Multicenter, Open-Label, Parallel-Group, Randomized Controlled Study Comparing the Dose-Response Relationship of LED Red Light in Controlling Myopia Progression

Clinical Study Protocol

(Protocol No.Airdoc202510)

Test Medical Device Name: Yingtong Vision Rehabilitation Instrument

Model and Specification: sky-n1201

Protocol Version No. and Date: 2.0/2025.10.01

Regulatory Classification of the Test Medical Device: Class II

Clinical Trial Institution:

Shanghai General Hospital / Wang Xiaojuan

Leading Clinical Trial Institution / Coordinating Investigator:

Shanghai General Hospital / Wang Xiaojuan

Sponsor: Beijing Airdoc Technology Co., Ltd.

Version History

Version Date	Version No.	Revision Records
2025.07.01	1.0	None
2025.10.01	2.0	1. Added to Research Content: "Although LED-based red light at specific wavelengths and appropriate doses also relies on the core biological mechanism of PBM therapy, it differs from laser. Lasers have high collimation, small divergence angles, and high energy density, posing a greater risk of damage to the eyes, especially the retina, compared to LED light. In contrast, non-laser PBM therapy using LED light emits incoherent, divergent light with high safety. This light source, specially designed by Airdoc, forms a unique annular light spot on the fundus retina while avoiding the fovea centralis, greatly reducing safety concerns. This study adopts non-laser LED red light to slow down or control myopia progression in children and adolescents. ISO 15004-2 is an international standard for optical radiation safety testing of ophthalmic instruments, meeting the compliance requirements of global medical device regulations. The standard sets a limit of 0.7W/cm² for retinal power density. The non-laser LED red light device used in this study is strictly designed in accordance with this standard, with test results showing a retinal power density nearly 1/77 of the standard limit. Compared to laser red light, which may exceed this standard and pose risks, the retinal power density of the device in this study provides a sufficient safety margin. According to the Arndt-Schultz law, the dose of red light is correlated with its effect within a certain range, and energy density is related to time and power density. Currently, there is no corresponding basis for the recommended 3-minute use duration. The 'safe window dose' is set based on

		energy density. Calculations show that the intervention dose of the extended intervention duration in the study groups is still much lower than the 3-minute intervention dose of laser red light, so the claim that increasing the intervention dose will generate additional safety risks is unfounded. Studies on LED red light by the research team have shown that its effect is relatively weaker than that of laser red light. Whether different intervention durations will affect the effectiveness and safety of non-laser PBM therapy has become a new research question." 2. Updated and added "12.7. Adverse Event Correlation Judgment and Risk Management" content. 3. Added "Multiple comparison α requires Bonferroni correction (α=0.016667)" to 6.1 Sample Size Calculation.

Contents

List of Abbreviations

Abbreviation	Full Name
AE	Adverse Event
CI	Confidence Interval
CRF	Case Report Form
CMH	Cochran-Mantel-Haenszel Chi-square test
EC	Ethics Committee
FAS	Full Analysis Set
GCP	Good Clinical Practice
ICF	Informed Consent Form
NMPA	National Medical Products Administration
PPS	Per-Protocol Set
IRB	Institutional Review Board
SS	Safety Set
SAE	Serious Adverse Event
SAP	Statistical Analysis Plan

1. Clinical Study Summary

Item	Content
Study Title	Multicenter, Open-Label, Parallel-Group, Randomized Controlled Study Comparing the Dose-Response Relationship of LED Red Light in Controlling Myopia Progression
Study Product	Yingtong Vision Rehabilitation Instrument
Study Population	Potential study population with myopia of -6.00D or less
Research Institution	Shanghai General Hospital
Sponsor	Beijing Airdoc Technology Co., Ltd.
Study Objective	To verify the effectiveness and safety of the LED red light combined with defocus lens therapy of the study product (Yingtong Vision Rehabilitation Instrument) by comparing with the marketed Hoya DIMS defocus lens, and to evaluate the impact of different intervention durations on the effectiveness and safety of this combined therapy.
Trial Duration	The expected total duration of this clinical trial is 18 months.
Efficacy Indicators	1. Primary Efficacy Endpoint Change in axial length at 6 months (mm) 2. Secondary Efficacy Endpoints (1) Change in axial length at 1 month (mm); (2) Change in axial length at 3 months (mm); (3) Change in axial length at 9 months (mm); (4) Change in axial length at 12 months (mm); (5) Change in spherical equivalent refraction (SER) at 12 months.
Safety Indicators	1. Adverse event rate and serious adverse event rate; 2. 12-month visual adverse event rate (BVCA decrease ≥0.2 logMAR); 3. Device defect rate.

Inclusion Criteria	1. Aged 6 to 14 years old, regardless of gender; 2. After cycloplegic autorefraction, monocular or binocular spherical equivalent refraction (SER) meets: -6.00D ≤ SER ≤ -1.00D, and binocular best-corrected visual acuity (BCVA) ≥ 0.8 (logMAR 0.1; Snellen 20/25); 3. Binocular anisometropia ≤ 1.50D; astigmatism ≤ 2.50D; 4. Able to understand the purpose of the study, willing to participate in this clinical verification, sign the informed consent form personally or through their legal guardian, and cooperate with the entire trial process (12 months).
Exclusion Criteria	1. Photophobia or allergy to cycloplegic agents (e.g., tropicamide or cyclopentolate); 2. Received any of the following myopia control measures within one month (including but not limited to): low-concentration atropine eye drops, orthokeratology lenses, myopia control-related frame glasses, low-level red light therapy, defocus soft contact lenses, or defocus RGP lenses; 3. Subjects with ocular diseases that may affect visual acuity or refractive error (e.g., lens disorders such as cataracts, glaucoma, macular degeneration, corneal diseases, uveitis, retinal detachment, severe vitreous opacity, etc.); 4. Neurological diseases (previous convulsion history, epilepsy, tic disorders, central nervous system developmental abnormalities) or mental and psychological diseases; 5. Systemic diseases: immune system diseases, central nervous system diseases, Down syndrome, asthma, severe cardiopulmonary function impairment, severe liver and kidney dysfunction, acute or chronic sinusitis, or diabetes mellitus; 6. Binocular manifest strabismus or any other pathological

	changes of the eyeball or acute inflammatory ocular diseases; 7. Subjects deemed inappropriate by the investigator.
Number of Research Centers	7
Sample Size	364

2. Sponsor Information

Relevant information of the sponsor is shown in Table 1 below.

Table 1: Sponsor Information

Item	Details
Name	Beijing Airdoc Technology Co., Ltd.
Address	2M-16, M Floor, Building 2, No. 36 Zhenxing Road, Changping Science and Technology Park, Beijing
Postcode	100000
Contact Person	Fang Chunxu
Contact Information	13354593387

Note: Changes in contact information during the study will not be considered as revisions to the study protocol.

3. List of Research Centers

See Annex 2.

4. Background Information of the Clinical Trial

4.1. R&D Background

Myopia is the most common refractive error, prevalent worldwide, especially in East Asia. China has one of the highest myopia prevalence rates among adolescents globally, with a prevalence of 15-80% among urban adolescents [1–2], which is 1.5-5.6 times that of the corresponding population in Chile and 11.4-30.8 times that in Nepal. According to a survey by the World Health Organization (WHO), myopia has become one of the main causes of visual impairment globally. Annual costs for myopia correction through optical means or surgery are substantial, and drug treatment for pathological myopia and irreversible blindness can impose a heavy burden on society and families. Moreover, over the past 30 years, the prevalence of myopia has increased significantly worldwide,

especially in developed regions; it is estimated that by 2050, 50% of the global population will be myopic, including 10% with high myopia. High myopia is associated with an increased risk of blindness and blinding eye diseases due to fundus abnormalities. Therefore, controlling myopia progression to prevent high myopia and reduce the burden of blinding eye diseases on individuals and society is an urgent public health issue.

