

RoamAbout™ R2 Wireless Access Platform

802.11a/b/g Radio Card

Quick Installation Guide

This document provides the RoamAbout R2 Wireless Access Platform 802.11a/b/g radio card installation information, Radio Certification and Regulatory information.

This document may not contain the latest Regulatory information, check the web site for the latest information at: www.enterasys.com/products/wireless.



Caution: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



Note: You must be running RoamAbout R2 Wireless Access Platform firmware Version 6.xx, or higher, to use the 802.11 a/b/g card. The RoamAbout AP Manager Kit 11.06, or higher, contains the latest firmware. To download the latest version of firmware, go to www.enterasys.com/software/RoamAbout/APMAN

Wireless LAN and Your Health

Wireless LAN products are radio devices that emit radio frequency electromagnetic energy. The level of energy emitted by a Wireless LAN device is much less than the electromagnetic energy emitted by devices like mobiles phones.

Because Wireless LAN products operate within the guidelines found in radio frequency safety standards and recommendations, Enterasys Networks believes this product is safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

Important Safety Instructions

When using this product, always follow the basic safety precautions to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Always install the products as described in the documentation that is included with your product.
2. Do not use the product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
3. Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.
4. Do not use this product to report a gas leak in the vicinity of the leak.

Regulatory Information

You must install and use this device in strict accordance with the manufacturer's instruction as described in the user documentation that is included with your product.

Before you follow the instructions or use of this product, carefully read the contents of this document for device-specific constraints or rules that may apply in the country where you want to use this product. The user must always ensure that country and/or channel selection of Peer-to-Peer groups or Base Station Networks match the regulations of the country of operation.

In some situations or environments, the use of wireless devices may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may, for example, include:

- Using the wireless equipment on board airplanes, or
- In any other environment where the risk of interference to other device or service is perceived or identified as harmful.

If you are uncertain of the policy that applies to the use of wireless equipment in a specific organization or environment (e.g., airplane), you are encouraged to ask for authorization to use this device prior to turning on the equipment.

The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of the device, or the substitution, or attachment of connecting cables and equipment other than specified by the manufacturer. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The manufacturer and its authorized resellers or distributors are not liable for any damaged or violation of government regulations that may arise from failing to comply with these guidelines.

Canada - Industry Canada (IC)

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

cet appareil de la class B respecte toutes les exigences du Reglement sur le materiel brouiller du Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

This device has been designed to operate with an antenna having a maximum gain of 4dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Country Specific Power Limits and Restrictions

A	B	DK	FIN	Member states in EU with restrictive use for this product are crossed out! <i>Les états membres de l'Union Européenne avec une utilisation restrictive de ce produit sont rayés !</i> Mitgliedsstaaten der EU mit eingeschränkten Nutzungsrechten für dieses Produkt sind herausgestrichen <i>Gli Stati membri nella Comunità Europea (EU) con restrizioni sull'uso di questi prodotti sono contrassegnati di seguito!</i>
F	B	IRL	I	
CHE	NOR	NL	P	
S	UK	L	SR	
ISL	E			

The following is the CE1243 notice.

 1243 	Important Notice: Low power radio LAN product operating in 2.4 / 5GHz band for Home and Office environments. Please refer to flyer/manual for details on restrictions.
Notice Importante : Produit réseau local radio basse puissance opérant dans la bande de fréquence 2.4 / 5 GHz pour les environnements bureautiques et résidentielles. Merci de vous référer au manuel pour les détails des restrictions	
Wichtige Mitteilung Low Power FunkLAN Produkt für den Home- und Office-Bereich, das im 2.4 / 5GHz Band arbeitet. Weitere Informationen bezüglich Einschränkungen finden Sie im Datenblatt/Handbuch	
Nota Importante: Apparati Radio LAN a bassa potenza, operanti a 2.4 / 5 GHz, per ambienti domestico ed ufficio. Fare riferimento alla Guida d'Utente per avere informazioni dettagliate sulle restrizioni	

Integral and External Antenna Configurations

Except where noted the operation distance between the antenna and any other person's body (including hands, wrists, feet and ankles) must be at least 20 cm (8 in.).

Exposure to Radio Frequency Radiation



Caution: To comply with the FCC RF exposure compliance requirements, the following antenna installation and device operating configurations must be satisfied for integral and external antenna configurations:

- The operation distance between the antenna and any other person's body (including hands, wrists, feet and ankles) must be at least 20 cm (8 in) unless indicated.
- The RBTBH-R2W is only approved for use with the external antenna models listed in the following table.



