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A typical approach is to draft responses to inventiveness objections in accordance with the three basic elements of invention. That is, the differences between the invention and the prior art are stated in the order of the technical problems to be solved, technical solutions and technical effects. In this way, all the differences can be listed in turn, sometimes even going on for pages. The author has always wondered about this approach: do examiners have enough time, energy, and discernibility to capture the key point from large blocks of text faced with so many responses almost following the same pattern?

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Three Axes For Drafting Office Action Response Related To Inventive Step

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The first axe-go for the throat

In response to the office action, come straight to the point and point out the main problem which is the weakest link in the office action.

Through analyzing the office action, patent agents determine there is one or more problems to refute, such as inaccurate feature comparison, inaccurate technical problems determined based on distinguishing features, or no technical motivation existing in the prior art. Patent agents need to think them over and determine which one is the most likely to convince the examiner as the breakthrough point, state it clearly at the beginning of the observation, in order to arouse enough attention of the examiner, seize the examiner's valuable attention. It should be avoided that each problem is simply listed in the response without any emphasis.

In the case that all the problems are clear, the problems in the office action are generally stated in the observation according to the order of "inaccurate feature comparison", "inaccurate technical problems identified", " no technical motivation existing in the prior art ".

If some problems are not clear, the problem most likely to convince the examiner should be stated first in the observation. For example, although the comparison of features in the office action is not very convincing, it is not easy to deny the comparison of features explicitly, and if the identified technical problems are obviously wrong, the problem of inaccurate technical problems determined by the examiner should be stated first in the response.

The second axe-hit the nail on the head

After clearly pointing out the problems of the office action, the key is to convince the examiners by clearly and fully stating their own opinions with strong evidence and persuasive reasons. Some patent agents sometimes complain that their opinions are correct, but the examiner does not accept them and even issues a decision of rejection, suspecting that the examiner did not understand their opinions, and even asserting that the examiner is not professional. In fact, many times patent agents should reflect on their own opinion statements, whether they have accurately expressed their opinions, and whether the evidence and reasons provided in the observations are really convincing. That is to say, sometimes the right opinion does not mean that the results can be satisfied, and the reasons and evidence supporting the opinion should be accurately and persuasively expressed and stated. At this point, the second axe is particularly important: hit the nail on the head, to make your case persuasive. The following is illustrated by an actual case.

A patent application relates to a memory control circuit. For SDRAM, the reference voltage is needed for reading data signals and the value of the reference voltage is not fixed. The technical problem to be solved is how to get and correct

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the best value of the reference voltage quickly and in real time, so as to read the data in memory quickly and correctly.

In view of the above problems existing in the prior art, the solution provided by the invention is as follows:

"1. A memory control circuit comprises:

a comparator configured for comparing a data signal with a reference voltage to produce a compared data signal;

an eye-width measurement circuit, coupled to the comparator, configured to receive a pulse signal and adjust the phase of the pulse signal to over-sample the compared data signals to measure the eye width of the compared data signals using multiple pulse signals of different phases and produce a measurement result; and

a calibration circuit, coupled to the comparator and the eye width measurement circuit, configured to adjust the level of the reference voltage according to the measurement result."

Reference document 1 cited in the office action discloses an example of adjusting the reference voltage. In the example, the effect of adjusting the reference voltage is observed by measuring the eye width: when adjusting the reference voltage of the signal to the median, the measured eye width increases. The reference document 2 discloses over-sampling of data with fixed multi-phase clock, to improve the accuracy of reading operation through the over-sampling operation.

Based on this, the examiner determines distinguishing features as follows :(1) adjusting the reference voltage according to the eye width measured by the eye width measurement circuit; (2) multiple pulse signals of different phases are used to over-sample the compared data signals and measure the eye width of the compared data signals; The technical problems to be solved include:(1) how to improve the accuracy of reading multichannel signals; (2) how to achieve higher accuracy.