To effectively strengthen the prevention and control of myopia among children and adolescents, on August 30, 2018, the Ministry of Education, together with seven other ministries including the National Health Commission, formulated the "Implementation Plan for the Comprehensive Prevention and Control of Myopia Among Children and Adolescents". This plan involves the government, schools, medical and health institutions, families, and students, aiming to reduce the overall myopia rate of children and adolescents in China by more than 0.5 percentage points annually on the basis of 2018 by 2023, and by more than 1 percentage point annually in provinces with a high myopia rate; by 2030, the myopia rate of 6-year-old children should be controlled at around 3%, the myopia rate of primary school students should drop below 38%, that of junior high school students below 60%, and that of senior high school students below 70%.

Notably, the development of myopia is a dynamic process, and preventive and control measures need to be implemented as early as possible. Previous studies have shown that risk factors for pre-myopic status include changes in axial length, decreased uncorrected distance visual acuity, changes in ocular biological parameters, parental myopia degree, parental education level, indoor/outdoor activity time, and genetic risk [5–9]. The greater harm of myopia is mainly reflected in the fundus of high myopia or even pathological myopia; intervening in children and adolescents with myopia to control myopia progression or even partially reverse myopia has always been the direction of medical efforts.

In clinical studies on laser red light for controlling myopia progression published in the past two years, it has been confirmed that low-level red light can not only control the elongation of myopic axial length but also induce myopic axial length regression in 48.61% of myopic children after a 1-year complete follow-up. A large number of relevant clinical studies have not reported complications related to fundus damage. Currently, non-laser PBM therapy using LED light has been widely used in neurotrauma, stroke, etc., and also provides an innovative, non-invasive treatment approach for severe vision-threatening eye diseases such as age-related macular

degeneration, amblyopia, diabetic retinopathy, and Leber's hereditary optic neuropathy.

Although LED-based red light at specific wavelengths and appropriate doses also relies on the core biological mechanism of PBM therapy, it differs from laser. Lasers have high collimation, small divergence angles, and high energy density, posing a greater risk of damage to the eyes, especially the retina, compared to LED light. In contrast, non-laser PBM therapy using LED light emits incoherent, divergent light with high safety. This light source, specially designed by Airdoc, forms a unique annular light spot on the fundus retina while avoiding the fovea centralis, greatly reducing safety concerns. This study adopts non-laser LED red light to slow down or control myopia progression in children and adolescents.

ISO 15004-2 is an international standard for optical radiation safety testing of ophthalmic instruments, meeting the compliance requirements of global medical device regulations. The standard sets a limit of 0.7W/cm² for retinal power density. The non-laser LED red light device used in this study is strictly designed in accordance with this standard, with test results showing a retinal power density nearly 1/77 of the standard limit. Compared to laser red light, which may exceed this standard and pose risks, the retinal power density of the device in this study provides a sufficient safety margin. According to the Arndt-Schultz law, the dose of red light is correlated with its effect within a certain range, and energy density is related to time and power density. Currently, there is no corresponding basis for the recommended 3-minute use duration. The 'safe window dose' is set based on energy density. Calculations show that the intervention dose of the extended intervention duration in the study groups is still much lower than the 3-minute intervention dose of laser red light, so the claim that increasing the intervention dose will generate additional safety risks is unfounded. Studies on LED red light by the research team have shown that its effect is relatively weaker than that of laser red light. Whether different intervention durations will affect the effectiveness and safety of non-laser PBM therapy has become a new research question. To explore the effectiveness and safety of LED red light combined therapy with different intervention durations in controlling myopia progression in children and adolescents, the research team plans to conduct a prospective, multicenter, randomized controlled clinical study to provide scientific basis and practical guidance for the application of PBM phototherapy intervention technology.

4.2. Basic Product Information

Main technical performance indicators of Yingtong Vision Rehabilitation Instrument:

Input voltage: 6V (4 × 1.5V alkaline dry batteries).

Red light wavelength: 650nm; light spot diameter: outer diameter 5.0mm, inner diameter 1.5mm.

Light source output power: 1.6 mW (±0.1mW at 30mm from the observation window).

After obtaining informed consent from children and their parents at the start of the study, the Yingtong Vision Rehabilitation Instrument should be used twice a day under the regular communication and supervision of hospital optometrists/coordinators (via phone, WeChat, etc.), with an interval of at least 4 hours.

Specific operation steps of Yingtong Vision Rehabilitation Instrument:

Place the instrument on a stable desktop, and connect accessories such as headphones after confirming the interface;

Open the rear bracket, then open the battery cover, and insert 4 fully charged AA 1.5V batteries;

Let the subject sit in a suitable position, adjust the foldable bracket on the back to the most comfortable angle, so that the eyes are relatively comfortable when leaning against the instrument, and hold the sides of the instrument with both hands to fix the distance;

Press the on/off button on the front of the instrument, and the screen will display the battery level, target distance (select a distance within the range of 50-70mm where both eyes can fuse into a single image), and set time; headphones can be inserted in advance to listen to music; the music function can only be activated after turning on the instrument, and the volume can be adjusted or turned off by clicking the music button continuously;

Click the on/off button, then let the eyes be close to the red light emitting part of the instrument;

During use, adjust the target distance so that the light can illuminate the pupil area of both eyes simultaneously. The instrument will automatically remember the target distance used last time when turned on again.

Turn off the instrument after use.

4.3. Scope of Application and Relevant Information

4.3.1. Target Population

Children and adolescents with myopia.

4.3.2. Reusability

Can be used long-term as recommended by doctors.

4.3.3. Usage Methods and Precautions of the Test Product

See the product manual for details.

4.3.4. Contraindications

Ocular disease patients: Those with a history of photosensitivity, macular diseases, moderate to severe dry eye, corneal diseases, cataracts, vitreoretinal diseases, infectious conjunctivitis, allergic conjunctivitis, uveitis, optic nerve damage, congenital optic nerve dysplasia, or other ocular diseases.

Patients with autoimmune diseases and systemic diseases: Systemic lupus erythematosus, dermatomyositis, Sjögren's syndrome, hypertension, albinism, previous convulsion history, diabetes mellitus, tic disorders, immature central nervous system development, psoriasis, epilepsy, mental and psychological diseases, etc.

Other contraindications:(1) Patients using low-concentration atropine simultaneously;(2) Children with relatively high intraocular pressure (IOP), whose cup-to-disc ratio should be closely examined.

Prohibited conditions:(1) If the child has a cold or fever, the device should be discontinued;(2) If the patient is in a stage of ocular surface inflammation (e.g., allergic conjunctivitis, corneal staining, or damage), the device should be discontinued;(3) The device should be discontinued if the patient experiences abnormal afterimage duration, significant short-term visual loss, persistent halos in front of the eyes, scotomas, systemic inflammation, photophobia, mydriasis, or other issues;(4) During the use of Yingtong Vision Rehabilitation Instrument, a few myopic patients may experience reactions unrelated to the mechanism of the instrument due to changes in physical condition, environment, psychology, mood, etc., such as red eyes, swollen eyes, dry eyes, or lacrimation caused by inflammation. In such cases, the cause should be identified promptly to determine whether temporary discontinuation is necessary.

5. Trial Design

5.1. Overall Design and Rationale

Referring to the "Guidance Principles for the Design of Medical Device Clinical Trials", this study adopts a multicenter, randomized, open-label, parallel-group, non-inferiority design. The parallel control product is Hoya DIMS multi-point myopia defocus lens. After signing the informed consent form, subjects will be screened according to unified inclusion and exclusion criteria. Eligible subjects will be randomly assigned to Test Group A, Test Group B, Test Group C, and Control Group D at a ratio of 1:1:1:1.

