



State Intellectual Property Office

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| <b>100080</b><br>Room 2105, Building B, Century Science and Technology Building, No. 66, Zhongguancun East Road, Haidian District, Beijing<br>Beijing Beihui Law Firm Li Yingjie, Lv Liang (010-62698598) | Date of publication:<br><br>([Link]) |
| <b>Application number or patent number: 201710255811.X</b>                                                                                                                                                | Publication number: ([Link])         |
| Case Number: 4W115236                                                                                                                                                                                     |                                      |
| Invention name: A method and device used in user equipment and base station for paging                                                                                                                    |                                      |
| Patentee: Aurora Technology Consulting Co., Ltd.                                                                                                                                                          |                                      |
| Invalidation petitioner: Huang Yanli                                                                                                                                                                      |                                      |

## Decision on invalidation request

(No. 561579)

According to Article 46, Paragraph 1 of the Patent Law, the State Intellectual Property Office shall

The request for invalidation has been reviewed and the decision is as follows:

- ☒ All patent rights are declared invalid.
- ☐ The patent right is partially declared invalid.
- ☐ Maintain patent rights.

Pursuant to Article 46, Paragraph 2 of the Patent Law, if you are dissatisfied with this decision, you may file a claim within three months from the date of receipt of this notice.

The case was filed with the Beijing Intellectual Property Court, and the other party participated in the litigation as a third party.

Appendix: The main text of the decision is 11 pages (the main text starts from page 2).

Head of the panel: Wu Weimin

Judge: Zheng Chunyu

Counselor: Guo Qiong

Patent Office Reexamination and Invalidation Trial Department

State Intellectual Property Office

## Decision on Invalidation Request (No. 561579)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                        |
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| Case Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | No. 4W115236                                                           |
| Decision date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | May 29, 2023                                                           |
| Name of invention                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A method and device in user equipment and base station used for paging |
| International Classification Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | H04L 5/00, H04L 27/26, H04L 72/04, H04W 76/28                          |
| Invalidation Requester                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Huang Yanli                                                            |
| Patentee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Aurora Technology Consulting LLC                                       |
| Patent No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 201710255811.X                                                         |
| Application date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | April 19, 2017                                                         |
| Authorization announcement date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | March 26, 2021                                                         |
| Invalidation request date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | November 07, 2022                                                      |
| Legal basis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Article 22, Paragraph 3 of the Patent Law                              |
| <p>Decision points:</p> <p>If the technical solution claimed in a claim has distinguishing features compared with the closest prior art, some of the distinguishing features</p> <p>The feature has been disclosed by other comparative documents based on the same function, and the other distinguishing features belong to the common technical means in the field</p> <p>Technical personnel have an incentive to apply the technical features disclosed in other comparative documents and the commonly used technical means in the field to the closest prior art.</p> <p>If the claim is intended to solve the same technical problem as this patent, then the claim does not have outstanding substantive features and significant progress, and does not have</p> <p>Be creative.</p> |                                                                        |

1. Cause of the Case

The patent number of this patent is 201710255811.X, the application date is April 19, 2017, and the authorization announcement date is March 26, 2021.

The original patent owner was Shanghai Langbo Communication Technology Co., Ltd., which was later changed to Jiguang Technology Consulting Co., Ltd.

The request is as follows:

"1. A method in a user equipment for paging, characterized in that it comprises the following steps:

- Step A. monitoring the first signaling in X time intervals respectively;

-Step B. receiving a first wireless signal;

Wherein, X is a positive integer, the first signaling is used to determine the scheduling information of the first wireless signal, and the scheduling information includes

At least one of the time-frequency resources occupied and the MCS adopted, the first wireless signal carries a paging message; the first signaling is used to transmit

The frequency domain resource belongs to a first sub-frequency band, the first sub-frequency band includes a positive integer number of continuous sub-carriers in the frequency domain, and the first sub-frequency band is located at a position in the frequency domain

The subcarrier spacing of the subcarriers included in the first sub-frequency band and the subcarrier spacing of the subcarriers included in the first sub-frequency band are used to determine the X time intervals.

2. The method according to claim 1, characterized in that any one of the X time intervals belongs to the first

A time window, the time length of the first time window is predefined, the first time window is divided into Y time intervals, the X time intervals

The interval is X of the Y time intervals, wherein Y is a positive integer not less than X, and the subcarriers of the subcarriers included in the first sub-frequency band are

The interval is used to determine the Y, and the characteristic ID of the monitor of the first signaling is used to determine the X time interval in the Y time intervals.

Separation.

