



创威中科<sup>®</sup>  
CWZK



SECULENS<sup>®</sup>

深圳市创威时代光电有限公司

Shenzhen ChuangWei Seculens CO., Ltd.

## 产品规格书

### Product Specification

型号:

(Model Name) :

10162-3MP+IR1313

编码:

(Part No.) :

01.10162.010.03

客户名称:

(Customer Name):

客户编码:

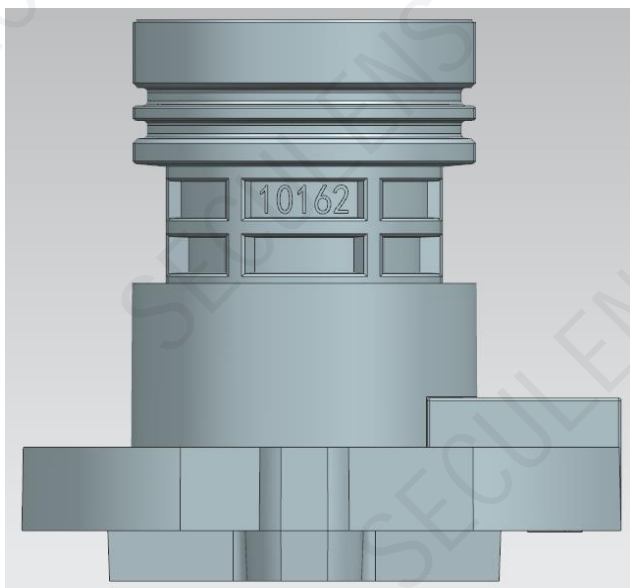
(Customer Part No.):



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图片仅供参考  
(picture only for your reference)

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3 变更履历 (Revision History) 变更符号标记 (Mark revised): ○

版本 (REV.)	变更日期 (DATE)	变更内容 (Revision content)	作成 (Prepared by)	备注 (Remark)
1.0	22.06.09	新规作成 (New Spec Document prepared)	ZYQ	
1.1	22.07.20	更新外形尺寸图	ZYQ	
1.2	23.2.15	更新IR cut参数	ZYQ	
1.3				

#### 4.概要 (Outline)

##### 4.1 应用范围 (Application)

适用于我司向贵司提供的镜头产品(The below datasheet is only suit to CWZK products.)