Intervention measures for the four groups:

- Test Group A: PBM therapy with single intervention duration of 2 minutes + wearing Hoya DIMS defocus lens;
- Test Group B: PBM therapy with single intervention duration of 3 minutes + wearing Hoya DIMS defocus lens;
- Test Group C: PBM therapy with single intervention duration of 4 minutes + wearing Hoya DIMS defocus lens;
- Control Group D: Wearing Hoya DIMS defocus lens only.

Subjects in the four groups will be followed up at screening/enrollment, 30 days ±7 days, 3 months ±7 days, 6 months ±14 days, 9 months ±14 days, and 12 months -28 days. The effectiveness, safety, and other aspects of the product will be evaluated during the follow-up visits.

This study will be conducted in accordance with the requirements of the NMPA's "Good Clinical Practice for Medical Devices" to ensure that the clinical trial process is standardized, and the results are true, scientific, reliable, and traceable.

Investigators will adhere to the ethical principles of the World Medical Association's Declaration of Helsinki to maximize benefits for subjects and minimize harm, so as to evaluate whether the test product has similar effectiveness and safety to the control product under normal use conditions.

5.1.1. Trial Objective

To verify the effectiveness and safety of the PBM therapy combined with defocus lens therapy of the study product (Yingtong Vision Rehabilitation Instrument) by comparing with the widely used marketed Hoya DIMS defocus lens (with and without combination).

5.1.2. Selection of Trial Method and Rationale

In this clinical trial, the three test groups and the control group will use Yingtong Vision Rehabilitation Instrument combined with Hoya DIMS defocus lens and Hoya DIMS defocus lens alone, respectively. In accordance with the principles of the "Good Clinical Practice for Medical Devices", a multicenter, randomized, open-label, parallel-group controlled trial design is adopted. The rationale for this method is as follows:(1) Multicenter: Multicenter clinical trials can collect a large number of subjects in a short period of time, shortening the time required to complete the clinical trial. In addition, multicenter clinical trials involve investigators and subjects from multiple centers, avoiding the limitations of a single research center, reducing bias, and enhancing the credibility of the results, making the conclusions more widely applicable. Therefore, to ensure the

progress of this clinical study and the credibility of the conclusions, a multicenter trial design is adopted;(2) Randomization: This clinical trial adopts a randomization method with a randomized block design to ensure that subjects are evenly assigned to the three test groups or the control group;(3) Open-label: Due to the obvious differences in the use of the products in this clinical trial, double-blind or single-blind design cannot be achieved, so an open-label clinical trial design is adopted;(4) Parallel control: The parallel control product is Hoya DIMS multi-point myopia defocus lens, whose safety and effectiveness have been proven through wide clinical application after marketing. Through comparison, the safety and effectiveness of the combined use of the test product and this product can be evaluated;(5) This trial adopts a multicenter, parallel trial design, with the clinical trial starting and ending simultaneously to reduce bias.

Based on the above considerations, to evaluate the effectiveness and safety of the combined use of Yingtong Vision Rehabilitation Instrument and Hoya DIMS defocus lens, and adhering to the principle of scientific rationality, this trial adopts a multicenter, randomized, open-label, parallel-group controlled trial method.

5.2. Subject Selection

Subjects who provide informed consent and meet the case selection criteria enrolled by clinical institutions during the trial period:

5.2.1. Inclusion Criteria

1) Adhering to the principles of fairness, respect, and maximizing benefits for subjects, ensuring safety and health, and minimizing harm as much as possible.
2) Aged 6 to 14 years old, regardless of gender;
3) After cycloplegic autorefraction, monocular or binocular spherical equivalent refraction (SER) meets: -6.00D ≤ SER ≤ -1.00D, and binocular best-corrected visual acuity (BCVA) ≥ 0.8 (logMAR 0.1; Snellen 20/25);
4) Binocular anisometropia ≤ 1.50D;
5) Able to understand the purpose of the study, willing to participate in this clinical verification, sign the informed consent form personally or through their legal guardian, and cooperate with the entire trial process (12 months).

5.2.2. Exclusion Criteria

1) Photophobia or allergy to cycloplegic agents (e.g., tropicamide or cyclopentolate);

2) Received any of the following myopia control measures within one month (including but not limited to): low-concentration atropine eye drops, orthokeratology lenses, myopia control-related frame glasses, low-level red light therapy, defocus soft contact lenses, or defocus RGP lenses;
3) Subjects with ocular diseases that may affect visual acuity or refractive error (e.g., lens disorders such as cataracts, glaucoma, macular degeneration, corneal diseases, uveitis, retinal detachment, severe vitreous opacity, etc.);
4) Neurological diseases (previous convulsion history, epilepsy, tic disorders, central nervous system developmental abnormalities) or mental and psychological diseases;
5) Systemic diseases: immune system diseases, central nervous system diseases, Down syndrome, asthma, severe cardiopulmonary function impairment, severe liver and kidney dysfunction, acute or chronic sinusitis, or diabetes mellitus;
6) Binocular manifest strabismus or any other pathological changes of the eyeball or acute inflammatory ocular diseases;
7) Subjects deemed inappropriate by the investigator.

5.2.3. Criteria and Procedures for Terminating the Trial/Withdrawing Subjects

5.2.3.1. Criteria for Terminating the Trial/Trial Treatment

(1) Subjects voluntarily withdraw from the trial for various reasons, such as revoking informed consent, death, or loss to follow-up;(2) Subjects fail to follow the trial visit schedule;(3) Due to adverse events, especially serious adverse events, the sponsor, ethics committee, clinical trial institution, national or local drug regulatory authority decides to terminate the trial from an ethical perspective, regardless of whether it is related to the research medical device;(4) The sponsor decides to terminate the trial;(5) Pregnancy occurs during the clinical trial;(6) The subject's health condition does not allow them to participate in this trial;(7) Other circumstances that require termination of the trial/trial treatment.

5.2.3.2. Handling of Termination/Withdrawal

(1) Complete the final examination, and record in detail the concurrent medications and adverse events of the terminated/withdrawn subjects;(2) For terminated/withdrawn subjects, clinically reasonable medical treatment should be provided to ensure their safety, and effectiveness and safety data should be obtained as much as possible. For subjects who do not voluntarily withdraw, follow-

up should be conducted until the end of the study;(3) The reason and time for the subject's termination/withdrawal from the trial should be recorded in detail in the Case Report Form (CRF);(4) Patients who terminate the trial due to adverse events must be followed up until the adverse event is resolved or stabilized.

5.2.3.3. Dropout Criteria

All subjects who have signed the informed consent form, passed the screening, been randomized, and used the study product but failed to complete the 12-month follow-up for any reason are considered dropout cases.

5.2.3.4. Exclusion Criteria

The exclusion criteria are one of the key indicators for determining the endpoint dataset of the clinical trial observation, including various situations that seriously violate the trial protocol and/or affect the evaluation of the efficacy or safety of the case, including those for whom observation data cannot be obtained. Whether to include them in the analysis set should be jointly discussed and decided by the principal investigator, data manager, statistical analysis expert, and sponsor during data verification.

5.3. Evaluation Methods

5.3.1. Efficacy Evaluation

5.3.1.1. Primary Efficacy Endpoint and Other Efficacy Indicators

Referring to the "Expert Consensus on the Application of Axial Length in Myopia Prevention and Control Management (2023)", the primary efficacy endpoint and other efficacy indicators of this study are formulated as follows:

Primary Efficacy EndpointChange in axial length at 6 months (mm). It is considered "effective" when the axial length meets the following clinical evaluation requirements:(1) Taking an annual axial length growth of ≤0.20 mm as the threshold for the safe growth range, an axial length growth of ≤0.1 mm at 6 months is considered "effective".

Secondary Efficacy Endpoints: Evaluate the following items and compare the corresponding secondary evaluation indicators of the four groups after intervention. The examination time is shown in Annex 1, and statistical analysis results of the three test groups and the control group should be provided:(1) Axial length results at all follow-up visits except 6 months;(2) Refractive error results at the 12-month follow-up.

