Southwest Microwave, Inc.
9055 S. McKemy Street
Tempe, Arizona 85284 USA
+1(480) 783-0201 Fax +1(480) 783-0401

Product Specifications

INTREPID™ SERIES II SINGLE-PLATFORM PERIMETER INTRUSION DETECTION AND MONITORING SYSTEM

Purpose of document

This document is intended to provide performance specifications requirements for the INTREPID™ Series II perimeter sensors and controller / monitoring system. This specification may be copied to form a generic procurement specification.

1.0 INTREPID™ Series II Single-Platform Perimeter Intrusion Detection System

System Type: Perimeter Intrusion Detection System

Installation: By Contractor

Project: Sample "XYZ" Project

1.0 General

It is the intent of the **[XYZ Company]** to purchase a complete and operable outdoor perimeter detection control and monitoring system for the **[XYZ Facility]** as specified below and on referenced drawings and documents.

1.0.1 The following specifications are for a perimeter intrusion detection system with graphic controller.

1.0.2 The performance criteria required for this project shall meet or exceed that provided by the INTREPID™ Series II system as manufactured by Southwest Microwave, Inc., Tempe, Arizona (+1-480-783-0201).

1.0.3 The contractor shall provide all installation labor, hardware, and electronics for the system**.** After installation, the contractor shall secure the services of the manufacturer's technician to provide on-site technical assistance for installation inspection, testing, and training.

1.0.4 The contractor shall provide certification, as a part of the project submittals, that the controller and sensor manufacturer's on-site services will be provided as a part of this contract.

1.0.5 The contractor shall furnish a complete perimeter intrusion detection system with computer graphic alarm reporting and display system necessary for the audible and visual notification of all system activity.

1.1 System Description

The complete perimeter detection system shall consist of multiple sub-systems:

INTREPID™ Graphic Control Module II-HD System Controller
INTREPID™ MicroPoint™ II Fence Intrusion Detection System
INTREPID™ MicroTrack™ II Buried Intrusion Detection System
INTREPID™ MicroWave 330 Digital Microwave Intrusion Detection Link

1.2 System Devices

The alarm communication network shall be capable of supporting the following devices:

- **INTREPID™ MicroPoint™ II Fence Detection System** Each processor shall be capable of protecting 400 meters with software alarm zones. An acceptable product that meets or exceeds these requirements is the MicroPoint™ II system Processor Module (PMII)
- **INTREPID™ MicroTrack™ II Buried Cable Detection System** Each processor module shall be capable of protecting up to 400 meters (1,312ft) with software-controlled alarm zones. An acceptable product that meets or exceeds these requirements is the MicroTrack™ II system Processor Module (MTP II)
- **INTREPID™ MicroWave 330 Digital Microwave Link** Each microwave link shall be capable of protecting 457 meters (1,500ft) / 244 meters (800 ft) CE. An acceptable product that meets or exceeds these requirements is the MicroWave 330 Digital Microwave Link.
- **INTREPID™ Graphic Control Module II-HD** is a dedicated, graphic system controller designed for large or multi-site facilities with local or remote GUI-based alarm monitoring and control of INTREPID™ systems using the INTREPID™ Polling Protocol II (IPP II). The controller connects up to 32 devices and will handle up to 1024 zone records.

1.3 System Capabilities

1.3.1 The system shall utilize a common communication protocol with all sensors and devices to ensure full integration and interoperability.

1.3.2 If needed a common SDK (Software Development Kit) will be provided to facilitate integration with other security devices or management systems.

1.3.3 All the system devices shall have the capability to operate over a common voltage input from 10.5 to 60 VDC.

1.4 System Setup

1.4.1 The system shall have a single universal installation service tool, referred to as the Universal Installation Service Tool II (UIST II), to allow setup of all the intrusion sensors from a laptop or desktop computer.

1.4.2 The UIST II will provide intuitive setup, guided navigation and forward propagation to simplify setup and calibration in real time.

1.4.3 The UIST II shall support serial or network communications for diagnostics of the system sensors devices both locally or remotely.

1.4.4 Zones will be defined using the INTREPID™ GCM II-HD setup software.

1.4.5 The INTREPID™ Controller shall utilize Auto Discovery to confirm communication of all devices.

2.0 INTREPID™ Graphic Control Module II-HD (GCM II-HD) System Controller

INTREPID™ Graphic Control Module II-HD (GCM II-HD) System Controller is a dedicated alarm annunciation, control and communication system which allows users to monitor and control an entire network of security systems. The GCM II-HD operates in conjunction with the INTREPID™ Polling Protocol II (IPP II) alarm communications network.