3. The method according to claim 2, characterized in that the first time window belongs to one of Z time windows, and Z is greater than 1.

The integer Z is predefined; or the Z is configurable; the time lengths of any two time windows in the Z time windows are the same.

Etc., the feature ID of the monitor of the first signaling is used to determine the first time window among the Z time windows.

4. The method according to any one of claims 1 to 3, characterized in that step A further comprises the following steps:

-Step A0. Receive a second wireless signal;

The second wireless signal is used to determine the position of the first sub-band in the frequency domain, the subcarriers included in the first sub-band,

At least one of the subcarrier spacings.

5. The method according to any one of claims 1 to 3, characterized in that step A further comprises the following steps:

-Step A1. Receive a second signaling;

The second signaling is used to determine Q sub-frequency bands, the first sub-frequency band belongs to one of the Q sub-frequency bands, and the Q sub-frequency bands

Any sub-band in the frequency band includes a positive integer number of consecutive sub-carriers, and the characteristic ID of the monitor of the first signaling is used to monitor the Q sub-bands.

The first sub-frequency band is determined in a frequency band, and the Q is a positive integer.

6. The method according to claim 4, characterized in that said step A further comprises the following steps:

-Step A1. Receive a second signaling;

The second signaling is used to determine Q sub-frequency bands, the first sub-frequency band belongs to one of the Q sub-frequency bands, and the Q sub-frequency bands

Any sub-band in the frequency band includes a positive integer number of consecutive sub-carriers, and the characteristic ID of the monitor of the first signaling is used to monitor the Q sub-bands.

The first sub-frequency band is determined in a frequency band, and the Q is a positive integer.

7. A method in a base station for paging, characterized in that it comprises the following steps:

- Step A. Sending a first signaling in a positive integer number of time intervals in the X time intervals respectively;

-Step B. sending a first wireless signal;

Wherein, X is a positive integer, the first signaling is used to determine the scheduling information of the first wireless signal, and the scheduling information includes

At least one of the time-frequency resources occupied and the MCS adopted, the first wireless signal carries a paging message; the first signaling is used to transmit

The frequency domain resource belongs to a first sub-frequency band, the first sub-frequency band includes a positive integer number of continuous sub-carriers in the frequency domain, and the first sub-frequency band is located at a position in the frequency domain

The subcarrier spacing of the subcarriers included in the first sub-frequency band and the subcarrier spacing of the subcarriers included in the first sub-frequency band are used to determine the X time intervals.

8. The method according to claim 7, characterized in that any one of the X time intervals belongs to the first

A time window, the time length of the first time window is predefined, the first time window is divided into Y time intervals, the X time intervals

The interval is X of the Y time intervals, wherein Y is a positive integer not less than X, and the subcarriers of the subcarriers included in the first sub-frequency band are

The interval is used to determine the Y, and the characteristic ID of the monitor of the first signaling is used to determine the X time interval in the Y time intervals.

Separation.

9. The method according to claim 8, wherein the first time window belongs to one of Z time windows, and Z is greater than 1.

The integer Z is predefined; or the Z is configurable; the time lengths of any two time windows in the Z time windows are the same.

Etc., the feature ID of the monitor of the first signaling is used to determine the first time window among the Z time windows.

10. The method according to any one of claims 7 to 9, characterized in that the step A further comprises the following steps:

-Step A0. Sending a second wireless signal;

The second wireless signal is used to determine the position of the first sub-band in the frequency domain, the subcarriers included in the first sub-band,

At least one of the subcarrier spacings.

11. The method according to any one of claims 7 to 9, characterized in that step A further comprises the following steps:

-Step A1. Sending a second signaling;

The second signaling is used to determine Q sub-frequency bands, the first sub-frequency band belongs to one of the Q sub-frequency bands, and the Q sub-frequency bands

Any sub-band in the frequency band includes a positive integer number of consecutive sub-carriers, and the characteristic ID of the monitor of the first signaling is used to monitor the Q sub-bands.

The first sub-frequency band is determined in a frequency band, and the Q is a positive integer.

12. The method according to claim 10, characterized in that said step A further comprises the following steps:

-Step A1. Sending a second signaling;

The second signaling is used to determine Q sub-frequency bands, the first sub-frequency band belongs to one of the Q sub-frequency bands, and the Q sub-frequency bands

Any sub-band in the frequency band includes a positive integer number of consecutive sub-carriers, and the characteristic ID of the monitor of the first signaling is used to monitor the Q sub-bands.

The first sub-frequency band is determined in a frequency band, and the Q is a positive integer.

