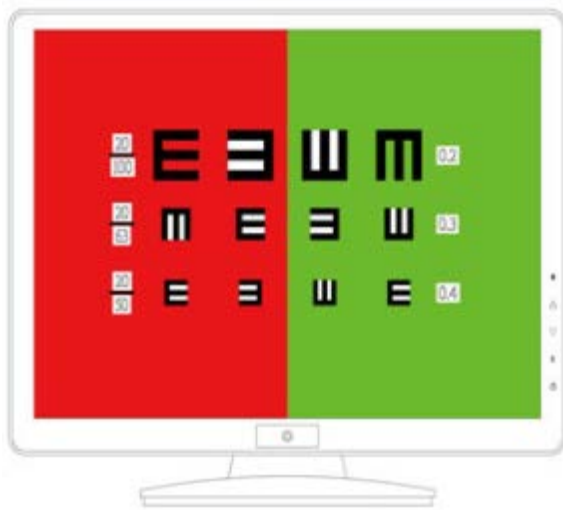


# LCD Visual Chart User & Maintenance Manual



updated in June 2020

LCD Visual Chart  
User & Maintenance Manual

Dear customer,

Welcome to join the ranks of the consumers of LCD Visual Chart! We sincerely hope that the new LCD Visual Chart will bring you long-lasting convenience. This device adopts digital processing technology and has a variety of functions and perfect optotypes. It is a preferred device for optometry.

- Before using this device, please read this user manual carefully and keep it properly for future reference.

- The notes and illustrations in this user manual may be different from those of the real object. The real object shall prevail.

- Please follow warnings indicated on this device and the user manual.

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**1. Features**

1. Ultra-thin and ultra-light design, high-definition, adopting professional digital image processing technology, quick switch and easy to operate.
2. Screen saver (optional) for longer life.
3. Convenient and practical autoplay
4. Display in mask: 8 columns\*3 rows optotype arrays, making the detection faster and more convenient.
5. Table or wall mounting. Quick to install and easy to maintain.
6. High-resolution LCD screen, with small pixel pitches (0.264 mm/0.282 mm/0.284 mm). Clearer optotypes.

**2. Performance Indicators**

1. Optotype types: standard optotype (“Tumbling E” and “Landolt C rings”), 3D optotype (“+”, “□”, “■” and “⊥”), the polarization difference between the upper and lower parts or left and right parts is 90° (0°, 180° or 90°), which is used in connection with a 3D test slide) and auxiliary optotype (optotype for children, numbers, astigmatism, color blindness, red & green color blindness, beehive, Maddox Rod and fusion).

2. Working distance: 1m~6.5m; adjustment accuracy: 0.1m~0.5 m.

**3. Structural Composition**

The product is mainly composed of a control panel, a remote control and an LCD screen, etc.

**4. Expected Use**

To determine visual acuity in an ophthalmic examination

**5. Special Tips**

**5.1. About LCD**

Please note that the LCD screen is manufactured using high precision technology and is available in 99.9% or more pixels. But still, there could be black or bright spots (red, blue or green) on the LCD screen. This is a structural characteristic of the LCD screen, rather than a fault.

**5.2. About Backlight**

The LCD screen is backlit with a special LED lamp. If images on the screen become dim, flickering or no longer appear, the fluorescent lamp may have run out of life. Please replace it.

**5.3. About Disposal**

The LCD screen contains a small amount of liquid and mercury. The backlight, for example, the fluorescent lamp, also contains mercury. Please dispose it according to local laws and regulations.

**5.4. About Normal Service Conditions**

Operating Temperature: 5°C ~ 35°C;