The alarm annunciation, control and communication system shall operate in a real-time multitasking operating system using a Linux controller platform. The system shall allow an operator to control and maintain a site's security system from a central location. Site information and alarm data shall be displayed on color-coded maps on a color monitor.

Alarm processing operations shall be performed using a mouse. All system events, operator actions and maintenance information shall be stored on the computer with output to a printer to maintain a permanent record of system activity.

The system shall provide, as an option, the capability of creating site-specific maps and databases that include the equipment and features of individual sites and security systems. The system shall be programmable for the unique alarm response requirements of each individual site. The alarm signal communications network shall be designed specifically for security monitoring applications.

The network shall collect signals from the remote security sensors and deliver the signals to the centralized control facility via serial communications. The network shall deliver test, maintenance, control and alarm response signals from the centralized control facility to remote security devices. The network shall support dual data paths over RS422 copper wire or fiber optic cable.

Alarm polling protocol shall be an open architecture communication protocol network that is used to connect security sensors and other devices to a host alarm annunciation and control system. This network shall operate in conjunction with the INTREPID™ Polling Protocol II (IPP II) for all alarm annunciation, control and communication.

2.1 Alarm Reporting / Graphic Display System

2.1.1 The Alarm Reporting / Graphic Display system shall, at a minimum, consist of a Controller, dedicated only to the reporting and display of perimeter security information and equipped with the necessary I/O hardware, color monitor, and mouse.

2.1.2 The Alarm Reporting system shall provide control room personnel with the various alarm conditions through each of the following methods:

1.) Visual indication, on color monitor, of alarm location
2.) On-screen text providing defined alarm location
3.) Serial RS232, or RS422 communications output
4.) Relay outputs

2.1.3 The field installed devices shall communicate all system activity to the central Controller-based Alarm Reporting system via a serial RS422 output. A communications protocol shall be used that allows the receiving equipment to acknowledge the successful reception of each message.

2.1.4 The various devices shall provide to the central Controller the defined location of a detected intrusion, tamper, or fail occurrence. The indication(s) shall remain on the display until cleared by operator action.

2.1.5 Intrusions or faults will be displayed with flashing red icons, indicating an alarm.

2.1.6 The INTREPID™ Controller shall utilize Auto Discovery to confirm communication of all devices.

2.1.7 The Controller shall have user friendly Guided Navigation for simple setup and operation.

2.1.8 The Controller shall support multiple language options.

2.1.9 A line drawing of the perimeter showing the various detection zones and major site landmarks shall be provided on the color graphic display. All Zones that are "armed and secure" shall appear as green lines.

2.1.10 The Monitor Display and Control software shall provide specific combinations of Zone "Acknowledge", "Reset", "Access", and "Secure". The available options at any given time are presented to the operator according to the current status of the system.

2.1.11 After an initial alarm, the display shall be capable of identifying the location of subsequent alarms and shall identify the fact that multiple zones are registering alarms.

2.1.12 Multiple attacks at different locations will be identified separately on the Alarm Reporting system.

2.1.13 The operator shall be capable of resetting each individual alarm.

2.1.14 Audible annunciation and visual indication for each alarm event will be provided by a color monitor display in the control room.

2.1.15 All system activity shall be permanently recorded in the Controller and available for printer output or downloading.

2.1.16 Perimeter fence zoning shall be established in the Controller software. The zoning can be changed via software as required without a need for a change in hardware.

2.1.17 The Controller shall be Linux based. The Administrator shall be able to configure and maintain the system, manage alarms, and monitor overall system performance.

2.1.18 The Controller shall support up to 1024 zone records and connect up to 32 devices.

2.1.19 The Controller shall have alarm tagging and up to 256 user accounts.

2.1.20 The Controller shall have relay alarm input and output devices with ability to communicate over a common network.

2.1.21 Controller shall be a hardened device to operate in harsh environments (-15°C to 55°C)

2.1.22 Controller shall have a serial RS-232 output for alarms in ASCII format.

3.0 INTREPID™ MicroPoint™ II Fence Detection System

3.0.1 The fence-mounted system shall detect vibrations from cut or climb attempts to the fence fabric and subsequently identify the point of intrusion to within 3 meters (10 ft) with a resolution of 1 meter (3.3 ft).