13. A user equipment for paging, characterized by comprising the following modules:

- A first receiving module: configured to monitor the first signaling in X time intervals respectively;

- A second receiving module: used to receive a first wireless signal;

Wherein, X is a positive integer, the first signaling is used to determine the scheduling information of the first wireless signal, and the scheduling information includes

At least one of the time-frequency resources occupied and the MCS adopted, the first wireless signal carries a paging message; the first signaling is used to transmit

The frequency domain resource belongs to a first sub-frequency band, the first sub-frequency band includes a positive integer number of continuous sub-carriers in the frequency domain, and the first sub-frequency band is located at a position in the frequency domain

The subcarrier spacing of the subcarriers included in the first sub-frequency band and the subcarrier spacing of the subcarriers included in the first sub-frequency band are used to determine the X time intervals.

14. The user equipment according to claim 13, wherein any one of the X time intervals is

belongs to the first time window, the time length of the first time window is predefined, the first time window is divided into Y time intervals, the X

The time interval is X of the Y time intervals, where Y is a positive integer not less than X, and the number of subcarriers included in the first sub-frequency band is

The subcarrier spacing is used to determine the Y, and the characteristic ID of the monitor of the first signaling is used to determine the X in the Y time intervals.

time interval.

15. The user equipment according to claim 14, wherein the first time window belongs to one of Z time windows, and Z is

An integer greater than 1; Z is predefined; or Z is configurable; the time length of any two time windows in the Z time windows is

The degree is equal, and the feature ID of the monitor of the first signaling is used to determine the first time window among the Z time windows.

16. The user equipment according to any one of claims 13 to 15, wherein the first receiving module is further used to receive

receiving a second wireless signal; the second wireless signal is used to determine the position of the first sub-band in the frequency domain, the

At least one of the subcarrier spacings of the subcarriers.

17. The user equipment according to any one of claims 13 to 15, wherein the first receiving module is further used to receive

The second signaling is used to determine Q sub-frequency bands, the first sub-frequency band belongs to one of the Q sub-frequency bands, and the Q sub-frequency bands

Any sub-band in the frequency band includes a positive integer number of consecutive sub-carriers, and the characteristic ID of the monitor of the first signaling is used to monitor the Q sub-bands.

The first sub-frequency band is determined in a frequency band, and the Q is a positive integer.

18. The user equipment according to claim 16, wherein the first receiving module is further configured to receive a second signaling signal.

The signaling is used to determine Q sub-bands, the first sub-band belongs to one of the Q sub-bands, and any one of the Q sub-bands

The frequency band includes a positive integer number of continuous subcarriers, and the characteristic ID of the monitor of the first signaling is used to determine the first

sub-band, the Q is a positive integer.

19. A base station device for paging, characterized by comprising the following modules:

- A first sending module: configured to send a first signaling in a positive integer number of time intervals in the X time intervals respectively;

- A second sending module: used to send a first wireless signal;

Wherein, X is a positive integer, the first signaling is used to determine the scheduling information of the first wireless signal, and the scheduling information includes

At least one of the time-frequency resources occupied and the MCS adopted, the first wireless signal carries a paging message; the first signaling is used to transmit

The frequency domain resource belongs to a first sub-band, the first sub-band includes a positive integer number of consecutive sub-carriers in the frequency domain, and the first sub-band is located at a position in the frequency domain

The subcarrier spacing of the subcarriers included in the first sub-frequency band and the subcarrier spacing of the subcarriers included in the first sub-frequency band are used to determine the X time intervals.

20. The base station device according to claim 19, wherein any one of the X time intervals is

belongs to the first time window, the time length of the first time window is predefined, the first time window is divided into Y time intervals, the X

The time interval is X of the Y time intervals, where Y is a positive integer not less than X, and the number of subcarriers included in the first sub-frequency band is

The subcarrier spacing is used to determine the Y, and the characteristic ID of the monitor of the first signaling is used to determine the X in the Y time intervals.

time interval.

21. The base station device according to claim 20, characterized in that the first time window belongs to one of Z time windows, and Z is

An integer greater than 1; Z is predefined; or Z is configurable; the time length of any two time windows in the Z time windows is

The degree is equal, and the feature ID of the monitor of the first signaling is used to determine the first time window among the Z time windows.

22. The base station device according to any one of claims 19 to 21, characterized in that the first sending module is also used to send

The second wireless signal is used to determine the position of the first sub-band in the frequency domain, the

At least one of the subcarrier spacings of the subcarriers.

