 US 2006/286974 A1 (GORE DHANANJAY A [US] ET AL) 21
 December 2006 (2006-12-21)

- 1 The document D1 is regarded as being the prior art closest to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document) a method for beam selection (fig. 7), the method being performed by a first radio transceiver device (paragraph [0059]: *"a methodology 700 for assigning a user device to a beam in a wireless communication environment"*), the method comprising:
- obtaining link quality estimates of a radio signal conveyed to the first radio transceiver device from a second radio transceiver device (paragraph [0058]: *"the spatial relationship between the user device and the base station is determined"*)
- by means of at least a first beam (fig. 7 and paragraph [0059]: *"At 702, a user device is assigned to at least one narrow beam. The channel quality indicator (CQI) (or other suitable channel quality information) for the user device is determined at 704."*)
- taken from a first beam set (paragraph [0058]: *"This methodology is described with respect to a system using one or more narrow beams in combination with a wide beam"*)
- and a second beam, wherein the second beam is wider than the first beam (paragraph [0059]: *"At 706, it is determined whether the CQI for user device is below a predetermined threshold. It should be noted that this threshold is determined by the CQI of the wide beam"*); and
- selecting which one of the first beam and the second beam to use for continued communications of radio signals with the second radio transceiver device in accordance with a comparison between the link quality estimates of the first beam and compensated link quality estimates of the second beam (fig. 7, 706, 708 and 710; paragraph [0059]: *"At 706, it is determined whether the CQI for*

user device is below a predetermined threshold. It should be noted that this threshold is determined by the CQI of the wide beam, or CQIs depending on the number of users assigned to the wide beam. As such, this threshold may vary over time as the CQI(s) of the user(s) assigned to the wide beam vary over time."; note: the threshold being based on variations of the CQI depending on the number of users assigned to the wide beam is interpreted as compensated link quality estimates!).

- 2 The subject-matter of claim 1 therefore differs from this known method in that in the method of claim 1

the compensated link quality estimates of the second beam are defined as the link quality estimates of the second beam increased with a compensation value.

Claim 1 is therefore new (Article 33(2) PCT).

- 3 This feature has the technical effect that the higher robustness of the wider second beam is represented in the comparison with the more narrow first beam.

- 4 The problem to be solved by the present invention may be regarded as how to find a simple solution to compare two beams of different widths.

- 5 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Neither D1 nor any other available prior art document suggests or hints at the solution of adding a compensation value to the quality estimate of the wider beam in order to solve the problem.

- 6 The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding apparatus claims 26-28 and computer program claim 36, and also to claims 21, 31-33 and 37 defining the corresponding method, apparatuses and computer program at the side of the other transceiver device. Claims 21, 26-28, 31-33, 36 and 37 are therefore also considered new and inventive.

- 7 Claims 2-20, 22-25, 29, 30, 34, 35 and 38 are dependent on claims 1, 21, 26-28, 31-33, 36 and 37, respectively, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Re Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in document D1 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

Certain observations on the international application

The application does not meet the requirements of Article 6 PCT, because claims 21, 26-28, 31-33 and 37 are not clear.

- 1 Claims 21, 31-33 and 37 are not supported by the description as required by Article 6 PCT, as their scope is broader than justified by the description and drawings.

In their current wording, the scope of the claims comprises the case that the network node, the first radio transceiver device and the second radio transceiver device are three separate entities. However, the description and the drawings only support the case of two radio transceiver devices, of which one can be located at the network node. This becomes particularly clear from page 1, lines 13-26 and page 2, lines 11-23, and also from figures 1 and 5, showing a radio transceiver device 400 located at the network node 300 and a radio transceiver device 200.

While a generalization to two radio transceiver devices, as defined in claims 1, 26-28 and 36 appears to be justified by the description and drawings, no support can be found in the description or drawings that the network node is separate from the first and second radio transceiver devices.

Claims 21, 31-33 and 37 should have been drafted to define that the second radio transceiver device is part of the network node.

- 2 Although claims 26-28 on the one hand and claims 31-33 on the other hand have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

Date
2019-07-05
Your Date
2018-02-16

Reference (Document No)
P71456 WO1
Your Reference
PCT/EP2017/063043

Attending to this matter
Colette O'Meara

European Patent Office

Via CMS (epoline Case Management System)

80298 Munich
GERMANY

Response to Written Opinion of International Searching Authority

Application Number: PCT/EP2017/063043
Int'l Application Date: 2017-05-30
Applicant: Telefonaktiebolaget LM Ericsson (publ)
Our Reference: P71456 WO1

Enclosures: Amended claims (clean version)
Amended claims (marked-up version for reference)

Dear Sirs,

This is in response to the Written Opinion of the International Searching Authority dated 16.02.2018.

