

AWK-3252A Series Quick Installation Guide

Moxa AirWorks

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Technical Support Contact Information
www.moxa.com/support



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P/N: 1802032520010

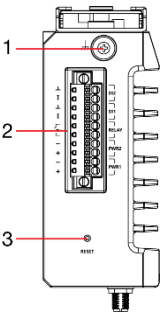


Overview

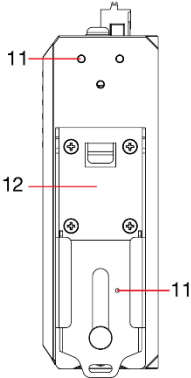
The AWK-3252A Series is an industrial-grade AP/bridge/client with IEEE 802.11ac Wave 2 technology. This Series features concurrent dual-band Wi-Fi data transmissions up to 400 Mbps (2.4 GHz mode) and 867 Mbps (5 GHz mode) simultaneously, meeting the speed and flexibility requirements for industrial applications. In addition, the built-in dual band pass filter and the wide-temperature design ensure the reliability and continuous operation in harsh environments. The dual redundant DC power inputs enhance availability while PoE support provides more flexibility for powering end devices and simplifying field-site deployments. Meanwhile, backwards compatibility with 802.11a/b/g/n makes the AWK-3252A the ideal solution for constructing a versatile wireless data transmission system.

Panel Layout of the AWK-3252A

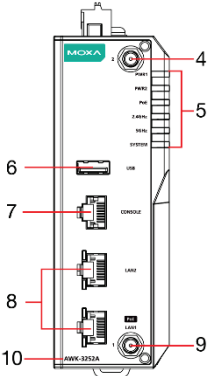
Top Panel View



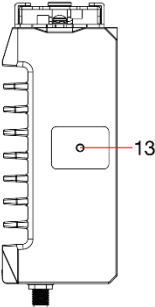
Rear Panel View



Front Panel View



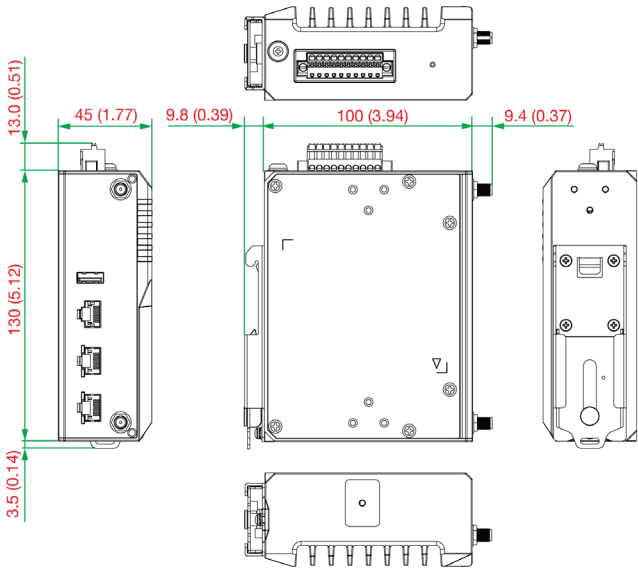
Bottom Panel View



- | | |
|--|---------------------------------------|
| 1. Grounding screw (M5) | 11. Screw holes for wall-mounting kit |
| 2. Terminal blocks for PWR1, PWR2, relay, DI 1 and DI 2 | 12. DIN-rail mounting kit |
| 3. Reset button | 13. Cable holder screw |
| 4. Antenna connector A | |
| 5. System LEDs: PWR1, PWR2, PoE, 2.4GHz, 5GHz, SYSTEM | |
| 6. USB host (type A for ABC-02) | |
| 7. Console port (RS-232, RJ45) | |
| 8. LAN1 (PoE), LAN 2 ports (10/100/1000BaseT(X) ports, RJ45) | |
| 9. Antenna connector B | |
| 10. Model name | |

Mounting Dimensions

Unit: mm (inch)

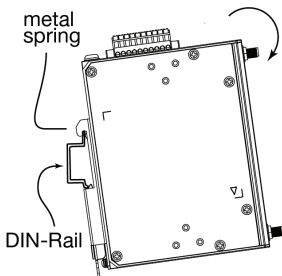


DIN-Rail Mounting

When shipped, the metal DIN-rail mounting kit is fixed to the back panel of the AWK-3252A. Mount the AWK-3252A on to a corrosion-free mounting rail that adheres to the EN 60715 standard.

