WS4913 Series Wireless
Carbon Monoxide Alarm
Installation and Operating Instruction

This Manual shall be left with the Owner / User of this equipment. This product is intended for INDOOR USE in Non-hazardous locations ONLY.

Read this instruction sheet thoroughly before installation and use of the WS4913 wireless carbon monoxide alarm

Introduction

The WS4913 is a wireless electrochemical Carbon Monoxide alarm, which is effective for detecting any buildup of carbon monoxide, also known as CO gas, in your home or office. Your CO alarm includes the following features (See figure 1 as below):

(1) Easy to install
(2) Continuous monitoring for presence of carbon monoxide
(3) A loud (85 dB) alarm when a buildup of carbon monoxide is detected
(4) A test button to provide visual and audible indication that the unit is functioning
(5) Self-diagnostics to immediately indicate any troubles
(6) Seamless integration with DSC controls panels using the panel bell and system keypad to annunciate carbon monoxide build up or device troubles
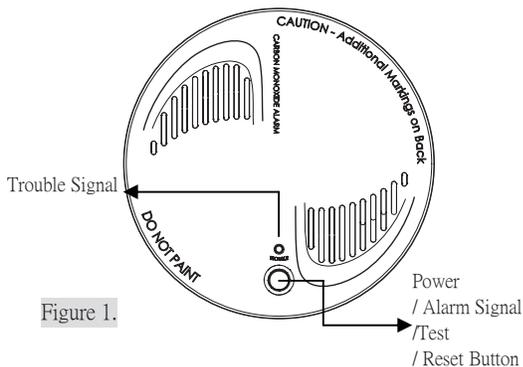(7) Compliant with the requirements of UL Standard 2075

Figure 1.

Operation

The green LED flashes approx. once every 60 seconds, indicating that the device has power and is actively sampling the carbon monoxide level in the air During the first 5 minutes after inserting the battery, the orange LED will flash every 10 seconds and the unit will chirp every 60 seconds to indicate that the unit is in warm up mode.

CO alarm

The CO alarm will go into alarm when the concentration of carbon monoxide (CO) in the air around the device exceeds the 'alarm' threshold, During an alarm, the red LED light flashes rapidly and buzzer sounds with repeating 4 quick beeps and pause 5 seconds and then 4 quick beeps. After 4 minutes of being in alarm the pause between beeps will change to 60 seconds. The alarm will continue to sound until the concentration of CO in the air around the CO alarm drops below the 'alarm' threshold or the reset button is pressed.

When properly enrolled on a DSC control panel, which supports the WS4913 Wireless Carbon Monoxide Alarm, the CO alarm will be wirelessly communicated to the control panel. The control panel will then annunciate the CO alarm using the control panel bell output and display the alarm and zone number which generated the alarm on the system keypad. At the same time the control panel will communicate the alarm to the central station to dispatch the appropriate authorities. Please refer to your control panel installation manual for details

Tamper

The removal of the CO alarm from the mounting plate initiates a 'tamper' The built in sounder on the WS4913 will chirp once per minute and the yellow LED will be ON steady.

Placing the unit on the mounting plate will restore the tamper condition. When properly enrolled on a DSC control panel the Tamper will be annunciated. Please refer to the PC9155-433 panel **Installation Manual** for details.

Battery
The WS4913 is powered by a 3 V DC Duracell Ultra DL123AB lithium battery

⚠**WARNING!!** *Use only the batteries as specified above. Use of a different battery may have a detrimental effect on alarm operation.*

Installing/Replacing battery (See figure 2 as below):
(1) Open the battery cover to expose the battery compartment.
(2) Remove the old battery and properly dispose of it as recommended by the battery manufacturer.
(3) Note the polarity of the battery and ensure it is correctly installed as per the polarity markings indicated on both sides of the battery compartment, make sure to carefully seat the red battery warning flag in the recess of the battery compartment.
(4) Gently close the battery cover. The battery cover of CO alarm will not close if the battery is not properly installed.
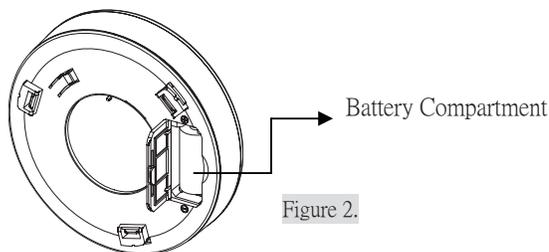

Figure 2.