3.0.2 Each Processor Module II (PM II) shall monitor up to 400 meters (1,312 ft) of linear fence with MicroPoint™ cable.

3.0.3 Detection and location of intrusions shall be performed by Digital Time Domain Reflectometry (DTDR) methodology. The DTDR function shall reside in the distributed PM II's and not in a centralized processor or computer.

3.0.4 The length of each zone in the system shall not be restricted to the physical location of the fixed PM II's but shall be variable between 3 meters (10 ft) and the maximum zone length as indicated elsewhere in the specifications or project drawings.

3.0.5 The fence sensor shall provide "Sensitivity Leveling" on a meter by meter basis which automatically compensates for fence variations making each meter of fence equally sensitive to intrusions. Sensitivity Leveling™ is a calibration technique which sets thresholds for each and every cell along the sensor cable.

3.0.6 The fence cable system zone configurations shall be based on the design criteria listed below:

a) Zones should not exceed 15 linear meters (50 ft) in length for optimum CCTV assessment.
b) Zones shall not extend around corners in perimeter fencing.

3.0.7 The fence sensor shall employ Point Impact Discrimination, made possible by DTDR technology, which detects single location activity (climbing or cutting the fence) while rejecting other distributed environmental conditions (wind, rain, or other environmental disturbances). The digital signal processing (DSP) shall utilize both temporal and spatial filtering.

3.0.8 Depending on the perimeter length and number of auxiliary devices, the MicroPoint™ II sensor cable shall be capable of providing power to PM II's without additional cabling. The manufacturer shall advise the contractor of this capability for specific projects.

3.0.9 The system shall allow for the disabling in software of any section of the sensor cable (gate areas, etc.) eliminating the necessity for spliced non-sensitive cable.

3.0.10 The "Sensitivity Leveling" function (as described in paragraph 3.0.5) shall be calibrated with the use of system software and automatically calibrated for every 1 meter (3.3 ft) of cable.

3.0.11 The partitioning of the perimeter fence into detection zones shall be established in software after installation of the system and in consideration of site conditions. Considerations for zoning shall include the reduction of nuisance alarms and assessment advantages for patrol personnel.

3.0.12 The fence system shall detect climbing intruders with a weight of 35 kilograms (77 lbs) with a Probability of Detection (Pd) of 95% at a 99% confidence level.

3.0.13 The fence system shall detect cuts to the fence fabric with a Probability of Detection (Pd) of 95% at a 99% confidence level.

3.0.14 The fence detection system shall support "Free Format Zoning™", allowing zones to be established in software independent of the fixed PM II locations and sensor cable lengths.

3.0.15 The MicroPoint™ II system shall utilize a distributed switching power network that provides DC power to all the modules without the use of separate power supplies. The configuration shall permit the use of a central UPS AC power supply for the entire system.

3.0.16 The system input power shall be capable of accepting standard DC voltage power supplies of 12, 24 or 48 VDC power. The system shall allow for DC power input from 10.5 to 60 VDC.

3.1 INTREPID™ MicroPoint II Cable

3.1.1 Sensor cable shall be available in lengths of 100 meters (328 ft) and 220 meters (722 ft) rugged construction to allow bending at gates without use of gate connect kits and with UV resistant jacket.

3.1.2 The fence sensor cable shall be attached at 23 centimeter (9 in) intervals to the fence fabric with UV resistant cable ties at a mounting height determined by the manufacturer.

3.1.3 The MicroPoint™ II cable shall be capable of being cut on site during installation to any length up to a maximum of 220 meters (722 ft).

3.1.4 The sensor cable shall be field-repairable with simple hand tools if damaged by replacing the damaged section with a spare sensor cable section and a Splice Unit (SU).

3.2 Processor Module II (PM II)

3.2.1 Detection processing shall be performed by the various MicroPoint™ II Processor Module II's (PM II's) distributed around the perimeter. Each PM II shall provide processing for up to 440 meters (1,444 ft) of sensor cable.

3.2.2 Detection criteria shall reside in non-volatile memory in each respective PM II.

3.2.3 Positioning of the PM II's shall be determined by such factors as perimeter length, operational convenience, and physical security concerns. Positioning of PM II's shall have no effect on detection zoning.

3.2.4 In the event of a temporary loss of communication with the central Controller, each PM II shall have the capability of retaining site data until communication is restored.