23. The base station device according to any one of claims 19 to 21, characterized in that the first sending module is also used to send

The second signaling is used to determine Q sub-bands, the first sub-band belongs to one of the Q sub-bands, the Q

Any one of the sub-bands includes a positive integer number of consecutive sub-carriers, and the characteristic ID of the monitor of the first signaling is used to monitor the Q sub-bands.

The first sub-frequency band is determined in a sub-frequency band, and Q is a positive integer.

24. The base station device according to claim 22, characterized in that the first sending module is also used to send a second signaling;

The second signaling is used to determine Q sub-bands, the first sub-band belongs to one of the Q sub-bands, and any one of the Q sub-bands

The sub-band includes a positive integer number of continuous sub-carriers, and the characteristic ID of the monitor of the first signaling is used to determine the first

a sub-band, and Q is a positive integer. "

Regarding the above-mentioned patent, Huang Yanli (hereinafter referred to as the applicant) filed a request for invalidation with the State Intellectual Property Office on November 7, 2022, and

The patent authorization announcement was submitted, requesting that all claims 1-24 of this patent be declared invalid. The reasons for invalidation raised by the applicant are: (1)

The scope of protection of claims 1-24 is unclear and not supported by the specification, which does not comply with the provisions of Article 26, Paragraph 4 of the Patent Law; (2) the patent description

The disclosure in the specification is insufficient and does not comply with the provisions of Article 26, paragraph 3 of the Patent Law.

The applicant submitted a statement of opinion on December 6, 2022, and submitted the following attachments:

Appendix 1: The text of this patent authorization announcement;

Annex 2 (hereinafter referred to as Exhibit 1): 3GPP TSG RAN WG1 Meeting #88bis, R1-1704867, and its Chinese translation, the applicant claims

Its public release date is March 25, 2017;

Annex 3 (hereinafter referred to as Exhibit 2): WO2017/050184A1, published on March 30, 2017;

Annex 4 (hereinafter referred to as Exhibit 3): 3GPP TR 38.802 V14.0.0, and its partial Chinese translation, which the applicant claims was published in 2017.

March 25, 2018:

Annex 5 (hereinafter referred to as Exhibit 4): 3GPP TSG RAN WG1 Meeting #88, R1-1701979, and its Chinese translation, which the Petitioner claims is public

The opening date is February 6, 2017;

Annex 6 (hereinafter referred to as Exhibit 5): WO2016/130175A1, and its Chinese translation, published on August 18, 2016;

Annex 7 (hereinafter referred to as Exhibit 6): CN106231614A, published on December 14, 2016;

Annex 8 (hereinafter referred to as Exhibit 7): 3GPP TSG RAN WG2 #97, R2-1701727, and its Chinese translation, which the Petitioner claims was published on

February 4, 2017;

Appendix 9 (hereinafter referred to as Exhibit 8): CN105979597A, published on September 28, 2016;

Annex 10 (hereinafter referred to as Exhibit 9): CN105813200A, published on July 27, 2016;

Annex 11 (hereinafter referred to as Exhibit 10): 3GPP TSG RAN WG1 Meeting #66, R1-166001, and its Chinese translation, the applicant claims that

The publication date is August 13, 2016.

The applicant believes that: (1) the patent specification is insufficiently disclosed and does not comply with the provisions of Article 26, Paragraph 3 of the Patent Law, with respect to claims 1-24.

(2) The scope of protection of claims 1-24 is unclear and not supported by the description, which does not comply with Article 26, Paragraph 4 of the Patent Law.

(3) Claims 1, 7, 13, and 19 lack the necessary technical features to solve the technical problem and do not comply with Article 20, Paragraph 2 of the Implementing Regulations of the Patent Law.

(4) Taking evidence 1, 2, and 7 as the closest prior art, combined with other evidence and/or common knowledge in the field, the claim

Requests 1-24 do not have creativity and do not comply with the provisions of Article 22, Paragraph 3 of the Patent Law; this statement of opinion has covered all the invalidation requests.

Evidence and grounds for invalidity.

After passing the formal review, the National Intellectual Property Administration accepted the above-mentioned invalidation request on January 3, 2023 and sent the invalidation request,

A copy of the above statement of opinion and the attached attachments were forwarded to the patent owner, and a collegial panel was formed to review the case.

In response to the above-mentioned invalidation request, the patent owner submitted a statement of opinion on February 3, 2023, arguing that the patent complies with the Patent Law and the

The Court objected to the relevant provisions of the Implementing Rules of the Patent Law, and raised objections to part of the Chinese translations of Exhibits 1, 3, and 5, and submitted the Chinese translations of the objected parts.