5.3.1.2. Selection and Explanation of Efficacy Parameters

Primary Efficacy Endpoint: Change in axial length at 6 months (mm).The change in axial length at 6 months after intervention is an important indicator for evaluating product efficacy. Based on the characteristics of the product, expert opinions, and referring to the "Expert Consensus on the Application of Axial Length in Myopia Prevention and Control Management (2023)", the change in axial length at 6 months (mm) is designated as the primary efficacy endpoint.

Secondary Efficacy Endpoints: Evaluate the following items and compare the corresponding secondary evaluation indicators of the four groups after intervention. The examination time is shown in Annex 1, and statistical analysis results of the three test groups and the control group should be provided:(1) Change in axial length at 1 month (mm);(2) Change in axial length at 3 months (mm);(3) Change in axial length at 9 months (mm);(4) Change in axial length at 12 months (mm);(5) Change in spherical equivalent refraction (SER) at 12 months.

5.3.2. Safety Evaluation

5.3.2.1. Safety Indicators

Confirm the following items, compare the safety indicators of the four groups after intervention. The follow-up time is shown in Annex 1, and statistical analysis results of the test groups and the control group should be provided:

Adverse event rate and serious adverse event rate;

12-month visual adverse event rate (BVCA decrease ≥0.2 logMAR);

Device defect rate.

5.3.2.2. Selection and Explanation of Safety Parameters

The follow-up time is shown in Annex 1.

Symptoms, signs, complications, adverse events, or serious adverse events: List the symptoms, signs, complications, adverse events, etc., of subjects at each follow-up visit after intervention (30 days, 3 months, 6 months, 9 months, 12 months), and provide statistical analysis results of the test groups and the control group.Slit lamp examination: Perform slit lamp examination at each follow-up visit.

OCT examination: Observe changes in choroidal thickness and interlayer structure of subjects at 30 days, 3 months, 6 months, 9 months, and 12 months.

Best-corrected visual acuity: Analyze the best-corrected visual acuity at 30 days, 3 months, 6 months, 9 months, and 12 months follow-up visits and the initial best-corrected visual acuity, and compare

the proportion of subjects in the test groups and the control group with a decrease of 1 line, 2 lines, or more than 2 lines in best-corrected visual acuity compared with the initial best-corrected visual acuity.

Intraocular pressure (IOP): Measure the IOP of subjects at 30 days, 3 months, 6 months, 9 months, and 12 months follow-up visits, and analyze the impact of the test groups and the control group on IOP.

5.4. Test Medical Device and Control Medical Device

The test product for this clinical trial is Yingtong Vision Rehabilitation Instrument, and the control product is Hoya DIMS multi-point myopia defocus lens. Both the test and control products are marketed and widely used clinically, meeting clinical needs.

5.5. Trial Process

5.5.1. Trial Flow Chart

Kick-off Meeting → Recruit Subjects → Sign Informed Consent Form → Routine Ocular Examinations and Screening for Eligibility → Randomization (Screening Failure if Not Meeting Any Inclusion Criterion or Meeting Any Exclusion Criterion) → Customize and Distribute Test Products → Conduct Follow-up Examinations According to the Follow-up Schedule (see Annex 1) → Perform Various Evaluation Indicator Examinations and Record → Monitor and Record Adverse Events/Device Defects Throughout the Trial.

Note: Investigators should conduct self-inspections throughout the trial process;(1) Subjects should be patients who meet the inclusion and exclusion criteria of the protocol;(2) Inform subjects of the content of the clinical trial, and have them understand and sign the Informed Consent Form;(3) Conduct ocular examinations and screen for eligibility. Eligible subjects who meet the inclusion and exclusion criteria will be randomly assigned to the corresponding groups and given random numbers;(4) Distribute the test/control medical devices;(5) Investigators will conduct follow-up visits according to the follow-up schedule, record follow-up data, and monitor adverse events throughout the process;(6) Collate and analyze trial data, and form a clinical trial report.

5.5.2. Trial Implementation (Methods, Content, Steps, etc.)

After meeting the inclusion and exclusion criteria, subjects should be followed up in accordance with the requirements of the clinical trial protocol. See Annex 1 (Clinical Trial Follow-up Table) for details. During the clinical trial, closely observe and record adverse events.

The following relevant examinations and operations need to be performed throughout the study:The trial steps include: screening/enrollment, 30 days ±7 days, 3 months ±7 days, 6 months ±14 days, 9 months ±14 days, and 12 months -28 days.

5.5.2.1. Screening/Enrollment

Sign the written informed consent form;

Collect subject information:

Concurrent diseases, past medical history, myopia control intervention history, surgical history, trauma history, etc.;

Concurrent medications, and determine whether there is concurrent ophthalmic drug treatment;

Conduct ocular examinations:

a. Axial length;

b. Refractive error;

c. Visual acuity, IOP, fundus color photography, OCT, eye position examination, and slit lamp examination.

Verify the inclusion/exclusion criteria one by one. Eligible subjects will be randomly enrolled and assigned to the corresponding groups;

Customize and distribute defocus lenses: Customize lenses according to clinical prescriptions and mail them to subjects.

5.5.2.2. Follow-up Period

Follow-up visits will be conducted at 30 days, 3 months, 6 months, 9 months, and 12 months after intervention to complete the following evaluations:

Inquire about the occurrence of adverse events since the last follow-up;

Inquire about changes in concurrent medications or treatments since the last follow-up;

Conduct ocular examinations:

a. Axial length;

b. Refractive error;

c. Visual acuity, IOP, fundus color photography, OCT, eye position examination, and slit lamp examination;

d. Record of test device defects and protocol deviation;

e. Schedule the next follow-up visit with the subject.

5.5.2.3. Unscheduled Follow-up

Between two follow-up visits, if the subject experiences any discomfort or special conditions (e.g., any obvious discomfort, damage or loss of the study product, etc.) and needs guidance or support from the investigator, the subject can return to the research center for an unscheduled follow-up. During the unscheduled follow-up, the reason for the unscheduled follow-up and the measures taken by the investigator (including examinations or treatments provided, supplementary replacement and distribution of study products, etc.) should be recorded.

5.5.3. Specifications for Device Use

In accordance with regulations such as the NMPA's "Good Clinical Practice for Medical Devices", the specifications for the use of test medical devices mainly include the following aspects:(1) Before the start of the medical device clinical trial, the sponsor will organize training related to the medical device clinical trial, such as the principle, scope of application, product performance, operation method, technical indicators, clinical trial protocol, standard operating procedures, and other relevant documents of the test medical device.(2) The test medical device should be produced in accordance with the relevant requirements of the Good Manufacturing Practice for Medical Devices and be of qualified quality;(3) Determine the transportation conditions, storage conditions, storage time, validity period, etc., of the test medical device;(4) The test medical device should be properly packaged and stored in accordance with the requirements of the clinical trial protocol;(5) After the medical device clinical study is approved by the ethics committee, the sponsor is responsible for transporting the test medical device to the hospital under specified conditions;(6) For the test medical device recovered by the hospital, the sponsor is responsible for keeping records of recovery and disposal.(7) Investigators are responsible for managing the test medical device and control medical device provided by the sponsor, storing and keeping them in accordance with requirements during the clinical study, and handling them in accordance with relevant laws and regulations and the contract with the sponsor after the completion or termination of the clinical study. The above process should be managed by a dedicated person and recorded. Investigators shall not transfer the test medical device to any non-clinical trial participant.

5.5.4. Device Management

5.5.4.1. Pre-Reception Management

Before the arrival of the test medical device, the sponsor should notify the trial center to make

reception preparations. The trial center should have an independent storage space to store the test medical device to avoid confusion with other similar products.