#### 5 主要参数 (Main Items)

##### 5.1 光学参数规格 (Optical Specifications)

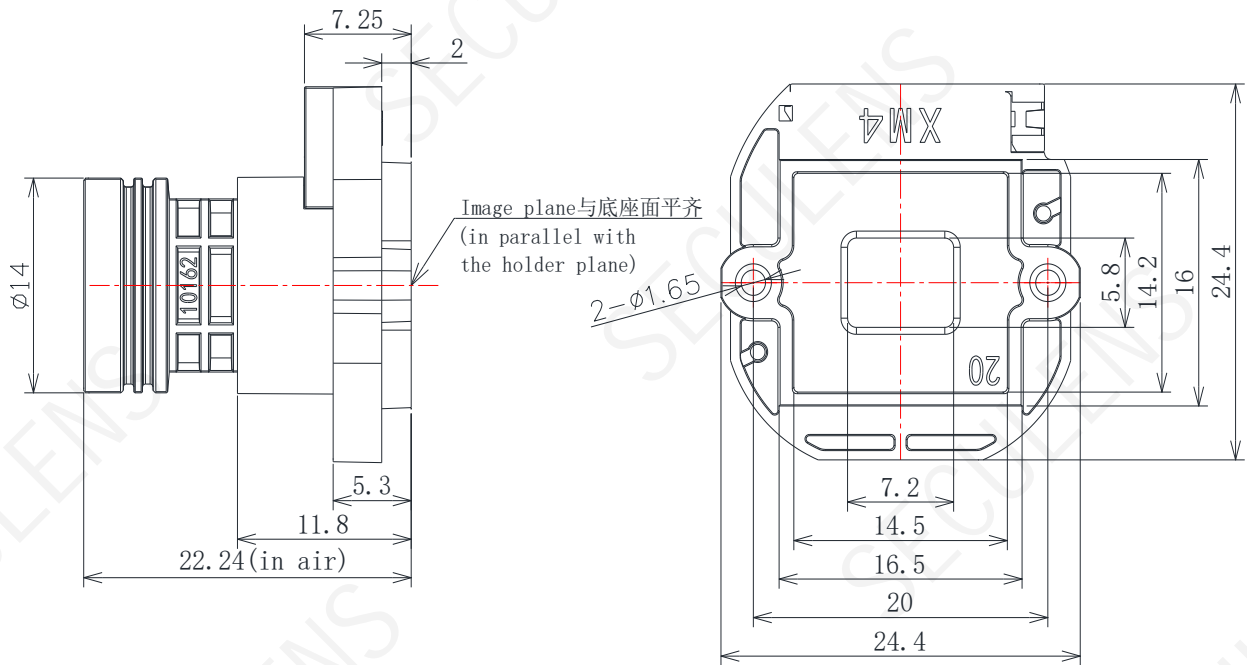
NO.	项目 (Items)		具体规格 (Specification)						
1	F No.		2.2±10%						
2	焦距(Focal-Length)		3.97±5%						
3	光学后焦 (Optical Back Focal Length)		5.39±0.2 (in air)						
4	机械后焦 (Mechanical Back Focal Length)		5.06±0.2 (in air)						
5	镜头总长(TTL)○		22.24±0.2 (in air)						
6	像面大小 (Image circle)		Φ7.0 (max)						
7	镜片构成 (Lens structure)		1G3P (第一枚镜片为塑胶镜片时, 仅可使用酒精擦拭3次) (The first optical lens is plastic lens, could only be wiped with alcohol 3 times)						
8	接口 (Mount)		M12*P0.5						
9	镜头与底座螺纹配合扭力 (Clamp Force)		60-600gf.cm						
10	视场角 (FOV)	sensor型号		H(水平)		V(垂直)		D(对角)	
		1/2.7"	5.76*3.24*6.609	86.0°		46.1°		104.3°	
		1/2.8"	5.568*3.132*6.388	82.4°		44.6°		99.0°	
		1/2.9"	5.376*3.024*6.168	79.0°		43.0°		94.2°	
11	光学畸变 (Optical Distortion)		1/2.7"	-35.2%	1/2.8"	-31.3%	1/2.9"	-27.7%	
12	TV畸变 (TV Distortion)		1/2.7"	-11.3%	1/2.8"	-10.3%	1/2.9"	-9.3%	
13	相对亮度 (Relative Illumination)		1/2.7"	40%	1/2.8"	42%	1/2.9"	44%	
14	最大主光线夹角 (CRA)		1/2.7"	15.3°	1/2.8"	14.8°	1/2.9"	14.2°	
15	近摄距 (M.O.D)		2m						
16	解像标准 (Resolution)		分辨率 (Resolution): 2048*1536 (3MP)						
17	建议芯片封装倾斜规格 (tilt tolerance of sensor packaging)		< 3.6'						
18	重量 (Weight)		/						
19	操作方法 (Operation)		聚焦 (Focus)			手动 (Manual)			
			光圈 (Iris)			固定 (Fixed)			
20	环保&安全 (HSF&Safety)		RoHS						