The National Intellectual Property Administration's panel of deliberation issued a document transfer notice to the applicant on February 13, 2023,

A copy of the statement of opinion submitted on February 3 and the relevant Chinese translation was forwarded to the applicant.

The collegial panel sent a notice of oral hearing to both parties on March 13, 2023, and the remote oral hearing is scheduled to be held on April 7, 2023.

Head trial.

The oral hearing was held as scheduled and both parties attended the oral hearing. The following matters were clarified during the oral hearing:

(1) Both parties have no objection to the change of the panel members, no request for the recusal of the panel members and the clerk, and no objection to the identity and

No objection to qualifications.

(2) The applicant stated in court that the specific reasons for invalidation and evidence shall be based on the reasons for invalidation and evidence submitted by him on December 6, 2022.

Abandon the grounds for invalidity in its request for invalidation filed on November 7, 2022.

(3) The patent owner has no objection to the authenticity of evidence 1-10 submitted by the applicant, but objects to the publication time of evidence 1, 3, 4, 7, and 10.

It is claimed that the disclosure time of evidence 1 is the last day of the meeting, April 7, 2017, and the disclosure time of evidence 3 is the last day of March 2017.

One day is March 31, 2017. The date of publication of Exhibit 4 is February 17, 2017, the last day of the meeting. The date of publication of Exhibit 7 is February 17, 2017, the last day of the meeting.

The date of publication of Exhibit 10 is the last day of the meeting, February 17, 2017, and the date of publication of Exhibit 10 is the last day of the meeting, August 26, 2016;

The applicant also raised objections to the partial Chinese translations of evidence 1, 3, and 5. The applicant objected to the disclosure time of evidence 1, 3, 4, 7, and 10 claimed by the patent owner.

Approved: The objection to the Chinese translation of evidence 1, 3, and 5 raised by the patent owner is approved.

(4) The petitioner submitted the following common knowledge evidence in court at the oral hearing: "Usage in UMTS" edited by Harri Holma et al. and translated by Lang Weimin et al.

LTE: Wireless Access Based on OFDMA and SC-FDMA, China Machine Press, 1st edition, 1st printing, October 2010, cover, copyright

Information page, translator's preface, table of contents, and photocopies of pages 111-112 of the text, a total of 8 pages. The applicant claims that the use of this common knowledge evidence proves that

The modulation and coding scheme for downlink allocation to transmit resource block allocation information and downlink user data is common knowledge in the art.

The parties indicated that they would verify the authenticity and publication date of the common knowledge evidence after the oral hearing and submit written opinions if they have any objections.

On the basis of adhering to written opinions, each party fully elaborated its own views.

The applicant submitted a scanned copy of the above-mentioned common knowledge evidence submitted in court on the same day after the oral hearing.

On April 13, the Patent Office sent a document transfer notice to the patent owner, transferring the above-mentioned common knowledge evidence submitted by the applicant to the patent owner.

The patent owner failed to submit a statement of opinion within the time limit specified by the collegial panel.

At this point, the collegial panel believes that the facts of the case are clear and a review decision can be made.

## II. Reasons for the decision

### 1. Review Basis

The examination text for which this invalidation request examination decision is based is the text of the patent authorization announcement.

### (II) Evidence identification

Evidence 1 and Evidence 4 are proposals from the 3GPP meeting. The 3GPP website is an international standardization organization established by the communication field standardization organization.

As one of the important international organizations in the field of communications, its official website has high credibility and authority. The patent owner is concerned about the authenticity of evidence 1 and evidence 4.

There is no objection. After verification, the collegial panel acknowledges the authenticity of Evidence 1 and Evidence 4.

In its statement of opinion filed on December 6, 2022, the petitioner claimed that the publication date of Exhibit 1 was March 25, 2017,

The publication date of the 4th report is February 6, 2017. The patentee believes that the publication date of the 3GPP meeting proposal should be the last day of the meeting.

One day, that is, the disclosure date of evidence 1 is April 7, 2017, and the disclosure date of evidence 4 is February 17, 2017.

The panel believes that: on the last day of the 3GPP meeting, its meeting proposals are usually

The public can know the information if they want to, so the patent owner's claim about the publication date of Evidence 1 and Evidence 4 is recognized.

The publication dates of Evidence 1 and Evidence 4 are both earlier than the application date of this patent and can be used as prior art to evaluate the inventiveness of this patent.

