

# Ionizing Air Gun

## 操 作 手 冊

感謝您購買本產品。請仔細閱讀本說明書，安全使用本產品，閱讀後，請將此說明書妥善保管。

# 安全說明

## ⚠警告：

- 本品屬於電器製品，應遵守安全事項，以免發生事故
- **VECTECH445F** 離子吹塵槍不能在危險的區域使用。不能在靠近易燃氣體或溶劑的地方使用。

## 一、概述

VECTECH445F 離子吹塵槍。此款型離子吹塵槍是一種輕型手動氣壓槍，設計輕巧，使用方便、靈活。主要用於消除細小敏感部件和材料的靜電或灰塵。消除靜電後，更容易把部件清潔乾淨並防止灰塵顆粒重新吸附。兩支 445F 離子風槍可同時和一台 446F-2 配套使用。

## 二、技術參數

⚠注意：請不要在下列參數範圍之外使用本離子吹塵槍，否則可能造成身體傷害和機器受損。

空氣供給要求：	清潔乾燥空氣 0.1~0.7Mpa
空氣供給連接：	用 6*8 mm PU 管連接
高壓輸入：	7KVAC <sup>0</sup> <sub>-40%</sub> 50Hz/60Hz
有效靜電消除距離：	1000mm 內
高壓線標準長度：	3 米

# 三、安裝

## ⚠注意:

- 在所有接地和高壓線連接未完成之前，不要連接高壓電源供應器的電源線。
- 爲了正確使用離子吹塵槍及防止操作人員被電擊，離子吹塵槍、高壓電源供應器必須與大地可靠連接。
- 污染的氣體會阻塞噴咀或造成短路，所以供給的氣體必須經過過濾才能使用。吹塵槍的空氣供給壓力應該在 0.1~0.7Mpa 之間。

### 1. 高壓電源供應器的安裝

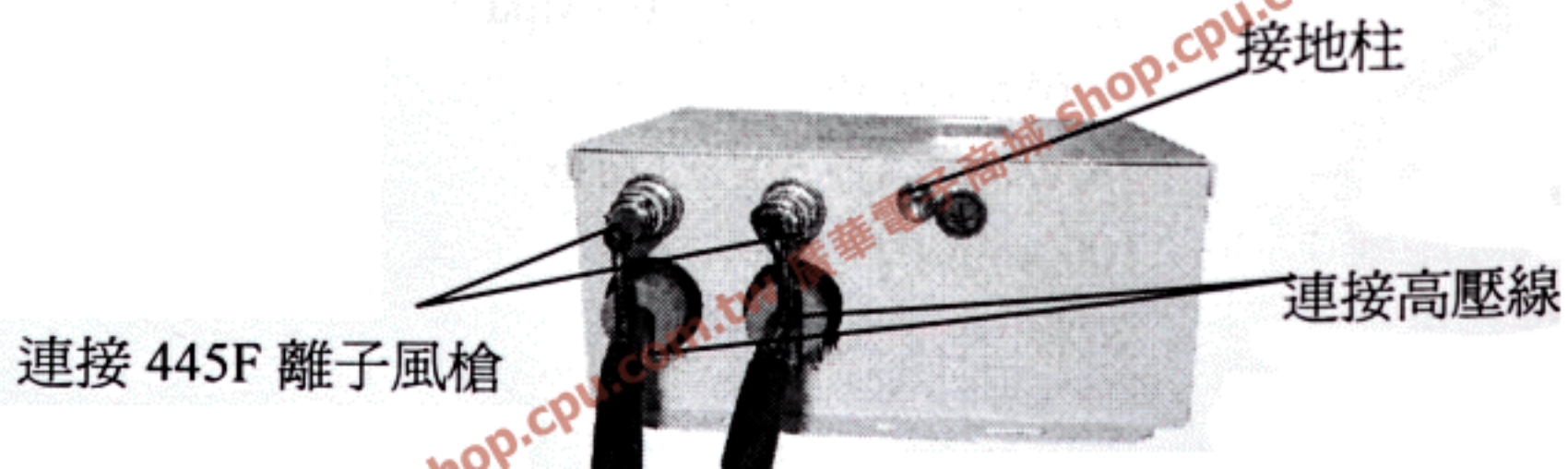
高壓電源供應器可安裝於牆壁上或平面上，具體操作可參考高壓電源供應器操作手冊的安裝部分。