5.5.4.2. Reception and Storage of Test Medical Device

After the study product arrives at the trial center, the trial center should designate a person responsible for the reception work and complete the corresponding reception records. If there are any problems with the study product upon arrival (e.g., missing quantity, damaged outer packaging, etc.), it should be reported to the sponsor.

The trial center should designate a person responsible for the management of the study product after reception (e.g., quantity counting).

5.5.4.3. Outbound and Use of Test Medical Device

The test medical device should be stored independently with corresponding inbound and outbound records for verifying material balance and medical device information. Issuance and return should be recorded in writing.

5.5.4.4. Return of Test Medical Device

After the on-site work of the clinical trial is completed, the warehouse manager is responsible for counting the quantity of remaining products, filling in the corresponding records, and filing the records. Investigators are responsible for explaining any discrepancies in the remaining quantity. The remaining medical device shall be handled in accordance with the agreement between the sponsor and the investigator to ensure that the test medical device does not circulate externally.

5.6. Bias Control Measures

Due to the need for trial use of the product before formal use in this clinical trial, double-blind or single-blind design cannot be achieved, so an open-label clinical trial design is adopted. To reduce and avoid bias as much as possible, the following aspects will be taken to control bias in the design and implementation of the study:(1) Select objective efficacy and safety evaluation indicators as much as possible;(2) Formulate a unified standard operating procedure (SOP) for examinations. Before the start of the clinical trial, the monitor, together with the person in charge of each trial center, will train all investigators on the study protocol and operating procedures to ensure that investigators understand and are familiar with the product and master all operations during the clinical trial.(3) Before the start of the clinical trial, the sponsor will assist each trial center in preparing for the start of the clinical trial and conducting training, and promptly identify problems

and take corrective and preventive measures to ensure that all contents of the clinical trial protocol are strictly followed. The original data will be checked to ensure consistency with the content of the CRF.(4) Adopt randomization, and each research center will compete for enrollment.(5) After the completion of the clinical study, do a good job in data collation and preservation. When problems are found in the data, the data analyst will verify and confirm the data through data query forms to avoid recording errors.

5.7. Expected Total Duration of the Clinical Trial and Rationale

The expected total duration of this clinical trial is 18 months. The total duration specifically includes two parts: enrollment time and subject follow-up time. The expected enrollment time is 6 months, and the subject follow-up time is 12 months.

5.7.1. Rationale for Determining Enrollment Time

Considering the uneven source of subjects in each center and the different trial start times, the expected enrollment time is 6 months based on the number of daily outpatient cases in each center.

5.7.2. Rationale for Determining Follow-up Time

The follow-up time is determined based on the "Good Clinical Practice for Medical Devices" and experience such as the occurrence time of product performance.

5.7.3. Expected Participation Time and Duration for Each Subject

The expected participation duration of each subject in this trial is 12 months.

5.7.4. Number of Subjects Required for the Clinical Trial

The total sample size is 364 cases.

6. Statistical Considerations

6.1. Sample Size Estimation

6.1.1. Calculation Formula, Parameter Values (e.g., Significance Level, Power, Expected Dropout Rate, Threshold, etc.) and Rationale, Calculation Results

The sample size of this study is calculated using PASS software. This study is a randomized controlled trial with four groups: High-Intervention Group (Group A), Medium-Intervention Group (Group B), Low-Intervention Group (Group C), and Control Group (Control Group). The axial length of the subjects is the outcome indicator for observation. Referring to the "Expert Consensus on the Application of Axial Length in Myopia Prevention and Control Management (2023)", an annual axial length growth of ≤0.20 mm is set as effective control. Based on literature review and

previous clinical trials, the expected treatment rate is 90% in the High-Intervention Group, 80% in the Medium-Intervention Group, 70% in the Low-Intervention Group, and 45% in the Control Group. A two-sided $\alpha=0.05$ is set, with multiple comparison α requiring Bonferroni correction ($\alpha=0.016667$) and a power of 80%. Calculations are performed using PASS 15 software.

The total sample size for the four groups is N=308 cases. Considering the possibility of loss to follow-up and refusal to participate, a dropout rate of 15% is assumed. Finally, a total of 364 subjects are required for the High-Intervention Group, Medium-Intervention Group, Low-Intervention Group, and Control Group, with at least 91 subjects in each intervention group and 91 subjects in the Control Group.

6.1.2. Sample Size Allocation and Rationale (if applicable)

This study strictly restricts the inclusion and exclusion criteria of the enrolled subjects, which can be considered as targeting a single indication, and no further stratification is required.

6.2. Analysis Datasets

(1) Full Analysis Set (FAS): In accordance with the Intention-to-Treat (ITT) principle, all randomly enrolled cases who received red light irradiation are included in the full analysis set.(2) Per-Protocol Set (PPS): The PPS population refers to all cases who were randomly enrolled in accordance with the study protocol, received the treatment specified in the protocol, and had observable data for the primary evaluation indicator.(3) Safety Set (SS): All randomly enrolled cases who received red light irradiation and have post-irradiation safety evaluation data constitute the safety analysis dataset of this trial. No imputation is allowed for missing values in the safety dataset.

6.3. Subject Exclusion Criteria

Before statistical analysis of the data, the principal investigator, sponsor, and statistical analyst will review the data and jointly determine whether individual cases need to be excluded from the statistical analysis. The three parties will comprehensively judge whether to exclude the subject from the statistical analysis set based on factors such as the subject's completion of the trial, collection of the primary efficacy evaluation indicator, and the existence of serious protocol violations and/or reasons for withdrawing from the trial, and provide relevant explanations. Finally, the dataset for statistical analysis will be formed.

6.4. Statistical Methods

6.4.1. General Principles

SAS 9.4 or higher version will be used for statistical analysis.

All data will be statistically described, including demographic data, baseline data, all efficacy indicators, and all safety data. For quantitative data, the mean, standard deviation, minimum value, maximum value, median, 25th percentile, and 75th percentile will be provided; for categorical data, the frequency and corresponding percentage will be provided. For the comparison of general conditions among the four groups, analysis of variance or Wilcoxon rank-sum test will be used for inter-group comparison of quantitative indicators according to the data distribution, chi-square test or exact probability method (if chi-square test is not applicable) for categorical indicators, and Wilcoxon rank-sum test or CMH test for ordinal data.

All statistical tests will adopt two-sided tests, and a P value less than 0.05 will be considered statistically significant (unless otherwise specified).

6.4.2. Completion Status and Demographic Analysis

Baseline analysis is based on the Full Analysis Set (FAS).

Summarize the number of screened, enrolled, and completed trial subjects, the number of lost to follow-up/withdrawn/excluded subjects, and list the list of dropout cases. Compare the size of each dataset in each group, the distribution of cases in each center, the total dropout rate, and detail the reasons for non-completion. Describe the demographic data, medical history, etc., of the subjects.

6.4.3. Efficacy Evaluation

(1) Primary Efficacy Endpoint:The primary efficacy evaluation is based on the Full Analysis Set (FAS) and Per-Protocol Set (PPS).A non-inferiority test will be used for the primary efficacy endpoint.

(2) Secondary Efficacy Endpoints:The secondary efficacy evaluation is based on the Full Analysis Set (FAS) and Per-Protocol Set (PPS). Statistical description and inference of data will select applicable descriptive indicators and hypothesis testing methods according to the characteristics of the data.

All statistical analysis tests will adopt two-sided hypothesis testing, and the significance level of the hypothesis test will be $\alpha=0.05$, i.e., a P value less than 0.05 will be considered statistically significant for the tested difference.

(3) Safety Indicators:The safety evaluation is based on the Safety Set (SS).

Describe the number and incidence of adverse events (or SAEs), and detail the specific

manifestations, severity, and relationship with the device of all adverse events occurring in the cases of each group.

In addition to the above statistical methods, detailed and additional exploratory analyses may be required, which will be confirmed in the study report and Statistical Analysis Plan (SAP).

