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## 西南微波（无畏）™ INTERPID™ 振动电缆周界报警系统



### 一、 系统介绍

振动电缆周界报警系统是西南微波专利技术与强大的微处理器及便携式电脑技术的结合。这是一种可提供准确报警地点的完善的周界安全系统。

该振动电缆以“点冲击探测”微点（Micropoint）电缆技术为基础，可探测和定位入侵地点精确到3米。精确的定位使专门的数字信号处理算法可以探测到任何剪断或翻越铁丝网的企图，而忽略风、雨或重型车辆的干扰。探测十分可靠。

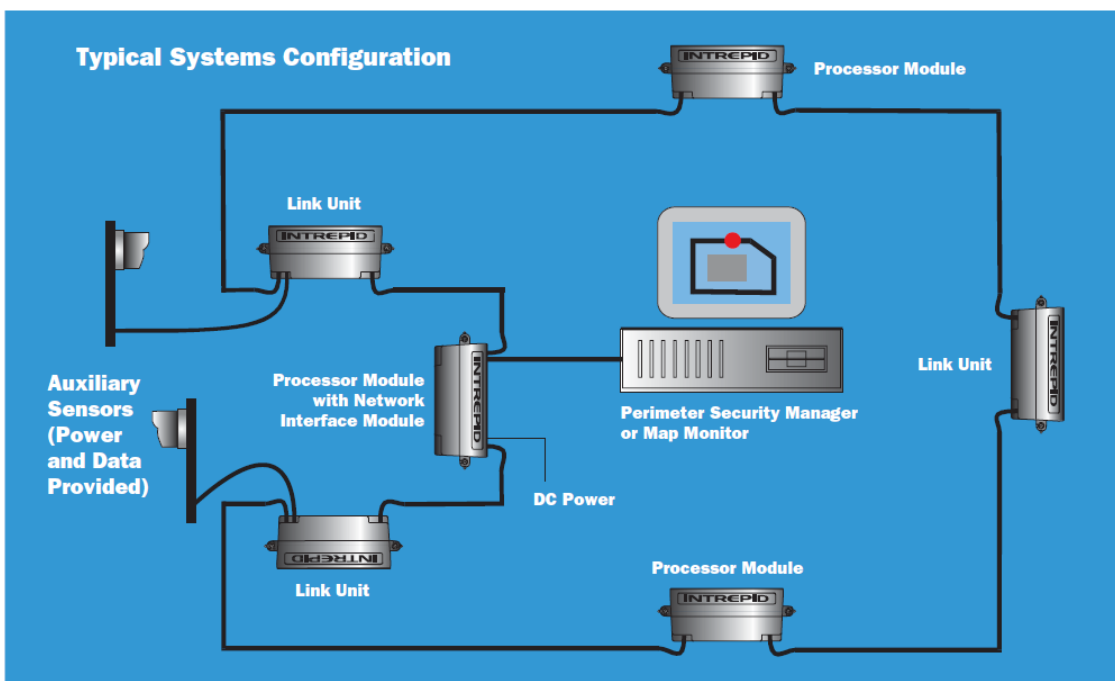
“微点”电缆也可传输报警信号，并可为所有周界上的“无畏”模块和辅助探测器供电而不需要另外接线。“无畏”软件可直接与个人电脑连接，由此你的PC也就是安装测试台、电子地图以及报警监测显示器，且安装成本很低。

由此可见，西南微波振动电缆周界入侵探测系统由美国西南微波公司设计和生产的。它有43年经验，应用在全世界80多个国家，超过了7万多套系统。

### 系统描述

“无畏”振动电缆紧绑在链式铁丝网上，可以探测到任何剪断或翻越铁丝网的振动，并精确定位入侵地点。振动电缆将报警信号和系统状态传输到每个“无畏”模块上，并为周界的每个模块及辅助探测器供电，而不需其他设备或线缆。

1200米系统图



## 二、系统组件

### 1、处理单元 (PM)



图 2.2 PM 处理模块

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处理单元是无畏周界系统的主要模块，支持 400 米长的振动电缆，同时支持辅助模块。