⚠**Caution:** *Constant exposures to high or low temperatures or high humidity may reduce battery life.*

This carbon monoxide alarm is designed to detect carbon monoxide gas from ANY source of combustion. It is NOT designed to detect smoke, fire or any other gas, unless the product has been investigated and determined to comply with the applicable requirements.

The WS4913 has been designed to ensure that there is at least 30 days of battery life remaining once the 'low battery' condition has been annunciated and transmitted to the DSC control panel.

When the battery voltage is low the built in sounder on the WS4913 will 'chirp' once every 60 seconds and the yellow LED will flash once per minute until battery failure. When properly enrolled on a DSC control panel the 'Low Battery' will be annunciated on the system keypad and the zone will show as being in Fault. Please refer to the panel **Installation Manual** for details. Replace the battery as soon as possible after low battery indication is provided.

Trouble Conditions

If the WS4913 self-diagnostics function detects a trouble condition it will be indicated by the trouble indicator LED.

Malfunction (Error) mode: The yellow LED flashes 3 times and the built in sounder chirps once every minute. This trouble indicates an internal fault and the unit will need to be replaced.

Low sensitivity mode: The yellow LED flashes 2 times and the built in sounder chirps once every minute. This trouble indicates an internal fault and the unit will need to be replaced.

End of life signal mode: The yellow LED flashes 4 times and the built in sounder chirps once every minute. This indicates that the WS4913 CO Detector is reaching the end of this useful life (around 6 years after the unit is purchased), please replace with a new WS4913 CO detector.

When properly enrolled on a DSC control panel the 'trouble condition' will be annunciated on the system keypad. Please refer to the PC9155-433 **panel Installation Manual** for details.

Locations to install your CO alarm

Since CO gas moves freely in the air, the suggested location is in or as near as possible to sleeping areas of the home. The human body is most vulnerable to the effects of CO gas during sleeping hours. For maximum protection, a CO alarm should be located outside primary sleeping areas or on each level of your home. **Figure 3** below indicates the suggested locations in the home. The electronic sensor detects carbon monoxide, measures the concentration and sounds a loud alarm before a potentially harmful level is reached.
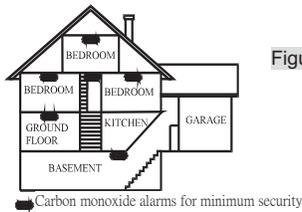
Figure 3: Location for placing CO alarm in a multi-floor dwelling

Do not place the CO alarm in the following areas:
(a) Where the temperature may drop below 4.4 ℃ or exceed 37.8 ℃.
(b) Near paint thinner fumes
(c) Within 5 feet (1.5 meter) of open flame appliances such as furnaces, stoves and fireplaces
(d) In exhaust streams from gas engines, vents, flues or chimneys
(e) Do not place in close proximity to an automobile exhaust pipe; this will damage the Alarm
(f) Keep the CO alarm away from excessively dirty, dusty or greasy areas such as kitchens and garages. Ensure adequate ventilation when using household cleaners and chemicals as these can affect the sensor.
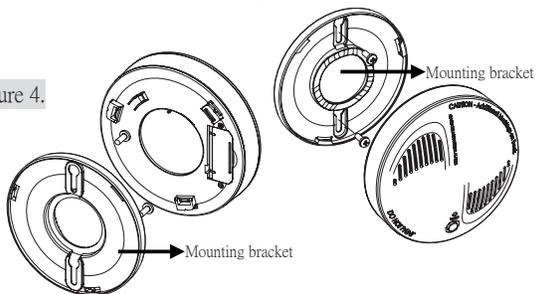
Installing the CO Alarm

The WS4913 CO alarm is easy to install to protect you and your family in your home, cottage, cabin and/or office.