Operating Humidity: 20%RH-80%RH

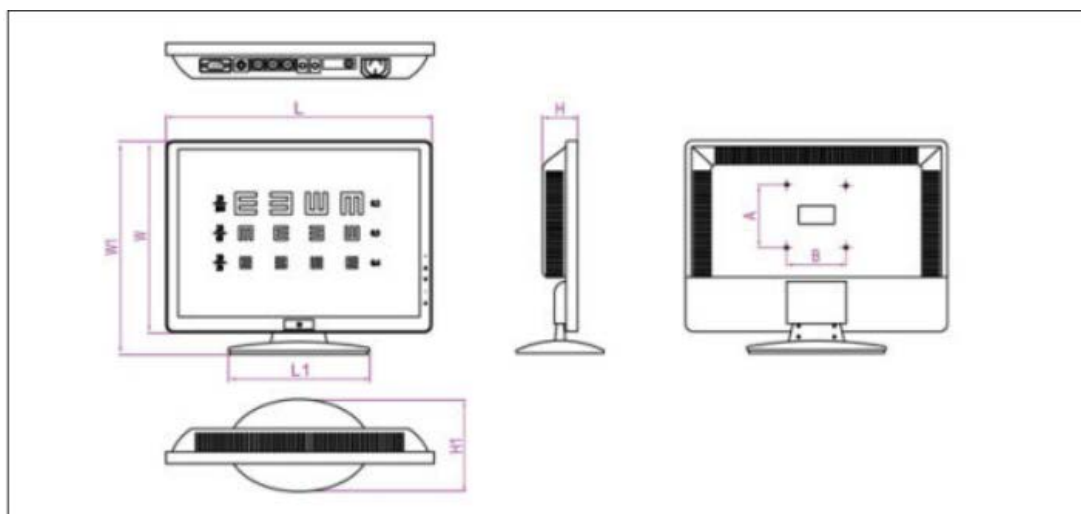
**6. Packing List**

No.	Name	Quantity	Remark
01	Main unit	1	
02	Remote control	1	
03	Wall mounting set	1	
04	Wall mounting nail	4	
05	Power cord	1	
06	User & maintenance manual	1	

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07	Warranty card	1	
08	Certificate of conformity	1	
09	3D test slide	1	For WZ-2000A

**7. Package Size**



Parameter	L (mm)	W (mm)	H (mm)
19"	490	330	100
21.5"	576	430	100
23"	630	450	180

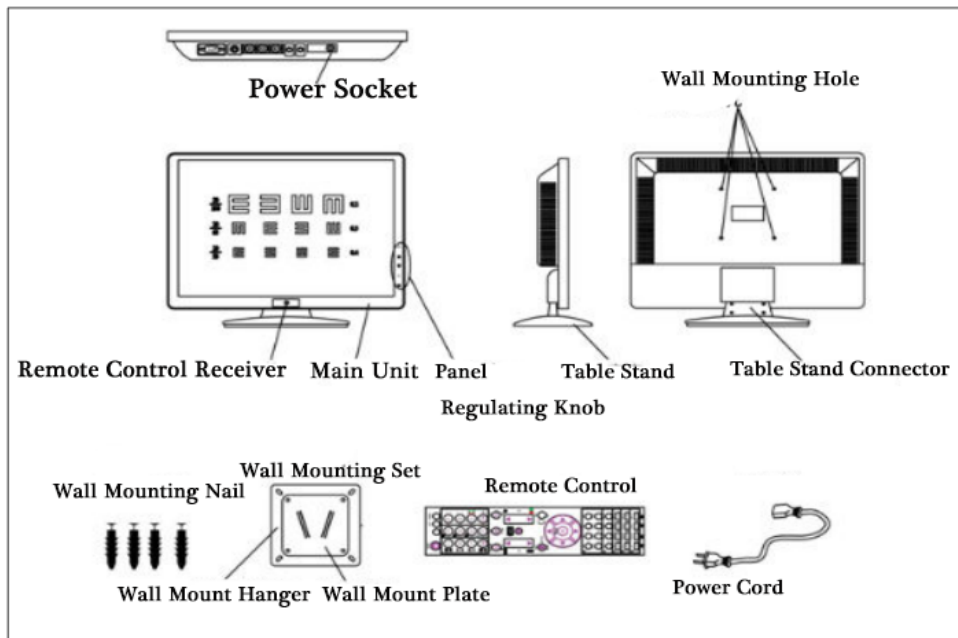
**8. Technical Parameters**

No.	Parameter	19"	21.5"	23"
1	Power Supply	AC100V~240V/50Hz/60Hz	AC100V~240V/50Hz/60Hz	AC100V~240V/50Hz/60Hz
2	Standard Power Consumption	about 40W	about 45W	about 60W
3	Standby Power Consumption	< 2W	< 2W	< 2W
4	Max. Resolution	1280×1024@60Hz	1440×900@60Hz	1680×1050@60Hz
5	Pixel Pitch	0.264mm	0.284mm	0.282mm
6	Display Type	TFT	TFT	TFT
7	Aspect Ratio	16:9	16:9	16:9
8	Display Size	19"	21.5"	23"
9	Viewable Size	408.24mm×222.15mm	473.76mm×296.1mm	473.76mm×296.1mm
10	Viewing Angle	H:170/V:160	H:170/V:160	H:170/V:160
11	Color	16.7M	16.7M	16.7M
12	Max. Brightness	300cd/m <sup>2</sup>	300cd/m <sup>2</sup>	300cd/m <sup>2</sup>
13	Max. Contrast Ratio	2000:1	2000:1	2000:1

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14	Signal Response Time	5ms	5ms	5ms
15	Dimensions (w/o Table Stand)	460×290×255 mm	543×355×50mm	610×411×70mm
16	Total Weight	about 3.8Kg (5.0Kg)	about 5.0Kg (6.2Kg)	about 5.5Kg (6.8Kg)
17	Working Distance	1m~6m	1m~6m	1m~6m
18	Visus Unit	Decimal and British fraction	Decimal and British fraction	Decimal and British fraction
19	Remote Control Distance	The max. remote control distance is not less than 8m	The max. remote control distance is not less than 8m	The max. remote control distance is not less than 8m