The patent owner raised an objection to the Chinese translation of part of Evidence 1 and submitted the Chinese translation of the objection part on February 3, 2023, requesting

The patentee approved the Chinese translation of Evidence 1 submitted by the patentee. Therefore, the patentee's objection to the disclosure of Evidence 1 is

The Chinese translation submitted by the patentee shall prevail for the part, and the Chinese translation submitted by the applicant shall prevail for the rest.

There is no objection to the text. The public content of Evidence 4 shall be based on the Chinese translation submitted by the applicant.

(III) Article 22, Paragraph 3 of the Patent Law

Article 22, Paragraph 3 of the Patent Law stipulates: Creativity means that the invention has outstanding substantive features and significant progress compared with the existing technology.

The utility model has substantial features and progress.

3.1 Claim 1 seeks protection for a method in a user equipment for paging. Exhibit 1 discloses a discussion of the paging design in NR and discloses

The following technical contents were disclosed (see the Chinese translation of Exhibit 1, pages 1-3):

"1 Introduction

During the last RAN1 meeting, the following agreement was reached regarding paging.

γ At least support the paging channel design of RRC idle mode, as shown below:

γ Paging messages are scheduled by the DCI carried by NR-PDCCH and transmitted in the related NR-PDSCH

In this paper, we discuss the paging design considering multi-beam operation in NR systems.

2. Discussion

In the LTE system, the subframes and radio frames used by UEs to monitor paging messages are defined as Paging Occasions (PO) and Paging Frames (PF), respectively.

During idle mode, the UE only needs to monitor one PO in each DRX cycle. Specifically, the PF and PO of the UE can be determined by the following equations.

PF:  $SFN \bmod T = (UE\_ID \bmod N)$

PO:  $i_s = \text{floor}(UE\_ID \bmod N_s)$

T: UE DRX cycle

nB: Total number of POs in the DRX cycle

N: Number of PFs in a DRX cycle

Ns: Number of POs in PF

UE\_ID: IMSI mode 1024

Unlike LTE, due to the beam scanning transmission of paging, there may be multiple paging DCI/message opportunities in one PO.

For frequencies above 6 GHz, one paging DCI/message opportunity per PO is sufficient, however, for frequencies above 6 GHz, multiple paging DCI/message opportunities are required per PO.

A paging occasion may consist of multiple time slots (e.g., subframes or OFDM symbols). The number of time slots in a paging occasion can be determined by the system.

Information to configure.

Multiple paging occasions can be configured for each PO, and the content is to be discussed. Both paging messages and paging indicators must be in the PO.

Regardless of the beam scanning of the paging message in the PO, the UE should know the paging timing of each PO in order to correctly detect the paging message.

Paging DCI, and each opportunity should be a small time slot in the time domain. In other words, the UE can perform paging in each small time slot in each PO.

If the UE performs SS block based measurements and identifies the best received SS block index, the UE can simply detect the paging DCI in the PO.

The associated paging DCI.

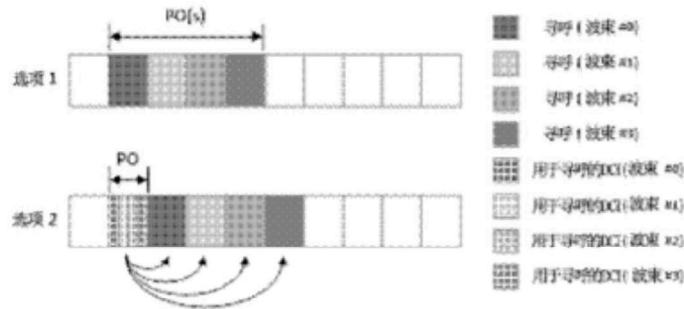
For beamforming paging transmission, we consider the following two options.

## y Option 1

- Paging messages (with paging DCI) can be transmitted in PO by beam scanning.

## y Option 2

- Paging DCI can be transmitted in PO by beam scanning.
- Paging DCI indicates the DL timing of the paging message (e.g., the paging message can be sent in a non-PO subframe)



• 图 2.基于多波束操作的寻呼示例

Statement 1: Each PO is configured with multiple time slots. The UE performs detection of paging DCI based on the configured (multiple) time slots within the PO.

Evidence 1 states that "UE performs paging DCI detection based on (multiple) time slots configured in PO", "paging messages are transmitted by NR-PDCCH

The DCI carried by the NR-PDSCH is scheduled and transmitted in the relevant NR-PDSCH, that is, the first

signaling, X is a positive integer", the signal transmitted in the NR-PDSCH is equivalent to the "first wireless signal", and the "receiving the first wireless signal",

"The first wireless signal carries paging information", "the first signaling is used to determine the scheduling information of the first wireless signal". Since evidence 1 involves

The discussion of paging design in 5G NR system implicitly discloses that the frequency domain resources used for DCI scheduling belong to a sub-band.