IMPORTANT INFORMATION:

- When an external antenna (outdoor or indoor Range Extender Antenna) is connected to the radio card, channel 52 and below are removed from the available channel list of the AP. If the AP is already active on one of those channels when an antenna is plugged in, the AP automatically switched to a country approved channel. To make channel 52 active again when using an Indoor Range Extender Antenna, select **Indoor Range Extender** via the console or SNMP (AP Manager).
- To meet FCC limits, our high-gain outdoor antennas cannot be used with channel 52.
- When an external antenna is connected, channel 64 is lowered by 2 dB for outdoor antennas, but runs at full power when the **Indoor Range Extender** option is selected via the console or SNMP (AP Manager).

Antenna Model	Antenna Type	Antenna Gain
RBTBH-IA	2.4 GHz Indoor Range Extender	2 dBi
	5 GHz Indoor Range Extender	4 dBi
RBTES-BG-M08M	2.4 GHz Omnidirectional	8 dBi
RBTES-BG-Y15M	2.4 GHz Yagi Directional	15 dBi
RBTES-BG-S1490M	2.4 GHz Sector Panel	14 dBi/90°
RBTES-BG-P18M	2.4 GHz Directional Panel	18 dBi
RBTES-BG-PAR24M ¹	2.4 GHz Parabolic Grid	24dBi
RBTES-AM-M10M	5.25-5.35 GHz Omnidirectional	10 dBi
RBTES-AH-M10M	5.725-5.825 GHz Omnidirectional	10 dBi
RBTES-AH-P23M	5.725-5.825 GHz Directional	23 dBi
RBTES-AW-S1590M	4.9-5.8 GHz Adjustable Sector	15 dBi/90°
		16 dBi/60°
¹ The operation distance between the antenna and any other person’s body (including hands, wrists, feet and ankles) must be at least 28 cm (11 in.) for this antenna.		

Approved Countries

The following table provides the configuration for approved countries.

Country IEEE 802.11a/b/g RoamAbout PC Card			
	802.11a	802.11b/g	Comments
Austria (A)	5150 – 5250-MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
Belgium (B)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors) 2460 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
Denmark (DK)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 -2483.5 MHz < 100 mW EIRP	
Finland (FIN)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
France (F)	5150 – 5250 MHz only < 200 mW eirp (Indoors) Not allowed (Outdoors)	1>2400 -2483.5 MHz < 100 mW eirp (Indoors), 1>2400 – 2454 MHz < 100 mW eirp (Outdoors) 1>2454 – 2483.5 MHz < 10 mW eirp (Outdoors) 2>2400 – 2483.5 MHz < 100 mW (Indoors) < 100 mW (Outdoors) 3>2400 – 2483.5 MHz < 100 mW (Indoors) 3>2400 -2420 MHz Not allowed (Outdoors) 3>2420 – 2483.5 MHz < 100 mW (Outdoors)	1> Metropolitan France 2> Guadeloupe, Martinique, St Pierre et Miquelon, Mayotte 3> Réunion and Guyana
Germany (D)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
Greece (EL)	5150 -5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoor use only)	

Country IEEE 802.11a/b/g RoamAbout PC Card			
Hungary (HU)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoor use only)	
Iceland (ISL)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
Ireland (IRL)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	1>2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	1> provision of services to the public is permitted. Public service provider is required to hold an appropriate Telecommunications Licence (ref. ODTR 98/44R).
Italy (I)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	1>2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	1> If used outside of own premises, general authorization is required.
Lithuania (LT)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
Luxembourg (L)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	1>2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	1> System provider for third party traffic may require a Telecommunications Act Licence.
Norway (NOR)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors) Not permitted at Ny-Ålesund.	* Norwegian Post and Telecommunications Authority: List of radio communications equipment that does not have to be notified according to Art. 6.4 in the R&TTE Directive (1999/5/EC) > RLAN (2.4 – 2.483.5 GHz, 5.15 – 5.35 GHz & 5.47 – 5.725 GHz)
Netherlands (NL)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors)	
Portugal (P)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
Spain (E)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors)	
Sweden (S)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	

Country IEEE 802.11a/b/g RoamAbout PC Card			
Switzerland (CHE)/ Liechtenstein (LI)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	
United Kingdom (UK)	5150 – 5250 MHz only < 200 mW EIRP (Indoors) Not allowed (Outdoors)	1>2400 – 2483.5 MHz < 100 mW EIRP (Indoors & Outdoors)	1> System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunications Act Licence.
<i>The user is responsible for compliance with the conditions of assignment and for the consequences of any violation, corrective action, or offence.</i>			

USA - Federal Communications Commission (FCC)

This device complies with Part 15 of FCC Rules. Operation of the device is subject to the following two conditions (1) This device may not cause harmful interference, and (2) this device must accept any interference that may caused undesired operation.