3.2.5 PM II's shall operate continuously within specification at temperatures between -40°C (-40°F) and +70°C (+159°F), without assistance from cooling or heating apparatus.

3.2.6 PM II's shall be hardened to operate within all specifications when continuously exposed to 0 - 100% relative humidity with conformal coated electronics.

3.2.7 The PM II's shall be housed in ABS weatherproof UV stabilized non corrosive enclosures fitted with tamper switches.

3.2.8 PM II's shall include transorb and gas discharge devices to protect against lightning and electrostatic discharge.

3.2.9 The PM II's shall be capable of accepting contact-closure alarm inputs from auxiliary devices (i.e., microwave, PIR, etc.) and provide alarm interface to the INTREPID™ Controller.

3.2.10 The installation locations of the PM II's shall be governed by the 440 meter (1,444 ft) maximum distance of supported cable and is not governed by detection zoning.

3.2.11 The PM II's shall provide up to 150mA at 12 VDC to auxiliary sensors.

3.2.12 The PM II's shall communicate via RS422 for communication of alarms using the INTREPID™ Polling Protocol II (IPP II).

3.2.13 The Processor shall utilize a software-based universal installation tool with graphic display in real time, referred to as the Universal Installation Service Tool II (UIST II), to setup and control sensor parameters with a laptop PC.

3.2.14 The Processor shall store in memory up to 1,000 alarms and events for troubleshooting and maintenance.

3.2.15 Remote adjustment with UIST II will be available via the Controller or direct connection.

4.0 INTREPID™ MicroTrack™ II Buried Cable Detection System

4.0.1 The buried cable system shall be designed to detect intruders within the invisible electromagnetic field created around and between two parallel buried cables, and subsequently identify the precise point of intrusion to within 3 meters (10 ft).

4.0.2 Each MicroTrack™ II Processor (MTP II) shall monitor up to two buried sensor cable sets for a total perimeter length up to 400 meters (1,312 ft).

4.0.3 The buried cable system shall detect and locate intruders using ultra wide-band Frequency Stepped / Pulse Code Modulated (FS/PCM) technology in conjunction with Multi-Segment Target Analysis (MSTA). The FS/PCM and MSTA functions shall reside in the distributed MicroTrack™ II Processor and not in a centralized processor or computer

4.0.4 The length of each zone in the system shall not be restricted to the physical location of the fixed MTP II's and the sensor cable set lengths, but shall be variable between 3 meters (10 ft) and the maximum zone length as indicated elsewhere in the specifications or project drawings.

4.0.5 The buried cable system shall provide "Sensitivity Leveling™" which automatically and directly compensates for burial medium variations equalizing sensitivity to intrusions along its entire length. Sensitivity Leveling™ is a calibration technique which sets thresholds for each and every cell along the sensor cable.

4.0.6 The buried cable system shall support “Free Format Zoning™”, allowing zones to be established in software independent of the fixed MTP II locations and sensor cable set lengths.

4.0.7 Buried cable system zone configurations shall be based on the design criteria listed below:

a) Buried cable zones should not exceed 15 linear meters (50 ft) in length for optimal CCTV assessment.
b) Buried cable zones shall not extend around corners in perimeter fencing.

4.0.8 Each buried cable processor shall be capable of supporting up to 190 detection zones independent of the location of the MTP II.

4.0.9 The buried cable system shall employ RF FMCW (Frequency-Modulated Continuous Wave) to detect and locate intruders crossing or walking within the invisible detection field while rejecting small animals and environmental disturbances such as wind, rain, snow, seismic vibration or magnetic effects.

4.0.10 The system shall allow for the disabling in software of any section of the sensor cable (gate areas, lead in cables, etc.) eliminating the necessity for spliced non-sensitive cable.

4.0.10 The buried cable system shall operate in and under a wide variety of burial media including dry, frozen, snow covered and moisture-saturated sand or soil, as well as concrete, asphalt, and gravel.

4.0.12 The buried cable system shall detect walking intruders with a weight of 34 kilograms (75 lbs) with a Probability of Detection (Pd) of 95% at a 99% confidence level.

4.0.13 The buried cable system shall have a velocity response ranging from 0.03 meters/sec to 15 meters/sec (0.1 feet/sec to 50 feet/sec) for detecting intruders moving through the detection field.

