

# Jiangsu DEEP Testing Technology Co., LTD TEST REPORT

Verification Certificate

Customer : WUXI GUOSHENG BIO-ENGINEERING CO.,LTD

Address of Customer : No.35, Huitai Road, Liangxi District, Wuxi City

Detection object : Clean Room

Type/Specification : Grade D

Manufacturer : /

Detection conclusion : PASS



Approved by : 胡建平

Checked by : 戚心怡

Verified by : 蔡文娟

Test date : 2023 Year 08 Month 01 Day

Date of issue : 2023 Year 08 Month 23 Day

**Detection specification:****Statement:**

The company is a CMA accredited organization

Certificate of measurement authorization: 221012110356

Inspection authorization unit: Jiangsu Province Quality and Technical Supervision

No partial reproduction (except full reproduction) of this report is allowed without the written authorization of the Company

Report cover without our company test seal is invalid

The report shall be invalid without the approval and signature of the approver

The reported data only reflects the environmental data of the test site at that time

**The Technical Document (name, code) :**

- 1、《Design Drawing and Description》
- 2、《Code for Construction and Acceptance of clean Rooms》 GB 50591-2010
- 3、《Code for Clean Workshop Construction and Quality Acceptance》 GB 51110-2015
- 4、《Ventilation and air conditioning Engineering Construction Quality Acceptance Code》 GB 50243-2016
- 5、《Clean rooms and associated controlled environments - Part 3: Test methods》 GB/T 25915.3-2010 /ISO 14644-3:2005

**The Technical Document (name, code):**

Name	Brand	Model/Specification	uncertainty	Verification body	Certificate number/validity period
Volume Hood	TSI	8380	Urel=0.44%(k=2)	Wuxi inspection and testing certification Institute	22457357/ 2023-11-10
Micromanometer	TESTO	512	±0.025%	Wuxi inspection and testing certification Institute	22367674/ 2023-09-08
Hygograph	VAISALA	HM40	±0.1°C; ±0.2°C DP U=0.05°C (k=2) U=0.5%RH (k=2)	Wuxi inspection and testing certification Institute	22367673/ 2023-09-08
Sound Level Meter	TESTO	816	±0.2dB ±0.1% U=0.05dB~0.20dB(k=2)	Wuxi inspection and testing certification Institute	22367678/ 2023-09-08
Illuminc Meter	TESTO	540	(3~3000)lx 10cd,100cd,500cd, 1000cd	Wuxi inspection and testing certification Institute	22457358/ 2023-11-03
Laser Particle Counter	MET ONE	3413	counting: U=14% (k=2); size distribution: U=6% (k=2) U=8nm k=2	Suzhou metrology testing Institute	801976647-003 / 2023-09-13

## Detection Profile

### Project Description:

This project is located at No. 35 Huitai Road, Liangxi District, Wuxi City. Our company is entrusted by Wuxi Guosheng Biological Engineering Co., Ltd. to test the comprehensive performance of clean room on the first floor of clean production workshop in accordance with the standard requirements.

### Test State:

During the test, the clean room was in a dynamic state. The clean workshop has been installed, the production equipment has been basically in place, and part of the production equipment is in operation.

### Detection Parameter :

- 1、 Air supply volume and air change frequency.
- 2、 Clean room differential pressure test.
- 3、 Temperature humidity test.
- 4、 Noise measurement.
- 5、 Illumination test.
- 6、 Cleanliness test.
- 7、 \* Clean room settling bacteria test .

### Testing Instrument:

- 1、 Volume Hood , TSI-8380.
- 2、 Micromanometer ,TESTO-512.
- 3、 Hygrograph , VAISALA HM40.
- 4、 Sound Level Meter , TESTO-816.
- 5、 Illumino Meter , TESTO-540.
- 6、 Laser Particle Counter , MET ONE 3413

**Decision Basis:**

1. Efficient air supply outlet air volume testing and room ventilation frequency calculation. (Design a cleanliness level of 100000 corresponding to the number of air changes)
2. Clean room pressure difference test. (According to the design specifications, the cleanliness should be  $\geq 15\text{Pa}$ )
3. Clean room temperature and humidity test. (In the design specifications, the temperature is  $18-25\text{ }^{\circ}\text{C}$  and the humidity is  $40\%\sim 70\%$ )
4. Clean room noise testing. (No strong standard requirements, under dynamic conditions agreed with the owner,  $\leq 75\text{dB}$ )
5. Cleanroom illumination test. (In the design specifications, the illumination in the production area is  $\geq 300\text{Lx}$ )
6. Cleanroom cleanliness testing. (Design a 100000 level clean room)
7. Clean room settling bacteria test. (The number of colonies produced by 4H sedimentation should not exceed 100 per dish)

### Testing Result

No.	Testing Parameters	Judgment criteria	Testing result	
			Extreme Value	Average Value
1	Air Supply Volume and Air Change Frequency	Design air exchange frequency requirement for 100000 levels: 15-20 times/hour	15~38.5 Times/hour	22.5 Times/hour
2	Clean Room Differential Pressure	Design requirement: Clean area absolute pressure $\geq$ 15Pa	19Pa	28Pa
3	Temperature	Design requirements: 18~25 °C	21.9°C~24.8°C	23.4°C
4	Humidity	Design requirements: 40%~70%	50.5%~61.3%	57.4%
5	Noise	$\leq$ 75dB	47.2 dB~74.3 dB	65.1dB
6	Illumination	Design requirements: $\geq$ 300Lx	328 Lx~740Lx	410Lx
7	Cleanliness	100000 level requirement : @0.5um $\leq$ 99616pc/28.3L	50pc~8669pc	1204 pc/28.3L
		100000 level requirement : @5.0um $\leq$ 829pc/28.3L	1pc~700pc	97 pc/28.3L
8	* Clean Room Settling Bacteria Test	100000 level requirement : $\leq$ 200 pieces/dish	0~26 pieces/dish	26 pieces/dish (4H) )

\*

### Testing Conclusion

After on-site testing of the clean room, the tested items meet the requirements of the corresponding judgment standards.

The various parameters of this clean room can meet the standard of ten thousand level clean rooms. (Excluding 5um large particles, no judgment will be made)

