

SHENZHEN HUPUU ELECTRONICS CO., LTD

Specification For Approval

Product Name: 3MP Board Lens

Model: LF1.98-M12-3MP-F2

APPROVAL: **YANG**

CHECK: **XU**

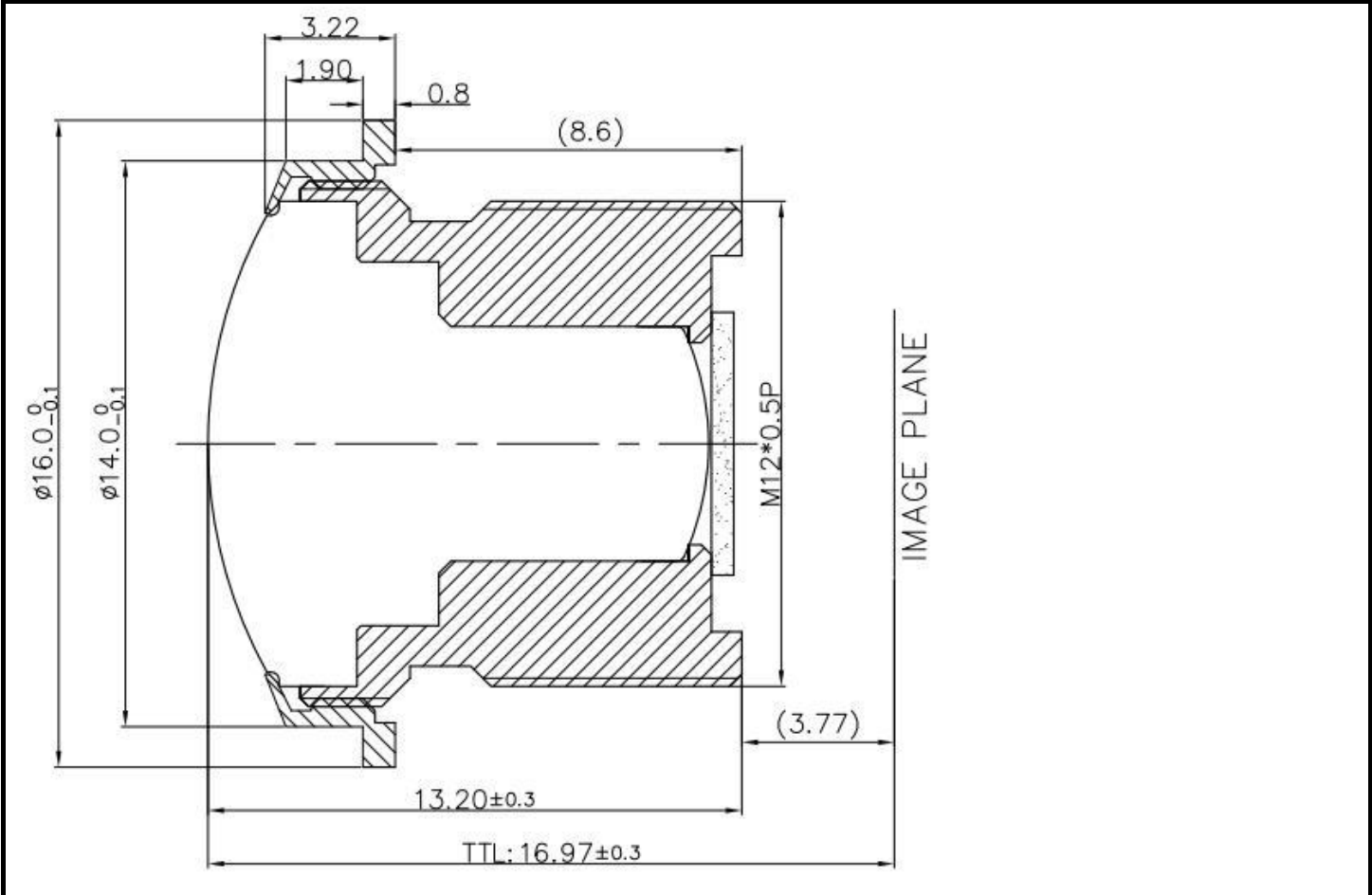
MADE: **LUO**

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- 1. HD 3.0 MP wide angle waterproof lens
- 2. Image sensor: 1/2.7" OV2710 1/2.8" IMX307 1/2.9" GC2053