4.0.14 The buried cable system shall not detect small animals weighing 10 kilograms (22 lbs) or less.

4.0.15 The buried cable system shall operate at frequencies below 25Mhz to assure that the detection field follows bends or has a minimum of 2 meter radius in the sensor cable to fit site terrain.

4.0.16 Each buried cable system shall be capable of supporting up to 190 detection zones per MTP II independent of the location of the MTP II.

4.0.17 The Sensitivity Leveling™ function (as described in paragraph 4.0.5) shall be calibrated with the use of system software and automatically calibrated for every subcell along the cable.

4.0.18 Partitioning of the perimeter area into detection zones shall be established in software after installation of the system and in consideration of site conditions. Considerations for zoning shall include the reduction of nuisance alarms and assessment advantages for patrol personnel.

4.0.19 The buried cable system input power shall be capable of accepting standard DC voltage power supplies of 12, 24 or 48 VDC power. The system shall allow for DC power input from10.5 to 60 VDC.

4.1 INTREPID™ MicroTrack™ II Cable

4.1.1 Sensor cable assemblies shall be available in lengths of 110 meters (360 ft) and 210 meters (689 ft), which includes 5 meters (16 ft) for detection field startup, and have 20 meters (66 ft) of non-sensitive (non-leaky) lead-in cable to connect to the MTP II. Lead-in cable connectors and cable junctions shall be factory installed.

4.1.2 Sensor cable may be cut to length in the field up to a maximum of 210 meters (689 ft). Buried sensor cable connections to or MicroTrack™ Terminations (MTT) or MicroTrack™ In-line Terminations (MTI) shall be made with factory provided kits. Standard electrical connectors (e.g., TNC or N-type) and heat shrinkable tubing shall not be used for buried cable connections.

4.1.3 The sensor cable shall be buried to a depth not exceeding 23 centimeters (9 in) in soil, and as determined by the manufacturer for concrete and asphalt for this project.

4.1.4 The sensor cable shall not be graded and will be of identical internal construction and dimensions from end to end so repairs do not require analysis of damaged cable.

4.1.5 The sensor cable shall be field-repairable if damaged by replacing the damaged section with a spare sensor cable section and a splice kit with encapsulating compound and an enclosure.

4.2 MicroTrack™ II Processor (MTP II)

4.2.1 Detection processing shall be performed by the various MicroTrack™ II Processors (MTP II's) distributed around the perimeter. Each MTP II shall provide processing for up to 400 meters (1,312 ft) of perimeter.

4.2.2 Detection criteria shall reside in non-volatile memory in each respective MTP II.

4.2.3 Positioning of the MTP II's shall be determined by such factors as perimeter length, operational convenience, and physical security concerns. Positioning of MTP II's shall have no effect on detection zoning.

4.2.4 In the event of a temporary loss of communication with the central Controller, each MTP II shall have the capability of retaining site data until communication is restored.

4.2.5 MTP II's shall be hardened to operate within specification at temperatures between -40°C and +70°C (-40°F and +159°F) ambient, without assistance from cooling or heating apparatus.

4.2.6 MTP II's shall operate within all specifications when continuously exposed to 0 - 100% relative humidity with conformal coated electronics.

4.2.7 MTP II's shall be housed in a weather-tight NEMA 4 enclosure fitted with tamper switches.

4.2.8 MTP II's shall include transorb and gas discharge devices to protect against lightning and electrostatic discharge.

4.2.9 MTP II's shall be powered directly with 10.5 to 60 VDC.

4.2.10 MTP II's shall communicate via RS422 communication of alarms using the INTREPID™ Polling Protocol II (IPP II).

4.2.11 The Processor shall utilize a software-based universal installation tool with graphic display in real time, referred to as the Universal Installation Service Tool II (UIST II), to setup and control sensor parameters with a laptop PC.

4.2.12 The Processor shall store in memory up to 1,000 alarms and events for troubleshooting and maintenance.

4.2.13 Remote adjustment with UISTII will be available via the Controller or direct connection.

5.0 INTREPID™ MicroWave 330 Digital Microwave Link

5.0.1 Outdoor microwave intrusion sensors shall be Southwest Microwave's INTREPID™ MicroWave 330 Digital Microwave Links or approved equal having a maximum range of 457 meters (1500 ft) / 244 meters (800 ft) CE.

5.0.2 The devices shall be bi-static and detect intrusions by sensing changes (increase and decrease) in the amplitude of the received signal. An automatic gain control (AGC) circuit shall be incorporated which will adjust the receiver gain, as needed, for various distances from the transmitter or changes in path loss, such as rain, snow, fog, etc. AGC Range shall be -54 dB / -60 dB CE.