备注: 以上参数均为理论值, 仅供参考

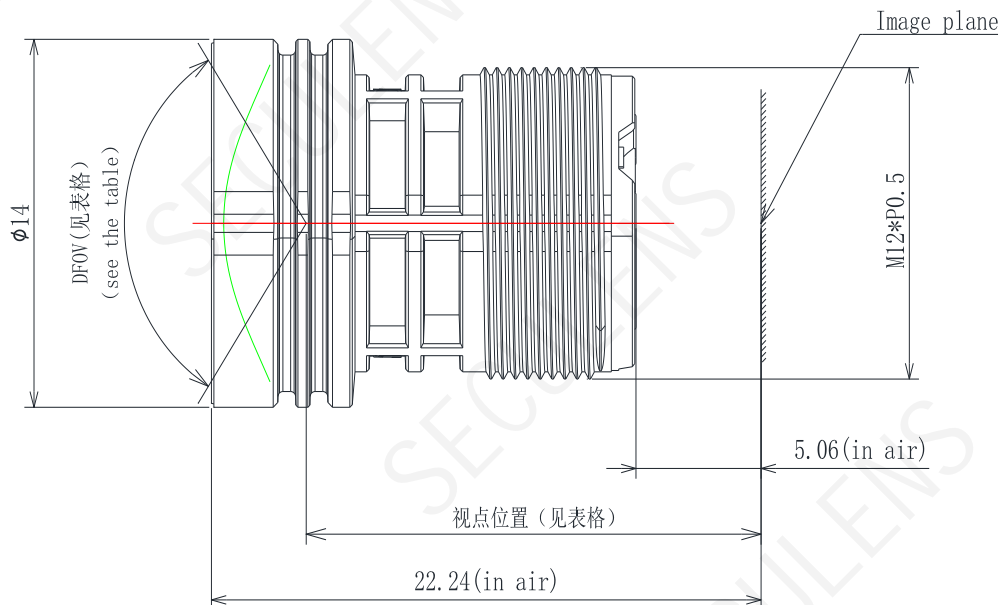
NOTE:The above parameters are theoretical values, for reference only

## 5.2 机构参数规格 (Mechanical Specifications)

### 5.2.1 外形尺寸图 (Dimension Figure)



### 5.2.2 视点图 (Viewpoint Figure)



未注公差 (Unmarked Tolerance):  $\Phi \pm 0.1$ ,  $L \pm 0.15$

本规格书未注单位 (Unit is not indicated in the document.): mm

**5.2.3 视点信息 (Viewpoint table):**

全像高 full image	视场角 FOV	视点 viewpoint	备注 remark	全像高 full image	视场角 FOV	视点 viewpoint	备注 remark
2.1	30.0°	14.28		6.9	112.1°	18.64	
2.2	31.4°	14.43		7	115.0°	18.78	
2.3	32.8°	14.58		7.1			
2.4	34.2°	14.72		7.2			
2.5	35.6°	14.84		7.3			
2.6	37.0°	14.96		7.4			
2.7	38.5°	15.07		7.5			
2.8	39.9°	15.18		7.6			
2.9	41.3°	15.28		7.7			
3	42.7°	15.38		7.8			
3.1	44.1°	15.47		7.9			
3.2	45.5°	15.56		8			
3.3	47.0°	15.64		8.1			
3.4	48.4°	15.73		8.2			
3.5	49.8°	15.81		8.3			
3.6	51.3°	15.89		8.4			
3.7	52.7°	15.96		8.5			
3.8	54.2°	16.04		8.6			
3.9	55.7°	16.11		8.7			
4	57.1°	16.19		8.8			
4.1	58.6°	16.26		8.9			
4.2	60.1°	16.33		9			
4.3	61.6°	16.40		9.1			
4.4	63.2°	16.47		9.2			
4.5	64.7°	16.55		9.3			
4.6	66.3°	16.62		9.4			
4.7	67.8°	16.69		9.5			
4.8	69.4°	16.76		9.6			
4.9	71.0°	16.83		9.7			
5	72.7°	16.91		9.8			
5.1	74.3°	16.98		9.9			
5.2	76.0°	17.05		10			
5.3	77.7°	17.13		10.1			
5.4	79.5°	17.20		10.2			
5.5	81.2°	17.28		10.3			
5.6	83.0°	17.36		10.4			
5.7	84.9°	17.44		10.5			
5.8	86.8°	17.52		10.6			
5.9	88.7°	17.61		10.7			
6	90.7°	17.69		10.8			
6.1	92.8°	17.78		10.9			
6.2	94.9°	17.87		11			
6.3	97.1°	17.97		11.1			
6.4	99.3°	18.07		11.2			
6.5	101.6°	18.17		11.3			
6.6	104.1°	18.28		11.4			
6.7	106.6°	18.39		11.5			
6.8	109.2°	18.51		11.6			