尺寸：长 33.7×宽 12.7×高 13.9 cm

重量：1.36 公斤

工作温度：-40℃到 70℃

电压：11 瓦情况下，10.5 到 60VDC（无辅助传感器）

12 VDC at 580 ma, 24 VDC at 260 ma and 48 VDC at 160 ma

输入：2 根振动电缆（A 和 B）

6 个干簧式输入

3 个模拟输入（0—5V）

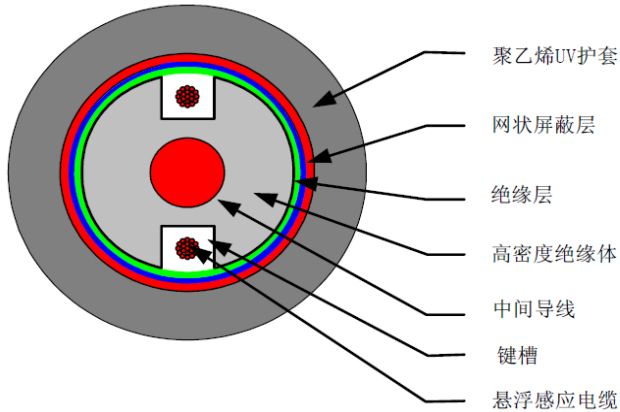
4 个报警器和 2 个控制开关

输出：3 个报警继电器 SPDT -2amp@28VDC

辅助传感器ma+12VDC ， 150ma

计算机或继电器的通讯端口（232 或 422A 适配器可选）

2、振动电缆 MC-115 （振动电缆的横剖面如下图所示）



振动电缆不仅是入侵探测器，还为系统的所有模块和辅助传感器提供直流电源、报警处理的数据通道。

尺寸：直径 4.902mm

包装材料：高密度聚乙烯，防 UV，黑色

工作温度：-40℃ 到 70℃

最小曲径：10cm

包装后：长度	重量
100米	4 公斤
200米	8 公斤

### 3、连接单元 (LU)



图 6.9 围栏上的处理器接地连接单元

用于将多个处理单元 (PM) 联在一起，也可作为振动电缆的终止单元，还可

为辅助传感器提供接口。

尺寸：长 33.7×宽 12.7×高 13.97cm

重量：1.36kg

工作温度：-40℃到 70℃

输入：2 根振动电缆 4 个报警输入

输出：辅助传感器，+12VDC，150ma

（电源转化模块可选）

#### 4、隔离连接模块 (ILU)

ILU 模块是特殊的 LU 模块，周界上安装超过 4 个 PM 模块时就需要用到 ILU 模块。除了 LU 模块的基本功能外，它还可起到分隔两组 PM 的供电并保证系统通讯畅通功能。

尺寸：长 33.7×宽 12.7×高 13.9 cm

工作温度：-40℃到 70℃

输入：4 个报警输入，2 根振动电缆

#### 5、终止单元 (TU)



终止单元 TU 用在振动电缆末端，用于终结探测

尺寸：长 7.6 cm×宽 6.4 cm×高 13.3 cm

重量：0.45 公斤

工作温度：-40℃到 70 ， 输入：1 根振动电缆

## 6、网络接口模块 (NIM)



图 2.5 网络通信模块

为外部连接的数据和多媒体显示提供接口。提供 RS232 和RS422/RS485 数据端口。可以插入任何处理模块中。

工作温度：-40℃到 70℃

输出：RS485 到继电器模块

RS232 或 RS422 到 PC 或调制解调器

实时时钟

RS422 到转换器

## 7、继电器模块 (RM)

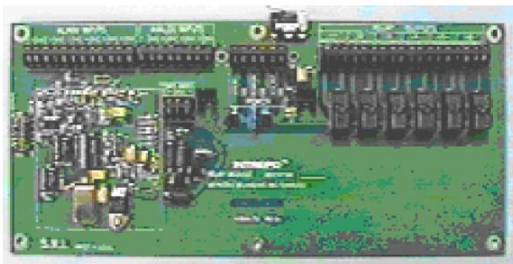


图 2.13 RM

继电器模块通过RS485连接到处理模块与网络接口模块通讯。它为外部报警控制、辅助控制器或远程设备提供常开或常闭继电器接口。

尺寸：长 33.7 cm × 宽 12.7 cm × 高 13.9cm

重量：1.36 公斤

工作温度：-40℃ 到 70℃

电压：10.5 到 13VDC 2.0 瓦特

输入：6 个干簧输入

4 个模拟输入 (0-5VDC)

来自网络接口模块的 RS485

输出：6 个报警继电器 SPDT-2amp@28VDC

辅助传感器 12VDC, 150ma (电源转换模块可选)