The examiner asserts that reference document 1 discloses adjusting the reference voltage to the median value can increase the eye width. That is, the eye width can be used as the adjusting factor of the reference voltage. Therefore, it is easy for the person skilled in the art to think that the reference voltage can be adjusted according to the value of the eye width of the signal, which is a customary technical means in this field. The over-sampling technical feature disclosed in reference document 2 has the same function as the invention in improving reading accuracy, and has technical enlightenment. The combination of the two reference documents makes claim 1 of the invention lack of inventiveness.

The former patent agent does not agree with the examiner's above opinions. The main rebuttal reasons include: 1) it is not easy to think of adjusting the reference voltage according to the eye-width value of the multichannel signal according to the contents disclosed in reference document 1; 2) over-sampling in reference document 2 is used to obtain more effective information, while in the invention, over-sampling is used to measure eye width more accurately, with different functions; 3) several technical features cooperate with each other to form a more accurate reference voltage adjustment solution.

However, the former patent agent received the decision of rejection, which made him confused. What's the problem? Let's analyze it to find out why.

First, the reference document 1 discloses that adjusting the reference voltage of the signal to the median value can increase the eye width, but does not disclose the feature that "the reference voltage can be adjusted according to the eye width value of the signal"; It is true that this feature is not necessarily derived from the content disclosed in reference document 1. However, after reading the content of reference document 1, is it "easy" for the person skilled in the art to realize that the reference voltage can be adjusted according to the value of the eye width of the signal?

It should be agreed that as a technician with logical thinking ability in this field, when seeing that the reference voltage of adjusting signal to the median value can increase the eye width, he was inspired to think that "the reference level can be adjusted according to the value of eye width of signal". It is a rational reasoning. Unless there is enough evidence and good reason to disprove it, this kind of reasoning is easy to be

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accepted.

The former patent agent argued that "reference document 1 does not disclose that the eye-width value is applied in reference voltage adjustment scheme, the person skilled in the art are not easy to think of adjusting reference voltage according to the eye-width value of multi-channel signal feedback". The reason is empty and general, and the effect was not sufficient to refute the above opinions of the examiner, which leads the examiner to think that the patent agent is unreasonable.

For the second reason, the main basis is that application fields are different which leads to different technical purposes and effects. Such statements are not persuasive. As for the third reason, it is only mentioned in general terms, and the lack of specific reasons and explanations. It can be ignored by the examiners. In summary, the reasons given above do not convince the Examiner and thus led to the rejection.

Upon receipt of the decision of rejection, the applicant decided to file a request for reexamination. In the request for reexamination, no claims are amended, but the reasons for which the claim involves an inventive step are rewritten as follows:

First of all, it is simply explained in the request for reexamination that although it is disclosed in reference document 1 that the reference voltage adjustment will affect the eye width, it cannot be directly concluded that the reference voltage can be adjusted according to the eye width value of the signal. The focus to set forth is: for the purposes of this technical solution, just as stated in the decision of rejection "eye diagram is the overlapping result of the signals in multiple period", eye width needs multiple period signal superposition, and the reference voltage needs real-time adjustment, so there are technical barriers to directly adjusting reference voltage with eye width feedback. It is not customary technical means in the field of technology. The examiner's conclusion is refuted with the facts and the opinions identified in the decision of rejection, hit the nail on the head, and let the examiner irrefutable.

For the distinguishing feature 2, it is clearly pointed out that it has different functions in reference document 2 and the present invention. In reference document 2, frequency signals of different phases are used to over-sample data signals to improve the reading accuracy; while in the present invention, multiple frequency signals of different phases are used to over-sample the compared data signals, to quickly obtain the eye width within the limited time, so as to quickly obtain the optimal value of the reference voltage. Their functions are different. If, according to the examiner's opinion, over-sampling is used only to improve reading accuracy, then based on the contents disclosed in reference documents 1 and 2, the combined solution is to overlay the over-sampled compared data signals after multiple time periods to obtain eye width, and then use eye width to adjust the reference voltage. The feedback is relatively slow and cannot achieve the purpose of the invention.

Based on the above analysis, it can be clearly seen that the object of the invention can only be achieved by close cooperation of the distinguishing features. Therefore, it is necessary to assess the inventiveness of the technical solutions as a whole, rather than separately evaluating the inventiveness of various technical features.