The band includes a positive integer number of consecutive subcarriers. Evidence 1 also states that "For sub-6GHz, one paging DCI/message opportunity per PO is sufficient.

However, for frequencies above 6 GHz, each PO requires multiple paging DCI/message opportunities, that is, according to the frequency domain location where the paging DCI is transmitted,

Determine how the UE performs DCI detection in the time interval within each PO, so evidence 1 discloses "the first sub-band" in claim 1

The positions in the frequency domain are used to determine the X time intervals".

Compared with the technical solution claimed in claim 1, the distinguishing feature of the technical solution claimed in claim 1 is that the scheduling message includes the occupied time-frequency resources, the

In at least one of the MCSs used, the subcarrier spacing of the subcarriers included in the first sub-frequency band is used to determine the X time intervals.

Based on the above distinguishing features, it can be determined that the technical problem actually solved by claim 1 is: how to determine time intervals for different mathematical structures.

Evidence 4 discloses the mathematical structure indication of the hybrid mathematical structure carrier and discloses the following technical content (see the Chinese translation of Evidence 4, pp. 1-3)

page, Figure 1):

#### "2.1 Basic units of mathematical structure indication

Different mathematical structures have different subcarrier spacing and symbol duration.

#### 2.2 Time-frequency resources indicated by mathematical structures

The reference mathematical structure with 15KHz agreed in the previous meeting is a good candidate for the sub-6GHz indication.

For frequencies above this, non-dynamically changing or static mathematical structures can be used. Semi-static or dynamic information can be carried in a reference to a static or reference mathematical structure.

corresponding time-frequency resources."

It can be seen that different mathematical structures disclosed in Evidence 4 have different subcarrier spacing and symbol duration.

The relationship between the time-frequency resource units with different mathematical structures and the OFDM symbol length and subcarrier spacing in the 5G NR system shows that different subcarrier spacings

The OFDM length is different, and the OFDM symbol length of each subband with different subcarrier spacing is also different. At the same time, Evidence 4 also gives

The technical revelation of setting different mathematical structures for frequencies above or below 6 GHz is disclosed in Evidence 1.

In order to solve the problem of different paging occasions with different rates and paging occasions consisting of multiple time slots (for example, subframes or OFDM symbols),

The technical problem of how different mathematical structures determine time intervals is that a person skilled in the art is motivated to combine the above technical content disclosed in Evidence 4 with

In Evidence 1, a technical solution for determining the time interval according to different subcarrier spacings for frequencies above or below 6 GHz is obtained.

The message includes at least one of the occupied time-frequency resources and the adopted MCS, which is a common technical means in the 5G NR system.

Therefore, for those skilled in the art, it is easy to obtain the claim by combining evidence 1 with evidence 4 and the commonly used technical means in the field.

The technical solution for 1 is obvious. Claim 1 does not have outstanding substantive features and significant progress, and does not meet the requirements of Article 22, Paragraph 3 of the Patent Law.

The creativity stipulated in paragraph 1.

3.2 Claim 2 refers to Claim 1. Evidence 1 discloses "in an LTE system, a subframe and a radio frame for a UE to monitor a paging message

are defined as Paging Occasion (PO) and Paging Frame (PF) respectively" (see Section 2 of the Chinese translation of Evidence 1), that is, the Paging Frame PF in Evidence 1 is

The first time window in this patent should be used, and any one of the multiple symbols belongs to the paging frame, that is, "the X time intervals in the

Any time interval in the time domain belongs to the first time window", and the multiple symbols used to transmit DCI (corresponding to X time intervals) must be

Less than or equal to the total number of symbols in a frame (corresponding to Y time intervals). Evidence 1 also discloses "PF:  $\text{SFN} \bmod T = (T/N) * (\text{UE\_ID} \bmod$

N), PO:  $i_s = \text{floor}(\text{UE\_ID} \bmod N_s)$ " (see Section 2 of the Chinese translation of Evidence 1), that is, PO:  $i_s$  is related to the user ID, then

When PO has X symbols, the position of the X symbols in Y symbols is also related to the user ID, so Proof 1 gives the monitoring of the first signaling.

The characteristic ID of the tester is used to determine the technical revelation of the X time interval in the Y time interval. Evidence 4 discloses "different mathematical

The structures have different subcarrier spacing and symbol duration. A PRD with 12 subcarriers is agreed as the frequency domain unit for scheduling and RS design.