8、雷电浪涌保护电源：型号为 JB70，是一台信号防雷和电源防雷模块。

9、振动电缆修复单元：型号为 SU



图 2.12 SU

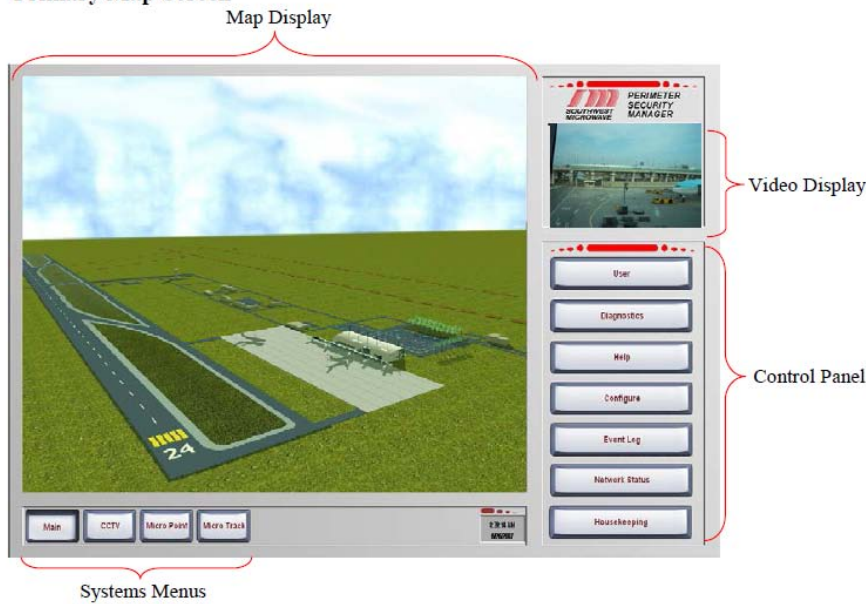
用于修复受损的振动电缆。SU 单元被放置在一个规格为(127x102x63mm)的室外电子出入盒中。它使用了和 TU 同样的电路卡，却没有任何电路组件。我们推荐在一段电缆中最多只有三处接继点，以保持系统的可靠性。

10、中心管理与显示软件：型号为 INTREPID SITE MANAGER，系统的全面信息管理和控制及电子地图。此软件装在一台计算机里，通过 RS232 或 RS422 接口联接主处理器 PM,接收信息。它可以显示精确到 3 米的入侵报警具体位置，提供成熟易用的图形用户界面，具备所有管理功能如入侵探测报警、事件和设备

等。

## 11、综合管理平台（又名周界安全管理员安全监控系统），

Primary Map Screen



型号为 PSM。周界安全管理系统是一个实时的，基于 Windows®平台的安全监控系统，该系统具有最完整的综合能力、可靠性及使用的方便性。周界管理系统是众多设备及众多周界安全装置综合管理的理想综合平台。

周界安全管理系统是能监控、展示及控制西南微波所有的周界探测传感器（振动电缆和泄露电缆）的集成平台。周界安全管理系统还可管理各种各样的连接在系统内的附加安全装置和设备以及高级终端与CCTV摄像机、数字视频记录仪和监控器的管理。典型系统图另见附件。





### 三、系统特点

- 1、探测并定位入侵地点精确到 3 米。
- 2、根据围墙具体情况变化探测灵敏度水平，每1.1米的灵敏度均可单独设定。
- 3、不受系统硬件设备的制约，用软件自由定义防区大小。
- 4、只对点冲击进行识别，可提高探测效果而大幅减少误报警。
- 5、“微点” 电缆集成了电源和数据传输功能，减低了安装成本。
- 6、通过 I-COM 通讯基于 Windows 系统的 PC。

### 四、系统功能

- 1、能够自动排除环境的干扰，对点冲击的识别：

敏感地定位剪断或翻越造成的铁丝网振动，而对风、雨、附近车辆造成的振动不敏感。

- 2、灵敏度水平每米单独可调。

根据铁丝网状况自动校准补偿灵敏度水平，每一米周界对振动的灵敏度一致。

### 3、自由定义防区

防区通过软件设置，独立于处理器的位置并可随心所欲的改变。

### 4、内置微处理器及 PC 软件提供:

#### 4.1、基于 Windows 的安装程序.

安装和服务通过图形用户界面方便的实现。

#### 4.2图形报警地图

用户绘制的现场地图可转换成基本报警地图，不需要其他的多路复用器或地图显示系统。

#### 4.3远程诊断

通过普通电话线，调制解调器接口向管理中心报告现场情况和报警信息，这一特性允许远程发现问题并解决。

## 五、 系统运行说明

西南微波振动电缆周界报警系统主要由处理模块，“微点”振动电缆，以及windows软件。处理模块为执行强大的信号处理，DC电源分配，数据通讯网络化功能提供系统智能化支持。“微点”电缆使整个周界系统更容易地连接在一起，并提供直流电流、报警和数据通讯。现场管理软件提供现场设计，安装及服务功能。