To install the CO alarm (See figure 4. as below):

1. For a wall mounted location, the detector should be at least six inches(15cm) from the ceiling; for a ceiling mounted location, the detector should be at least 12 inches (30.5cm) from any wall.
2. Prior to mounting the WS4913 in its final location be sure to perform the wireless device placement test to ensure reliable communication with the control panel. Refer to the **PC9155-433** Installation manual, **section 904** for details.
3. At the place where you are going to install the alarm, draw a straight line four (4) inches (10cm) long.
4. Remove the mounting bracket from your unit by rotating it counterclockwise.
5. Place the bracket so that the two longest hole slots are aligned on the line. In each of keyhole slots, draw a mark to locate a mounting plug and screw.
6. Remove the bracket.
7. Using a 3/16-inch (5mm) drill bit, drill two holes at the marks and insert wall plugs.
8. Using the two screws and wall plugs supplied, attach the bracket to the wall.
9. Carefully center the WS4913 on the mounting bracket and turn it clockwise to fix it into place. Pull outward on the alarm to make sure it is securely attached to the mounting bracket.

Figure 4.

Mounting bracket

Mounting bracket

Device Enrollment

The 6 digit serial number located on the back of the CO alarm housing must be used to enroll the CO alarm onto the alarm control panel using Installers programming mode. To ensure there is no interference with similar systems in the adjacent units of a multilevel multiunit dwelling such as an apartment building, the PC9155-433 has been designed such that each installation has a unique System Identification code which works in conjunction with the device serial numbers. Please refer to your control panel **installation manual** for details.

Owners Instructions

You should know about Carbon Monoxide

Carbon monoxide, also known as "CO" by the chemical form, is considered to be a highly dangerous poisonous gas, because it is colorless, odorless or tasteless and very toxic. In general, biochemistry phenomena have shown that the presence of CO gas inhibits the blood's capacity to transport oxygen throughout the body, which can eventually lead to brain damage. In any enclosed space (home, office) even a small accumulation of CO gas can be quite dangerous.

Although many products of combustion can cause discomfort and adverse health effects, it is CO gas which presents the greatest threat to life.

Carbon monoxide is produced by the incomplete combustion of fuels such as natural gas, propane, heating oil, kerosene, coal, charcoal, gasoline, or wood. The incomplete combustion of fuel can occur in any device which depends on burning for energy or heat such as furnaces, boilers, room heaters, hot water heaters, stoves, grills, and in any gasoline powered vehicle or engine (e.g. generator set, lawnmower). Tobacco smoke also adds CO to the air you breathe.

When properly installed and maintained, your natural gas furnace and hot water heater do not pollute your air space with CO. Natural gas is known as a "clean burning" fuel because under correct operating conditions, the combustion products are water vapor and carbon dioxide (CO_2), which is not toxic. The products of combustion are exhausted from furnaces and water heaters to the outside by means of a fuel duct or chimney.

Correct operation of any burning equipment requires two key conditions:
  (a) An adequate supply of air for complete combustion.
  (b) Proper venting of the products of combustion from the furnace through the chimney, vent or duct to the outside.

Typical carbon monoxide gas problems are summarized here:
  (a) Equipment problems, due to defects, poor maintenance, damaged and cracked heat exchangers.
  (b) Collapsed or blocked chimneys or flues, dislodged, disconnected or damaged vents
  (c) Downdraft in chimneys or flues. This can be caused by very long or circuitous flue runs, improper location of flue exhaust or wind conditions
  (d) Improper installation or operation of equipment, chimney or vents
  (e) Air tightness of house envelop/inadequate combustion of air
  (f) Inadequate exhaust of space heaters or appliances
  (g) Exhaust ventilation/fireplace competing for air supply.

Potential sources of carbon monoxide in your home or office include clogged chimney, wood stove, wood or gas fireplace, automobile and garage, gas water heater, gas appliance, gas or kerosene heater, gas or oil furnace, and cigarette smoke.

More information about conditions which result in transient CO situations

1. Excessive spillage or reverse venting of fuel burning appliances caused by
  (a.) Outdoor ambient conditions such as wind direction and or velocity , including high gusts of wind; heavy air in the vent pipes (cold humid air with extended periods between cycles)
  (b.) Negative pressure .differential resulting from the use of exhaust fans.
  (c.) Simultaneous operation of several fuel burning appliances competing for limited internal air.
  (d.) Vent pipe connection vibrating loose from clothes dryers, furnaces, or water heaters.
  (e.) Obstructions in or unconventional vent pipe designs which amplify the above situation.