**备注:**

1. 最大像高提供至镜头支持的最大靶面 (通用产品相对照度按照20%, 特殊产品根据需求再联络)
2. 视点深度一律按照空气中尺寸计算; 并且以镜头像面为起始位置;
3. 模拟参数时, 物距暂定按照无穷远计算——此时镜头距离前窗玻璃最远, 干涉风险最大;
4. 各数据的公差按照: 视场角精确到0.1度, 视点精确到0.01mm;

**NOTE:**

1. The max image height is the largest format that the lens can support (general RI is 20%);
2. It is in air depth of viewpoint; counting from lens image .
3. Simulated object distance is infinite.
4. tolerance: FOV 0.1° ; viewpoint 0.01mm.

**5.3 IR-CUT参数规格(IR1313) (IRCUT Specification)-V02**

NO	项目ITEM	条件Condition	单位Unit	标准 Parameters
1	产品外形尺寸(Product size)	装配外形(Assembly exterior)	mm	24.4*24.4*11.8
2	开口口径(Opening aperture)	-	mm	6.6*5.1
3	线长(Wire length)	-	mm	65±5
4	线径(Wire diameter)	-	mm	0.7
5	绝缘等级(Insulation class)	-	-	A
6	端子保持力(Terminal retentivity)	-	N	≥10
7	线圈阻抗(Coil Resistance)	25°C	Ω	20±5
8	静态保持力(Static retention force)	-	g	≥0.4
9	通电电压(Electric voltage)	参照环境参数规格Refer to the environmental parameter specifications	V	3.5~6.0
10	通电时间(Electric time)	参照环境参数规格Refer to the environmental parameter specifications	ms	100~200
11	推荐驱动条件(Recommend Driving Condition)	参照环境参数规格Refer to the environmental parameter specifications	-	端口电压Port voltage: 3.5V 秒时Driving time: 100ms

备注: 产品通正反向电压, 通断电时间为: 通电100ms~200ms, 断电30s~60s, 不通电时滤光片保持不动。

Note: Positive and negative voltage. Time: power on 100ms ~200ms, power off 30s~60s. Filter stays still when the power is not turned on.

## 滤光片参数(Filter parameters)

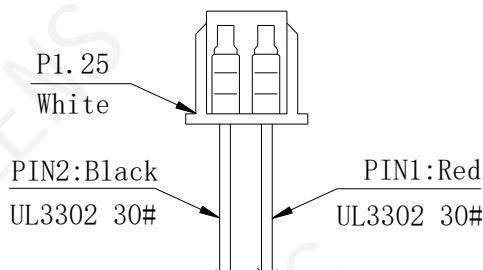
红外波光片 (IR Filter)	镀膜方式 (Coating method)	单面镀膜Single sided coating	
	滤光片基材 (Base material)	康宁 Alkali Free Borosilicate Glass	
	尺寸 (Size)	7.8mm*5.7mm*0.21 (厚度公差为±0.02mm)	
	镀膜规格 (Coating Spec)	350nm~380nm	Tave<3%
		420nm±10	T=50% 斜率20%~80%<20nm
		440nm~600nm	Tave>92.5%, T>85%
		645nm±10	T=50% 斜率80%~20%<20nm
		680nm	T<5%
700nm~950nm	T<1% Tave<1%		
950nm~1100nm	不做要求		
白片波光片 (Dummy Glass)	镀膜方式 (Coating method)	单面镀膜Single sided coating	
	滤光片基材 (Base material)	康宁 Alkali Free Borosilicate Glass	
	尺寸 (Size)	7.8mm*5.7mm*0.21 (厚度公差为±0.02mm)	
	镀膜规格 (Coating Spec)	420nm~950nm T>85% Tave>90%	