The Cited Art

In the Written Opinion the following document is cited:

D1: US 2006/286974 A1

Amendments

Claim 1 has been amended by having the subject matter of original claim 4 added thereto. Support can thus be found in claim 4 as filed. As a consequence, claim 4 has been cancelled and all there after following claims have been renumbered. The same amendment has been made to independent claims 26, 27, 28, and 36.

Claim 21 (corresponding to original claim 22) has been amended by having the subject matter of original claim 25 added thereto. Support can thus be found in claim 25 as filed. The same amendment has been made to independent claims 31, 32, 33, and 37.

In addition, the preamble of independent claims 31, 32, 33, and 37 has been brought into conformity with the preamble of independent claim 21 disclosing the corresponding method.

In view of the above, all amendments have support in the application as filed and no new matter has been introduced.

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Clarity

Claims 1 and 21 (original claim 22) are considered to lack conciseness. In this respect, claims 1 and 21 represent two interrelated solutions to the same problem, but performed at different entities (first radio transceiver device (200) and second radio transceiver device (300), respectively), which thus justifies the existence of both these claims in the application. Claim 1 is a method according to which the first radio transceiver device (200) performs a number of steps (as defined by features S102, S104). Claim 21 is a method according to which the second radio transceiver device (300) configures the first radio transceiver device (200) to perform a method that involves (at least) the step defined by feature S104, which verifies that these claims are interrelated.

The term "compensated link quality" as used in the independent claims is considered vague and unclear. This objection is moot in view of the amendments specified above according to which it in all independent claims has been specified that the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

The expressions "(not) within said compensation value of the link quality estimates" is considered vague and unclear. The Examiner notes that clarification can be found inter alia on page 13, lines 8-16 of the application as filed. This passage corresponds to the description, and explanation, of original claim 4, which subject matter is now part of all independent claims. By virtue of their dependency of claim 1 (or claim 21) all claims comprising this expression are clear. Hence this objection is moot.

Claims 31-33 are considered not clear. This objection is moot in view of the amendments specified above according to which the preamble of these claims has been brought into conformity with the preamble of claim 21.

Novelty

Since the subject matter of claim 4 now has been added to claim 1, we agree with the Examiner that claim 1 differs from D1 (at least) in that D1 fails to disclose that the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

Hence, claim 1 novel, Article 33(2) PCT.

Since also all the remaining independent claims comprise this distinguishing feature, also the remaining independent claims are novel, Article 33(2) PCT.

Inventive step

We agree with the Examiner that a technical effect resulting from the distinguishing feature is that the higher robustness of the wider second beam is represented in the comparison with the more narrow first beam.

The problem to be solved by the present invention may be regarded as how to find a simple solution to compare two beams of different widths.

The solution to this problem proposed by amended claim is considered as involving an inventive step for the following reasons:

Neither **D1** nor any other available prior art document suggests or hints at the solution of adding a compensation value to the quality estimate of the wider beam in order to solve the problem.

Hence, claim 1 involves an inventive step, Article 33(3) PCT.

Since also all the remaining independent claims comprise the distinguishing feature, also the remaining independent claims involve an inventive step, Article 33(3) PCT.

Conclusions and Request

In view of the above, it is respectfully submitted that the claims meet all the requirements of the PCT and hence that this is reflected in the International Preliminary Examination Report, Article 35 PCT.

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European Patent Attorney
Association number: 643

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CLAIMS

1. A method for beam selection, the method being performed by a first radio transceiver device (200), the method comprising:

5 obtaining (S102) link quality estimates of a radio signal conveyed to the first radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M); and

10 selecting (S104) which one of the first beam (150a-150M) and the second beam (160a, 160b) to use for continued communications of radio signals with the second radio transceiver device (400) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

2. The method according to claim 1, wherein the radio signal is conveyed by being received by the first radio transceiver device (200) in at least said first beam (150a-150M) and said second beam (160a, 160b).

20 3. The method according to claim 1, wherein the radio signal is conveyed by being transmitted by the second radio transceiver device (400) in at least said first beam (150a-150M) and said second beam (160a, 160b).

4. The method according to claim 1, wherein said selecting further comprises:

25 selecting (S104a) to use the second beam (160a, 160b) for continued communications of radio signals with the second radio transceiver device (400) only when the link quality estimates of the second beam (160a, 160b) are within said compensation value of the link quality estimates of the first beam (150a-150M).