Specifications:

| | | |
|---------------------------|---------------|---------------------|
| Aperture | F2.0 | |
| Focal-Length (mm) | 1.98mm | |
| Mount | M12x0.5 | |
| FOV | 1/2.7" | D:190°,H:160°,V:87° |
| | 1/2.8" | D:184°,H:184°,V:83° |
| | 1/2.9" | D:176°,H:148°,V:80° |
| TTL | 17mm | |
| Back Focal-Length | 3.77mm | |
| Ingress Protection Rating | IP69K | |
| Construction | 6G+IR | |
| Dimension | Φ14/16*14mm | |
| Distortion | <-15% | |
| Weight | / | |
| Operating Temperature | -35°C ~ +80°C | |



| | | | | | | | | |
|--------------------------|------|------------|-------|------------|--------|------------|-------|---------------|
| Unnoted tolerances: (mm) | 0-10 | ± 0.05 | 10-30 | ± 0.10 | 30-120 | ± 0.20 | Angle | $\pm 2^\circ$ |
|--------------------------|------|------------|-------|------------|--------|------------|-------|---------------|

Reliability Test

| No. | ITEM | CONDITION | Judgment |
|-----|---|---|----------|
| 1 | Storage Test At High Temperature | All specification are to be satisfied after lens is exposed to 80°C for 48 hours and then to normal temperature/humidity for 6 hours | OK |
| 2 | Storage Test At Low Temperature | All specification are to be satisfied after lens is exposed to -20°C for 48 hours and then to normal temperature/humidity for 6 hours | OK |
| 3 | High temperature and high humidity test | 1. Humidity: 90 ± 5% Rh 1 h 2. Temperature: 30°C ± 21 h 3. The power-on time was 96 ± 2h | OK |
| 4 | Vibration Test | All specification are to be satisfied after lens is subjected to the sine wave of 1.5mm amplitude and 10-55Hz directions for 25 minutes each | OK |
| 5 | Waterproof Test | Water pressure: 0.5kpa Water temperature: normal temperature Time: 60s | OK |
| 6 | UV Test | Set to 300W and then illuminate the lens for 48 hours. | OK |
| 7 | Grinding Test | The contact area between HB pencil and lens was about 2.89 mm ² , the experimental pressure was (100 ± 10) kPa, the test speed was 60 cycles/min (1 cycle = 2 * the test friction distance) , and the test cycle number was 500. | OK |
| 8 | Hot And Cold Shock Test | -40°C for 30 minutes and then warming 105°C for 30 minutes, temperature change time 5 minutes, 10 cycles. | OK |
| 9 | Immersion Test | 1. 80 degrees in hot air for 30 minutes 2. Soak in room temperature(5-35) water for 10 minutes | OK |
| 10 | Steel Ball Impact Test | 50g steel ball, 20CM free fall | OK |
| 11 | Salt Spray Test | 1. Adding 20% -30% concentration of sodium chloride to water, adding glacial acetic acid, testing PH 3-4 acidity. 2. test time: 48h; 3. Cycle Times: 2 cycles a sample has 8 hours exposed to salt spray, 16 hours without salt spray 4. Test temperature: TRT=(25 /-5)°C at room temperature without salt spray | OK |
| 12 | Ice Water Test | 4. Rinse the lens with 0-4°C water at an angle of 0°/30°/60°/90° . 5. Test time: 5 hours. 6. Cycle number: 10 times (every 30 minutes per cycle) 7. Flushing distance: the distance from the nozzle to the lens is 30CM. | OK |