Federal Communications Commission Notice

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. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a residential 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 encourage to try to correct the interference by one or more of following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to 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.
- If you have a problem with your wireless equipment, such as interference from your equipment to a Mobile Object Identification System (RF-ID), contact your authorized reseller or manufacturer.

Radio Approval

Use the following table to determine whether you are allowed to use your wireless device in the countries listed below. You can find the radio transmitter number of your device on the identification label of your wireless device.

Country	Enterasys Part Number	Approval Number
USA	RBTBH-R2W	FCC ID: QXO-RBTBHR2W
Australia	RBTBH-R2W	N826
Canada	RBTBH-R2W	IC: 4138A-RBTBHR2W
Europe	RBTBH-R2W	CE1243
New Zealand	RBTBH-R2W	N826
Mexico	RBTBH-R2W	

Channel Information

802.11a

- US/Canada/Mexico: 12 non-overlapping channels (5.15 - 5.35 GHz, 5.725 - 5.825 GHz)

Channel Frequencies and Channel Numbers for Operating in the US are listed in the following table.

Frequency Band	Channel Number	Center Frequencies
U-NII lower band 5.15 - 5.25 GHz ¹	36	5.180 GHz
	40	5.200 GHz
	44	5.220 GHz
	48	5.240 GHz
U-NII middle band 5.25 - 5.35 GHz	52	5.260 GHz
	56	5.280 GHz
	60	5.300 GHz
	64	5.320 GHz
U-NII upper band 5.725 - 5.825 GHz	149	5.745 GHz
	153	5.765 GHz
	157	5.785 GHz
	161	5.805 GHz

¹ 5.15 - 5.25 GHz is for indoor use only.

- Europe: 4 non-overlapping channels (5.15 - 5.25 GHz)
- Channel Frequencies and channel numbers for operating in Japan are listed in the following table:

Frequency Band	Channel Number	Center Frequencies
U-NII lower band 5.15 - 5.25 GHz ¹	34	5.170 GHz
	38	5.190 GHz
	42	5.210 GHz
	46	5.230 GHz

¹ 5.15 - 5.25 GHz is for indoor use only.

802.11b/g

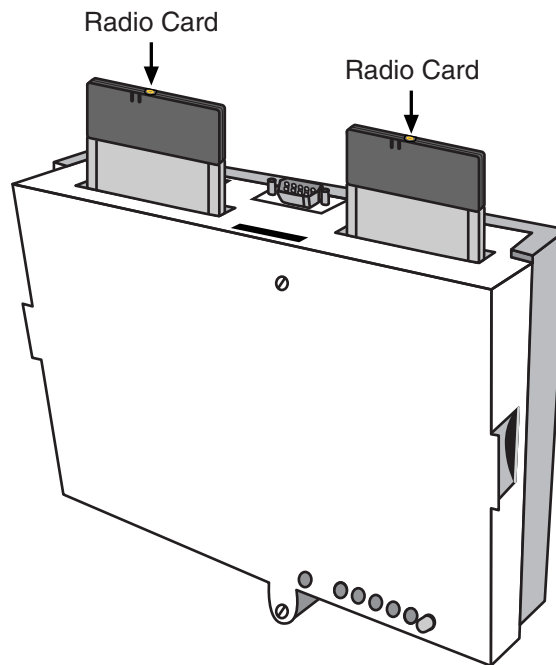
US/Canada: 11 (1 ~ 11)

Europe: 13 channels (1 - 13)

Radio Card Installation

Refer to the *RoamAbout R2 Wireless Platform Hardware Installation Guide* to install the RoamAbout R2.

1. Refer to the Regulatory and FCC requirements located in this document before you install the radio card into the RoamAbout R2.
2. Ensure that the power to the RoamAbout R2 is off.
3. To install the Radio Card, perform the following steps:
 - a. Carefully insert the card into the radio card slot.
 - b. Press down firmly to seat the card. The following figure shows two radio cards inserted into the RoamAbout R2 (with the mezzanine option).



4. Refer to the *RoamAbout R2 Wireless Platform Hardware Installation Guide* for cabling and startup information.

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