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5. The method according to claim 1 or 4, wherein said selecting further comprises:

selecting (S104b) to use the first beam (150a-150M) for continued communications of radio signals with the second radio transceiver device (400) when the link quality estimates of the second beam (160a, 160b) are not within said compensation value of the link quality estimates of the first beam (150a-150M).

6. The method according to any of the preceding claims, wherein the first beam (150a-150M) has best link quality estimates of all beams (150a-150M, 160a, 160b) in which the radio signal is received.

7. The method according to any of the preceding claims, wherein the first beam set comprises at least two beams (150a-150M) of same width but with mutually different pointing directions, and wherein the second beam (160a, 160b) is wider than all beams (150a-150M) of the first beam set.

8. The method according to any of the preceding claims, wherein the second beam (160a, 160b) is taken from a second beam set, and wherein all beams (160a, 160b) of the second beam set are wider than the first beam (150a-150M).

9. The method according to claim 8, wherein the second beam set comprises beams (160a, 160b) of at least two different widths, each width of which is associated with a respective compensation value for compensating the link quality estimates.

10. The method according to claim 1, wherein the compensation value depends on at least one of current speed, current rotation rate, and previous blocking statistics of the first radio transceiver device (200).

11. The method according to claim 1, wherein the compensation value is dependent on link quality estimates of the radio signal as received in a second first beam (150a-150M) taken from the first beam set.

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12. The method according to claim 11, wherein, in beam space, the first beam (150a-150M) and the second first beam (150a-150M) are neighbouring beams.

13. The method according to claim 11 or 12, wherein the second first beam (150a-150M) has worse link quality estimates than only the first beam (150a-150M).

14. The method according to any of the preceding claims, wherein the link quality estimates are obtained during a beam training procedure of the first radio transceiver device (200).

15. The method according to any of the preceding claims, wherein the link quality estimates are obtained in terms of reference signal received power, RSRP, or signal to interference ratio, SIR, or signal to interference plus noise ratio, SINR.

16. The method according to any of the preceding claims, wherein the radio signal comprises reference signals, such as uplink sounding reference signals, SRS, or downlink channel state information reference signals, CSI-RS, and wherein the link quality estimates are obtained for the reference signals.

17. The method according to any of the preceding claims, wherein how to select which one of the first beam (150a-150M) and the second beam (160a, 160b) to use for continued communications of radio signals with the second radio transceiver device (400) is configured by network information.

18. The method according to claim 2, wherein the at least first beam (150a-150M) and the second beam (160a, 160b) are created by beamforming of antenna elements of an antenna array, and wherein the beamforming consists only of applying phase shifts to the antenna elements.

19. The method according to claim 2, wherein the at least first beam (150a-150M) and the second beam (160a, 160b) are created by beamforming of antenna elements of an antenna array, and wherein the beamforming

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comprises applying a combination of phase shifts and amplitude tapering to the antenna elements.

20. The method according to any of the preceding claims, further comprising:

5 communicating (S106) with the second radio transceiver device (400) using the selected beam.

21. A method for configuring a first radio transceiver device (200) for beam selection, wherein the first radio transceiver device (200) is configured to obtain link quality estimates of a radio signal conveyed to the first radio
10 transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M), the method being performed by a network node (300), the method comprising:

15 configuring (202) the first radio transceiver device (200) to select to use for continued communications of radio signals with the second radio transceiver device (400) one of the first beam (150a-150M) and the second beam (160a, 160b) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality
20 estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

22. The method according to claim 21, wherein the radio signal is conveyed
25 by being received by the first radio transceiver device (200) in at least said first beam (150a-150M) and said second beam (160a, 160b).

23. The method according to claim 21, wherein the radio signal is conveyed by being transmitted by the second radio transceiver device (400) in at least said first beam (150a-150M) and said second beam (160a, 160b).

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24. The method according to claim 21, wherein the first radio transceiver device (200) is, by the network node (300), configured to select to use the second beam (160a, 160b) for continued communications of radio signals with the second radio transceiver device (400) only when the link quality estimates of the second beam (160a, 160b) are within said compensation value worse than the link quality estimates of the first beam (150a-150M).

25. The method according to claim 21 or 24, wherein the first radio transceiver device (200) is, by the network node (300), configured to select to use the first beam (150a-150M) for continued communications of radio signals with the second radio transceiver device (400) when the link quality estimates of the second beam (160a, 160b) are not within said compensation value worse than the link quality estimates of the first beam (150a-150M).