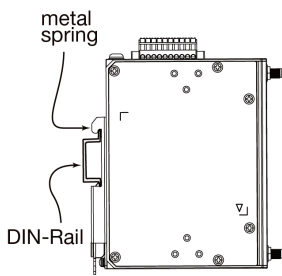
STEP 1:

Insert the upper lip of the DIN-rail kit into the mounting rail.



STEP 2:

Press the AWK-3252A towards the mounting rail until it snaps into place.



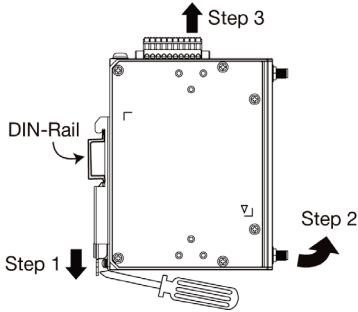
To remove the AWK-3252A from the DIN rail, do the following:

STEP 1:

Pull down the latch on the DIN-rail kit with a screwdriver.

STEP 2 & 3:

Slightly pull the AWK-3252A forward and lift it up to remove it from the mounting rail.

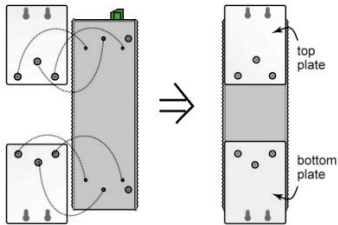


Wall Mounting (Optional)

For some applications, it may be more convenient to mount the AWK-3252A to a wall, as illustrated below.

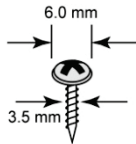
STEP 1:

Remove the aluminum DIN-rail attachment plate from the AWK-3252A, and then attach the wall-mounting plates with M3 screws, as shown in the adjacent diagrams.



STEP 2:

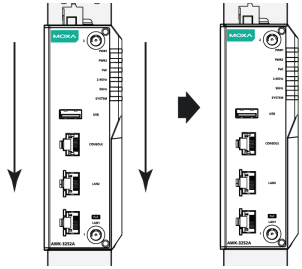
Mounting the AWK-3252A to a wall requires 3 screws. Use the AWK-3252A device, with wall-mounting plates attached, as a guide to mark the correct locations of the 3 screws. The heads of the screws should be less than 6.0 mm in diameter, and the shafts should be less than 3.5 mm in diameter, as shown in the figure on the right.



Do not drive the screws in all the way—leave a space of about 2 mm to allow room for sliding the wall-mounting panel between the wall and the screws.

NOTE Test the screw head and shank size by inserting the screws into one of the keyhole shaped apertures of the wall-mounting plates before they are fixed to the wall.

Once the screws are fixed into the wall, insert the four screw heads through the large opening of the keyhole-shaped apertures, and then slide the AWK-3252A downwards, as indicated to the right. Tighten the three screws for added stability.



- This equipment is intended to be used in a Restricted Access Location, such as a dedicated computer room where only authorized service personnel or users can gain access. Such personnel must be instructed about the fact that the metal chassis of the equipment is extremely hot and may cause burns.
- Service personnel or users have to pay special attention and take special precautions before handling this equipment.
- Only authorized, well-trained professionals should be allowed to access the restricted access location. Access should be controlled by the authority responsible for the location with lock and key or a security identity system.
- **External metal parts are hot!!** Pay special attention or use special protection before handling the equipment.

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes that dictate the maximum current allowed for each wire size. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the crossing point.

- 6 -

- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separated.
- For future reference, you should label the wiring used for all of your devices.



ATTENTION

This product is intended to be supplied by a Listed Power Unit marked "Class 2" or "LPS" and rated O/P: 22 W



ATTENTION

Make sure the external power adapter (includes power cords and plug assemblies) provided with the unit is certified and suitable for use in your country.



ATTENTION

DO NOT use a PoE Injector. Instead, use an IEEE 802.3af or IEEE 802.3at compliant PSE (Power Sourcing Equipment) for PoE (Power over Ethernet) devices.

Grounding the AWK-3252A

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

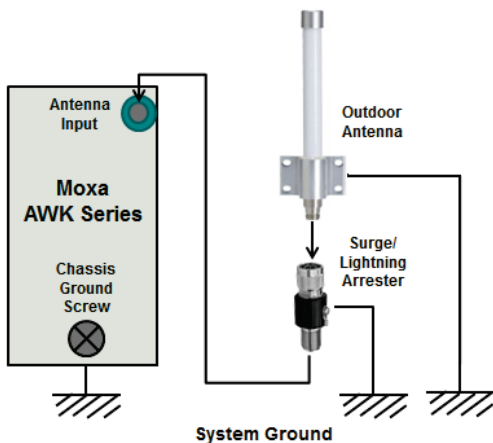


ATTENTION

This product is intended to be mounted to a well-grounded mounting surface, such as a metal panel. The potential difference between any two grounding points must be zero. If the potential difference is NOT zero, the product could be permanently damaged.