INTREPID™地图监控显示精确的  
入侵位置和报警记录



PSM周界安全管理员

为完整的周界作联动

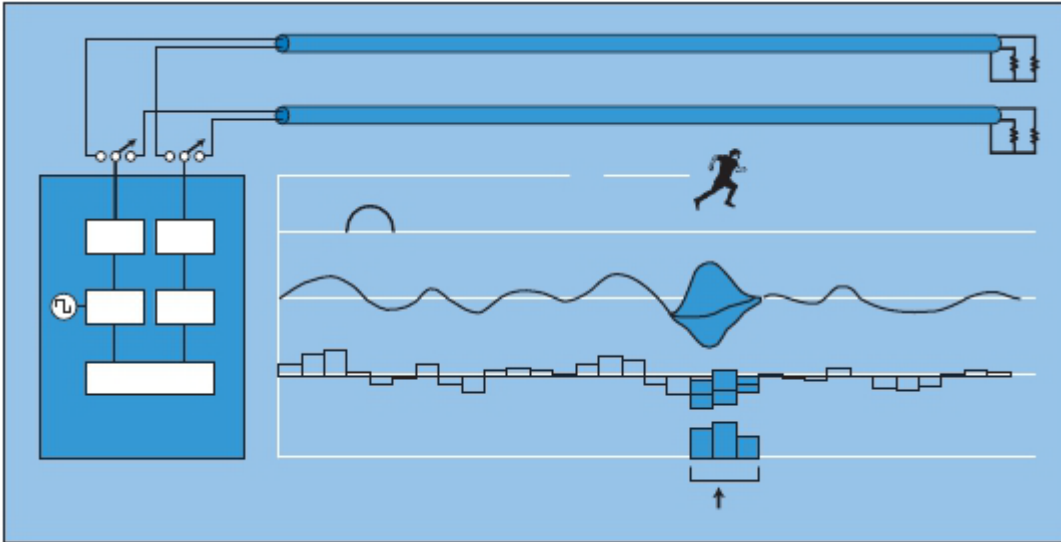
### 操作原理：

处理模块沿着振动电缆发送脉冲信号，当有入侵发生时，含有入侵具体位置和形状的脉冲信号被反射回来，接受到的信号被创制为一个标签来描述反射回的脉冲。数字信号处理系统允许振动电缆测量返回脉冲的地点和形状，微处理器识别目标地点响应的形状（切割或攀爬），并把它与由雨、风和车辆等引起的响应信号区分开。

安装人员通过一台计算机校准振动电缆传感器并分配防区。校准时，振动电缆整个长度的每一米的灵敏度都是单独可调的。灵敏度级别设定要与铁丝网的构造和松紧程度的变化相适应。

完全自由的防区分配模式可使用户更容易的调整设定防区的数目和地点，以满足现场环境变化的要求。基于 Windows 的安装软件提供详细的安装指导并为以后维护调查提供安装细节报告。

MicroPoint Sensor - Detection Concept



## 六、系统特性



- 1、可探测并定位入侵位置准确到 3 米
- 2、点振动分辨器识别并抑制由风、雨和微小颤动引起的分布式扰动
- 3、根据铁丝网状况进行灵敏度自动补偿以使整个周界敏感度水平一致
- 4、防区通过软件自由定义，不受线缆长度及现场设备位置影响

- 
- 5、振动电缆为整个系统提供入侵探测、电源分配及数据通信功能
  - 6、基于 Windows 的带有绘图、安装和服务工具的微点网络周界管理软件
  - 7、指出准确报警位置的彩色微点网络电子地图
  - 8、系统为辅助传感器和设备提供电源
  - 9、每组探测器保护 400 米的周界范围
  - 10、多组探测器连接起来，可以监视更大的周界范围。
  - 11、工作电压范围：（10.5-60VDC）
  - 12、温度范围：-40°C 到 70°C （-40oF to 159oF）

## 七、系统认证：

CE认证



[键入文字]



SOUTHWEST MICROWAVE, INC.