26. A radio transceiver device (200) for beam selection, the radio transceiver device (200) comprising processing circuitry (210), the processing circuitry being configured to cause the radio transceiver device (200) to:

obtain link quality estimates of a radio signal conveyed to the radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M); and

select which one of the first beam (150a-150M) and the second beam (160a, 160b) to use for continued communications of radio signals with the second radio transceiver device (400) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

27. A radio transceiver device (200) for beam selection, the radio transceiver device (200) comprising:

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processing circuitry (210); and

a storage medium (230) storing instructions that, when executed by the processing circuitry (210), cause the radio transceiver device (200) to:

5 obtain link quality estimates of a radio signal conveyed to the radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M); and

10 select which one of the first beam (150a-150M) and the second beam (160a, 160b) to use for continued communications of radio signals with the second radio transceiver device (400) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are
15 defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

28. A radio transceiver device (200) for beam selection, the radio transceiver device (200) comprising:

20 an obtain module (210a) configured to obtain link quality estimates of a radio signal conveyed to the radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M); and

25 a select module (210b) configured to select which one of the first beam (150a-150M) and the second beam (160a, 160b) to use for continued communications of radio signals with the second radio transceiver device (400) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of
30 the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

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29. The radio transceiver device (200) according to any of claims 26 to 28, further being configured to perform the method according to any of claims 2 to 20.

30. A terminal device comprising a radio transceiver device (200) according to any of claims 26 to 29.

31. A network node (300) for configuring a first radio transceiver device (200) for beam selection, wherein the first radio transceiver device (200) is configured to obtain link quality estimates of a radio signal conveyed to the first radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M), the network node (300) comprising processing circuitry (310), the processing circuitry being configured to cause the network node (300) to:

configure the first radio transceiver device (200) to select to use for continued communications of radio signals with the second radio transceiver device (400) one of the first beam (150a-150M) and the second beam (160a, 160b) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

32. A network node (300) for configuring a first radio transceiver device (200) for beam selection, wherein the first radio transceiver device (200) is configured to obtain link quality estimates of a radio signal conveyed to the first radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M), the network node (300) comprising:

processing circuitry (310); and
a storage medium (330) storing instructions that, when executed by the

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processing circuitry (310), cause the network node (300) to:

configure the first radio transceiver device (200) to select to use for continued communications of radio signals with the second radio transceiver device (400) one of the first beam (150a-150M) and the second beam (160a, 160b) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

33. A network node (300) for configuring a first radio transceiver device (200) for beam selection, wherein the first radio transceiver device (200) is configured to obtain link quality estimates of a radio signal conveyed to the first radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M), the network node (300) comprising:

a configure module (310a) configured to configure the first radio transceiver device (200) to select to use for continued communications of radio signals with the second radio transceiver device (400) one of the first beam (150a-150M) and the second beam (160a, 160b) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

34. The network node (300) according to any of claims 31 to 33, further being configured to perform the method according to any of claims 22 to 25.

35. A radio access network node comprising a network node (300) according to any of claims 31 to 34.

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36. A computer program (1020a) for beam selection, the computer program comprising computer code which, when run on processing circuitry (210) of a radio transceiver device (200), causes the radio transceiver device (200) to:

5 obtain (S102) link quality estimates of a radio signal conveyed to the radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M); and
select (S104) which one of the first beam (150a-150M) and the second
10 beam (160a, 160b) to use for continued communications of radio signals with the second radio transceiver device (400) in accordance with a comparison between the link quality estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are
15 defined as the link quality estimates of the second beam (160a, 160b) increased with a compensation value.

37. A computer program (1020b) for configuring a first radio transceiver device (200) for beam selection, wherein the first radio transceiver device (200) is configured to obtain link quality estimates of a radio signal conveyed
20 to the first radio transceiver device (200) from a second radio transceiver device (400) by means of at least a first beam (150a-150M) taken from a first beam set and a second beam (160a, 160b), wherein the second beam (160a, 160b) is wider than the first beam (150a-150M), the computer program comprising computer code which, when run on processing circuitry (310) of a
25 network node (300), causes the network node (300) to:

configure (202) the first radio transceiver device (200) to select to use for continued communications of radio signals with the second radio transceiver device (400) one of the first beam (150a-150M) and the second beam (160a, 160b) in accordance with a comparison between the link quality
30 estimates of the first beam (150a-150M) and compensated link quality estimates of the second beam (160a, 160b), wherein the compensated link quality estimates of the second beam (160a, 160b) are defined as the link

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quality estimates of the second beam (160a, 160b) increased with a compensation value.

38. A computer program product (1010a, 1010b) comprising a computer program (1020a, 1020b) according to at least one of claims 36 and 37, and a
5 computer readable storage medium (1030) on which the computer program is stored.

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