

PRODUCT SPECIFICATION

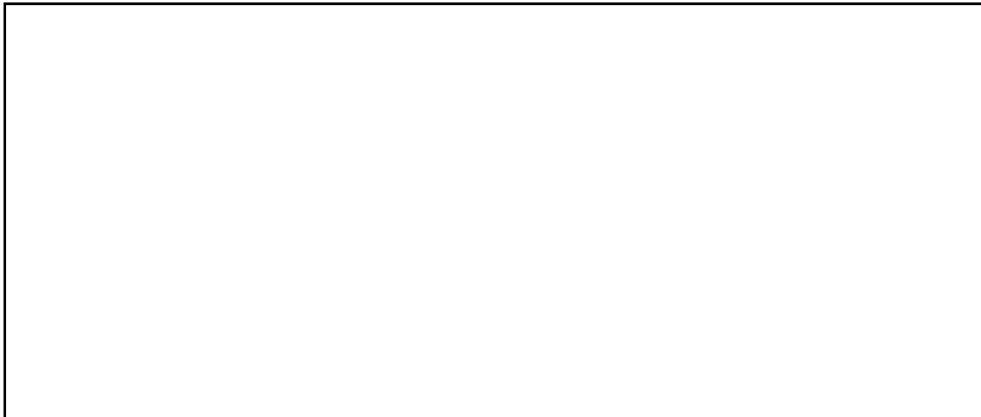
Product Description : Wireless Module

Model name : PIOT-V2(CA)

Panasonic Global Part Number :

Panasonic Issue Number :

Issue Number : REV 0



“Changes in the description of Delivery Specifications” and “changes that affect performance, quality or environment” are implemented according to advance consultation.

Manufacturer : China Hualu Panasonic AVC Networks Co.,Ltd (CHPAVC)

Agency :

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1. Scope

It applies to all products which specified the application of this standard.

2. Specification

2.1 Absolution Maximum rating

Items	SPEC
Power supply voltage	-0.3 ~ 7V(TBD)
I/O voltage	-0.3 ~ 7V(TBD)

2.2 General parameter

Items	SPEC
Product contents	PCB×1; shield case×1;
dimensions (Max size)	48mm×30mm
Input voltage	DC5V±10%
Communication interface	UART (baudrate :4Mbps(max)) SPI (Max:25MHz)
PCB color	Solder resist: green; silk: yellow
Main IC	Realtek RTL8720CM-VH2-CG
Regulation	Japan, CE(Europe), FCC(U.S.A), NCC(Taiwan)
Antenna	On-board pattern antenna efficiency: Min -4dB
Shield case	Directly mounted onto PCB
Silk	Japan – TELEC/JATE certification ID, FCC ID, NCC ID Mark Parts number
Label	Content Wi-Fi MAC address Bluetooth address 2D code
Power consumption	TBD
Operation temperature range	-10°C- 70°C
storage temperature range	-20°C - 85°C
Torque intensity	Torque intensity for the screw hole: No PCB crack at 95N-cm

2.3 PCB parameter

Items	SPEC
PCB	Material: NANYA NP-140B Layer: 4 Color of Solder resist: green; color of silk: yellow Thickness: 1.0mm
Memory size	Flash 8Mbyte

2.4 Wi-Fi parameter

Items	SPEC
Standard	IEEE802.11 b/g/n 20MHz

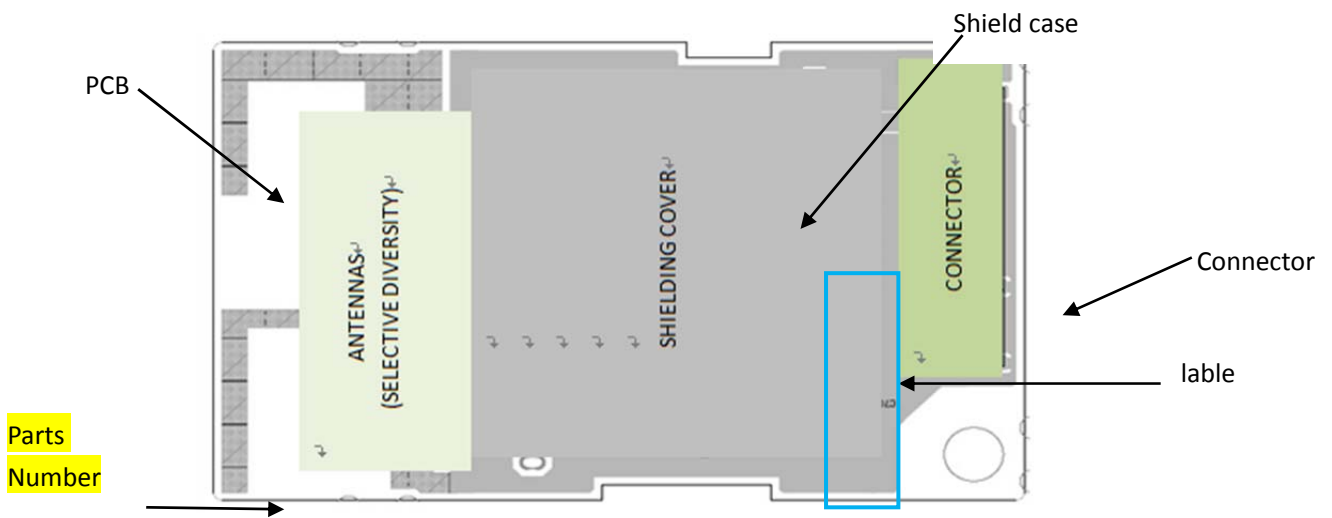
Channel	Japan: 1ch ~ 13ch North America: 1 ~ 11ch Europe(ETSI): 1 ~ 13ch			
Tx power(TBD)	802.11b		802.11g	
	1Mbps	17dBm	6Mbps	14dBm
	2Mbps	17dBm	9Mbps	14dBm
	5.5Mbps	17dBm	12Mbps	14dBm
	11Mbps	17dBm	18Mbps	14dBm
			24Mbps	14dBm
			36Mbps	14dBm
			48Mbps	14dBm
			54Mbps	14dBm
	802.11n(HT20)			
	MCS0	14dBm		
	MCS1	14dBm		
	MCS2	14dBm		
	MCS3	14dBm		
	MCS4	14dBm		
MCS5	14dBm			
MCS6	14dBm			
MCS7	14dBm			
TX Power Tolerance	+/- 2dB			
Tx EVM	≤ -27 dB at MCS7			
Rx sensitivity (PER<10%)	-67.5dBm at MCS7			

2.5 Bluetooth parameter

Items	SPEC
Standard	BLE4.2
Channel	0-39ch
Tx power	4.5dBm
Tx power tolerance	± 2 dB
Rx sensitivity (BDR BER<0.1%)	-90dBm at PER 30.8% (LE)

3. Mechanical Specifications

3.1 Product Structure

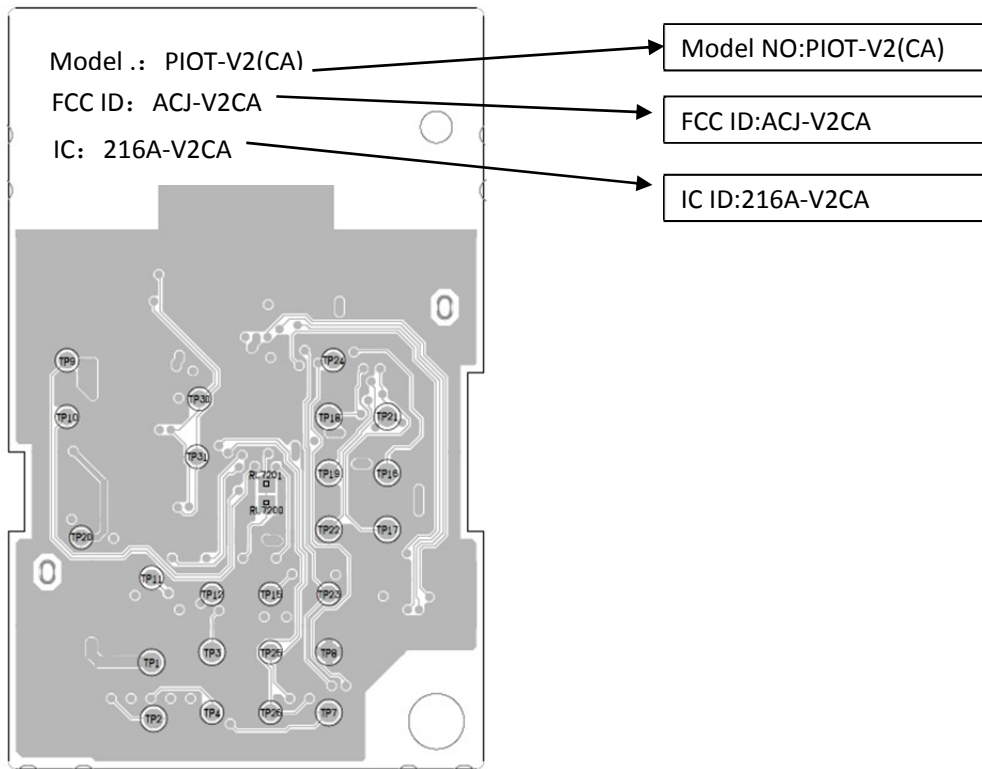


3.2 Material of crucial parts

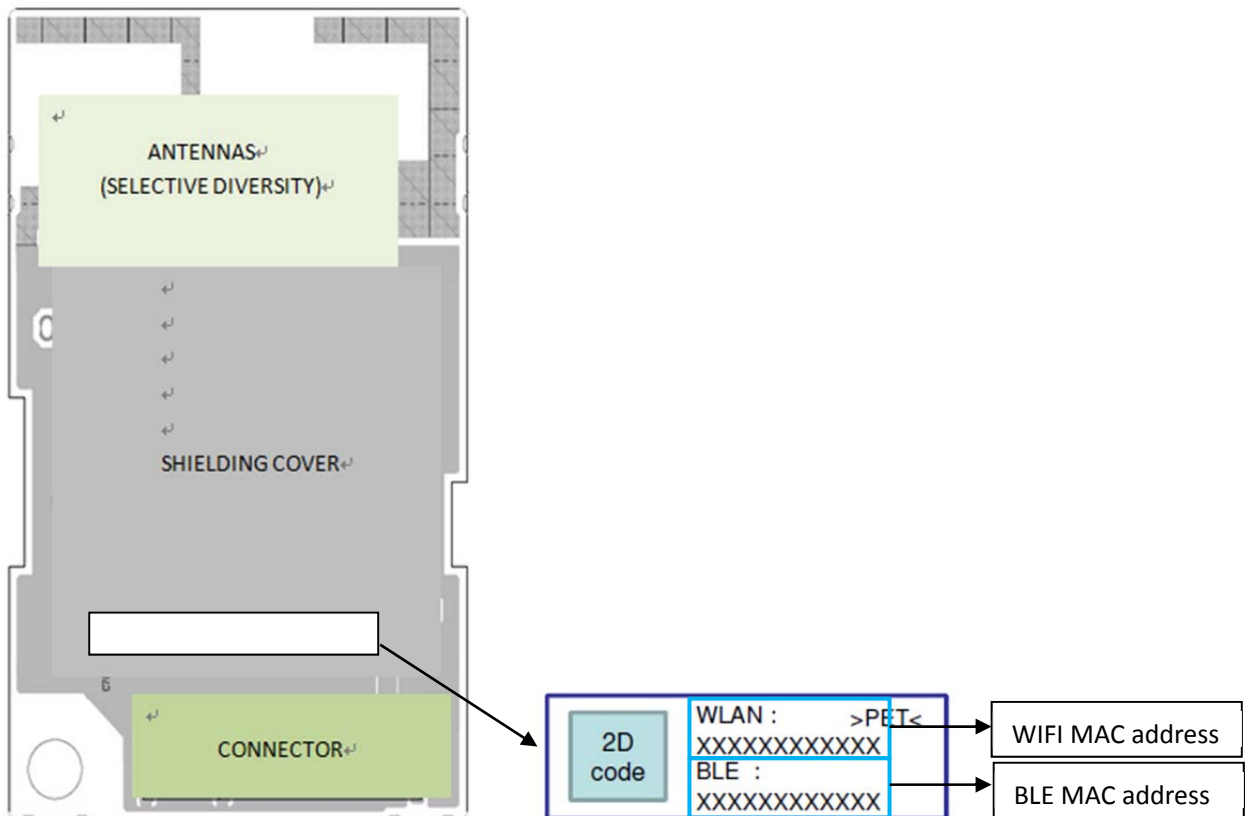
Parts	Maker	Material
PCB	ASK PCB	FR4 NP-140TL
Shield case	CHPAVC	Eco torio: ZSNC-S1-S 8 8/8 t=0.2 Silver top: SO ZE-36 10G/10G t=0.2

3.3 Silk and Label on PCB

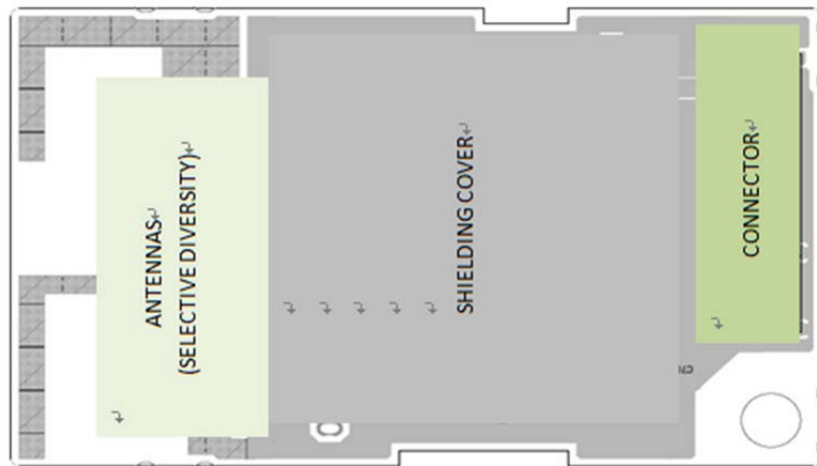
Silk



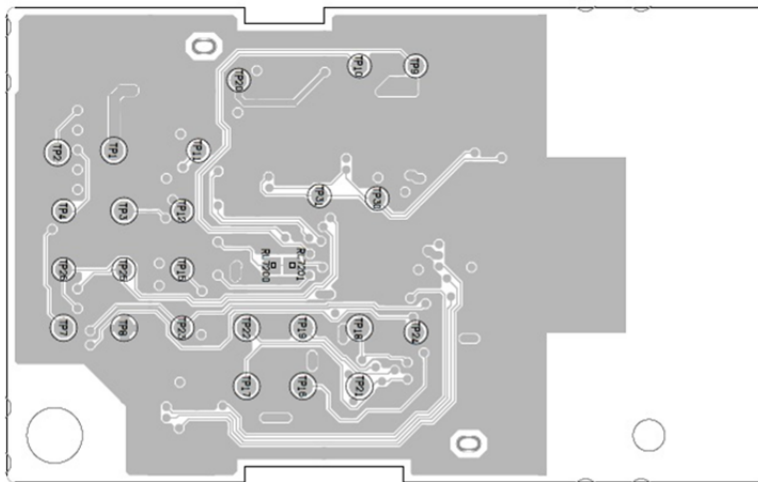
Label (TBD)



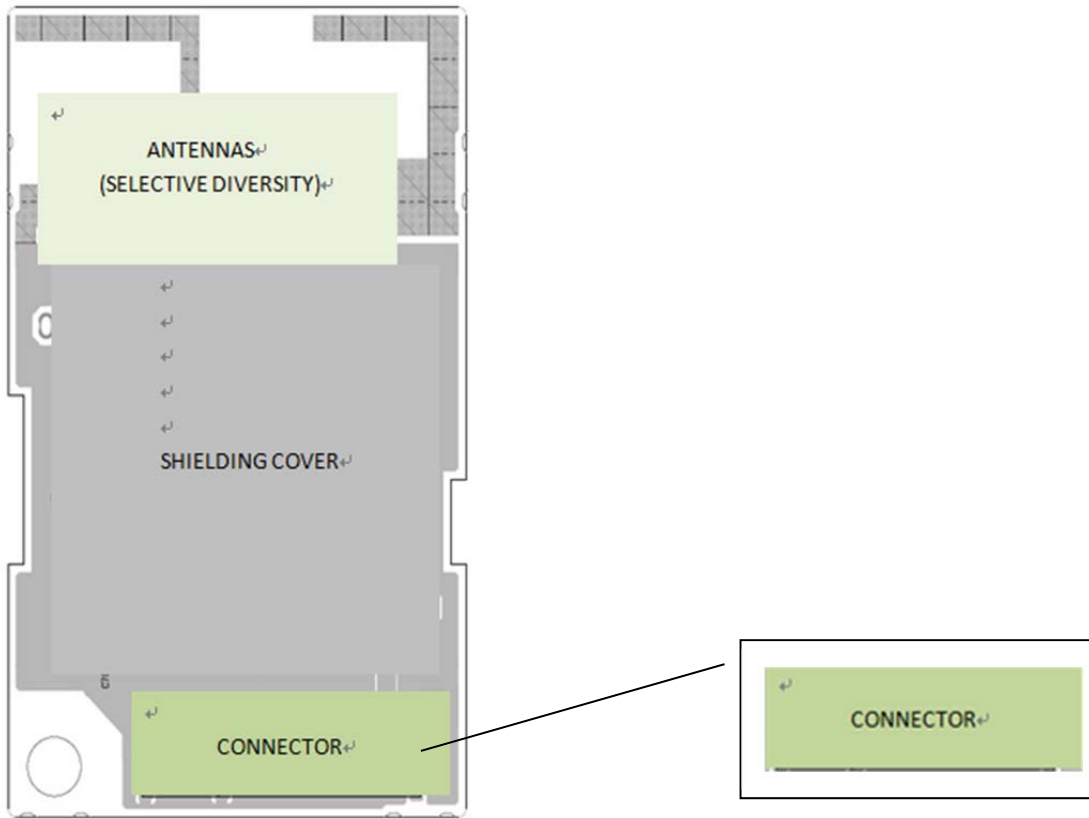
3.4 Product photo
Top view



Bottom view



4. Connector description



4.1 Pin Assignment

Pin No.	Signal Name	I/O State	IC Pin Name	Remark
1	SPI_MOSI	Input / Output	GPIOA_19(40)	
2	SPI_MISO	Input / Output	GPIOA_20(1)	
3	SPI_CLK	Input / Output	GPIOA_3(19)	
4	SPI_CS _n	Input / Output	GPIOA_2(18)	
5	GND	GND		
6	Flash Write	Input / Output	GPIOA_4(20)	
7	IRQ_Tx	Input / Output	GPIOA_18(39)	
8	IRQ_Rx	Input / Output	GPIOA_17(38)	
9	RST	Input	CHIP_EN	
10	UART_TX	Output	GPIOA_14(34)	
11	UART_RX	Input	GPIOA_13(33)	
12	VDD +5V +/-10%	+5V Input		

FCC 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 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.

FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation 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.

Caution!

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

Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is

installed must also display a label referring to the enclosed module. This exterior label

can use wording such as the following: “Contains FCC ID: ACJ-V2CA” any similar wording that expresses the same meaning may be used.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of

20cm between the radiator & your body. This transmitter must not be co-located or operating

in conjunction with any other antenna or transmitter.

The module is limited to OEM installation ONLY.

The OEM integrator is responsible for ensuring that the end-user has no manual instruction

to remove or install module.

The module is limited to installation in mobile application.

A separate approval is required for all other operating configurations, including portable

configurations with respect to Part 2.1093 and difference antenna configurations.

There is requirement that the grantee provide guidance to the host manufacturer for compliance with Part 15B requirements.

The module complies with FCC Part 15.247 and apply for Single module approval.

Trace antenna designs: Not applicable.

Antenna

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)
1	Panasonic	PIOT-V2(CA)	Printed	-0.71
2	Panasonic	PIOT-V2(CA)	Printed	0.31

The antenna is permanently attached, can't be replaced.

Canada Statement

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:

(1) This device may not cause interference.

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

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.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ou émetteur. Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

This radio transmitter (IC: 216A-V2CA) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain 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.

Le présent émetteur radio (IC: 216A-V2CA) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Antenna

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)
1	Panasonic	PIOT-V2(CA)	Printed	-0.71
2	Panasonic	PIOT-V2(CA)	Printed	0.31

Radiation Exposure Statement

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between Descriptionthe radiator & your body.

Déclaration d'exposition aux radiations

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.

This device is intended only for OEM integrators under the following condition:

- The transmitter module may not be co-located with any other transmitter or antenna.

As long as the condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes:

- Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 1 condition ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

Important Note:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the ISED ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

Note Importante:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID ISED ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

The final end product must be labeled in a visible area with the following: Contains IC: 216A-V2CA.

Plaque signalétique du produit final

Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: Contient des IC: 216A-V2CA.

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.