## 切换模式(Switch type)

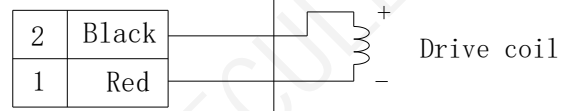
区分 Distinction	红线Red line	黑线Black line	状态State
极性Polarity	(-)	(+)	白玻璃片工作 (夜晚) Dummy glass (night)
	(+)	(-)	红外滤光片工作 (白天) IR Filters (day)

端子定义terminal:

接线示意图wiring diagram:



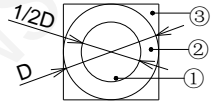
PIN NO.





**5.4 光学检测标准 (Optical Performance)**

No.	检测项目 (Items)	描述 (Description)
1	解像力 (Resolution)	1.1: MTF测量设备 A: 仪器: MTF测量仪 1.2: 检测标准(Criteria) 3MP: 100 lp/mm 中心: 0.5; 0.5视场: S/0.35 T/0.2; 0.7视场: S/0.3 T/0.18
2	外观标准 (Appearance Standards)	2.1 镜头内污 (LENS DUST) A: 规格 60-40 (27W台灯目视检查) 伤痕: 宽度 <60um, 长度和 <D/2, ≤15um 不计; 脏污: 单点直径 <400um, 200~400um 点 ≤3个。 2.2 IR-CUT 外观 (IR-CUT appearance) A: 滤光片油污、异色、欠膜、破裂、溢胶、水纹、白雾, 不可; B: 表面不可移动脏污, 尘点范围要求: 如右图所示: ① 区 0.1mm 以下不可超过3个; ② 区 0.1~0.15mm 不可超过5个; ③ 区 0.1~0.2mm 以下不可超过10个。图中①和②区划伤长度 1mm, 宽度 0.1mm ≤3个。 C: 可移动尘点的全区依照中心位置不可移动尘点标准判定 D: 丝印不良不可 2.3 其他外观 (Other appearance) 外表面颜色均匀, 无明显缺陷、污渍、异物伸出、明显划伤和收缩; 胶水不得溢入有效通光内。 2.1 LENS DUST A: Specification 60-40 (Visual inspection of the 27W desk lamp) Scratch: width <60um, total length <D/2, ≤15um ignored; Smudge: Single dot diameter <400um, 200~400um dot ≤3 pcs 2.2 IR-CUT appearance A: Oil on filter, color failure, coat cracks, coating missing, glue overflow, liquid pattern are not acceptable. B: Standard for immovable dirt-spot on surface, Referring the image on the right side: 1) Area <0.1mm, spot ≤3; 2) Area 0.1~0.15mm, spot ≤5; 3) Area 0.1~0.2mm, spot ≤10; 4) Area 1) and 2)'s spot, with length is around 1mm and width around 0.1mm, ≤3 C: Movable dirt-spot's standard is following the immovable standard D: Printed letter's failure is not acceptable 2.3 Other visual standard Color on surface is even, not obvious defect, dirt, dislocation, scratch, shrink; glue is not allowed to enter the effective diameter range.


**5.5 环境参数规格 (Environment Specifications)**

No.	环境描述 (Items)	条件 (Description)
1	存放环境 (Storage condition)	-30℃~+80℃; 10-90%RH (No condensing)
2	工作环境 (Operation condition)	-20℃~+60℃; 10-90%RH (No condensing)



