

## QUICK START GUIDE

### E210 Series cellular router

Version 1.0

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This E210 series quick start guide applies to below models:

- E213
- E214#02
- E214#358S#158
- E214#078
- E214G#01
- E214G#00
- E215#02
- E218#1JL
- E218#1BI
- E218#04

## Table of Content

1	Safety precautions	
	1.1 General precautions	5
	1.1 Using the router in vehicle	5
	1.2 Protecting your router	5
2	Overview	
	2.1 Scope	6
	2.2 Target audience	6
3	E210 series compatible models	7
4	Product overview	
	4.1 General specification	8
	4.2 Back panel connection	8
	4.3 Front panel connection	9
5	E210 cable and accessory	10
6	Status LED Indicator	11
7	Setup	
	7.1 Prerequisite	12
	7.2 Connecting the E210 router	13
	7.3 Software configuration	16
8	Compatible Antenna	19
	<b>USA local contact</b>	
	Conformity	20

# 1 Safety Precautions

## 1.1 General precautions

The router generates radio frequency (RF) power. When using the router, care must be taken to ensure safety as well as compliance with all the regulations that surround the use of RF equipment.

Do not use the router in aircraft, hospitals and petrol stations or in places where using GSM, W-CDMA and LTE equipment or any other RF equipment is prohibited, and make sure that the router is not interfering with nearby equipment such as pacemakers or medical equipment.

All antennae of the router should be directed away from computers, office equipment, home appliances, etc., and always keep the router at a minimally safe distance of 26.6cm or more from human bodies.

Do not put the antenna inside metallic boxes or other containers.

## 1.2 Using the router in vehicles

Check for regulations/law, if any, for authorising the use of GSM, W-CDMA and LTE equipment in vehicles in your country before installing the router.

Installation of the router should be done by qualified personnel. Consult your vehicle dealer for any possible interference concerns to the use of the router.

Battery of the vehicle could be drained after an extended period when the router is powered by the vehicle's main battery.

## 1.3 Protecting your router

Please install and operate the router with care, and complying the following;

Do not expose the router in extreme conditions such as high humidity/rain, high temperature, direct sunlight, caustic/harsh chemicals, dust, or water.

Do not try to disassemble or modify the router as there is no user serviceable parts inside and the warranty would be voided in the case of tampering.

Do not drop, hit, shake the router in extreme vibrations.

Do not pull the power supply cable. Please attach or detach it by holding the connector after switching off the supply.

Install and connect the router in accordance with this document.

Failure to do so will void the warranty.

## 2 Overview

### 2.1 **Scope**

This document provides you all the information needed to setup, to configure and to use the Maestro E210 series cellular router.

### 2.2 **Target audience**

This document is intended for end-users or resellers who understand basic telecommunications and information technology terminologies and concepts.

### 3 E210 series compatible models

MODEL NAME	TERRITORIES OR OPERATOR(S)	CELLULAR TYPE <sup>1</sup>	BANDS <sup>2</sup>	FALLBACK MODE(S) <sup>1</sup>	BANDS <sup>2</sup>	LOCATION SERVICES	PLANNED CERTIFICATIONS <sup>3</sup>	FCS <sup>4</sup>	ORDER CODE
E213	World	Dual mode LTE-M1 / NB-IoT	12 <sup>a</sup> /28/13/20/26 <sup>b</sup> /8/3/4/2/1	2G <sup>A2</sup>	5/8/3/2	same as E214G's	TBD	Sep. '18	E213
E214	EMEA	LTE cat. 1	28/20/8/3/1/7	3G <sup>C2</sup> ; 2G <sup>A3</sup>	8/1; 8/3		CE <sup>5</sup> , GCF		E214#02
	Australia & New Zealand; Thailand		28/5/8/3	3G <sup>C2</sup>	5/8/1	*	RCM; NBTC	Jul. '18	E214#358S#158
	China; Indonesia; India		5/8/3/1/TDD 40/41 <sup>d</sup>	3G <sup>C2</sup> ; 2G <sup>A3</sup>	8/1; 8/3	same as E214G's	CCC, NAL, SRRC; Postel; WPC	Sep. '18	E214#078
E214G	Verizon Wireless		13/4	*	N/A	IZat™ gen. 8C gpsOne	FCC <sup>6</sup> , Verizon Wireless		E214G#01
	AT&T Wireless, T-Mobile USA, Sprint		12 <sup>a</sup> /5/4/2	3G <sup>C2</sup>	5/4/2		ISED; FCC <sup>6</sup> , PTCRB, AT&T Wireless		E214G#00
E215	EMEA, [most of] Asia Pacific	3G <sup>C1</sup>	8/1	2G <sup>A2</sup>	8/3	*	CE <sup>5</sup> , GCF; WPC	Jul. '18	E215#02
E218	Asia Pacific	LTE cat. 4	28/5/8/3/1/7	3G <sup>C2</sup>	5/8/1	same as E214G's	RCM; NCC; NBTC; SIRIM; IDA	Sep. '18	E218#04
	NTT docomo		19/21/1	*	N/A	*		Jul. '18	E218#1JL
	KDDI		18/11/1				JPA, JRF		E218#1BI