2. Extended operation of unventilated fuel burning devices (range, oven, fireplace, etc)

3. Temperature inversions which can trap exhaust gases near the ground.

4. Car idling in an open or closed attached garage, or near a home

Possible symptoms of Carbon Monoxide Poisoning

Carbon monoxide is colorless, odorless, tasteless, and very toxic. When inhaled, it produces an effect known as chemical asphyxiation. Injury is due to the combining of CO with the available hemoglobin in the blood, lowering the oxygen-carrying capacity of the blood. In the presence of CO gas, the body is quickly affected by oxygen starvation.

The following symptoms are related to CO poisoning and should be discussed with all members of the household:
  (a) Mild exposure: slight headache, nausea, vomiting, fatigue (often described as "Flu-like" symptoms).
  (b) Medium exposure: severe throbbing headache, drowsiness, confusion, fast heart rate
  (c) Extreme exposure: unconsciousness, convulsions, cardio-respiratory failure, death.
  (d) Many cases of reported CARBON MONOXIDE POISONING indicate that while victims are aware they are not well, they become so disoriented they are unable to save themselves by either exiting the building or calling for assistance. Young children and household pets are typically the first affected.

Many victims of carbon monoxide poisoning indicate that while they were aware that they were ill , they became so disoriented and confused that they were unable to help themselves by either exiting the building or calling for a assistance. Young children and household pets may be the first affected. Exposure during sleep is particularly dangerous, because the victim usually does not awaken.

Actions to take when CO alarm sounding

⚠️*WARNING!!* **Actuation of your CO alarm indicates the presence of carbon monoxide (CO) which can kill you. If alarm sounds:**

1. Operate test/reset button
2. Call your emergency services(___ _____) or fire department or 911

3. Immediately move to fresh air –outdoors or by an open door or window. Do a head count to check that all persons are accounted for. Do not reenter the premises nor move away from the open door/window until the emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal condition.
4. After following steps 1-3, if your alarm reactivates within a 24 hour period, repeat steps 1-3 and call a qualified appliance technician (   ) to investigate for sources of CO from fuel burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection have the equipment serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturers' instruction, or contact the manufacturers directly, for more information about CO safety and this equipment. Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

In case of harmful levels of CO gas being detected, your CO alarm WS4913 will go into a CO alarm mode as mentioned above. In "CO Alarm Mode" take the following necessary actions immediately:

(a) If there is anyone experiencing the effects of carbon monoxide poisoning such as headache, dizziness, nausea or other flu-like symptoms, call your fire department right away or 911. You should evacuate all the people in the premises immediately. Do a head count to check that everybody is accounted for.

(b) Do not re-enter the premises until the problem has been corrected and the CO gas has been dispersed out and a safe level is reached.

(c) If no symptoms exist, immediately ventilate the home by opening windows and doors. Turn off fuel burning appliances and call a qualified technician or your utility company to inspect and repair your problem before restarting appliances.

Normally an activation of the CO alarm indicates the presence of CO gas. However, the CO gas can be extremely fatal, if it is not detected. The source of the CO gas may come from several possible situations, please refer to the list of sources of carbon monoxide on page 2.

⚠️*CAUTION:* This CO alarm will only indicate the presence of CO gas at the sensor. However, you have to be aware that the CO gas may be present in other areas in the premises.

Actions to take after the problem is corrected
Once the source of CO gas in the premises has been eliminated, the alarm of the CO alarm unit should be off. After waiting for 10 minutes, push the Test button to test the CO alarm unit so that you can make sure that it is working properly again.

Test and silence your CO alarm
Follow the test procedure described here or contact your CO alarm dealer or installer for testing instructions . DSC recommends that you test the entire alarm system at least one a week to verify the operation of all functions.

The test/reset button is used to test if the CO alarm is working properly and to mute the unit during alarm.

Test the unit
Press the test button and you should hear 4 short beeps with a corresponding 3 LED flashes, in 5 seconds this cycle will repeat one more time. No alarm signal will be generated at the panel.

Familiarize yourself and your family members with this alarm pattern as this testing simulates an actual CO alarm condition.