**9. Structure and Functions**



Name	Description of Functions
Power Socket	To supply power to the device
Wall Mounting Hole	To fasten the main unit
Wall Mounting Nail	To fasten the wall mounting set
Remote Control Receiver	To receive remote control signals
Table Stand	To support the device in table mounting
Table Stand Connector	To support the device in table mounting
Panel Regulating Knob	To regulate and operate various parameters
Wall Mounting Set	To support the device in wall mounting, including one wall mount hanger and two wall mount plates
Remote Control	To operate various functions
Power Cord	To supply power to the device

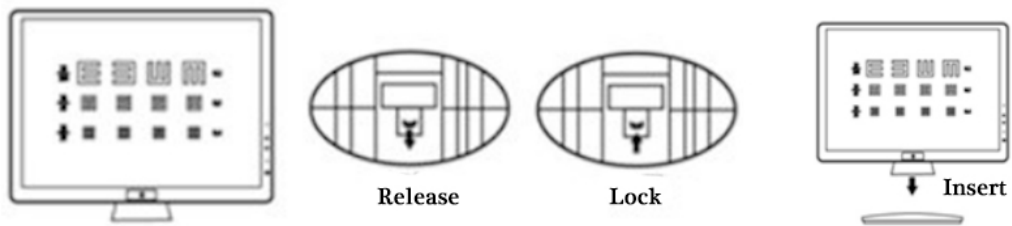
## 10. Table Mounting Guide

### **Caution!!**

As different models use different structures, the installation methods of different models differ. Please choose a corresponding installation method according to your model.

If you are sure that you want to adopt table mounting, please take the following steps to perform table mounting:

1. Open the package and take out the main unit and table stand. Keep the remaining spare parts properly for future use.



2. Release the latch at the bottom of the table stand.
3. Insert the table stand connector into the hole of the table stand.
4. Lock the latch at the bottom of the table stand.
5. Put the device in place and connect the power supply.

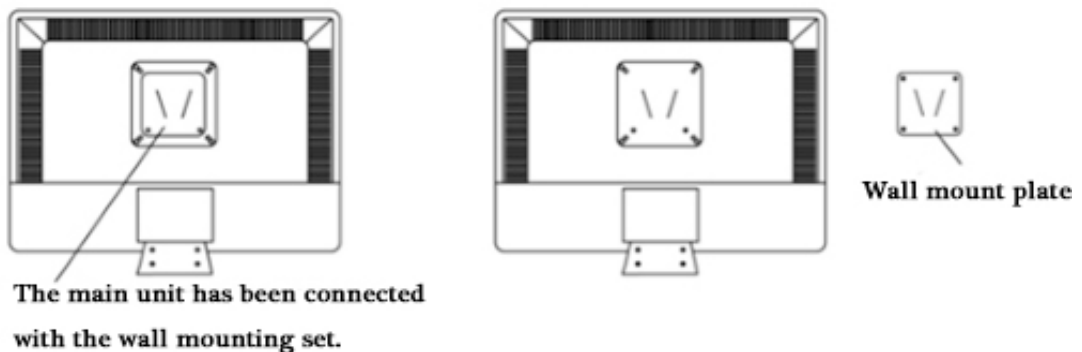
## 11. Wall Mounting Guide

★ If you are sure that you want to adopt wall mounting, please take the following steps to perform wall mounting:

1. Open the package and take out the main unit, wall mounting set and plastic expansion screws. Keep the remaining spare parts properly for future use.

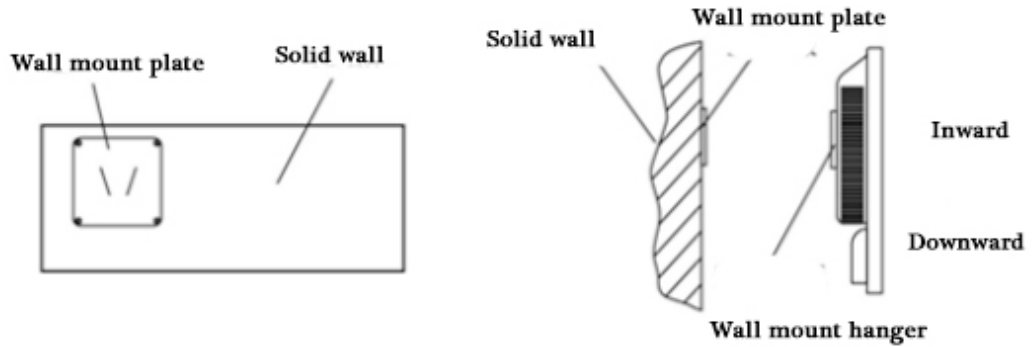
When the device is packed, the main unit has already been connected with the wall mounting set. When the main unit is taken out, the wall mounting set will be taken out, too.