**6 信赖性测试( Reliability Test)**

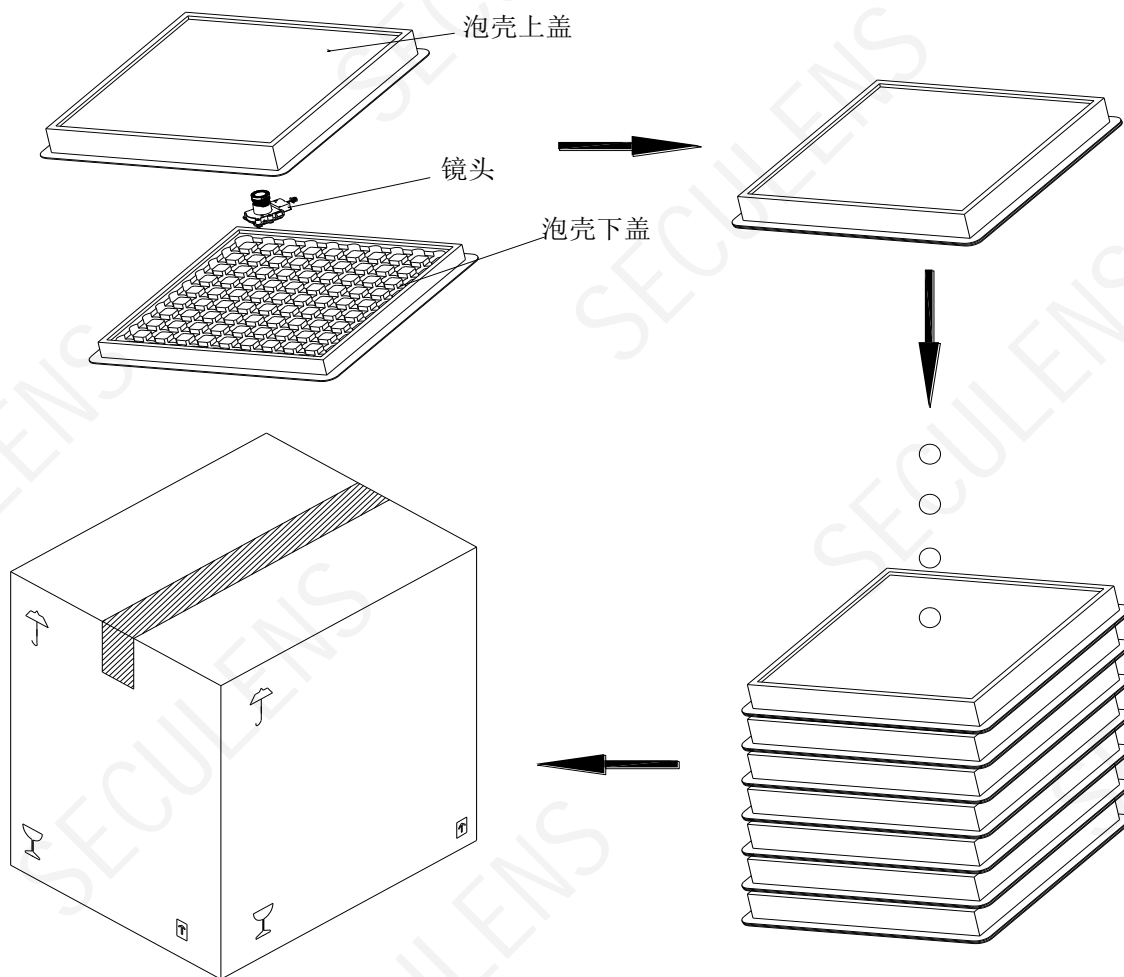
No.	项目 (ITEM)	测试条件 (CONDITION)	判定标准 (standard of criterion)
1	高温存放试验 Storage Test At High Temperature	镜头在80℃温度中存放48小时，之后再存放在常温常湿环境中恢复6小时后，所有规格满足规定要求 All specification are to be satisfied after lens is exposed to 80℃ for 48 hours and then to normal temperature/humidity for 6 hours	变化20%以内；回常温中心变化50本，周边100本以内 after test, resolution change $\leq 20\%$ ; resolution change $\leq 50$ lines when lens temperature return to room temperature
2	低温存放试验 Storage Test At Low Temperature	镜头在-30℃温度中存放48小时，之后再存放在常温常湿环境中恢复6小时后，所有规格满足规定要求 All specification are to be satisfied after lens is exposed to -30℃ for 48 hours and then to normal temperature/humidity for 6 hours	变化20%以内；回常温中心变化50本，周边100本以内 after test, resolution change $\leq 20\%$ ; resolution change $\leq 50$ lines when lens temperature return to room temperature
3	冷热冲击试验 Temperature Cycle Test	镜头在-30℃条件下保持30分钟，然后升温至+80℃，稳定后保持30分钟作为一个周期，共10个周期。之后再存放在常温常湿环境中恢复6小时后，所有规格满足规定要求 All specification are to be satisfied after lens is exposed to -30℃ for 30 min, Tank temperature change +80℃ for 30 min as one cycle, 10 cycle shall be performed. And then to normal temperature/humidity for 6 hours	变化20%以内；回常温中心变化50本，周边100本以内 after test, resolution change $\leq 20\%$ ; resolution change $\leq 50$ lines when lens temperature return to room temperature
4	振动试验 Vibration Test	频率：加速度谱密度 1Hz 0.00072 g <sup>2</sup> /Hz; 3.0Hz 0.018 g <sup>2</sup> /Hz; 4.0Hz 0.018 g <sup>2</sup> /Hz; 5.0Hz 0.01 g <sup>2</sup> /Hz; 100.0 Hz 0.01 g <sup>2</sup> /Hz; 135.0 Hz 0.00148 g <sup>2</sup> /Hz; 200.0 Hz 0.001 g <sup>2</sup> /Hz; 201.0 Hz 0.00012 g <sup>2</sup> /Hz; 300.0 Hz 0.00001 g <sup>2</sup> /Hz; 总均方根加速度：1.087Grms 试验轴向：3轴向。 试验时间：Z方向60min, X和Y方向30min 对于A类包装（包装件重量 $\leq 45$ KG）：起始频率点为5Hz	变化20%以内； after test, resolution change $\leq 20\%$ ;