Silence the unit
While the CO alarm is sounding, pressing the test/reset button will silence the alarm however the red LED will continue to flash. After 4 minutes, if the CO concentration that caused the alarm still remains at dangerous levels, the audible CO alarm will reactivate.

Owners Maintenance
The WS4913 CO alarm is designed to require minimum maintenance, however, we recommend the following to ensure your CO alarm continues to function properly:
(a) Use a vacuum cleaner to clean the CO alarm cover once a month, using the soft brush attachment, never use water, cleaners as they may damage the unit.
(b) Press the Test/reset button to test its operating function once every week

Alarm indications
The red, green and yellow LED lights and built in sounder turn on and/or off to indicate various situations. The CO Alarm provides the following indications:

Warm Up Mode: During the first 5 minutes after inserting the battery, the orange LED will flash every 10 seconds and the unit will chirp every 60 seconds to indicate that the unit is in warm up mode*.*

Power on mode: All 3 (three) LEDs blink and the built in sounder beeps for 0.5 second as soon as the battery is installed.

Stand-by mode: The green LED flashes once every 60 seconds, which means the unit is receiving power and also indicates it is functioning properly.

CO Alarm mode: When the unit senses the concentration of carbon monoxide (CO) in the air around the device exceeds the 'alarm' threshold , the red LED light flashes rapidly and built in sounder activates loudly repeating a sequence of 4 quick beeps followed by a 5 second pause.

Low battery warning mode: Every 1 (one) minute the yellow LED flashes once and the built in sounder chirps once. This warning will continue for up to 30 days, but the battery must be replaced as soon as possible to ensure proper operation of the detector.

Tamper mode: The built in sounder chirps once every 1 (one) minute and the yellow LED is on continuously until the WS4913 is mounted on the back plate bracket properly. If this trouble occurs ensure the device is correctly mounted.

Trouble mode:
If every 1 (one) minute the built in sounder chirps and the yellow LED quickly flashes **2**, **3** or **4** times, an internal trouble has occurred and the CO Alarm will need to be replaced. (See Trouble conditions on page 1).
If this trouble occurs contact your **installation company** to have the device replaced.

When properly enrolled on a DSC control panel the control panel will also provide indication of various conditions. Your control panel installer will inform you of the indications the panel provides.

Never disassemble the CO Alarm; there are no user serviceable parts inside the unit. You may only remove CO Alarm from back plate to replace battery if not serviced by installer. When replacing the battery, follow the instructions specified within the Installation Instructions, Installing/Replacing battery.

⚠️*CAUTION: This product uses a lithium battery, improper handling may result in HEAT, EXPLOSION or FIRE causing personal injury. DO NOT recharge batteries. Follow the battery manufacturer's safety instructions. Dispose of used batteries in accordance with the regulations in your area.*

Never paint the unit. Paint may prevent CO gas from entering the unit.   This is a safety issue the CO alarm must not be removed .

Specifications
The WS4913 Wireless Carbon Monoxide Alarm has been designed to provide an alarm based on various exposure times at different levels of carbon monoxide concentrations **as per UL 2034 standard:**

This CO alarm WS4913 meets following mentioned response times:
At 70ppm, the unit must alarm within 60-240 minutes.
At 150ppm, the unit must alarm within 10-50 minutes.
At 400ppm, the unit must alarm within 4-15 minutes.

Product Specifications:
Model number: WS4913

Manufacturer: Digital Security Controls, 95 Bridgeland Ave. Toronto, Ontario, Canada, M6A 1Y7.

Name and address of firm to whom alarm is to be sent for servicing: Digital Security Controls, 95 Bridgeland Ave. Toronto, Ontario, Canada, M6A 1Y7.

Sensor: Electrochemical carbon monoxide sensor
Sensor Life: 6 years
Diameter (base)：12.5cm
Height (including base): 3.5cm
Power: provided by one 3V lithium battery Model Duracell Ultra DL123AB. Battery life : 1 year under typical operating conditions.

Alarm audibility: 85dB at 3m
Frequency: 433.92 MHz
Compatible Receivers: PC9155-433, PC9155D-433 & PC9155G-433
Operating Temperature: 4.4 ℃ to 37.8 ℃
Relative Humidity: 10~95%RH non-condensing
Low Battery Detection: Low battery with a minimum 30 days remaining
Approved Batteries: Duracell Ultra DL123AB
The maximum altitude: 2000 meters above sea level.