Installations with Cable Extended Antennas for Outdoor Applications

If an AWK device or its antenna is installed in an outdoor location, proper lightning protection is required to prevent direct lightning strikes to the AWK device. In order to prevent the effects of coupling currents from nearby lightning strikes, a lightning arrester should be installed as part of your antenna system. Ground the device, antenna, as well as the arrester properly to provide maximum outdoor protection for the device.

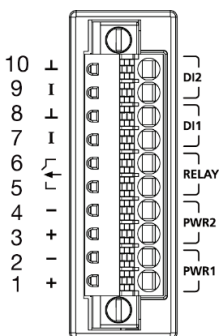


Arrester Accessories

- **SA-NMNF-02:** Surge arrester, N-type (male) to N-type (female)
- **SA-NFNF-02:** Surge arrester, N-type (female) to N-type (female)

Terminal Block Pin Assignment

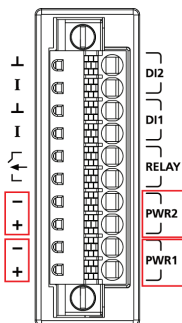
The AWK-3252A comes with a 10-pin terminal block located on the top panel of the device. The terminal block contains dual power inputs, a relay output, and dual digital inputs. Refer to the following figure and table for the detailed pin assignment.



Pin	Definition
1	DC Power Input 1
2	
3	DC Power Input 2
4	
5	Relay Output
6	
7	Digital Input 1
8	Digital Input GND
9	Digital Input 2
10	Digital Input GND

Wiring the Redundant Power Inputs

The top two pairs of contacts of the 10-contact terminal block connector on the AWK-3252A's top panel are used for the AWK-3252A's two DC inputs. The top view of the terminal block connector is shown below.



STEP 1: Insert the negative/positive DC wires into the +/- terminals.

STEP 2: Insert the plastic terminal block connector prongs into the terminal block receptor, which is located on the AWK-3252A's top panel.

NOTE Input Terminal Block (CN1) is suitable for wire size range of 16-28 AWG (1.318-0.0804 mm²).



ATTENTION

If the AWK-3252A is connected to a motor or other similar type of equipment, be sure to use power isolation protection. Before connecting the AWK-3252A to the DC power inputs, make sure the DC power source voltage is stable.

Wiring the Relay Contact

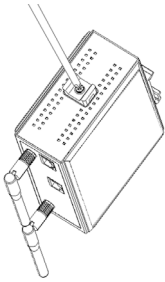
The AWK-3252A has one relay output, which consists of the two contacts of the terminal block on the AWK-3252A's top panel. Refer to the previous section for detailed instructions on how to connect the wires to the terminal block connector, and how to attach the terminal block connector to the terminal block receptor. These relay contacts are used to indicate user-configured events. The two wires attached to the Relay contacts form an open circuit when a user-configured event is triggered. If a user-configured event does not occur, the Relay circuit will be closed.

Wiring the Digital Inputs

The AWK-3252A has two sets of digital inputs—DI1 and DI2. Each DI comprises two contacts of the 10-pin terminal block connector on the AWK-3252A's top panel. Refer to the "Wiring the Redundant Power Inputs" section for detailed instructions on how to connect the wires to the terminal block connector, and how to attach the terminal block connector to the terminal block receptor.

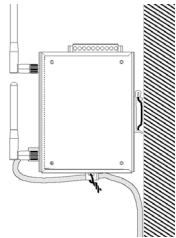
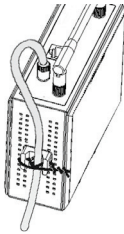
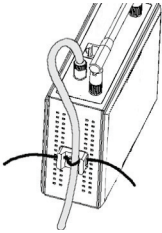
Cable Holder Installation

Attach the cable holder to the bottom of the AWK-3252A to keep cabling neat and avoid accidents that result from untidy cables.



STEP 1: Screw the cable holder onto the bottom of the AWK-3252A.

STEP 2: After mounting the AWK-3252A and plugging in the LAN cable, tighten the cable along the device and wall.



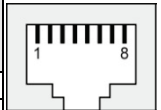
Communication Connections

10/100/1000BaseT(X) Ethernet Port Connection

The 10/100/1000BaseT(X) ports located on the AWK-3252A's front panel are used to connect to Ethernet-enabled devices.