### 2. 接地

- a 將離子吹塵槍上的六芯插頭連接到高壓電源供應器的插座上，使得該設備和高壓電源供應器具有必要的接地。
- b 爲了防止電源線的三端接地插頭接地不良，則應使用所提供的地線(黃綠色)接地。一端接在電源供應器上的接地座上，另一端連接到大地。

### 3. 高壓線的連接

將離子吹塵槍上的高壓線接頭連接到電源供應器的高壓輸出座上，並用手擰緊其鎖緊帽，請不要使用任何工具。



#### 4 · 離子吹塵槍與氣源的連接

用 6\*8mm 的 PU 管連接到外部氣源，離子吹塵槍氣源入口在槍的尾部。



PU 管連接至外部氣源

#### 5 · 連接電源線

電源線應該連接在額定電壓的電源插座上，在高壓電源供應器的商品標牌上標明瞭這些使用條件。所用電源插座應是有良好接地的三端電源座。

### 四、操作

當所有的電氣和空氣供給連接已經完成後，離子吹塵槍才可使用。

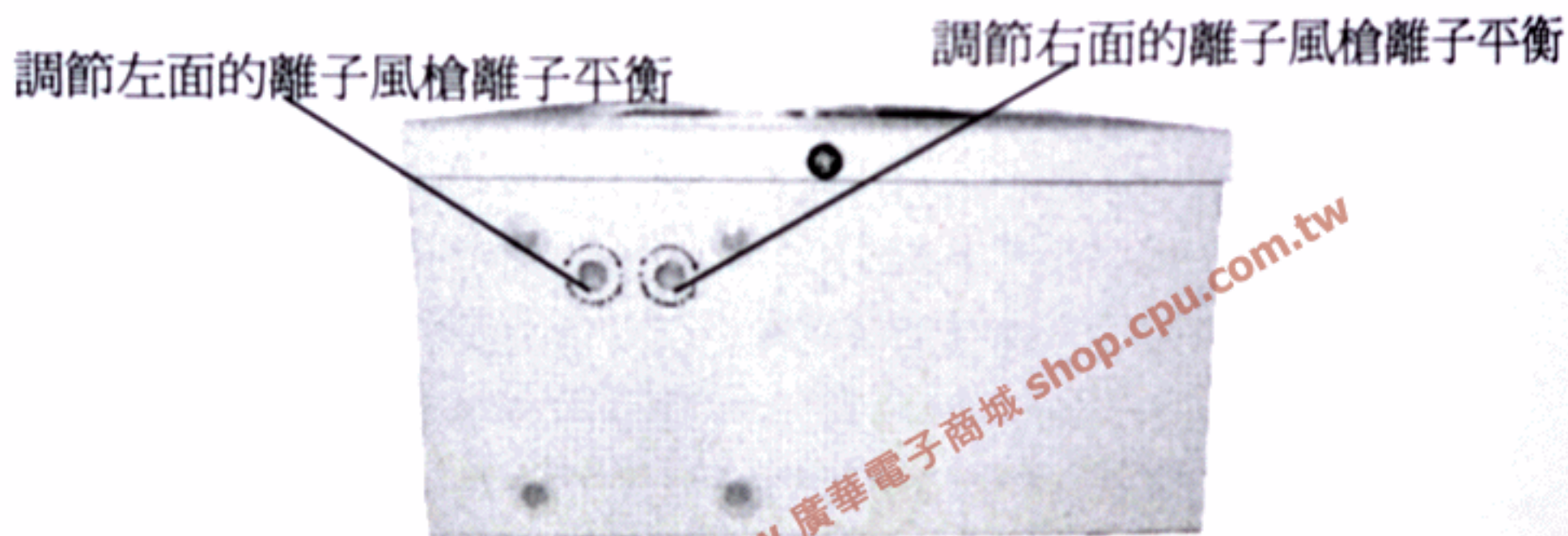
- 1 · 打開外部氣源開關供氣。
- 2 · 高壓電源有一個帶指示燈的電源開關。

當開關打開“ON”（開）時，指示燈亮，控制高壓輸出端產生高壓，噴咀內的離子發射針尖便會電離空氣，發射正負離子。需工作時，握住槍的扳機，正負離子便隨氣流輸出中和工作區域內帶電物體的靜電荷，離子流將會去除物體攜帶的靜電及灰塵並防止灰塵的重新吸附和靜電荷的產生。