WARNING AND LIMITATION

⚠️_**WARNING!!**_ **This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial or industrial standards.**

Individuals with a medical problem may consider using warning devices which provide audible and visual signals for carbon monoxide concentrations less than 30 ppm.

This CO alarm is not suitable as a smoke or fire alarm /detector. This CO alarm is not suitable to install in a hazardous location, as defined in the National Electrical Code.

This CO alarm will not work without power. WS4913 series Carbon Monoxide Alarm will not work if the battery power is disconnected or cut off for any reason. Additionally, carbon monoxide must reach the CO alarm unit for the proper performance of CO gas detection.

Carbon monoxide alarms may wear out because they contain electronic parts that fail at any time. Test your CO alarm at least every week (see the section "TEST AND SILENCE YOUR CO ALARM").

Limited Warranty:

Digital Security Controls warrants that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use and that in fulfillment of any breach of such warranty, Digital Security Controls shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Digital Security Controls such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Digital Security Controls. Digital Security Controls neither assumes responsibility nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

In no event shall Digital Security Controls be liable for any direct, indirect or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

⚠️_**WARNING!!**_ _Digital Security Controls recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected._

Important Information: Changes or modifications not expressly approved by Digital Security Controls could void the user's authority to operate this equipment.

FCC Compliance Statement

⚠️_**CAUTION**_: _Changes or modifications not expressly approved by DSC could void your authority to use this equipment._

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for Class B device in accordance with the specifications in Subpart C of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in any residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to television or radio reception, which can be determined by turning the equipment off and on, the user encouraged to try to correct the interference by one or more of the following measures:

Re-orient the receiving antenna.

Relocate the alarm control with respect to the receiver.

Move the alarm control away from the receiver.

Connect the alarm control into a different outlet so that alarm control and receiver are on different circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the FCC helpful "How to identify and resolve Radio/Television Interference Problems", this booklet is available from the U.S. Government Printing Office, Washington, D.C, 20402, Stock#004-000-00345-4.

Industry Canada Compliance Statement : This class B digital apparatus meets all requirement of the Canadian interference-causing equipment regulations. Cet appareil numérique de la Classe B respecte toutes les exigences de règlement sur le matériel brouilleur du Canada.

FCC ID ： F5309WS4913

IC RSS210 ; IC: 160A-WS4913

The term "IC" before the radio certification number only signifies that Industry Canada technical specifications were met.

Manual part # MCD33109205 Rev. A

DSC erklærer herved at denne komponenten overholder alle viktige krav samt andre bestemmelser gitt i direktiv 1999/5/EC.

Por este meio, a DSC, declara que este equipamento está em conformidade com os requisitos essenciais e outras determinações relevantes da Directiva 1999/5/EC.

"DSC bekräftar härmed att denna apparat uppfyller de väsentliga kraven och andra relevanta bestämmelser i Direktivet 1999/5/EC".

Con la presente la Digital Security Controls dichiara che questo prodotto è conforme ai requisiti essenziali ed altre disposizioni rilevanti relative alla Direttiva 1999/05/CE.

Por la presente, DSC declara que este equipo está en conformidad con los requisitos esenciales y otros requisitos relevantes de la Directiva 1999/5/EC

Hierdurch erklärt DSC, daß dieses Gerät den erforderlichen Bedingungen und Vorrausetzungen der Richtlinie 1999/5/EC entspricht.

Δία του παρόντος, η DSC, δηλώνει ότι αυτή η συσκευή είναι σύμφωνη με τις ουσιώδης απαιτήσεις και με όλες τις άλλες σχετικές αναφορές της Οδηγίας 1999/5/EC".

Hierbij verklaart DSC dat dit toestel in overeenstemming is met de eisen en bepalingen van richtlijn 1999/5/EC.

Par la présente, DSC déclare que cet article est conforme aux éxigences essentielles et autres relevantes stipulations de la directive 1999/5/EC.

DSC vakuuttaa laitteen täyttävän direktiivin 1999/5/EC olennaiset vaatimukset.

Hereby, DSC, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The complete R & TTE Declaration of Conformity can be found at www.dsc.com/intl/rttedirect.htm.