Please consult us regarding the models or features shown in grey, which are subject to MOQ and other considerations.

<sup>1</sup> Uplink / Downlink maximum data rates

- 2G: <sup>A1</sup> 85<sup>6</sup> / 236<sup>8</sup>; or 236<sup>8</sup> / <sup>A2</sup>236<sup>8</sup>; or <sup>A3</sup>296 kbps
- NB-IoT: 65 / 27 kbps
- LTE-M1: 375 / 300 kbps
- LTE cat. 1: 5 / 10 Mbps (FDD); 3<sup>1</sup> / 8<sup>96</sup>Mbps (TDD)
- 3G: 5<sup>76</sup> / <sup>C1</sup> 7<sup>2</sup>; or <sup>C2</sup> 10<sup>1</sup>; or <sup>C3</sup> 42<sup>2</sup>Mbps
- LTE cat. 4: 50 / 150 Mbps (FDD); 35 / 130 Mbps (TDD)

<sup>2</sup> Ranked by increasing frequencies

- <sup>a</sup> Also North America's B17 subset
- <sup>b</sup> Also KDDI's B18 and North America's B5 subsets, the latter containing NTT DoCoMo's B19 subset, itself containing Japan's B6 subset
- <sup>c</sup> Also Japan's B9 subset
- <sup>d</sup> In fact, the 2535 MHz ~ 2655 MHz subset of B41

<sup>3</sup> Besides MIL-STD-810G

<sup>4</sup> First customer shipment [date of]

<sup>5</sup> Also EN 60950-1

<sup>6</sup> Also Class I Division 2 for use in explosive atmospheres as a factory option subject to MOQ and other considerations