6.5. Handling of Missing Values and Outliers

Handling of missing data: Imputation of missing data is only for missing primary efficacy endpoints in the FAS dataset. The imputation strategy is Last Observation Carried Forward (LOCF). If LOCF is not applicable, a conservative strategy such as Worst-Case Imputation will be adopted. Other missing data will not be imputed. Sensitivity analysis may be performed if necessary.

Handling of unreasonable data: During the data management process, logical checks will be performed on the data in the database. Unreasonable data found will be questioned by the investigator in the form of a Query, and the unreasonable data will be adjusted according to the investigator's written reply until all unreasonable data are resolved before the database can be locked.

Handling of erroneous data: During the data management process, quality control will be performed on the data in the database. Erroneous data found will be questioned by the investigator in the form of a Query, and the erroneous data will be corrected according to the investigator's written reply until all erroneous data are corrected before the database can be locked.

7. Monitoring Plan

(1) The sponsor will entrust monitors to monitor this clinical trial.

(2) Monitors should have relevant professional backgrounds such as clinical medicine, pharmacy, biomedical engineering, and statistics, receive necessary training, be familiar with the Good Clinical Practice for Medical Devices and relevant regulations, and be familiar with non-clinical and clinical information of similar products of the test medical device, the clinical trial protocol, and its related documents.

(3) The frequency of monitoring will be appropriately increased according to the enrollment status.

(4) Monitors should follow the principles of the "Good Clinical Practice for Medical Devices" and supervise the conduct of the clinical trial to ensure that the clinical trial is strictly implemented in accordance with the protocol. The trial data should be true, complete, and accurate. Specific responsibilities include:

1) Confirm that the clinical trial institution has appropriate conditions before the trial, including

qualified personnel allocation and training, complete laboratory equipment in good working condition, an expected sufficient number of subjects, and participating researchers familiar with the trial requirements;

2) Monitor whether the clinical trial institution and investigators follow relevant regulations, these specifications, and the clinical trial protocol before, during, and after the trial;

3) Confirm that each subject signs the informed consent form before participating in the clinical trial, understand the enrollment status of the subject and the progress of the trial; clearly and truthfully record the investigator's failure to conduct follow-up visits, unperformed trials, unconducted examinations, and whether errors and omissions have been corrected; confirm that subjects who have not completed the clinical trial process and are affected re-sign the revised informed consent form;

4) Confirm that all case report forms are filled out correctly and consistent with the original data; all errors or omissions have been corrected or noted, signed by the investigator, and dated; the disease type, total number of cases, and gender, age, treatment effect, etc., of the cases in each trial should be confirmed and recorded;

5) Confirm that the situation of subjects withdrawing from the clinical trial or failing to comply with the requirements of the informed consent form is recorded, and discuss such situations with the investigator;

6) Confirm that all adverse events, complications, and other device defects are recorded, and serious adverse events and device defects that may lead to serious adverse events are reported and recorded within the specified time;

7) Monitor the supply, use, maintenance, transportation, reception, storage, distribution, handling, and recovery of the test medical device samples;

8) Supervise the regular maintenance and calibration of relevant equipment during the clinical trial;

9) Ensure that all clinical trial-related documents received by the investigator are the latest version;

10) Submit a written report to the sponsor after each monitoring visit, which should include the monitor's name, monitoring date, monitoring time, monitoring location, monitoring content, investigator's name, project completion status, existing problems, conclusions, and corrections made to errors and omissions.

8. Data Management

8.1. Completion and Submission of Case Report Forms (CRF)

The case report form will be filled out by the investigator or their designated person, and a case report form must be completed for each enrolled case. The completed case report form will be reviewed by the clinical monitor, and the first copy will be submitted to the data manager for data entry and management.

8.2. Data Verification

After data entry and inspection are completed, verification will be conducted, and the final definition and judgment of the analysis population will be completed.

8.3. Data Locking

Data can be locked when the following conditions are met: 1) All data have been entered; 2) All queries have been resolved; 3) The analysis population has been defined and judged.

9. Risk-Benefit Analysis

9.1. Known Potential Risks

Discomfort may be felt during the first PBM phototherapy irradiation.

Common manifestations include dry eyes or halos around objects, etc.

If the above risks occur, the investigator needs to inquire about and treat the subject, record truthfully, and consider withdrawing from the study if necessary.

9.2. Known Potential Benefits

The use of vision rehabilitation instrument combined with defocus lens therapy may effectively improve the quality of myopia prevention and control. There is no guarantee or commitment that subjects will obtain any health benefits from this clinical trial, but it will provide help for the treatment of myopic patients in the future.

10. Quality Control of the Clinical Trial

10.1. Investigator Training

Investigators should be professional and qualified personnel and relatively stable. Before the start of the clinical trial, the trial institution or sponsor will conduct necessary training for the investigators.

On the basis of routine medical practice, investigators should truthfully and detailedly record all contents required by the study protocol to ensure the authenticity and reliability of the content.

10.2. Measures to Improve Subject Compliance

Investigators should earnestly implement the informed consent process, make subjects fully understand the significance, benefits, and risks of this trial, and encourage them to actively cooperate with treatment and observation in accordance with the requirements of the trial protocol.

10.3. Monitoring of the Clinical Trial

Monitors appointed by the sponsor will conduct regular on-site monitoring visits to the trial hospital to ensure that all contents of the study protocol are strictly followed, and check the CRF to ensure consistency with the content of the original medical records.

Investigators/research centers should allow monitors direct access to original data/records. Original data/records are the data/records where original data are first recorded, which can be hospital/doctor records, diaries, laboratory test results, etc. All original data/records must be accurate, clear, durable, and subject to audit/inspection.

Monitors will conduct 100% source data verification for all data except screening failure data.

11. Ethical Issues and Informed Consent of the Clinical Trial

11.1. Ethical Considerations

The clinical trial must be conducted in accordance with the Declaration of Helsinki and relevant clinical trial research norms and regulations in China. Before the start of the trial, the trial protocol must be approved by the ethics committee of the leading clinical trial institution before the clinical trial can be carried out.

Before each subject is enrolled in this study, the investigating physician is responsible for fully and comprehensively introducing the purpose, procedures, and possible risks of this study to the subject or their designated representative in writing. Subjects should be informed that they have the right to withdraw from this study at any time. Before enrollment, each subject must be provided with a written informed consent form. The investigating physician is responsible for ensuring that each subject obtains informed consent before entering the study. The informed consent form should be kept for future reference as part of the clinical trial documentation.

11.2. Informed Consent Process

This trial is conducted in accordance with the ethical principles set forth in the Declaration of Helsinki, Chinese GCP, and relevant laws and regulations. It will be implemented after obtaining the review and approval of the ethics committee of the medical institution undertaking this clinical

trial.

Before the potential participants participate in the clinical trial, the investigator is responsible for fully and comprehensively introducing the purpose, procedures, and possible risks of this clinical trial to them or their designated representatives in the form of written notification and oral explanation, so that they can fully understand the purpose, nature, method, duration, possible benefits, and risks of this trial. After careful consideration, they can voluntarily choose to participate in this clinical trial and sign the Informed Consent Form before the trial.

11.2.1. Basic Principles

(1) Investigators are medical professionals who have received training on the informed consent form and the informed consent process and are authorized. They should carefully read and fully understand the informed consent form before the project starts;

(2) The informed consent method can be various, such as one-on-one or other forms, and attention should be paid to choosing an appropriate discussion environment;

(3) Investigators must fully understand the confidentiality regulations for subjects' privacy and fully respect the subjects;

(4) Allow subjects to read and discuss, ensure sufficient time to read the informed consent form, and ask questions appropriately to help subjects/guardians understand the content, so as to control the time progress.