MDI/MDI-X Port Pinouts

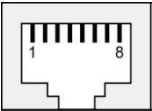
Pin	1000BaseT MDI/MDI-X	10/100BaseT (X) MDI	10/100BaseT (X) MDI-X
1	TRD(0)+	TX+	RX+
2	TRD(0)-	TX-	RX-
3	TRD(1)+	RX+	TX+
4	TRD(2)+	--	--
5	TRD(2)-	--	--
6	TRD(1)-	RX-	TX-
7	TRD(3)+	--	--
8	TRD(3)-	--	--



RS-232 Connection

The AWK-3252A has one RS-232 (8-pin RJ45) console port located on the front panel. Use either an RJ45-to-DB9 or RJ45-to-DB25 cable to connect the AWK-3252A's console port to your PC's COM port. You may then use a console terminal program to access the AWK-3252A for console configuration.

Pin	Description
1	DSR
2	NC
3	GND
4	TXD
5	RXD
6	NC
7	NC
8	DTR



LED Indicators

The front panel of the AWK-3252A contains several LED indicators. The function of each LED is described in the table below:

LED	Color	State	Description
Front Panel LED Indicators (System)			
PWR1	Green	On	Power is being supplied from power input 1.
		Off	Power is not being supplied from power input 1.
PWR2	Green	On	Power is being supplied from power input 2.
		Off	Power is not being supplied from power input 2.
PoE	Amber	On	Power is being supplied via PoE.
		Off	Power is not being supplied via PoE.
SYS	Red	On	System initialization failure, configuration error, or system error. Refer to the AWK-3252A User’s Manual for more details.
	Green	On	System startup completed and is operating normally.
2.4G	Green	On	Client/Client-Router/Slave has established a Wi-Fi connection to an AP/Master with a SNR value of 35 or higher.
		Blinking	Data is being transmitted over the 2.4 GHz band.
	Amber	On	Client/Client-Router/Slave has established a Wi-Fi connection to an AP/Master with a SNR value of less than 35.
		Blinking	Data is being transmitted over the 2.4 GHz band.
5G	Green	On	Established a Wi-Fi connection to an AP/Master with a SNR value of 35 or higher.

		Blinking	Data is being transmitted over the 5 GHz band.
	Amber	On	Established a Wi-Fi connection to an AP/Master with a SNR value of less than 35.
		Blinking	Data is being transmitted over the 5 GHz band.

LAN LED Indicators (RJ45 Port)			
LED	Color	State	Description
LAN 1	Green	On	LAN port’s 1000 Mbps link is active .
		Blinking	Data is being transmitted at 1000 Mbps.
		Off	LAN port’s 1000 Mbps link is inactive .
	Amber	On	LAN port’s 10/100 Mbps link is active .
		Blinking	Data is being transmitted at 10/100 Mbps.
		Off	LAN port’s 10/100 Mbps link is inactive .
LAN 2	Green	On	LAN port’s 1000 Mbps link is active .
		Blinking	Data is being transmitted at 1000 Mbps.
		Off	LAN port’s 1000 Mbps link is inactive .
	Amber	On	LAN port’s 10/100 Mbps link is active .
		Blinking	Data is being transmitted at 10/100 Mbps.
		Off	LAN port’s 10/100 Mbps link is inactive .

Specifications

Input Current	2 A @ 12 VDC; 0. 5 A @ 48 VDC
Input Voltage	12 to 48 VDC, redundant dual power inputs, 48 VDC Power over Ethernet
Power Consumption	22 W (max.)
Operating Temperature	Standard Models: -25 to 60°C (-13 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)

NOTE
To meet the standard for IP30 protection, all unused ports should be covered with the protective caps.



ATTENTION

The AWK-3252A is NOT a portable mobile device and should be located at least 20 cm away from the human body.

The AWK-3252A is NOT designed for the general public. To ensure that your AWK-3252A wireless network is safe and configured correctly, consult a well-trained technician to assist with the installation process.



ATTENTION

Use the appropriate antennas for your wireless setup: Use 2.4 GHz antennas when the AWK-3252A is configured for IEEE 802.11b/g/n. Use 5 GHz antennas when the AWK-3252A is configured for IEEE 802.11a/n/ac. Make sure that the antennas are located in an area with a lightning and surge protection system installed.



ATTENTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.



ATTENTION

Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death. For proper installation and grounding of the antenna, refer to national and local codes (for example, U.S.: NFPA 70; National Electrical Code (NEC) Article 810; Canada: Canadian Electrical Code, Section 54).

NOTE For installation flexibility, either the antenna 1 or antenna 2 may be selected for use. Make sure the antenna connection matches the antennas configured in the AWK-3252A web interface.