為了達到最佳使用效果，首先應把吹塵槍放在離被清潔部件足夠近的範圍內，以保證吹除所有的灰塵顆粒，然後氣流吹向該部件幾秒鐘，吹塵槍的噴咀離部件的距離大約在 200~300mm。這樣操作把殘留下來的細小

的靜電荷也消除乾淨了。必須使離子氣流吹到被清潔物體的所有零部件，確保完全消除靜電和清理乾淨。

3. 如有必要，可測試平衡電壓，若平衡電壓超出正常範圍，可調節離子平衡調節器。左面的離子平衡度調節器調節左面的 445F 風槍離子平衡度，右面的離子平衡度調節器調節右面的 445F 風槍離子平衡度。



4. 關掉電源開關，指示燈滅，高壓輸出被停止。

⚠注意：當電源被間歇性地開關時，在一個迴圈中，開和關的時間至少應該在一分鐘以上。如果開和關的迴圈時間低於一分鐘，高壓電源供應器的使用壽命將受到負面影響。

## 五、檢測與保養

### 1. 接地檢測

測試高壓供應器與電源地線埠之間的對地電阻，讀數應小於  $4\Omega$ 。

### 2. 離子吹塵槍的靜電消除性能檢測

- 1) 推薦使用離子靜電測試儀（如 CPM374）按照 ESD 協會的離子標準 ANSI/ESD-STM 3.1-2000 來測試。
- 2) 如果只有手持靜電測試儀，應該按下列步驟定期檢測靜電消除性能：

- B 接通電源使離子吹塵槍正常工作，將帶電物體移至距離出風口 15cm 處，約數秒。
- C 重新測量帶電物體的靜電電壓。  
重新測量的電壓在合格範圍內，那麼該組機器是好的。  
檢驗一下，當把吹塵槍從帶電物體上移開時，靜電消除功能會逐漸降低。

### ⚠注意:

1. 如果離子平衡度有所偏離，請調節離子平衡度調節器。
2. 當電壓偏負時，順時針調節；當電壓偏正時，逆時針調節。
3. **446F-II** 高壓電源供應器上有兩個離子平衡度調節器。左面的離子平衡度調節器調節左面的 **445F** 風槍離子平衡度，右面的離子平衡度調節器調節右面的 **445F** 風槍離子平衡度。

## 3 · 定期保養

爲了高效運作，離子發射針應該保持乾淨。可用普通的橡皮擦清潔離子發射針。把電源關掉，將橡皮擦慢慢插進噴咀開口處，輕輕按下使離子發射針紮入橡皮擦同時轉動橡皮擦。這樣將安全地清除堆積在離子發射針上的沈澱物。

### ⚠注意：

- 不要使用任何堅硬、鋒利的物體磨擦離子發射針，這樣容易對離子發射針造成損傷。
- 離子發射針必須盡可能地保持尖細，以確保最佳使用效果。如果離子發射針變鈍了或受損了，必須更換。

# **445F Ionizing Air Gun**

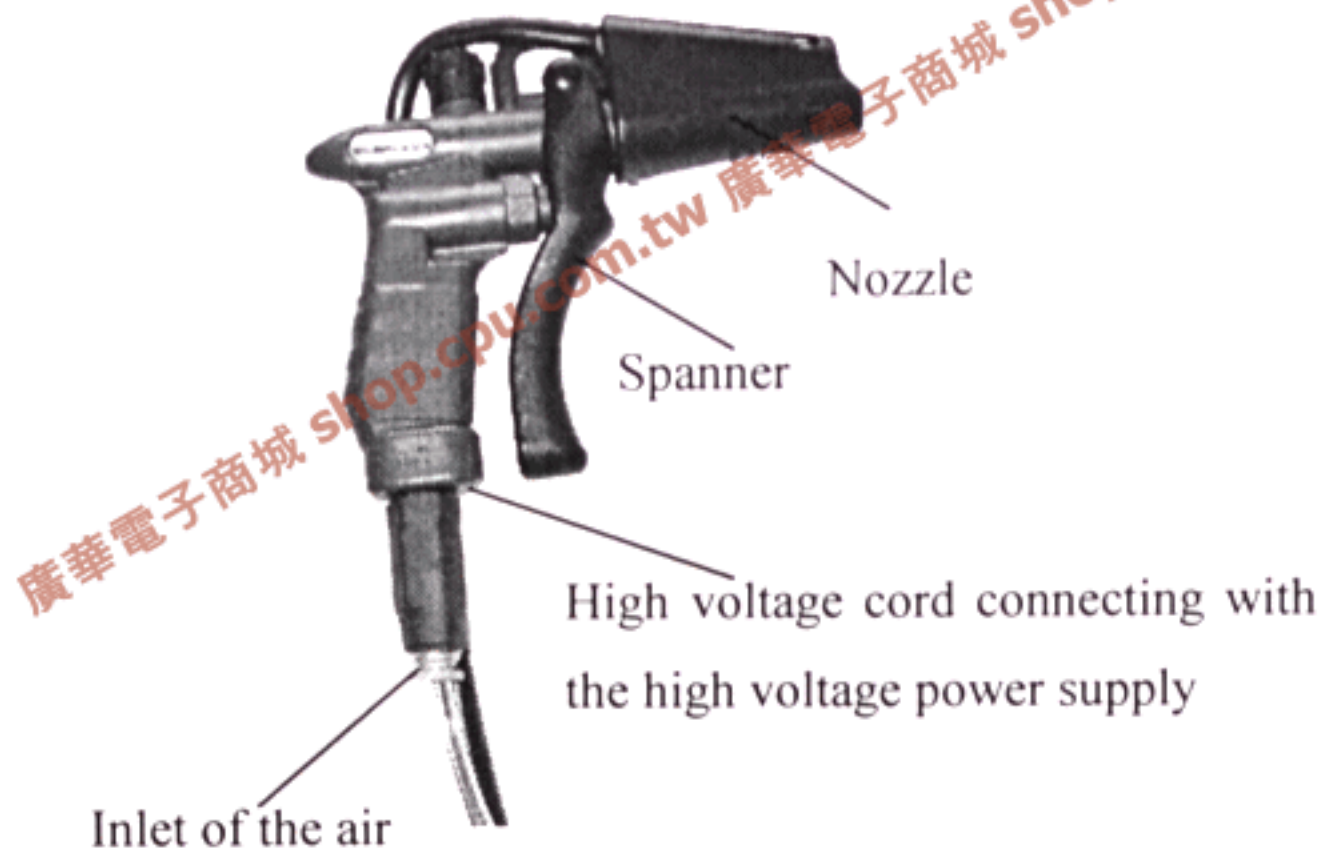
## **Instruction Manual**

**Thank you very much for purchasing the Ionizing air gun. For your safety, please read this Operating instruction carefully before operating. And always keep this Manual within reach.**

# SECTION 1 Instruction

## 1.1 Summary

The 445F Ionizing Air Gun is used for removing static and dust of the inaccessible charged object, and it can easily clear the parts and prevent it from being attached again after removing static.



### WARNING:

The ionizing air gun is a kind of electric products, and please comply the safety instruction for avoiding happening suddenness.


## 1.2 Parameters

**NOTE:** Never use it over the following parameter range, otherwise it will damage the machine or hurt the human body.

Request of air supply:	Clean and dry air, 0.1~0.7Mpa
Connection with air supply:	a 6×8mm PU tube
Request of high voltage	7KVAC <sup>0</sup> <sub>-40%</sub> 50Hz/60Hz
Effective distance of removing static:	Within 1000mm
Standard length of high voltage cord:	3 meter



# SECTION2 Installation

 **NOTE:** the unit cannot be used in the danger zone, such as use with flammable gas or solvent.

## 2.1 Installation of the high voltage power supply

High voltage power supply can be fixed on the wall or flat surface. Detailed operation can refer to the installation part of operation manual of high voltage power supply.

## 2.2 Grounding

1. For having a necessary good ground between the ionizing air gun and the high voltage power supply, connect the grounding cord to the grounding socket on the high voltage power supply and then screw down the screw cap.
2. For avoiding the badness grounding of the three-terminals socket, one end of the grounding cord (green & yellow, enclosing with the high voltage power supply) connects with the grounding pole on the high voltage power supply, and the other end connects to the earth.

## 2.3 Connection with the high voltage cord

Connect the plug of the high voltage cord of the ionizing air gun to the high voltage output socket on the high voltage power supply, and tighten the screw by hand. Please don't use any tool.

## 2.4 Connection with the outer air source

Connect the outer air source to the inlet of the ionizing air gun by a 4×6mm PU tube. The inlet is in the tail end of the ionizing air gun.

## 2.5 Connection with the power cord

The cord should be connected to a power supply of a rating voltage. These using conditions are listed on the nameplate. All power sockets should be the three-terminal sockets with a good grounding system.

### NOTE:

- Do not to connect the power cord of power supply unit, before all grounding line and power cord connections completed.
- In order to use the ionizing air gun correctly and prevent operator from electric shock, make sure there is a reliable grounding among the ionizing air gun, high voltage power supply and the earth. Since the infectant air can block the nozzle or make it short circuit, the air should be filtered cleanly before using. Air pressure should be within 0.1~0.7Mpa.

## SECTION 3      Operation

### NOTE:

- The unit cannot be used in hazardous environment where it will be exposed to ignitable or corrosive materials, gases or solvents.
- It can be used after all of the electric and air supply connections have been completed.

1. Turn on the switch of air source, and adjust the air pressure and make it within a suitable range.

2. High Voltage Power Supply has a switch with indicator lamp.

When turn on the switch, the indicator lamp will be on, and high voltage outlet will produce high voltage. Ion discharged needle will ionizes the air, and produces positive and negative ions. When need to neutralize electrostatic on the charged object, press the spanner of the ionizing air gun,

and then positive and negative ions will be exported along with airflow, and neutralize static of charged objects in working area, remove dust stuck to the charged objects, prevent it from being attached again the emergence of electrostatic.

For getting the better effect of removing the dust and neutralize electrostatic, firstly, the ionizing air gun must be very near the charged object when working for blowing away all the dust. Secondly, move the ionizing air gun and make the nozzle of the gun away from the object about 200~300mm, and keep the ionizing airflow blow to the charged object about several seconds for neutralizing the electrostatic left on the object. All the parts of the charged object must be blew and make sure remove all the dust and static on it.

3. If necessary, test the balance voltage. In case of balance voltage exceeds the normal range, adjust the adjustor on the High Voltage Power Supply.
4. Turn off the power switch, and the indicator lamp will be off, high voltage output is stopped.

### NOTE:

**When the Power unit is turned on and off periodically, in a cycle, the on and off interval time should be one minute at least. If the interval time is less than this, the service life of the power unit may be shortened.**

## **SECTION 4 Inspections and Maintenance**

### **4.1 Checking of ionizing air gun**

1. Recommend using a charge plate monitor (for instance CPM374) to check the ion balance, according to the Ionization Standard ANSI/ESD-STM3.1-2000 of the ESD Association.
2. If there is only a charge plate monitor held by hands, check the neutralizing performance periodically according to the following steps.
  - 1) Measure the static voltage of a charged object by a charge plate

monitor.

- 2) Turn on the power switch and the ionizing nozzle works normally.  
Make the charged objects under the air outlet of ionizing bar and 15~30mm from it for several seconds.
- 3) Measure the static voltage of the charged object again.  
If the voltage obtained is within the eligible range, it means that the unit is in good service.

### NOTE:

If the ion balance has deflection, please adjust the ion balance adjustor on the high voltage power supply. When the offset is negative, adjust the adjustor anticlockwise and when the offset is positive, adjust the adjustor clockwise.

## 4.2 Regular maintenance

For working effectively, please keep the ion-discharged needle clean. Ion discharged needle can be cleaned by ordinary eraser. Turn off the power switch, put the eraser to placket of nozzle slowly, press it down lightly, and make the ion-discharged needle prick into the eraser and rotate the eraser at the same time. By this way the deposit in ion-discharged needle can be safely cleared.

### NOTE:

Not to use any sharp and hard object to scrape the ion-discharged needle, since it will scathe the ion discharged needle. Ion discharged needle should be kept as sharp as possible, in order to keeping the best effect of using. In case of ion discharged needle become blunt or scathed, replace it.