11.2.2. Informed Consent Process

(1) Provide the informed consent form and ask the subject/guardian to read it first;

(2) Explain the significance of the informed consent form, and inform the subject/guardian of their right to ask questions and refuse to sign the informed consent form;

(3) Introduce the research project and research institution, and explain the research purpose and research design;

(4) Fully introduce the research procedures, including screening examinations, product introduction, adverse reaction observation, and sample collection operations, and inform the specific time arrangement of the research project;

(5) Inform the subject of possible or expected risks and benefits in objective language;

(6) Inform the subject of the protection and consultation provided by this research in objective language;

(7) Inform the subject of their rights, including the right to withdraw at any time, the right to full information, and the protection of withdrawn subjects;

(8) Inform the subject of the criteria for terminating participation in the research;

(9) Inform the subject of the confidentiality of their privacy;

(10) Confirm that the subject/guardian fully understands the method and way to seek consultation or help;

(11) Confirm that the subject/guardian has completely read the informed consent form and answer the questions raised by the subject.

11.2.3. Signing of the Informed Consent Form

(1) The subject/guardian should sign their full Chinese name and date on the informed consent form in regular script;

(2) The investigator should sign their full Chinese name and date in the "Investigator's Signature" section.

11.2.4. Notes

(1) Before obtaining informed consent, the subject's/guardian's identity documents should be verified; if the subject is incompetent, the legal guardian should participate together.

(2) When the subject/guardian signs, the handwriting should be clear and completely consistent with the name on the original medical records, ID card, and household registration book. Avoid using irregular simplified characters or wrong characters. Neither the signature nor the date can be written by the doctor on behalf of the subject/guardian.

(3) Informed consent must be obtained before any research steps and any medical procedures.

(4) After the completion of informed consent, attention should be paid to separating the original and duplicate copies of the informed consent form. The duplicate copy should be given to the subject/guardian, and the original copy should be stored at the clinical trial site. After the end of the daily work, it should be counted together with the screening form.

(5) If required by the IRB/EC, when the latest version of the ICF is available during the study participation, the subject must re-sign.

12. Adverse Events, Device Defects, and Risk Response Plans

12.1. Definition and Reporting Requirements of Adverse Events

An Adverse Event (AE) refers to any adverse medical event that occurs during the clinical trial of a

medical device, regardless of whether it is related to the test medical device.

When an AE occurs during the clinical trial of a medical device, the investigator should provide sufficient and timely treatment and handling for the subject; when the subject develops a concurrent disease that requires treatment and handling, the investigator should inform the subject in a timely manner. Investigators should record all AEs that occur during the clinical trial of the medical device.

12.2. Device Defects

A device defect refers to an unreasonable risk that may endanger human health and safety when the medical device is used normally during the clinical trial, such as labeling errors, quality problems, malfunctions, etc.

Investigators should record all device defects found during the clinical trial of the medical device.

12.3. Definition of Serious Adverse Events (SAE)

A Serious Adverse Event (SAE) refers to an event that occurs during the clinical trial of a medical device that results in death or a serious deterioration of health status, including fatal diseases or injuries, permanent defects in body structure or function, the need for hospitalization or extension of hospitalization time, the need for medical measures to avoid permanent defects in body structure or function, fetal distress, fetal death, or congenital abnormalities or defects, etc.

12.4. Reporting Procedures and Contact Information

(1) When an SAE occurs during the clinical trial of a medical device, the investigator should immediately take appropriate treatment measures for the subject; at the same time, the investigator should report to the sponsor, the management department of the medical device clinical trial institution, and the ethics committee within 24 hours of learning of the serious adverse event; and follow up the serious adverse event in accordance with the provisions of the clinical trial protocol and submit a follow-up report on the serious adverse event;

(2) The sponsor should, within 7 days of learning of a death or life-threatening SAE related to the clinical trial medical device, and within 15 days of learning of a non-death or non-life-threatening SAE related to the clinical trial medical device and other serious safety risk information, report to other medical device clinical trial institutions participating in the clinical trial, the ethics committee, and the principal investigator, report to the drug regulatory authority of the province, autonomous region, or municipality directly under the Central Government where the sponsor is located, and report to the drug regulatory authority and health and health management department of the province,

autonomous region, or municipality directly under the Central Government where the medical device clinical trial institution is located, and take risk control measures; if information that may affect the safety of subjects, may affect the implementation of the medical device clinical trial, or may change the approval opinion of the ethics committee appears, the clinical trial protocol, informed consent form, and other information provided to subjects, as well as other relevant documents, should be revised in a timely manner and submitted to the ethics committee for review;

(3) If a large number of SAEs related to the clinical trial medical device or other major safety issues occur, the sponsor should suspend or terminate the medical device clinical trial, and report to the management departments of all medical device clinical trial institutions, the ethics committee, and the principal investigator, report to the drug regulatory authority of the province, autonomous region, or municipality directly under the Central Government where the sponsor is located, and report to the drug regulatory authorities and health and health management departments of the provinces, autonomous regions, or municipalities directly under the Central Government where all medical device clinical trial institutions are located.

12.5. Investigation and Documentation of Adverse Events

(1) All researchers who learn of adverse events have the obligation and responsibility to record and report them correctly and promptly.

(2) Regardless of whether the adverse event is causally related to the trial, the investigator should record it in the original records, sign it, and date it.

(3) Documentation of adverse events and serious adverse events includes:

1) Detailed description of the adverse event and serious adverse event;
2) Occurrence time of the adverse event and serious adverse event, including occurrence time and termination time; it can be recorded in days or hours, and the start date should be indicated;
3) Severity and frequency of the adverse event and serious adverse event;
4) If the event requires drug treatment, record the route of administration, dosage, treatment time, and reason of the treatment drug, and record the treatment outcome;
5) Analysis of the causal relationship between the adverse event and serious adverse event and the test product;
6) Follow-up of the adverse event and serious adverse event;
7) All clinical data related to the adverse event and serious adverse event, such as laboratory test

sheets, electrocardiograms, etc., should be recorded in the original documents.

12.6. Severity Assessment of Adverse Events

Mild: Does not affect daily activities, does not affect treatment, and no special treatment is required;Moderate: Affects daily activities, requires discontinuation of the study product or special treatment;Severe: Unable to perform normal daily activities, requires immediate discontinuation of the study product or emergency treatment.

12.7. Adverse Event Correlation Judgment and Risk Management Plan

The judgment of adverse events should be reflected in the adverse event report with explanations:

(1) Unrelated: The adverse event is caused by other factors, such as the subject's clinical condition, other treatments, or concurrent medications.

(2) Probably unrelated: The occurrence of the adverse event may be caused by other factors, such as the subject's clinical condition, other treatments, or concurrent medications, which is inconsistent with the known information of the test product.

(3) Possibly related: The adverse event is consistent with the known information of the test medical device and has a causal relationship with the test medical device, but may also be related to other factors.

(4) Probably related: The adverse event is consistent with the known information of the test medical device and has a causal relationship with the test medical device, which cannot be explained by other factors, such as the subject's clinical condition, other treatments, or concurrent medications.

(5) Definitely related: The adverse event is consistent with the known information of the test medical device and has a causal relationship with the test medical device, and this relationship cannot be explained by other factors, such as the subject's clinical condition, other treatments, or concurrent medications. In addition, the adverse event recurs when the subject uses the test medical device again.

Risk Management Plan:

General Principles:

1) Subject safety first: The handling of any AE should prioritize ensuring the safety and health of the subject.
2) Timely assessment and intervention: Once an AE is found, the investigator should immediately conduct an assessment, judge the severity and possible cause, and take appropriate measures.

3) Individualized handling: Develop a handling plan according to the nature, severity of the AE, and the specific situation of the subject.

4) Suspension or termination of irradiation: When a serious ocular AE occurs or the investigator judges that the AE may threaten vision (regardless of severity), the trial intervention must be suspended immediately. Whether to terminate it should be comprehensively evaluated by the principal investigator based on the nature, severity, reversibility of the event, and the causal relationship with irradiation.