No.	项目 (ITEM)	测试条件 (CONDITION)	判定标准 (standard of criterion)
5	耐久试验 (Durability)	<b>试验标准:</b> ▪ VCM马达: 电流: 0~90~0 mA , 持续1秒 Current : 0~90~0 mA for 1sec 方向: +Z 方向 Direction : +Z direction 周期: 1轮=0.5秒开启→ 0.5s 关闭 Cycle : 1cycle= 0.5s ON→ 0.5s OFF 温度: 23C° ±2C° Temperature : 23C° ±2C° 时间: 300,000轮 Times : 300,000cycles ▪ IR-cut filter section IN ≅ OUT 驱动100ms, 断电2500ms 往复驱动, 20000次 0.5 ~ 1.0 seconds for each reciprocating 20,000 times 测试项目:  <input checked="" type="checkbox"/> IR-cut <input type="checkbox"/> VCM马达 <input type="checkbox"/> 不涉及	试验后各项性能OK; all meet test standard after test
6	跌落试验 (drop test)	1. 高度: 包装后, 高度1m; 2. 落下方向: 一角三棱六面; 3. 次数: 各一次; 上述实验条件后作动无异常。(NO abnormalities for operation after testing with above experiment conditions) 1.Height: 1m after packaged; 2.Direction: A triangular prism with six faces; 3.NO abnormality after experiment above all.	试验后各项性能OK; all meet test standard after test

7 包装规格 (Package)

1. 镜头盖上镜头盖后，放入泡壳。

2. 盖上泡壳上盖，泡壳上贴标示票。



4. 密封胶带，箱子外面贴标示票。

3. 装满镜头的泡壳抽真空后重叠放入纸箱。

✕注：包装纸箱可根据客户订单灵活选用，以上包装以纸箱（320\*240\*490）包装示例

数量：

25 PCS/盒

16 盒/箱

400 PCS/箱