It can be seen that the main points of view in the request for reexamination and that in the response to the office action are the same, but there are differences in the reasons of the specific statements. After the submission of the request for reexamination, the previous examiner agreed to revoke the decision of rejection in the Interlocutory Examination, which, to some extent, indicates the persuasiveness of the request for reexamination and the importance of pointedly preparing the opinion statement.

The third axe- pour water off a steep roof

The assessment of inventive step by examiners is usually based on a three-step approach. Some examiners often decompose the technical solution into several independent technical features, conduct feature comparison and assess inventiveness of individual technical features. However, when comparing individual technical features, there is a certain similarity between features, and the difference between them will be small. A miss is as good as a mile. It

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is obvious that the overall technical solutions are quite different, but the conclusion is that the two technical solutions are almost the same. In this case, it's easy to fall into the trap of not being able to explain the differences between individual technical features if you just argue as the way the examiner thinks.

For the above situation, the third axe for responding to the defect of lacking of inventive step can be used: to pour water off a steep roof. That is, the differences between the invention and the overall technical solution of the reference are explained before the specific technical features are compared. In this way, the differences between the two can be clearly explained based on the overall technical solution during the comparison of each feature, so as to explain the problems existing in the office action more clearly and convincingly.

One case relates to a vehicle control system whose independent claim includes a vehicle-mounted control unit and an information control center. The vehicle control module disclosed in reference document 1 is responsible for communicating with the single PLC on each shuttle car (vehicle on the circular track); It integrates the vehicle operation information and task information of each car to form a string and sends it to the vehicle real-time scheduling module ", while the invention "multiple vehicle-mounted control units, each of which is set on corresponding multiple RGV of track-guided vehicle". There are certain similarities between them.

The examiner asserts that the vehicle control module in reference document 1 is equivalent to the vehicle-mounted control unit of the invention, and "reference document 1 has disclosed the vehicle control module used to realize the information interaction between each RGV and the vehicle real-time scheduling module (i.e. the information control center of the invention), and the specific arrangement of the vehicle control module as the vehicle-mounted control unit on each RGV is only a conventional choice on this basis." It is not easy to explain the difference between the vehicle control module and the vehicle-mounted control unit.

In this case, the overall difference between the two is described first: if the vehicle control module in reference document 1 is equivalent to the vehicle-mounted control unit of the invention, it will conflict with the technical problem to be solved by the invention. Because, the technical problems to be solved by the invention include "the operating efficiency of RGV is greatly limited by the communication state of RGV. When there are more than one RGV in the same roadway, RGV has to communicate with each other, which makes the communication structure of RGV complex and unreliable ", and the technical effects of the invention include "RGV does not need to communicate with each other, which greatly simplifies the communication network structure, and greatly improves the reliability and stability of RGV control scheduling. The conclusion is drawn that the vehicle control module in reference 1 and the vehicle-mounted control unit in the invention are not the same or equal, which makes the whole statement more convincing.

Some suggestions are provided above for responding to office actions related to inventive step. After all, responding to office action is actually a communication with the examiner. As a communication, It's best to put yourself in the other side's position and express your opinions clearly in a way that is easy for the other side to understand and accept. Only by clearly, concisely and persuasively drafting the response can the examiner be persuaded to obtain the desired results.

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The newsletter is not intended to constitute legal advice. Special legal advice should be taken before acting on any of the topics addressed here.

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Mr. Sun's practice mainly focuses on patent prosecution. He has successfully represented major corporations, especially telecommunications, computer software and hardware companies, in patent prosecution. He has handled hundreds patent filings and prosecuting cases covering various technical fields, particularly the fields of artificial intelligence, pattern recognition, computer software and networks, telecommunications, semiconductor, e-commerce and automation technologies in China and many countries outside of China, such as the USA, Europe and India etc. since 2005 when he started his patent profession. He also provides Intellectual property legal services to clients, such as patent search, patent infringement analysis, patent design around, patent reexamination, patent invalidation and patent litigation etc.

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