5.0.3 The microwave sensor shall have six transmitter and receiver modulation frequencies, which shall be available to minimize interference between adjacent units.

5.0.4 The microwave sensor shall have a range of 30.5 meters (100 ft) to 457 meters (1500 ft) / 30.5 meters (100 ft) to 244 meters (800 ft) CE and a beam diameter of 0.6 meters to 12.2 meters (2 ft to 40 ft) / 0.6 meters to 6.7 meters (2 ft to 21.9 ft) CE depending on link length, and sensitivity setting.

5.0.5 The microwave sensor shall detect at minimum a 35 kilogram (77 lb) human - walking, running, hands and knees crawling, jumping, rolling or prone crawling (30cm diameter metal sphere) at a maximum range of 183 meters (600 ft)

5.0.6 The microwave sensor shall have a velocity response ranging from 30mm/sec to 15m/sec (0.1 ft/sec to 50 ft/sec).

5.0.6 The microwave sensor shall have INTREPID digital signal processing (IDSP) of alarm signals and multiple algorithms to fit various site conditions.

5.0.8 The microwave sensor shall provide a separate Align/ Path Alarm report when the received signal changes by a predetermined level to show signal strength changes in the detection field.

5.0.9 The microwave sensor must have minimum of five (5) field selectable detection algorithms for optimization of detection.

5.0.10 The microwave sensor must have FSA (Fresnel Suppression Algorithm) to improve rejection of outer field disturbance detection.

5.0.11 The microwave sensor shall have a synchronization feature to allow connection of up to two (2) 330 links and up to eight (8) 380/385 Transceivers to reject mutual interference. Any sensor can be designated as the master.

5.0.12 The microwave sensor shall utilize a software-based universal installation tool with graphic display in real time, referred to as the Universal Installation Service Tool II (UIST II), to setup and control sensor parameters with a laptop PC.

5.0.13 The microwave sensor shall store in memory up to 1,000 alarms and events for troubleshooting and maintenance.

5.0.14 Remote adjustment with UIST II will be available via the Controller or direct connection.

5.0.15 The microwave sensors shall have an output power of 4mW peak 2mW average (+20dBm peak EIRP – CE), and shall be square wave modulated.

5.0.16 The microwave units shall operate at a carrier frequency of K-band (24.125 GHz / 24.162 GHz CE).

5.0.17 The microwave sensor shall incorporate a K-band, mechanically-tuned Gunn Diode oscillator as the signal source, illuminated by a parabolic reflector with a rear-entry dielectric feed.

5.0.18 The microwave sensor shall operate on an input voltage of 10.5 to 60 VDC (Tx, Rx).

5.0.19 The microwave sensor shall provide alarm indication by Graphic Map or relays.

5.0.20 The microwave sensor shall have a RS422 port for and communication of alarms using the INTREPID™ Polling Protocol II (IPP II).

5.0.21 The microwave sensor shall have a tamper switch that protects unauthorized removal of the radome.

5.0.22 The microwave sensor shall have a diameter of 27 centimeters (10.6 in), depth of 23 centimeters (8.8 in) and weight of 2.04 kilograms (4.5 lbs). All electronics and antennas should be mounted to a rugged metal baseplate and enclosed in an ABS weatherproof, UV resistant radome.

5.0.23 The microwave sensor shall be hardened to operate within specification at temperatures between -40°C and +70°C (-40°F and +159°F) ambient, without assistance from cooling or heating apparatus.

5.0.24 The microwave sensor shall operate within all specifications when continuously exposed to 0 - 100% relative humidity.

5.0.25 The microwave sensor shall have an RS232 port for local set-up using the Universal Installation Service Tool II (UIST II).

6.0 Installation/Documentation/Services

6.0.1 Contractor shall provide the necessary documentation to confirm that the system is installed in accordance with on-site requirements and manufacturer's installation instructions. The contractor shall perform all wire hook-ups.

6.0.2 After installation of the system, the contractor shall make provisions for manufacturer's technical representative to perform final on-site inspection and installation certification.

6.0.3 Contractor performing installation shall be factory certified by Southwest Microwave on INTREPID™ detection systems.

6. 0.4 The supplier shall provide technical support and warrant that spare parts and assemblies shall be available for a minimum of 10 years.