08 August 2018

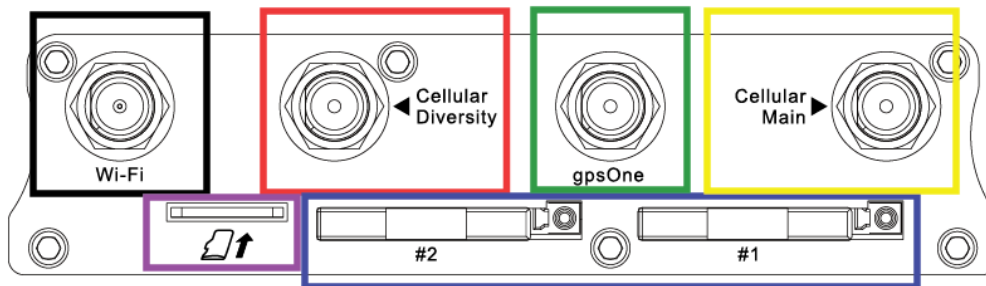


## 4 Product overview

### 4.1 General specification

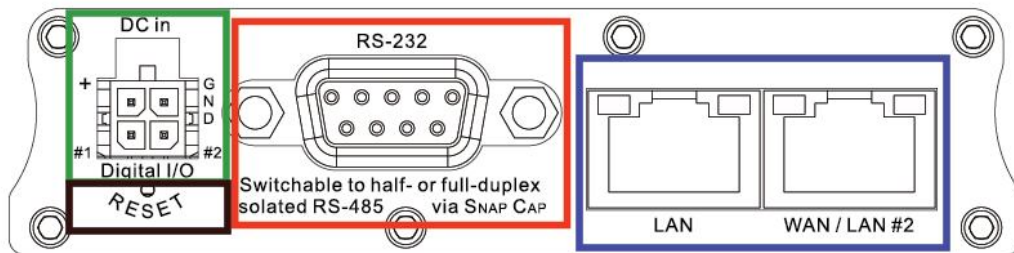
Casing:	Brushed Aluminum
Dimensions:	92x57x22(mm)
Weight:	150g (approx.)
Operating temperature:	-20°C ~ +60°C; up to 95% R.H.
Storage temperature:	-40°C ~ +85°C; up to 95% R.H.
Flash memory (SPI):	32MB
RAM (DDR2 SD-RAM):	128MB
Ethernet LAN & WAN:	10/100BASE-T
Wi-Fi:	IEEE 802.11b/g/n 2.4GHz
GPS:	IZat™ gen. 8C gpsOne

### 4.2 Back panel connection



<b>Black</b>	–	Wi-Fi antenna, RP-SMA connector
<b>Red</b>	–	Cellular diversity antenna, SMA connector
<b>Green</b>	–	GPS antenna, SMA connector
<b>Yellow</b>	–	Cellular main antenna, SMA connector
<b>Purple</b>	–	MicroSD-XC card slot
<b>Blue</b>	–	Dual SIM slots: Left: SIM 2; Right: SIM 1

### 4.3 Front panel connection



#### Green –D.C. Power:

4-pin Micro-fit 3.0 connector

Top L/R: 8V~32V dc  
Bottom L/R: Two digital I/Os

Digital Input: 0~1V dc as low  
1~36V dc as high

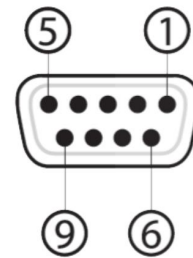
Digital Output: Open collector,  
100mA@24V dc max

#### Black –Reset button:

Back to default settings (push for 10sec)

#### Red –RS-232:

1. DCD
2. Rx
3. Tx
4. DTR
5. Ground
6. DSR
7. RTS
8. CTS
9. RI



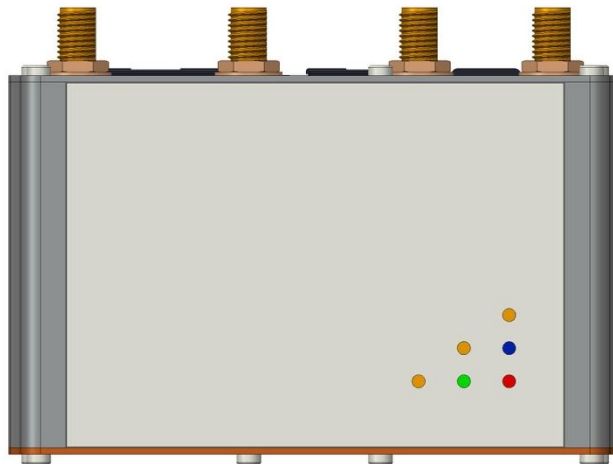
#### Blue – Ethernet ports:

Left: LAN  
Right: WAN or set as 2<sup>nd</sup> LAN


## 5 E210series cable and accessory

Item	Description
<b>Power supply/Cable</b>	
ACC-CA10	4-pin Micro-Fit 3.0(M) to stripped wire with 2.5A fused, 1meter long cable
ACC-PS20-F	4-pin Molex 1.2A power adapter with Euro plug 2-pin - Europe
ACC-PS21-F	4-pin Molex 1.2A power adapter with NEMA 2-pin plug - America
ACC-PS22-F	4-pin Molex 1.2A power adapter with AS3112 3-pin plug - Australia/NZ
ACC-PS23-F	4-pin Molex 1.2A power adapter with BS1363 3-pin plug - UK
<b>Wi-Fi Antenna</b>	
ACC-A21	5-band 2.4/5.8GHz antenna, hinged RP-SMA (M)
<b>Cellular / GPS Antenna</b>	
ACC-A11 or A17A	5-band 850/900/1800/1900/2100MHz magnetic mount antenna, 3 meter cable, SMA(M)
ACC-A03	GPS 1575.42MHz Magnetic mount antenna, 3 meter cable, SMA(M)
ACC-A22	Ultra-wideband 698-960/1575.42/1710-2700MHz L-shaped antenna, hinged, SMA(M)
<b>Miscellaneous</b>	
ACC-DIN	Metal dual mount DIN Rail clip
ACC-CA29	RJ45(M) to RJ45(M), 1meter cable length