5) Documentation and communication: Detailedly record all handling measures and effects, and fully communicate with the subject/guardian.

Specific Handling Measures (Examples):

(1) Mild ocular discomfort (dryness, foreign body sensation, photophobia):Assessment: Examine the cornea and conjunctiva.Handling: Recommend the use of preservative-free artificial tears for lubrication; guide correct operation (e.g., keeping the eyelids open, aligning with the light spot); observe for relief.Irradiation decision: Irradiation can usually be continued with close observation. If it persists or worsens, consider suspending for 1-2 times for observation.

(2) Conjunctival hyperemia:Assessment: Rule out infection or allergy.Handling: Cold compress; artificial tears; if no improvement or worsening, consider suspending irradiation and using anti-inflammatory eye drops as appropriate (the necessity should be carefully evaluated).Irradiation decision: Mild cases can be observed; moderate to severe or persistent cases should have irradiation suspended.

(3) Visual function complaints (blurred vision, dyschromatopsia, decreased contrast sensitivity):Assessment: Immediately conduct detailed ophthalmic examinations, including best-corrected visual acuity, refraction, slit lamp, fundus examination (with mydriasis), OCT (especially the macular area), microperimetry, color vision examination (e.g., D-15 or FM100), contrast sensitivity examination, visual field (if necessary), compared with baseline.Handling: Immediately suspend irradiation. Identify the cause. Most reported cases are transient; close follow-up is required. If symptoms persist or abnormalities are found in examinations, a consultation with a retinal specialist should be requested for further assessment and treatment. Termination of trial intervention may be necessary.Irradiation decision: Irradiation must be suspended until symptoms completely disappear and examinations show no abnormalities, and the principal investigator and/or

independent Data and Safety Monitoring Board (DSMB) confirms safety before considering whether to resume (resumption is usually not recommended unless it is clearly unrelated and completely reversible).

13. Provisions for Protocol Deviations and Amendments

The clinical trial must follow the "Good Clinical Practice for Medical Devices" and comply with the trial protocol approved by the ethics committee; any intentional or unintentional deviation or violation of the "Good Clinical Practice for Medical Devices" and the trial protocol is called a protocol deviation or violation.

According to the responsible subject, it can be divided into: protocol deviations caused by non-compliance of investigators/research institutions, protocol deviations caused by non-compliance of subjects, and protocol deviations caused by non-compliance of the sponsor; according to the severity, it can be divided into: minor protocol deviations and major protocol deviations.

Minor protocol deviations are generally reported to the ethics committee regularly, and the sponsor and/or investigator explain the cause, impact, and handling measures of the event. When a major protocol deviation occurs, it should be reported immediately.

After each protocol deviation occurs, there should be handling or improvement measures to make up for the error or avoid the recurrence of similar protocol deviation behaviors.

After this protocol is approved by the ethics committee, any revision must be accompanied by a "Protocol Revision Explanation", signed by the principal investigator, and re-approved by the ethics committee before implementation.

After the protocol is revised, it must be recognized and signed by the sponsor.

14. Direct Access to Source Data and Documents

The clinical trial institution and investigators should allow monitoring, audit, ethics committee review, and regulatory authority inspection related to the trial to have direct access to source data/documents.

15. Content to be Covered in the Clinical Trial Report

The content of the clinical trial report should comply with the requirements of the "Good Clinical Practice for Medical Devices" (No. 28 of 2022).

This report should be signed and dated by the principal investigator, reviewed and sealed by the medical device clinical trial institution, and then submitted to the sponsor. The multicenter clinical

trial report should be signed and dated by the coordinating investigator, reviewed and sealed by the medical device clinical trial institution of the leading unit, and then submitted to the sponsor.

16. Confidentiality Principle

This trial protocol is confidential information, provided to medical experts related to the trial, investigators participating in the trial, and other trial-related staff, as well as relevant business entrusting institutions such as the medical institution undertaking the trial, the ethics committee, and the contract research organization. Except for explaining to the subjects, no content of this trial protocol may be disclosed or leaked to a third party without the prior written consent of the sponsor. In addition, the partial or full results of this clinical trial must obtain the written consent of the sponsor before being published externally in academic societies, journals, etc.

17. Responsibilities of All Parties

The sponsor, investigators, leading research unit, and participating research units must earnestly assume corresponding responsibilities in accordance with the "Good Clinical Practice for Medical Devices" and the provisions of this protocol.

18. Other Explanations

None.

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Investigator's Statement

I agree to:

1. Conduct this clinical trial strictly in accordance with the Declaration of Helsinki, applicable Chinese laws and regulations, and the requirements of the trial protocol.
2. Accurately record all required data in the Case Report Forms (CRF) and cooperate in completing the clinical trial report.
3. Use the test medical device solely for this clinical trial, and completely and accurately record the receipt and usage of the test medical device during the clinical trial while retaining the records.
4. Allow monitors, auditors authorized or dispatched by the sponsor, and regulatory authorities to conduct monitoring, auditing, and inspection of this clinical trial.
5. Strictly fulfill the terms of the clinical trial contract/agreement signed by all parties.

I have fully read the clinical trial protocol, including the above statements, and I agree to all the contents herein.

Principal Investigator
Signature Date

Medical Device Clinical Trial Institution
Seal and Signature Date

Annex 1: Flow Chart of the Clinical Trial

Assessment Items	Screening /Enrollment	Follow-up 1: 30 Days ±7 Days*	Follow-up 2: 3 Months ±7 Days*	Follow-up 3: 6 Months ±14 Days*	Follow-up 4: 9 Months ±14 Days*	Follow-up 5: 12 Months-28 Days*/Withdrawal Visit
Sign Informed Consent Form (ICF)	√	-	-	-	-	-
Demographic Data	√	-	-	-	-	-
Past Medical History/Concurrent Diseases	√	-	-	-	-	-
Myopia Control Treatment History	√	-	-	-	-	-
Concurrent Medications	√	√	√	√	√	√
Visual Acuity	√	√	√	√	√	√
Refractive Error	√	√	√	√	√	√
Slit Lamp Examination	√	√	√	√	√	√
Eye Position Examination	√	√	√	√	√	√
Intraocular Pressure (IOP)	√	√	√	√	√	√
Fundus Color Photography	√	√	√	√	√	√
Axial Length	√	√	√	√	√	√
OCT (Optical Coherence Tomography)	√	√	√	√	√	√

AE/SAE/Device Defects	-	√	√	√	√	√
Withdrawal Time/Reason	-	√	√	√	√	√
Trial Summary	-	-	-	-	-	√

*A follow-up visit beyond this range is considered a window violation.

Notes:

1. Follow-up includes pre-trial screening and regular follow-up after enrollment. Before enrollment, the signing of the Informed Consent Form and pre-trial screening should be completed, baseline assessment of ocular symptoms and signs should be conducted, and then lenses should be customized.
2. Fundus Color Photography: Fundus examination requires photography.
3. If a subject withdraws midway, a withdrawal visit will be conducted, and the content of the withdrawal visit is the same as that of the final observation visit.

Annex 2: List of Research Centers

Clinical Trial Institution Code	Name of Clinical Trial Institution	Investigator	Professional Title
01	Shanghai General Hospital	Wang Xiaojuan	Chief Physician
02	Tongji Hospital Affiliated to Tongji Medical College of Huazhong University of Science and Technology		
03	The First Affiliated Hospital of Chongqing Medical University		
04	The First Affiliated Hospital of Guangxi Medical University		
05	The Fourth People's Hospital of Shenyang City		
06	The First Affiliated Hospital of Xi'an Jiaotong University		
07	The Second People's Hospital of Foshan City		
08	The First Affiliated Hospital of Zhengzhou University		