To protect the connectors and RF module, all radio ports should be terminated by either an antenna or a terminator. We strongly recommend using resistive terminators for terminating the unused antenna ports.

APPENDIX

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE

This device is restricted to mobile configuration. To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 50 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. This device must not be co-located or operating in conjunction with any other antenna or transmitter

CAUTION

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Information for the OEMs and Integrators

The following statement must be included with all versions of this document supplied to an OEM or integrator, but should not be distributed to the end user.

- 1) This device is intended for OEM integrators only.
- 2) Please see the full Grant of Equipment document for other restrictions.

This radio transmitter FCC ID: SLE-WAPC003 has been approved by FCC to operate with the antenna

types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Professional installation

This is a specific product that requires professional installation and configuration, must be performed by trained technical engineers to install the antenna, please contact Moxa for further information.

The availability of some specific channels and / or operational frequency bands are country dependent and are firmware programmed at factory to match the intended destination. The firmware setting is not accessible by the end user.

Antenna List

Item	Manufacturer	Model name	Type	2.4GHz Gain	5GHz Gain
1	MOXA	ANT-WDB-ANM-0306	Dipole	3.80 dBi	6.3 dBi
2	MOXA	ANT-WDB-ANM-0502	Dipole	4.62 dBi	1.41 dBi
3	MOXA	ANT-WDB-ARM-02	Dipole	2.04 dBi	0.81 dBi
4	MOXA	ANT-WDB-ARM-0202	Dipole	1.80 dBi	1.8 dBi
5	MOXA	ANT-WSB-AHRM-05-1.5m	Dipole	5.00 dBi	-
6	MOXA	MAT-WDB-CA-RM-2-0205	Dipole	2.50 dBi	5.7 dBi
7	MOXA	MAT-WDB-DA-RM-2-0203-1m	Dipole	2.45 dBi	2.72 dBi
8	MOXA	MAT-WDB-PA-NF-2-0708	Panel	7.63 dBi	8.77 dBi
9	MOXA	ANT-WDB-PNF-1011	Panel	10.33 dBi	12.04 dBi
10	MOXA	ANT-WDB-ONM-0707	Dipole	7.10 dBi	7.6 dBi
11	MOXA	ANT-WDB-ONF-0709	Dipole	7.40 dBi	8.87 dBi
12	MOXA	ANT-WSB5-PNF-16	Panel	-	16.94 dBi
13	MOXA	ANT-WSB-PNF-12-02	Panel	12.34 dBi	-

maximum conduct output power:

Antenna TYPE: Dipole: 2.4G : 0.7211W, 5G: 0.4819W

Antenna TYPE: Panel: 2.4G: 0.6194W, 5G: 0.4819W

Canada, Innovation, Science and Economic Development Canada (ISED) Notices

CAN ICES-003 (A)/NMB-003(A)

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

This device may not cause interference.

This device must accept any interference, including interference that may cause undesired operation of the device.

Avis du Canada, Innovation, Sciences et Développement économique Canada (ISED)

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada (ISED) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the ISED RF Exposure limits under mobile exposure conditions. (antennas are greater than 50 cm from a person's body).

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie rayonnée du dispositif sans fil est inférieure aux limites d'exposition aux radiofréquences d'Innovation, Sciences et Développement économique Canada (ISED). Le dispositif sans fil doit être utilisé de manière à minimiser le potentiel de contact humain pendant le fonctionnement normal.

Cet appareil a également été évalué et montré conforme aux limites d'exposition RF ISED dans des conditions d'exposition mobiles. (Les antennes sont à plus de 50 cm du corps d'une personne).

This radio transmitter **IC: 9335A-WAPC003** has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Cet émetteur radio **IC: 9335A-WAPC003** a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antennes énumérés ci-dessous avec le gain maximal admissible et impédance d'antenne requise pour chaque type d'antenne indiqué. Types d'antennes n'est pas inclus dans cette liste, ayant un gain supérieur au gain maximal indiqué pour ce

type, sont strictement interdits pour une utilisation avec cet appareil.

Caution:

i.) the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

Mise en garde:

i.) le dispositif destiné à fonctionner dans la bande 5150–5250 MHz est destiné uniquement à une utilisation en intérieur afin de réduire le risque de brouillage préjudiciable causé par les systèmes mobiles à satellites dans le même canal;

Caution:

i.) the device for operation in the band **5250–5350** MHz is "for indoor use only".

Mise en garde:

i.) le dispositif destiné à fonctionner dans la bande 5250–5350 MHz est "pour usage intérieur uniquement".

The user manual for LE-LAN devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:

i. the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

ii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

iii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; and

iv. where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated