

MachineMotion Pendant V4 Tablet



User Manual

Version: 2.0

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Revision History:

No.	Version	Description	Date
1	V1.0	First release	Jun. 11, 2025
2	V2.0	Updated product connector description	Nov. 25, 2025

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Foreword

Thank you for purchasing MachineMotion Pendant V4 Tablet (“the Device” or “the Product”). This manual intends to provide guidance and assistance necessary on setting up, operating or maintaining the Product. Please read this manual and make sure you understand the structure and functionality of the Product before putting it into use.

Intended Users

This manual is intended for:

- Operator of the Product
- Technical support engineers
- Other users

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Disclaimer

While all information contained herein has been carefully checked to assure its accuracy in technical details and typography, Vantron does not assume any responsibility resulting from any error or features of this manual, nor from improper uses of this manual or the software.

It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without notice.

Technical Support and Assistance

Should you have any question about the Product that is not covered in this manual, contact your sales representative for solution. Please contain the following information in your question:

- Product name and PO number;
- Complete description of the problem;
- Error message you received, if any.

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Regulatory Information

The Product is designed to comply with:

- FCC Part 15 Class B

Please refer to the Appendix for Regulatory Compliance Statement.

Symbology

This manual uses the following signs to prompt users to pay special attention to relevant information.

	Caution for latent damage to system or harm to personnel
	Attention to important information or regulations

General Safety Instructions

The Product is supposed be installed by knowledgeable, skilled persons familiar with local and/or international electrical codes and regulations. For your safety and prevention of damage to the Product and other equipment connected to it, please read and observe carefully the following safety instructions prior to installation and operation. Keep this manual well for future reference.

- Do not disassemble or otherwise modify the Product. Such action may cause heat generation, ignition, electronic shock, or other damages including human injury, and may void your warranty.
- Keep the Product away from heat source, such as heater, heat dissipater, or engine casing.
- Do not insert foreign materials into any opening of the Product as it may cause the Product to malfunction or burn out.
- To ensure proper functioning and prevent overheating of the Product, do not cover or block the ventilation holes of the Product.
- Follow the installation instructions with the installation tools provided or recommended.
- The use or placement of the operation tools shall comply with the code of practice of such tools to avoid short circuit of the Product.
- Cut off the power before inspection of the Product to avoid human injury or product damage.

Precautions for Power Cables and Accessories

-  Use proper power source only. Make sure the supply voltage falls within the specified range. The Product is designed to use 12V DC. Always check whether the Product is DC powered before applying power.
-  Place the cables properly at places without extrusion hazards.
-  Use only approved antenna(s). Non-approved antenna(s) may produce spurious or excessive RF transmitting power which may violate FCC limits.
-  Cleaning instructions:
 - Power off before cleaning the Product
 - Do not use spray detergent
 - Clean with a damp cloth
 - Do not try to clean exposed electronic components unless with a dust collector
-  Power off and contact Vantron technical support engineer in case of the following faults:
 - The Product is damaged
 - The temperature is excessively high
 - Fault is still not solved after troubleshooting according to this manual
-  Do not use in combustible and explosive environment:
 - Keep away from combustible and explosive environment
 - Keep away from all energized circuits
 - Unauthorized removal of the enclosure from the device is not allowed
 - Do not replace components unless the power cable is unplugged.
 - In some cases, the device may still have residual voltage even if the power cable is unplugged. Therefore, it is a must to remove and fully discharge the device before replacement of the components.
-  **It is recommended to avoid leaving static images on the screen for extended periods of time, as this may lead to temporary image retention or "burn-in". For best practices, you are advised to use screen savers or power-saving settings while not operating the device for an extended period.**

CHAPTER 1 INTRODUCTION

1.1 Product Overview

MachineMotion Pendant V4 tablet is powered by Intel Pentium® N6415 quad-core processor, ensuring smooth operation of industrial software while maintaining low energy consumption. The Intel UHD Graphics with 16 execution units delivers reliable visual performance for display outputs, basic image processing, and video playback.

Dual M12 connectors support 10/100Mbps Ethernet for stable and secure wired network connectivity. 802.11 a/b/g/n/ac offers flexible wireless network connectivity.

13.3-inch LCD capacitive touchscreen features a resolution of 1920 × 1080 at 60Hz, enabling clear visual output and intuitive touch operation. Front and rear 5MP cameras facilitate close-range imaging, barcode scanning, and visual inspection, extending its utility across various industrial tasks. An integrated light sensor automatically adjusts the screen brightness based on surrounding light conditions, optimizing visibility in outdoor environments.

1.2 Product Features

- Intel Pentium® N6415 quad-core processor, up to 3.0GHz
- 8GB LPDDR4 and 128GB eMMC
- 13.3" LCD display with capacitive touchscreen (1920 × 1080@60Hz)
- USB 2.0 Type-A, M12 connectors
- Ethernet and Wi-Fi for communication
- 5MP front and rear cameras
- Light sensor to adjust the screen luminosity based on the environment

1.3 Packing List

The Product has been carefully packed with special attention to quality. However, should you find any component damaged or missing, please contact your sales representative in due time.

- 1 × MachineMotion Pendant V4



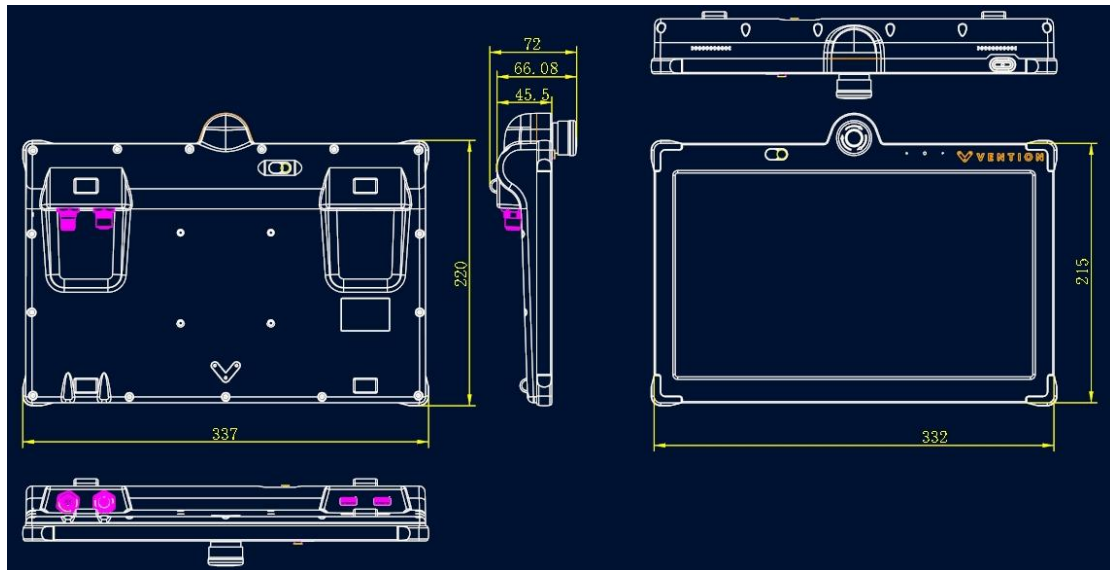
Actual accessories might vary slightly from the list above as the customer order might be different from the standard configuration options.

1.4 Specifications

MachineMotion Pendant V4			
System	CPU	Intel Pentium® N6415 processor, quad-core, up to 3.0GHz, 6.5W TDP	
	GPU	Intel UHD Graphics 16EUs	
	Memory	8GB LPDDR4	
	Storage	128GB eMMC	
Communication	Ethernet	2 × M12 connector, 10/100Mbps Ethernet	
	Wi-Fi	802.11 a/b/g/n/ac	
Media	Display	13.3" LCD Display with capacitive TP, 1920 × 1080@60Hz	
	Audio	2 × Dual-digital microphone array	
		2 × 1W stereo speaker	
	Camera	1 × Front camera, 5MP	
		1 × Rear camera, 5MP	
	Light Sensor	1 × Light sensor	
I/O	USB	2 × USB 2.0 Type-A	
	M12	1 × M12 Male Connector	1 × M12 Female Connector
	Debug	1 × eSPI header for Port 80h debug	
		1 × UART header	
Software	OS	Debian 12 (Subject to the client side)	
	BIOS	UEFI BIOS	
Other	Security	TPM 2.0	
	RTC	Supported	
System Control	Button	1 × Power button	2 × Volume button (+/-)
		1 × Emergency stop button	
Power	Input	24V DC	
	Consumption	20W (Max.)	
Mechanical	Dimensions	337mm × 220mm × 72mm	
	Weight	< 2.5 kg	
Environment Condition	Temperature	Operating: 0°C~+50°C	
	Humidity	Operating: ≤80% RH (Non-condensing)	
	Cooling Mode	Passive cooling	

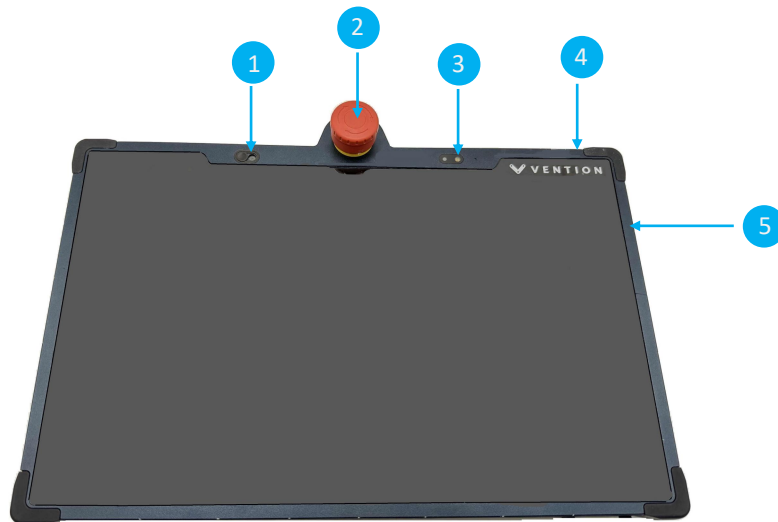
1.5 Mechanical Dimensions

- MachineMotion Pendant V4: 337mm × 220mm × 72mm



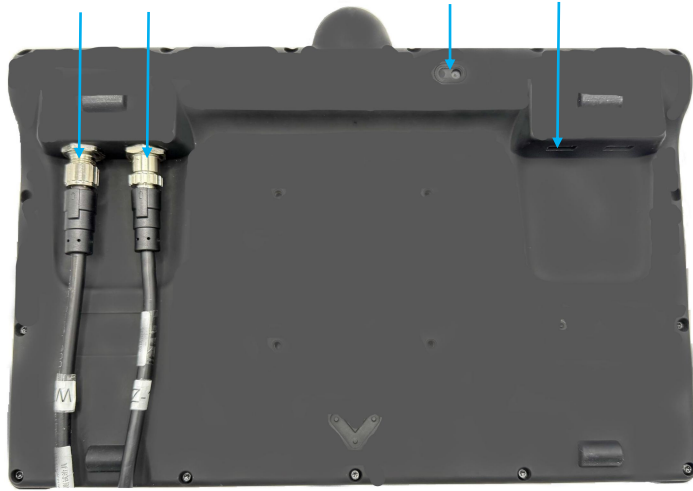
1.6 Product Layout

- Front View



- Rear View





Interface No.	Description
1	Front camera
2	Emergency stop button
3	Light sensor
4	Power button
5	Volume button
6	M12 male connector
7	M12 female connector
8	Rear camera
9	2 ×USB 2.0 Type-A ports

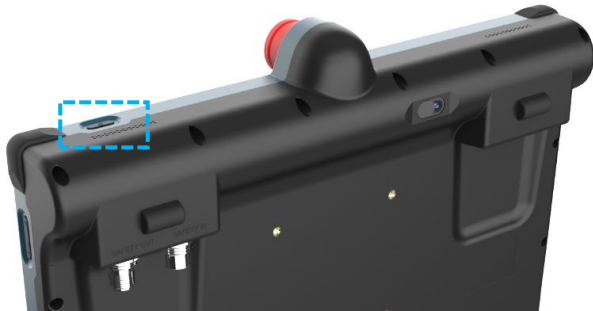
1.7 Power Supply

MachineMotion Pendant V4 works with 24V DC power input supplied via a M12 connector.

CHAPTER 2 GETTING STARTED

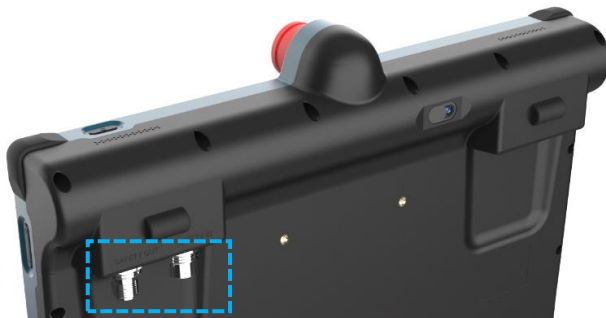
2.1 Powering on Device

1. Connect one end of a certified M12 cable (carrying 24V power) to one of the M12 interfaces on the device.
2. Connect the power end of the M12 cable to a 24V power source.
3. Short-press the device's power button, then the device will turn on and boot into the system.

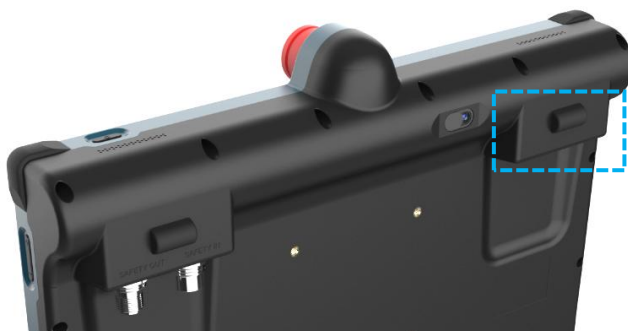


2.2 Network Connection

1. Connect one end of a second M12 cable to the other M12 interface on the device.



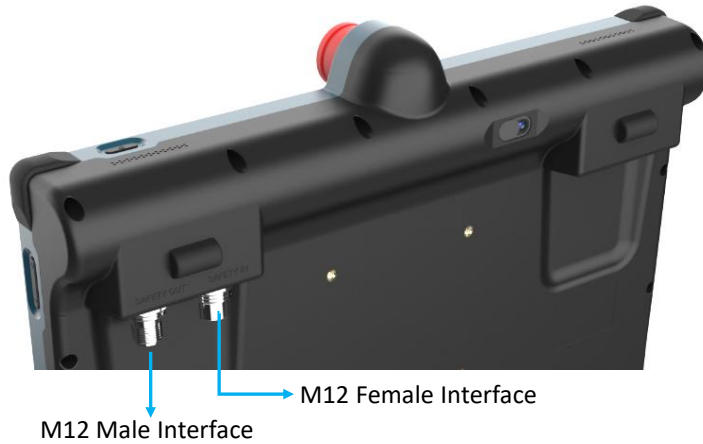
2. Connect the Ethernet end of the M12 cable to an Ethernet cable. Ensure the Ethernet cable is connected to a switch/router for a wired network.
3. Alternatively, you can connect the device to a wireless network after logging into the system and going to **Settings > Wi-Fi**.
4. Connect other peripherals to USB Type-A ports as needed.



CHAPTER 3 CONNECTOR DESCRIPTION

3.1 M12 Connectors

MachineMotion Pendant V4 features a M12 male interface and a M12 female interface for providing 10/100Mbps Ethernet data transmission and 24V DC power input.



3.1.1 M12 Male Interface

Pinout Description:

Pin	Name	Type	Description
1	SO-24V	P	Power
2	SO-0V	G	Ground
3	SO-C1C1	IO	
4	SO-C1C2	IO	
5	SO-C2C1	IO	
6	SO-C2C2	IO	
7	SO-RST1	IO	
8	SO-RST2	IO	
9	SO-TXP	IO	100M Ethernet Signal
10	SO-TXM	IO	100M Ethernet Signal
11	SO-RXP	IO	100M Ethernet Signal
12	SO-RXM	IO	100M Ethernet Signal

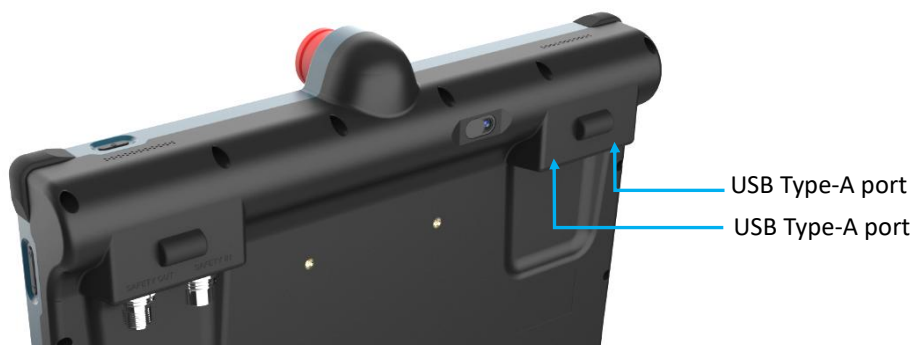
3.1.2 M12 Female Interface

Pinout Description:

Pin	Name	Type	Description
1	SI-24V	P	Power
2	SI-0V	G	Ground
3	SI-C1C1	IO	
4	SI-C1C2	IO	
5	SI-C2C1	IO	
6	SI-C2C2	IO	
7	SI-RST1	IO	
8	SI-RST2	IO	
9	SI-TXP	IO	100M Ethernet Signal
10	SI-TXM	IO	100M Ethernet Signal
11	SI-RXP	IO	100M Ethernet Signal
12	SI-RXM	IO	100M Ethernet Signal

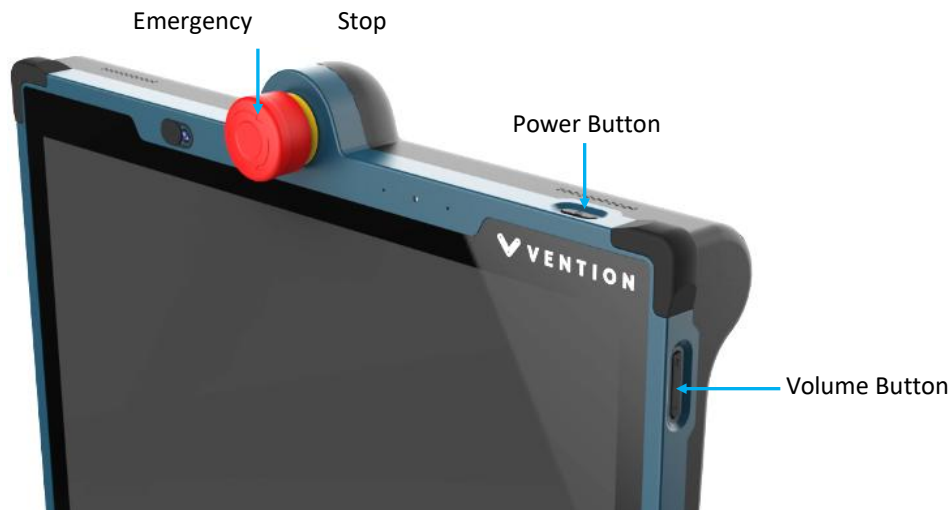
3.2 USB

MachineMotion Pendant V4 offers two USB 2.0 Type-A ports, supporting essential connectivity and peripheral expansion. The USB Type-A ports comply with the pin definition of USB 2.0 standard.



3.3 Button

MachineMotion Pendant V4 provides four buttons, including a power button, an emergency stop button, and two volume buttons.



Button	Description
Power Button	◦ Short press: Powers on or off the device ◦ Long Press: Forces an immediate shutdown
Emergency Stop Button	◦ Immediately stop the device in case of an emergency
Volume Button (+ / -)	◦ "+" Button: Increases audio volume ◦ "-" Button: Decreases audio volume

CHAPTER 4 DISPOSAL AND WARRANTY

6.1 Disposal

When the device comes to end of life, you are suggested to properly dispose of the device for the sake of the environment and safety.

Before you dispose of the device, please back up your data and erase it from the device. It is recommended that the device is disassembled prior to disposal in conformity with local regulations. Please ensure that the abandoned batteries are disposed of according to local regulations on waste disposal. Do not throw batteries into fire or put in common waste canister as they are explosive. Products or product packages labeled with the sign of “explosive” should not be disposed of like household waste but delivered to specialized electrical & electronic waste recycling/disposal center.

Proper disposal of this sort of waste helps avoid harm and adverse effect upon surroundings and people’s health. Please contact local organizations or recycling/disposal center for more recycling/disposal methods of related products.

6.2 Warranty

Product warranty

VANTRON warrants to its CUSTOMER that the Product manufactured by VANTRON, or its subcontractors will conform strictly to the mutually agreed specifications and be free from defects in workmanship and materials (except that which is furnished by the CUSTOMER) upon shipment from VANTRON. VANTRON's obligation under this warranty is limited to replacing or repairing at its option of the Product which shall, within **24 months** after shipment, effective from invoice date, be returned to VANTRON's factory with transportation fee paid by the CUSTOMER and which shall, after examination, be disclosed to VANTRON's reasonable satisfaction to be thus defective. VANTRON shall bear the transportation fee for the shipment of the Product to the CUSTOMER.

Out-of-Warranty Repair

VANTRON will furnish the repair services for the Product which are out-of-warranty at VANTRON's then-prevailing rates for such services. At customer's request, VANTRON will provide components to the CUSTOMER for non-warranty repair. VANTRON will provide this service as long as the components are available in the market; and the CUSTOMER is requested to place a purchase order up front. Parts repaired will have an extended warranty of 3 months.

Returned Products

Any Product found to be defective and covered under warranty pursuant to Clause above, shall be returned to VANTRON only upon the CUSTOMER's receipt of and with reference to a VANTRON supplied Returned Materials Authorization (RMA) number. VANTRON shall supply an RMA, when required within three (3) working days of request by the CUSTOMER. VANTRON shall submit a new invoice to the CUSTOMER upon shipping of the returned products to the CUSTOMER. Prior to the return of any products by the CUSTOMER due to rejection or warranty defect, the CUSTOMER shall afford VANTRON the opportunity to inspect such products at the CUSTOMER's location and no Product so inspected shall be returned to VANTRON unless the cause for the rejection or defect is determined to be the responsibility of VANTRON. VANTRON shall in turn provide the CUSTOMER turnaround shipment on defective Product within **fourteen (14) working days** upon its receipt at VANTRON. If such turnaround cannot be provided by VANTRON due to causes beyond the control of VANTRON, VANTRON shall document such instances and notify the CUSTOMER immediately.

Appendix: Regulatory Compliance Statements

ESD Precautions

While setting up an electronic system or handling electronic components, certain precautions and proper handling procedures should be followed to prevent ESD-induced failures. Handling the Product without proper ESD protection may destroy or damage it permanently.

- There should not be any hand contact while transporting or storing electrostatic discharge sensitive (ESDS) components. This can be achieved by placing components in static-safe containers.
- It is important to place ESDS components in static-protected areas before taking them from their packages.
- Be careful to keep ESDS components in their respective anti-static containers until they are moved to static-protected workstations.
- No human touch is permitted on the pins and leads of ESDS components or ESDS circuitries.
- While touching ESDS components or circuits, personnel should be properly grounded.
- There is no plastic, foam, or vinyl allowed in static-protected workstations.

Heat Related Concerns

The Product may become very warm during normal use. It complies with the user-accessible surface temperature limits defined by the International Standards for Safety. Still, sustained contact with warm surfaces for long periods of time may cause discomfort or injury. To reduce potential heat-related concerns, follow these guidelines:

- Keep the Product and its adapter in a well-ventilated area when in use or charging. Allow for adequate air circulation under and around the Product.
- If the Product is used for long periods, its surface can become very warm. While the temperature may not feel hot to the touch, if you maintain physical contact with the Product for a long time, your skin might suffer a low-heat injury.
- Never place the Product or the adapter on furniture or any other surface that might be marred by exposure to heat since the screen itself and the surface of the adaptor may increase in temperature during normal use.

FCC compliance statement

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.

Note 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of 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 or more 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.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE 3: 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.

RF exposure information and statement: this device meets government requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. The SAR limit of USA (FCC) is 1.6W/Kg averaged. Has also been tested against this SAR limit.

ISED Canada compliance statement

this device complies with ISED Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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.

RF exposure information and statement: This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. The SAR limit of ISED is 1.6W/Kg averaged. Has also been tested against this SAR limit. To maintain compliance with ISED RF exposure requirements, the use of belt clips, holsters and similar accessories should not contain metallic components in its assembly, the use of accessories that do not satisfy these requirements may not comply with ISED RF exposure requirements, and should be avoided.

Le présent appareil est conforme aux CNR d'ISDE 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, et (2) l'appareil doit accepter tout

brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

La bande 5150–5250 MHz est réservée uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Information et déclaration sur l'exposition aux RF : Cet équipement est conforme aux limites d'exposition au rayonnement du CNR-102 de l'IC établies pour un

environnement non contrôlé . Les lignes directrices sont fondées sur des normes qui ont été élaborées par des organisations scientifiques indépendantes au moyen d'une évaluation périodique et approfondie des études scientifiques. Les normes

comprennent une marge de sécurité substantielle conçue pour assurer la sécurité de toutes les personnes, indépendamment de leur âge ou de leur état de santé . La

limite SAR d'ISD est de 1.6 W/Kg en moyenne. A également été testé par rapport à cette limite SAR. Pour maintenir la conformité aux exigences d'ISED en matière

d'exposition aux RF, l'utilisation de pinces à courroie, d'étuis et d'accessoires

similaires ne devrait pas contenir de composants métalliques dans son assemblage, l'utilisation d'accessoires qui ne satisfont pas à ces exigences peut ne pas être

conforme aux exigences d'ISED en matière d'exposition aux RF et devrait être évitée.