9055 South McKemy Street  
Tempe, Arizona 85284-2946  
Telephone (480) 783-0201  
Fax (480) 783-0401

### DECLARATION OF CONFORMITY

Application of: EMC Directive: 2004/108/EEC  
LVD Directive: 2006/95/EEC

Standard for which conformity is declared: EN50130-4-1995+A1:1998+A2:2003  
EN61000-6-3:2007  
EN60950-1:2006 +A11:2009

Manufacturer's Name: Southwest Microwave, Inc.

Manufacturer's Address: 9055 S. McKemy St.  
Tempe, AZ 85284-2946  
U.S.A

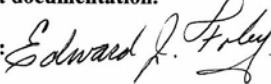
Importer's Name:

Importer's Address:

Type of Equipment: Intrepid MicroPoint Perimeter  
Security System: PM, TU, LU, RM, NIM,  
RS485/RS422 Adapter, PCC, 232A  
Adapter, MC115 and MC315 Sense  
Cables

CE Marking Year: 98

The equipment specified above is in conformity with the specified EC directives when installed in accordance with the installation instructions contained in the product documentation.

Place: Tempe, AZ, U.S.A. Signature: 

Date: Mar. 15, 2011 Full Name: Edward J. Foley

Position: Vice President, Engineering



[键入文字]

## ISO9001认证

CR-01 6/27/2012



### CERTIFICATE OF REGISTRATION

This Certificate bears witness that Great Western Registrar LLC (an ANAB-accredited CB) has assessed the quality system of:

**SOUTHWEST MICROWAVE, INC.  
SECURITY SYSTEMS DIVISIONS  
9055 S. MCKEMY STREET  
TEMPE, AZ 85284**

And declares that the quality system of the above named organization is in conformance with

### ISO9001: 2008

This registration covers the scope of supply listed below:

**DEVELOPMENT, PRODUCTION, SALES AND TECHNICAL SERVICING OF  
ELECTRONIC EXTERIOR AND PERIMETER SECURITY SENSORS AND SYSTEMS**

The products, services and/or processes named above shall only be offered from the above address. The above named organization is subject to procedures that govern the registration for which they are certified

Original date certified: 11/19/2004

Issue date: 08/12/2013

Expiry Date: 10/08/2016

Cert. # 0209-136-2

PRESIDENT

Great Western Registrar LLC 21835 N. 23<sup>rd</sup> Ave., Phoenix, AZ 85027

## 美国西南微波公司营业执照

# STATE OF ARIZONA



Office of the  
**CORPORATION COMMISSION**  
CERTIFICATE OF GOOD STANDING

To all to whom these presents shall come, greeting:

I, Ernest G. Johnson, Executive Director of the Arizona Corporation Commission, do hereby certify that

\*\*\*SOUTHWEST MICROWAVE, INC.\*\*\*

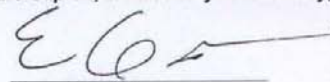
a domestic corporation organized under the laws of the State of Arizona, did incorporate on April 7, 1981.

I further certify that according to the records of the Arizona Corporation Commission, as of the date set forth hereunder, the said corporation is not administratively dissolved for failure to comply with the provisions of the Arizona Business Corporation Act; and that its most recent Annual Report, subject to the provisions of A.R.S. sections 10-122, 10-123, 10-125 & 10-1622, has been delivered to the Arizona Corporation Commission for filing; and that the said corporation has not filed Articles of Dissolution as of the date of this certificate.

This certificate relates only to the legal existence of the above named entity as of the date issued. This certificate is not to be construed as an endorsement, recommendation, or notice of approval of the entity's condition or business activities and practices.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Arizona Corporation Commission. Done at Phoenix, the Capital, this 9th Day of February, 2011, A. D.



  
Executive Director

By: \_\_\_\_\_ 570980

Robert Kirkaldie (BK)





[键入文字]

## 欧盟市场环保通行证



SOUTHWEST MICROWAVE, INC.  
Microwave Products Division  
9055 South McKeemy Street  
Tempe, Arizona 85284-2946  
Telephone (480) 783-0201  
Fax (480) 783-0360

### RoHS CERTIFICATION

#### COMPLIANCE WITH EUROPEAN UNION (EU) DIRECTIVES

**Reduction of Hazardous Substances (RoHS), per EU Directive 2002/95/EC.**

This directive covers the use of hazardous materials, heavy metals and flame retardants. An Annex lists applicable metals and exceptions. It is effective starting July 1, 2006. The materials used by Southwest Microwave, Microwave products Division, to produce its interconnect products are in compliance with this RoHS Directive. No part number changes are applicable. (Note: Connectors produced by Southwest Microwave meet lead-free material content requirements. Lead is not used in any plating or finishes. (Most of our products are suitable for use in processing lead-free solders involving higher temperatures. Contact factory for specifics.)