## Factory calibration certificate

Model : VECTECH446F-II+VECTECH445F

Serial No. of high voltage power supply: M446F-II1204A01

Serial No. of ionizing air gun: VECTECH445F120401

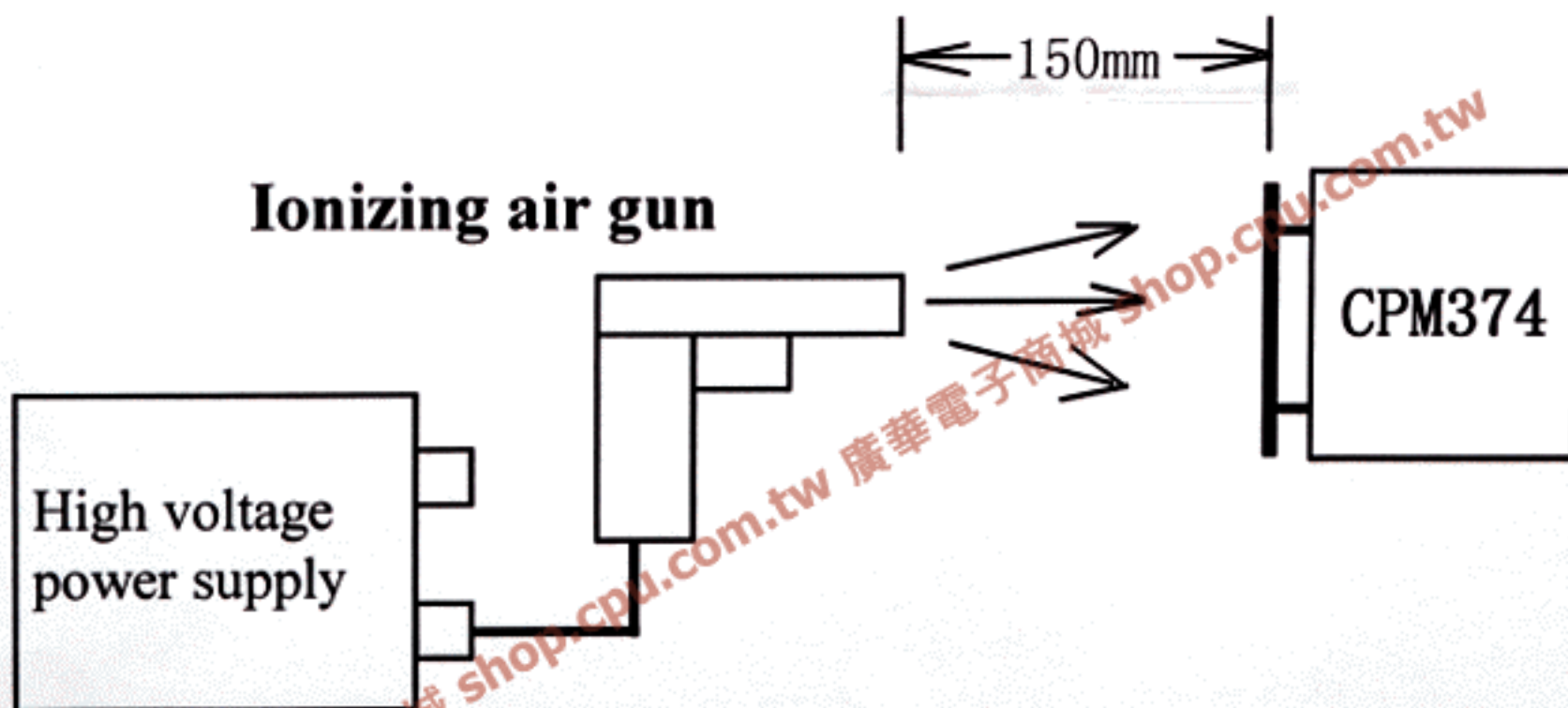
Date of Calibration : 04/25/2012

Test condition : Temperature : 22 °C Humidity : 60 RH%

Test equipment : the charge plate monitor CPM374

Decay time and Offset voltage : (Testing under air pressure of 0.6MPa)

Start and stop voltage		1000V~100V	-1000V~-100V
Decay time		0.7 S	0.8 S
Offset voltage	Range	±50V	
	Test value	+1V	



Testing was performed with a charged plate monitor in accordance with Ionization Standard ANSI/ESD STM3.1-2000 of the ESD Association.

Test operator : Jacken

Total Judgement : PASS