The time-domain scheduling unit will select from a plurality of symbols, which may be 2, 7, 14, etc. (see Section 2.1 of the Chinese translation of Evidence 4),

That is, different subcarrier spacings in Evidence 4 determine that the total number of symbols in a frame (corresponding to Y time intervals) is different, so Evidence 4

The subcarrier spacing of the subcarriers included in the first sub-frequency band is used to determine Y. In addition, the subcarrier spacing of the subcarriers included in the first sub-frequency band is used to determine Y.

The length of the first time window is common knowledge in the art. Therefore, if the claims cited by it do not have an inventive step, dependent claim 2

It also does not possess the creativity required by Article 22, Paragraph 3 of the Patent Law.

3.3 Claim 3 refers to Claim 2. Evidence 1 discloses "PF:  $\text{SFN} \bmod T = (T/N) * (\text{UE\_ID} \bmod N)$ , T: UE's DRX

cycle, N: the number of PFs in the DRX cycle" (see Section 2 of the Chinese translation of Evidence 1), that is, the paging frame PF corresponds to the first time in this patent.

The N PFs included in the DRX cycle correspond to the Z time windows in this patent, and the position of the PF in the DRX cycle is related to the user ID.

Therefore, Exhibit 1 discloses that "the first time window belongs to one of Z time windows, where Z is an integer greater than 1, and any two time windows in the Z time windows are

The length of the time window is equal to that of the first time window, and the characteristic ID of the monitor of the first signaling is used to determine the first time window in the Z time windows.

Technical revelation. Setting Z time windows in a predefined or configurable manner is common knowledge in the art. Therefore, the claims cited in it do not

Even if the invention has an inventive step, dependent claim 3 does not have the inventive step as stipulated in Article 22, paragraph 3 of the Patent Law.

3.4 Claim 4 refers to any one of claims 1 to 3. In a 5G NR system, the first sub-band used by DCI is located at a position in the frequency domain.

It is a common frequency domain resource information notification method to send the subcarrier spacing of the subcarriers included therein to the user equipment through a system message.

It is a common choice that can be made by those skilled in the art according to actual needs. Therefore, if the claims cited by it are not inventive,

Dependent claim 4 also does not possess the inventiveness required by Article 22, paragraph 3, of the Patent Law.

3.5 Claim 5 refers to any one of claims 1 to 3, and claim 6 refers to claim 4. In a 5G NR system, a user equipment

Determining the frequency domain resources used for DCI scheduling by receiving signaling is a common choice for those skilled in the art.

Selecting different DCI frequency domain resources (ie, the signature ID of the monitor of the first signaling is used to determine the first sub-band among the Q sub-bands) also belongs to this method.

Therefore, if the claims cited by them do not have an inventive step, dependent claims 5 and 6 also do not have an inventive step.

The inventive step required by Article 22, paragraph 3, of the Patent Law.

3.6 The method in the base station for paging claimed in claims 7-12 is the same as the user equipment for paging claimed in claims 1-6.

The method in the preparation has a corresponding relationship between the sending end and the receiving end, see the disclosure of evidence 1 and evidence 4 and the aforementioned comments on claims 1-6.

It is obvious that the technical solutions of claims 7-12 can be obtained by combining evidence 1 with evidence 4 and the commonly used technical means in this field.

See you. Claims 7-12 do not have outstanding substantive features and significant progress, and do not possess the inventive step stipulated in Article 22, Paragraph 3 of the Patent Law.

3.7 Claims 13-18 are user equipment corresponding to claims 1-6, and claims 19-24 are corresponding to claims 7-12

Base station equipment. Based on similar reasons as those in the above review of claims 1-12, and the fact that it is well known in the art to use separate modules to implement corresponding functions

According to common sense, claims 13-24 do not have outstanding substantive features or significant progress, and do not possess the inventive step stipulated in Article 22, paragraph 3, of the Patent Law.

In summary, the applicant's grounds for invalidation that claims 1-24 lack inventiveness are established.

The panel will not comment on the evidence.

III. Decision

It is declared that all invention patent rights No. 201710255811.X are invalid.

If a party is dissatisfied with this decision, it may file a complaint with the Beijing Patent Office within three months from the date of receipt of this decision in accordance with Article 46, Paragraph 2 of the Patent Law.

According to the provisions of this paragraph, after one party files a lawsuit, the other party may participate in the lawsuit as a third party.

Head of the panel: Wu Weimin Judge:

Zheng Chunyu Counselor:

Guo Qiong

Patent Office Reexamination and Invalidation Trial Department