## 6 Status LED Indicator



The E210 operation status is indicated by six LEDs as shown above, and described in the below table;

Name	Color and Status	Description
Wi-Fi	OFF	Wi-Fi network is inactive
	Blue ON	Wi-Fi network is activated
	Blue Flashing	Wi-Fi network data transferring
Activity	OFF	Cellular data service is not connected
	Amber ON	Cellular data service is connected
	Amber Flashing	Cellular data transferring
Network	OFF	Not registered on cellular network
	Amber ON	Registered on cellular network (home)
	Amber Flashing	Registered on cellular network (roaming)
Signal	OFF	No signal (CSQ=0 to 5, 97, 98, 99)
	Amber Flashing	Weak signal (CSQ ≤ 12)
	Amber ON	Strong signal (CSQ ≥ 12)
Power	OFF	Power off
	Green ON	Power on
Alert 	OFF	No alert
	Red Flashing	Precaution (i.e. SIM not inserted, LAN not connected)
	Red ON	Hardware fault (i.e. overheated, memory corruption)

## 7 Setup

### 7.1 Prerequisite

Prior to the E210 series router setup:

Activated SIM card

Ethernet cable

Wi-Fi and cellular antenna

Ethernet port or Wi-Fi connectivity with Internet service

Web browser; Internet Explorer 8+, Google Chrome, Mozilla Firefox or Safari for accessing the Maestro Web Admin Console

DHCP set to enable

#### Enabling DHCP on Windows:

**Start menu → Control Panel → Network and Internet**

**→ Network and Sharing Center → Change adapter settings**

**→ Right click on Local Area Connection → Internet Protocol Version 4(TCP/IPv4)**

**→ Properties**

**→ Obtain an IP address automatically & Obtain DNS server address automatically**

#### Enabling DHCP on MAC OS:

**→ Launch System Preferences, then choose Network.**

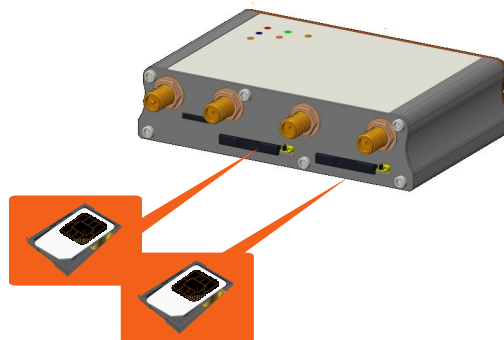
**→ Select Ethernet from the adapters list on the left.**

**→ Set the Configure IPv4 drop-down to Using DHCP**

## 7.2 Connecting the E210 router

### Inserting SIM cards

Eject the SIM tray by pushing the yellow SIM tray eject button inwards, take the SIM tray out from the slot, place the mini-SIM card with SIM chip facing up, and insert the tray back in place carefully.

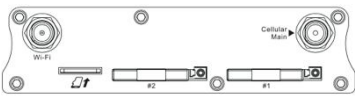
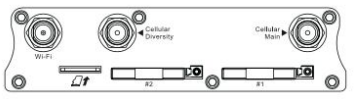
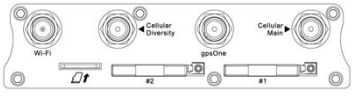


### Connecting the AC power

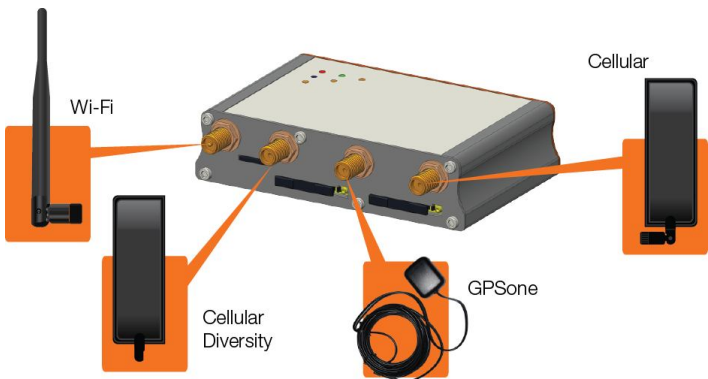
Connect the A.C. power cord as shown below, or you can refer to **Section 4.3** in Green, **D.C. Power**.



Antenna connection

Main	Series	Auxiliary	Picture
Cellular only	E213 E215	N/A	
	E214 E218	Cellular only	
	E214G	GPS and cellular	

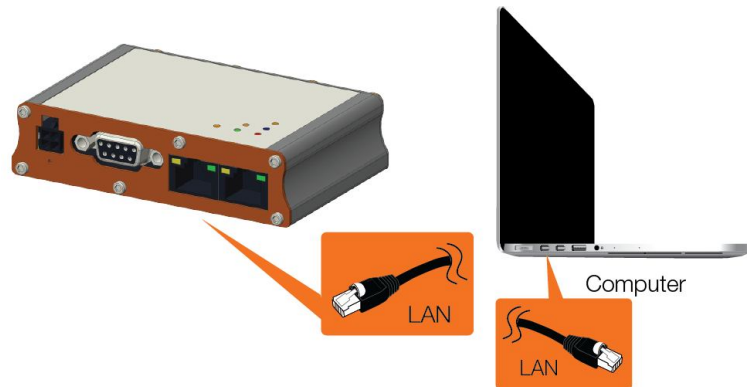
Note: Dual cellular antennae improve data throughput/performance on cellular data transfer rate.



Cellular antenna selections base on frequency bands of cellular networks in individual countries, refer to **Section 3, E210 series compatible models** and **Section 8, Compatible Antenna**, or contact Maestro technical support <https://support.maestro-wireless.com>

## Connecting the router to a computer

Connect an Ethernet cable between the LAN port of the Maestro router and a computer as shown below, or refer to section 4.2 in Blue, **Ethernet ports**.





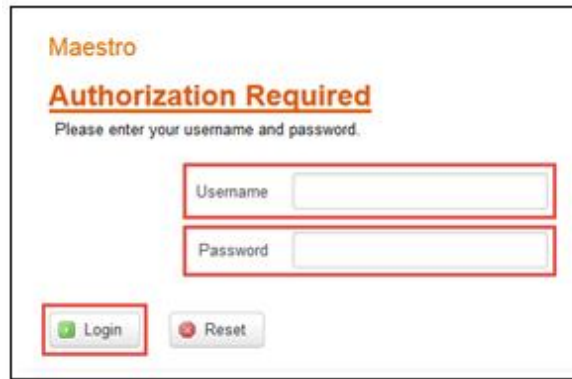
### 7.3 Software Configuration

Open a web browser, use the below default LAN IP address;

Parameters	Details
IP Address (LAN)	192.168.1.1
Username	admin
Password	admin

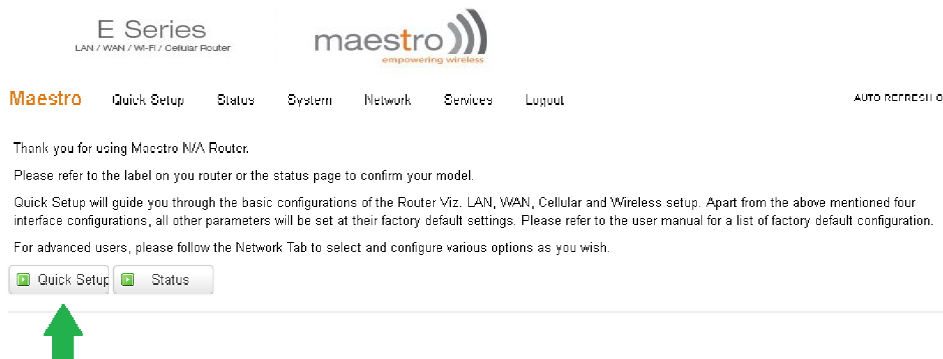
Note: Username and password are both case sensitive.

Enter the above default login credentials when the below appears on the web browser;



The image shows the Maestro web interface's login page. At the top, it says 'Maestro' in orange, followed by 'Authorization Required' in bold orange text. Below this, it says 'Please enter your username and password.' There are two input fields: 'Username' and 'Password', both outlined in red. At the bottom left, there is a 'Login' button with a green arrow icon, also outlined in red. To its right is a 'Reset' button with a red circular icon.

Click **Quick Setup** as shown below to bring the **Network Setup** page;



The image shows the Maestro E Series 'Quick Setup' page. At the top, it says 'E Series' and 'LAN / WAN / Wi-Fi / Cellular Router'. The Maestro logo is also present. Below the header, there is a navigation bar with links: 'Maestro', 'Quick Setup', 'Status', 'System', 'Network', 'Services', and 'Logout'. To the right of the navigation bar, it says 'AUTO REFRESH ON'. The main content area starts with 'Thank you for using Maestro N/A Router.' followed by 'Please refer to the label on your router or the status page to confirm your model.' Then, it says 'Quick Setup will guide you through the basic configurations of the Router Viz. LAN, WAN, Cellular and Wireless setup. Apart from the above mentioned four interface configurations, all other parameters will be set at their factory default settings. Please refer to the user manual for a list of factory default configuration.' and 'For advanced users, please follow the Network Tab to select and configure various options as you wish.' At the bottom, there are two buttons: 'Quick Setup' and 'Status'. A green arrow points to the 'Quick Setup' button.

## Network Setup page;

Maestro
Quick Setup
Status
System
Network
Services
Logout

### Network Setup

Local Network

IPv4-Address
192.168.1.1

IPv4-Netmask
255.255.255.0

IPv4-Gateway

WAN

Protocol
automatic

Cellular

APN
msedclgprs.com

PIN

Username

Password

WiFi

Enable
☒

SSID
admin

Password
\*\*\*\*\*


Save & Apply
Save
Reset

If default settings need to be changed, settings can be manually configured for **LAN, WAN, Cellular** and **Wi-Fi**, then you can click **Save & Apply** to store the configuration.

In **Cellular**, all fields depend on SIM cards provider/cellular network operator, enquire with them for authentication credentials, if needed.

After all of above procedures, cellular connection should be established in about one minute with adequate signal reception (if the default setting is used).

To see the status of the cellular connection, from the pull-down menu at the top, click **Status** and scroll down to **Cellular** as shown below;

<div> <div>E Series</div> <div>LAN / WAN / Wi-Fi / Cellular Router</div> </div> <div> <div>maestro</div> <div>empowering wireless</div> </div>	
<div> <div>Maestro</div> <div>Quick Setup</div> <div>Status</div> <div>System</div> <div>Network</div> <div>Services</div> <div>Logout</div> <div>AUTO REFRESH ON</div> </div>	
Cellular	
Cellular Data	Connected 
Signal Strength	17
Network Status	Registered
Operator Name	CMHK
Operator Number	45413
Operator Type	3G
Roaming Status	HOME
SIM Status	READY
IMSI	454120414465673

## 8 Compatible Antenna

### Wi-Fi antenna

5dBi gain  
Peak gain: 3.8dBi@2.4GHz ~2.5GHz  
RP-SMA(M), hinged  
RoHS Compliant

### WWAN antenna

2dBi gain (minimum)  
Operating frequency in the used LTE bands  
SMA, hinged  
RoHS Compliant

### USA local contact: Telefield North America

Shaun Elliott, Telefield North America, Suite 205, 4915 SW Griffith Drive  
Beaverton, OR 97005, USA Telephone: +1 503-734-8749

or further support on Maestro products, please visit Maestro support website,  
<http://support.maestro-wireless.com/>

## Conformity

### 1 Federal Communications Commission (FCC) Compliance Statement

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

This device may not cause harmful interference.

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

**1.2** This device has been tested and found to comply with the limits for a Class B digital 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.

**1.2.1** If not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Here is no guarantee that interference will not occur in a particular installation.

**1.2.2** 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.

**1.3 FCC Caution:**

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

### 2 FCC RF Exposure statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

### 3 ISED Notice

This device complies with Innovation, Science and Economic Development 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.

Le présent appareil est conforme aux CNR 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, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### 4 ISED RF Exposure Information

This device complies with ISED radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the ISED radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la ISED CNR-102 définies pour un environnement non contrôlé. Afin d'éviter la possibilité de dépasser les limites d'exposition aux fréquences radio de la ISED CNR-102, la proximité humaine à l'antenne ne doit pas être inférieure à 20 cm (8 pouces) pendant le fonctionnement normal.