2. Remove the adhesive tape fastening the wall mount plate and take down the wall mount plate.



1. Fix the wall mount plate to the solid wall reliably and firmly.

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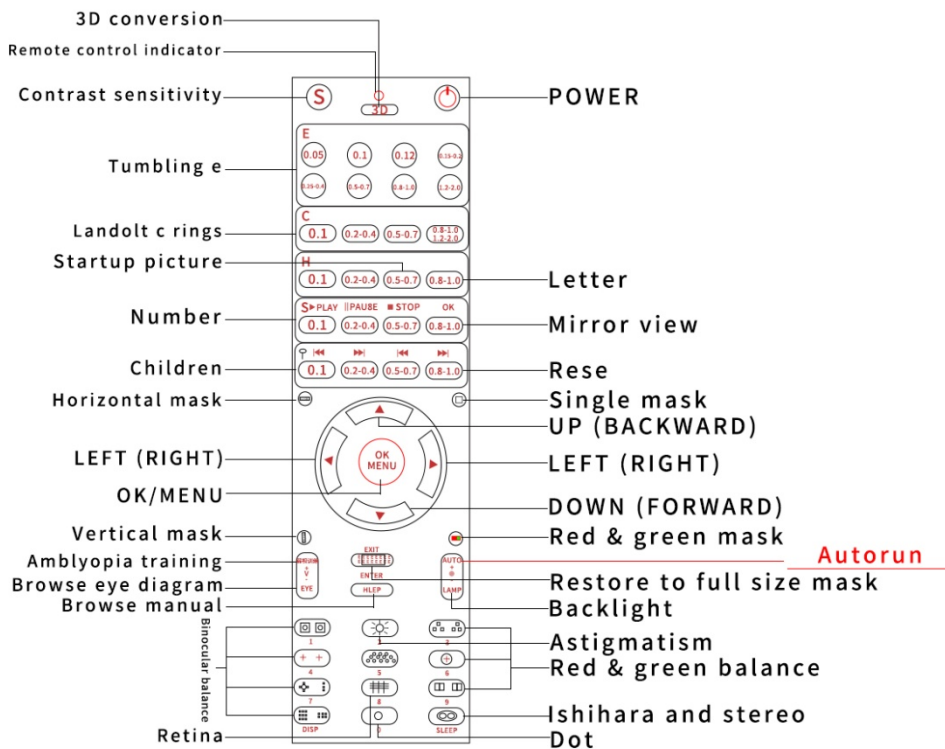


2. Align the hanging groove of the wall mount hanger with the notch of the wall mount plate, clasp the device downward and inward firmly and connect the power supply.

## 12. Remote Control

### 12.1. Introduction to Function Keys of the Remote Control

*The function keys of the remote control are as follows*





## **12.2 The Use of Remote Control**

### **12.2.1 The Selection of Optotypes**

An optotype can be selected by pressing a corresponding function key.

#### **12.2.2. The Selection of Functions**

① Horizontal mask: The horizontal mask of a corresponding optotype can be realized by pressing a horizontal separation key.

② Vertical mask: The vertical mask of a corresponding optotype can be realized by pressing a vertical separation key.

③ Single mask: The single mask of a corresponding optotype can be realized by pressing a single separation key.

④ Red & green mask: The red & green mask of a corresponding optotype can be realized by pressing a red & green separation key.

⑤ Full size mask: Return to full size mask by pressing “Restore to Full Size Mark”.

#### **12.2.3. View Working Parameters**

You can view current working parameters by pressing OK/MENU in any state of the visual acuity chart, including brightness, contrast ratio, language, working mode, working distance, autorun time and screen saver parameter, etc. See Figure 1.

#### **12.2.4. Adjust Working Parameters**

First of all, press OK/MENU, bring out the setting menu, and then press UP or DOWN, in any state of the visual acuity chart.

Select a parameter that you want to adjust and then press LEFT or Right, to adjust corresponding Working Parameters.

#### **12.2.5. Autoplay**

Press AUTO in any state of the visual acuity chart, to play the optotype automatically. During the autoplay, you can press any key other than AUTO to stop the autoplay.

#### **12.2.6. System on/off**

When the system is off, you can press POWER to turn on the system. When the system is on, you can press POWER to turn off the system.

### ***Caution!!***

System off means that the device software stops running, but the device isn't turned off. Only the system is turned off, the power is still on. In order to better protect the device, we recommend that you cut off the power supply when the device is not in use.

#### **12.2.7. Browse Optotype**

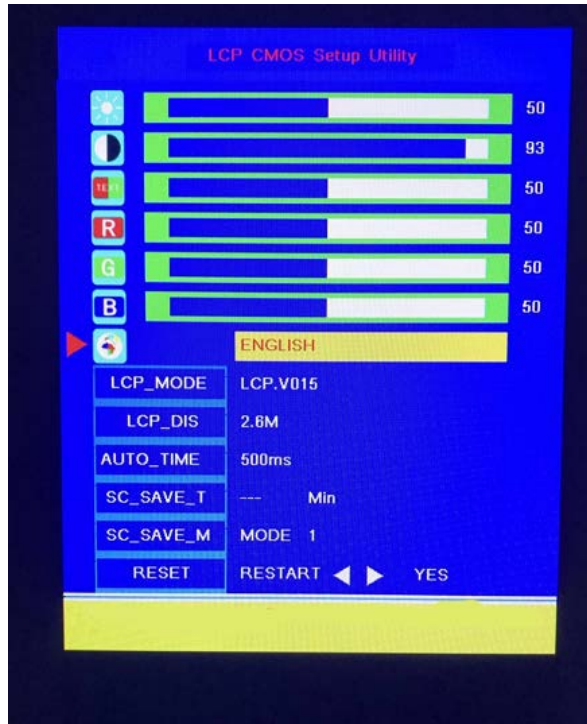
You can browse and play corresponding pictures in loop by pressing UP, DOWN, LEFT or RIGHT in any state.

#### **12.2.8. Restore Factory Settings**

Press OK/MENU, press DOWN, select RESET and then press RIGHT to restore factory settings, in any state of the visual acuity chart.

When the parameters are modified and cannot be displayed normally, you can make the system restore factory settings and modify them according to your own demands.

### 12.2.9. Setup



### 12.3. Precautions for the Remote Control

When using the remote control, point it to the remote control receiver. The object placed between the remote control and the receiver may interfere with normal operation.

Don't let the remote control vibrate violently. Besides, don't spill liquids on the remote control or leave the remote control in a damp place.

Don't set or place the remote control under direct sunlight. Heat will distort the remote control.

If the remote control receiver is exposed to direct sunlight, the remote control may not work properly. So don't use the remote control receiver in direct sunlight.

### 12.4. Replace the Remote Control

Please follow these steps when installing the batteries of the remote control:

1. Open the battery compartment lid.
2. Install two batteries.

When installing batteries, note that the polarity of the batteries should correspond to + and - on the plastic shell of the remote control.

Close the battery compartment lid.

Precautions:

If you fail to use the batteries of the remote control properly, liquid leakage may occur and damage the remote control. So please use them properly as follows.

1. Pay attention to the polarity when installing batteries, in case of short circuits.
2. When the batteries have low power, the remote control distance will be affected. In this case, you should replace with a new battery. If the remote control is not in use for a long time or the batteries are exhausted, please take out the batteries.

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3. Don't mix different types of batteries (for example, alkaline battery and zinc-manganese battery).
4. Don't throw the batteries into fire.
5. Don't try to charge or disassemble the batteries.
6. Please dispose the batteries according to environmental protection regulations.

### **13. Instructions on Ishihara Test**

1. If there is something wrong with the human eyes' ability to distinguish colors, this is called anomalous. Anomalous can be divided into congenital anomalous and acquired anomalous. Congenital anomalous is generally classified into three types: trichromatopsia (protanomaly, deuteranomaly and tritanomaly), dichromatopsia (protanopia, deuteranopia and tritanopia) and monochromatism (achromatopsia). Acquired anomalous is often caused by diseases in the ocular region, visual pathway, visual center and the whole body, drug poisoning or mental disorder.

3. Congenital Ishihara test chart is drawn by the principle of pseudo-isochromatic plates. That is, normal people mainly rely on color vision to distinguish objects, while those with anomalous not only rely on color vision, but more rely on color luminosity to distinguish objects, especially those with color blindness. Acquired Ishihara test chart is a grey figure, with grey curves as the background. Colors with different brightness, red, green, yellow and blue, are made into Arabic numerals and patterns, so that those with red-green color blindness and yellow-green color blindness are unable to recognize them. We can make a judgement according to their wrong recognitions.

3. The Ishihara test charts contained in this device include congenital Ishihara test and acquired Ishihara test. They are not only suitable for the enlisting of young soldiers and the enrollment of college and technical secondary school students, but also suitable for the examination of acquired anomalous as a result of optic neuropathy, retinopathy and glaucoma, etc.

●Note: The charts should be selected flexibly, according to the subject, so that the subject can read out the numbers, letters or figures on the charts quickly, generally for not more than 5 seconds.

●Note: You must be cautious when identifying color blindness and color ghosting. Apart from auxiliary color weakness charts, you should also understand two clinical manifestations of color weakness, recessive color blindness and color fatigue and make a judgment according to the subject's recognition.

●Note: When color discrimination is examined during a physical examination, congenital Ishihara test chart should be used and the subject should open both of his/her eyes simultaneously. To examine the color vision of an ophthalmic patient, acquired Ishihara test charts should be used. During the examination, the healthy eye should be covered. If both eyes are impaired, you can examine them in a sequential order and record the results separately.

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**14. Instructions on Phoria Test**

**14.1. Worth 4 Dots**







Purpose: To test fusion and inhibition





Auxiliary Lens: Red filter for the right eye

Green filter for the left eye

Observation Steps:

Display a four-dot picture and ask the patient how many bright spots and colors he/she can see

Right eye	Left eye	Ideal binocular visions
		 .....Red
		 .....Green
		 .....Blue

Observation of the Patient	Phoria	Steps
	Fusion	Normal fusion if four dots are seen
	Right eye inhibition	Right eye inhibition if only 3 green lights are seen
	Left eye inhibition	Left eye inhibition if only 2 green lights are seen
	Diplopia	diplopia if five dots are seen

**14.2. Image Test**

Purpose: To test aniseikonia and correct vertical phoria

Auxiliary Lens: 135 for the right eye;

45 for the left eye (red & green polarization filters)




Steps:



Display the image test picture and ask the patient whether he/she can see the box with a dot in the center and whether the left side of the box is as big as the right side

Correction Steps of Vertical Phoria:




Display the image test picture and ask the patient whether he/she can see the box with a dot in the center and whether the left side of the box is as high as the right side

If the heights are different, adjust according to the following table

Right eye	Left eye	Ideal binocular visions
		 Normal position

Observation of the Patient	Phoria	Steps
	Right eye hyperphoria	Add a BD prism to right eye and a BU prism to left eye until the right is as same as left
	Left eye hyperphoria	Add a BU prism to right eye and a BD prism to left eye until the right is as same as left

**14.3. Binocular Balance**

Right eye	Left eye	Ideal binocular visions
		

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Purpose: To test horizontal/apical/basal phoria

Chart Used: Cross grid chart

Auxiliary Lens: 135” for the right eye; 45” for the left eye  
(red & green polarization filters).

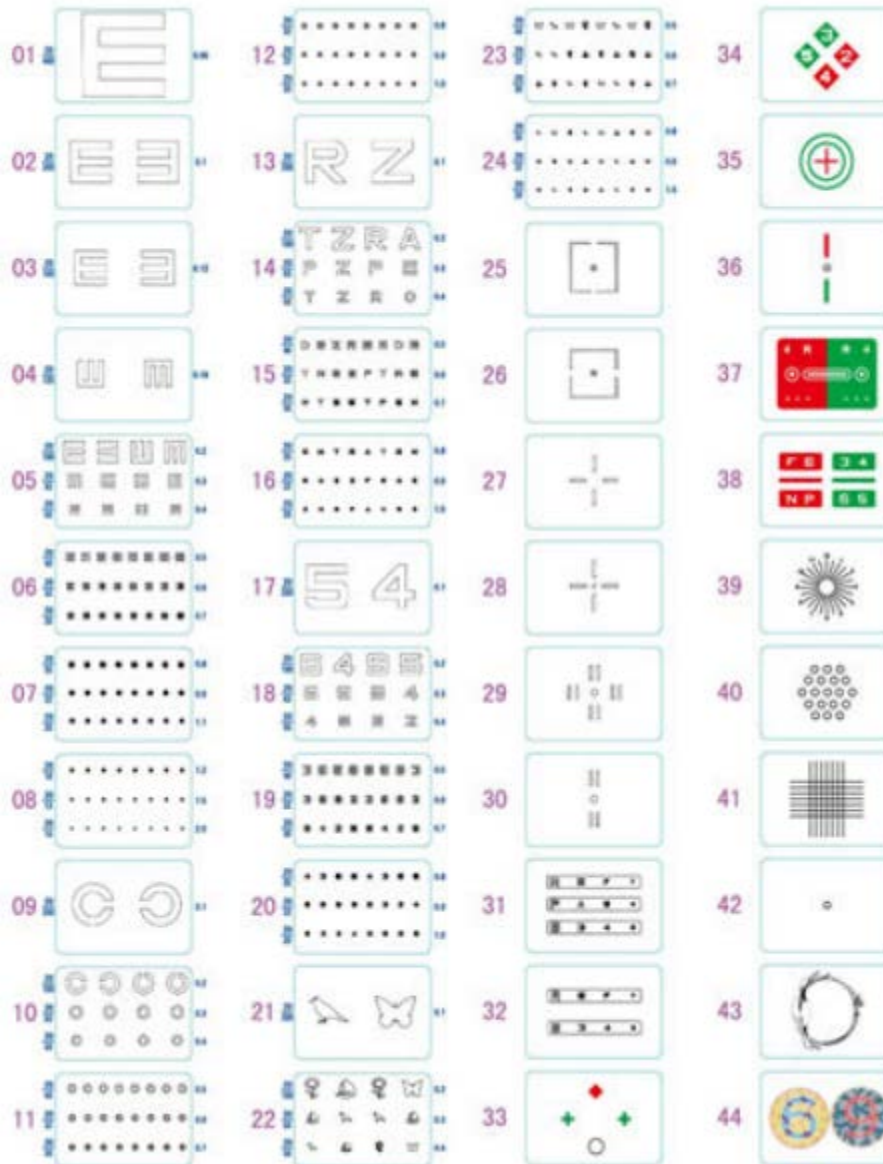
Rotary Prism Observation Steps:

1. Display a cross grid chart.
2. Ask the patient if he/she can see four lines.  
“Yes”- Continue with the test.  
“No”-Can’t continue with the test.
3. Ask the patient if the centers of the vertical and horizontal lines coincide.  
“Yes”- Normal.  
“No”- Phoria, continue with the test.
4. Ask whether the vertical line is on the left side or the right side?  
“Right”- Esophoria  
“Left”- Exophoria  
“Middle”- No horizontal phoria
5. Ask whether the horizontal line is at the top or at the bottom.  
“Top”- Right eye hyperphoria  
“Bottom”- Left eye hyperphoria  
“Middle”- No vertical phoria

Observation of the Patient	Phoria	Steps
	Right eye hyperphoria	Add a BD prism to right eye and a BU prism to left eye until the horizontal line is at the center of the vertical line
	Left eye hyperphoria	Add a BU prism to right eye and a BD prism to left eye until the horizontal line is at the center of the vertical line
	Esophoria	Add a BD prism until the horizontal line is at the center of the vertical line
	Exophoria	Add a BI prism until the horizontal line is at the center of the vertical line

### 15. Appendix

The following are optotypes that can be displayed on this device. They are for reference only.



### 16. Transport and Storage

Please be careful when it is transported or stored in the following conditions:

- ★ Temperature: -10°C~+40°C.
- ★ Humidity: 20% RH~80% RH.
- ★ Free from toxic gases or air pollution.
- ★ No direct sunlight.
- ★ No violent vibration.

### 17. Security

Improper use can lead to electric shocks or fire accidents. To prevent hazardous circumstances, please observe the following instructions when installing, using and cleaning the device. In order to guarantee your safety and prolong the service life of the device, please read the following precautions carefully.

#### Thunderstorm

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★ To avoid a damage to the product, please don't use the device, but unplug the power supply during a thunderstorm.



**Power plug and Socket**

★ The AC power socket and extension line shall not be overloaded. Overload may cause fire accidents or electric shocks.

★ The power cord shall be set properly, in case it is tread or crimped by an object.



★ Unplug the power supply before moving the device.

★ The AC power plug shall be fully inserted into the socket. If it gets loose, sparks may occur and catch a fire.

★ Hold the plug by hand when unplugging. Don't just pull out the power cord.

★ When the device is not in use for a long time or relevant personnel are away, please remove the plug from the power socket.

★ The attached three-core power supply should be well grounded, in case of an electric shock.

**Cleaning**

★ Before cleaning the device, please remove the plug from the power socket.

★ Please clean the device with a slightly wet cloth. Don't use a liquid detergent or spray detergent while cleaning.

★ The screen is prone to scratching. Don't wipe with a wet cloth when cleaning the surface of the screen. Please wipe it with a clean and soft cloth or a special lens cloth.



**Avoid Damage**

★ Don't throw any object onto the device. Any impact may lead to the burst of screen glass and cause personal injury.

**Ancillary Facilities**

★ Please use ancillary facilities attached to the device. Using ancillary facilities improperly may lead to accidents.

★ When installing the device, please use the attached table stand or wall mounting set. Otherwise, the device may fall off and cause personal injury.

**Surface**

★ Don't touch the surface of the screen, even when the device is turned off.

★ The screen of the device is protected with an anti-reflection coating. We suggest you not to touch the surface of the screen too often.

**Ventilation**

★ Don't stuff any foreign matter into the device through the vent. There is a high voltage circuit inside the device. Any foreign matter or liquid can cause short circuit.

★ The vents or openings of the device are used for ventilation. If the ventilation is poor, it may cause overheating and shorten the life of the device. Be sure not to cover these vents or openings.

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★ Please keep the location in which the device is used well ventilated.

### 18. Troubleshooting

For safer and more efficient use of the device, we suggest general users not to try to repair the device. If the device cannot work normally, please unplug it in time, consult a professional or notify the manufacturer to maintain and debug it in time.

These instructions on troubleshooting are only for professionals to refer to when maintaining and debugging the device.

Before seeking maintenance services, please check the following items, to determine whether problems that you meet can be solved:

No.	Fault	Check	Troubleshooting
1	There is a stain on the picture	The surface of the screen is not clean	Wipe using a special lens paper
2	The image is not clear	The screen parameters are not correctly set	Adjust LED brightness and contrast ratio
3	The remote control goes wrong	A single key fails	Replace the remote control
		All keys fail	Replace the batteries of the remote control
4	The device doesn't work at startup	The indicator is not on	Check the power supply and the power cord
		The indicator is on	Repair
5	The device stagnates when running	Software protection	Cut off the AC power supply and re-energize the device

### 19. EMC

Special precautions regarding electromagnetic compatibility (EMC) shall be taken for this device. The device must be installed and put into service according to EMC information provided in this manual.

Portable and mobile RF communications equipment may have an impact on this device.

The following cable should be used to meet the requirements on electromagnetic emission and immunity:

Cable Name	Length
Power Cord (16A)	<1.8 m

Apart from cables (transducers) sold as spare parts of internal components, the use of accessories and cables (transducers) other than those specified for the device is not recommended. They may result in increased emissions or decreased immunity of the device.

The device should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the device should be observed to verify normal operation in the configuration in which it will be used.

The basic function is: to determine visual acuity in an ophthalmic examination.



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Guidance and Manufacturer's Declaration- Electromagnetic Emissions		
This <b>device</b> is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that the device is used in such an environment.		
Emission Test	Compliance	Electromagnetic Environment-Guidance
RF Emissions GB 4824 (CISPR 11)	Group 1	The <b>device</b> uses <b>RF</b> energy only for its internal function. Therefore, its <b>RF emissions</b> are very low and are not likely to cause any interference in nearby electronic equipment.
<b>RF Emissions</b> GB 4824 (CISPR 11)	Class A	The <b>device</b> is suitable for use in all establishments, including domestic establishments and those not directly connected to the public low-voltage network that supplies buildings used for domestic purposes.
<b>Harmonic Emissions</b> <b>GB 17625.1</b>	N/A	
<b>Voltage Fluctuations/Flicker Emissions</b> <b>GB 17625.2</b> <b>(IEC 61000-3-3)</b>	N/A	


Guidance and Manufacturer's Declaration- Electromagnetic <b>Immunity</b>			
This <b>device</b> is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that the device is used in such an environment.			
Immunity Test	IEC60601 Test Level	Compliance Level	Electromagnetic Environment- Guidance
Electrostatic Discharge (ESD) GB/T 17626.2 (IEC 61000-4-2)	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical Fast Transient/ Burst GB/T 17626.4 (IEC 61000-4-4)	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge GB/T 17626.5 (IEC 61000-4-5)	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage Dips, Short Interruptions and Voltage Variations on Power Supply Input Lines GB/T 17626.11	<5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 0.5 cycle 40% U <sub>T</sub> (60% dip in U <sub>T</sub> ) for 5	<5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 0.5 cycle 40% U <sub>T</sub> (60% dip in U <sub>T</sub> ) for 5 cycles 70% U <sub>T</sub> (30% dip in	Mains power quality should be that of a typical commercial or hospital environment. If the user of the <b>device</b> requires

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(IEC61000-4-11)	cycles 70% U <sub>T</sub> (30% dip in U <sub>T</sub> ) for 25 cycles <5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 5 sec	U <sub>T</sub> ) for 25 cycles <5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 5 sec	continued operation during power mains interruptions, it is recommended that the <b>device</b> be powered from an uninterruptible power source.
Power Frequency (50/60Hz) Magnetic Field GB/T 17626.8 (IEC61000-4-8)	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
<b>Note:</b> U <sub>T</sub> is the AC mains voltage prior to application of the test level.			

Guidance and Manufacturer's Declaration- Electromagnetic <b>Immunity</b>			
This <b>device</b> is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that the device is used in such an environment.			
Immunity Test	IEC60601 Test Level	Compliance Level	Electromagnetic Environment- Guidance
Conducted <b>RF</b> GB/T 17626.6 (IEC61000-4-6)	3V (effective value) 150kHz-80MHz	3V (effective value)	Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.  Recommended separation distance $d = 1.2\sqrt{(P)}$ 150kHz-80MHz
Radiated RF GB/T 17626.3 (IEC61000-4-3)	3V/m 80MHZ-2.5GHZ	3V/m	$d = 1.2\sqrt{(P)}$ 80MHz-800MHz $d = 2.3\sqrt{(P)}$ 800MHz-2.5GHz  Where: P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed <b>RF</b> transmitters, as determined by

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			<p>an electromagnetic site survey, <sup>a</sup> should be less than the compliance level in each frequency range. <sup>b</sup></p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> <div style="text-align: center;">  </div>
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**Note 1:** At 80 MHz and 800 MHz, the higher frequency range applies.  
**Note 2:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

<sup>a</sup> Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the **device** is used exceeds the applicable RF compliance level above, the **device** should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the **device**.

<sup>b</sup> Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended Separation Distances between Portable and Mobile  
RF Communications Equipment and the **Device**

This **device** is intended for use in an environment in which radiated RF disturbances are controlled. The customer or the user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the **device** as recommended below, according to the maximum output power of the communications equipment.

Rated Maximum Output Power of Transmitter (W)	Separation Distance according to Frequency of Transmitter (M)		
	150kHz-80MHz $d = 1.2\sqrt{(P)}$	80MHz-800MHz $d = 1.2\sqrt{(P)}$	800MHz-2.5GHz $d = 2.3\sqrt{(P)}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be determined using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

**Note 1:** At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

**Note 2:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

**20. After-sales Services**

- ★ Don't try to repair this device by yourself. After the cover of the device is opened, you

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will be exposed to high voltage and other hazards. Ask a professional maintainer to repair it.

★ Under the following circumstances, please remove the plug from the power socket and ask a professional maintainer to repair it.

The power cord or plug is damaged.

A liquid splashes on the body of the device or a foreign matter falls into the device.

The device is soaked in rain or water.

The device falls down or is damaged.

The device is in abnormal conditions.