**Due to the narrow nature of the connectors produced by Southwest Microwave, the following EU Directives do not apply, except as applicable to other firms making higher-level assemblies incorporating Southwest Microwave's connectors:**

- End of Life Directive (EVL), per EU Directive 2000/53/EC: For automotive components.
- Restrictions on Fire Retardant Chemicals, per Directive 2003/11/EC: Applicable to some molded plastic connectors.
- Waste Electrical and Electronic Equipment (WEEE), per EU Directive 2002/96/EC: Applies to recycling and disposal of assemblies, primarily consumer and industrial equipment.

## 美国安防行业生产资质



[键入文字]



**SOUTHWEST MICROWAVE, INC.**  
**Microwave Products Division**  
9055 South McKemy Street  
Tempe, Arizona 85284-2946  
Telephone (480) 783-0201  
Fax (480) 783-0401

### Certificate of Compliance

**Re: Defense Federal Acquisition Regulation Supplement (DFARS)**  
**Ref: Clause 252.225-7014, Preference for Domestic Specialty Metals (June 2005), Alternate I (April 2003)**

When required by customer purchase orders, Southwest Microwave will provide products that will be in full compliance with Defense Federal Acquisition Regulation Supplement (DFARS) Clause 252.225-7014, *Preference for Domestic Specialty Metals* (June 2005), Alternate I (April 2003).

Previously, Southwest Microwave has required materials traceability for all its parts, which provides back-up records to support this certification.

Please contact Southwest Microwave if we can be of any further service.  
Thank you.

Signature: \_\_\_\_\_

A handwritten signature in black ink, appearing to read 'David H. Shaff', written over a horizontal line.

Name: David H. Shaff  
Title: General Manager, MPD  
Date: June 21, 2006

**Note: Attached is a 1-page summary of applicable DFARS requirements. This is included as "reference only, for informational purposes".**



## Special Provision ~ Preference for Domestic Specialty Metals

The following is the substance of *DFARS 252.225-7014*, with *Alternate 1, Preference for Domestic Specialty Metals*, any specialty metals used in any deliverable products must be melted in the United States or a qualifying country which includes the following:

Australia, Belgium, Canada, Denmark, Federal Republic of Germany, France, Greece, Israel, Italy, Luxembourg, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Ireland.

252.225-7014 Preference for Domestic Specialty Metals.

As prescribed in 225.7002-3(b)(1), use the following clause:

### PREFERENCE FOR DOMESTIC SPECIALTY METALS (JUN 2005)

(a) *Definitions*. As used in this clause—

(1) "Qualifying country" means any country listed in subsection 225.872-1 of the Defense Federal Acquisition Regulation Supplement.

(2) "Specialty metals" means— (i) Steel—

(A) With a maximum alloy content exceeding one or more of the following limits: manganese, 1.65 percent; silicon, 0.60 percent; or copper, 0.60 percent; or

(B) Containing more than 0.25 percent of any of the following elements: aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, or vanadium;

(ii) Metal alloys consisting of nickel, iron-nickel, and cobalt base alloys containing a total of other alloying metals (except iron) in excess of 10 percent;

(iii) Titanium and titanium alloys; or

(iv) Zirconium and zirconium base alloys.

(b) Any specialty metals incorporated in articles delivered under this contract shall be melted in the United States or its outlying areas.

(c) This clause does not apply to specialty metals—

(1) Melted in a qualifying country or incorporated in an article manufactured in a qualifying country; or

(2) Purchased by a subcontractor at any tier.

(End of clause)

### ALTERNATE I (APR 2003)

As prescribed in 225.7002-3(b)(2), substitute the following paragraph (c) for paragraph (c) of the basic clause, and add the following paragraph (d) to the basic clause:

(c) This clause does not apply to specialty metals melted in a qualifying country or incorporated in an article manufactured in a qualifying country.

(d) The Contractor shall insert the substance of this clause, including this paragraph (d), in all subcontracts for items containing specialty metals

八、典型案例照片：







