



ASR-102-G

802.11g Wireless Access Point

Technical Manual



www.otcwireless.com



ASR-102-G

Wireless Access Point Technical Manual Copyright

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Chapter 1 Introduction

ASR-102-G is an IEEE-802.11g compliant, maximum data rate of 54Mbps, full functional wireless Access Point, which provides seamless incorporation of a wireless network into an existing wired LAN infrastructure. Existing wired-network resources such as DHCP, VPN, firewall, etc., reach across the ASR-102-G to the wireless client workstations with total transparency. ASR-102-G wirelessly incorporates a group of workstations or other kinds of devices with wireless connectivity into a wired network—just like a hub and switch.

ASR-102-G can be used wherever an 802.11 wireless AP is appropriate. The portable, compact form-factor of ASR-102-G, in conjunction with its non-intrusive nature, makes it ideal for quick deployment of wireless network at events that involve rapid setup: temporary offices, trade-shows, meetings, temporary POS, etc. There is no need to request an IP address for the AP ahead of the time for it to perform its networking functions. There is no worry about functionality conflicts with the incumbent network setup when traveling to a temporary event. Traveling businessmen can also carry this portable AP on the road to gain mobility in hotels.

In addition to higher speed, the ASR-102-G AP fully supports the current wireless security standard in force. The ASR-102-G AP supports the 64 and 128-bit WEP encryption and WPA – Wi-Fi Protected Access. WPA offers unprecedented wireless security including both access control with 802.1X and communications confidentiality with dynamic TKIP encryption. Please contact OTC for tutorial material on WPA. ASR-102-G may interoperate with any WPA-compliant station radios, including OTC's ACR-201-G, and their attached workstation.

ASR-102-G also offers MAC-address-based access control. This access control used in conjunction with the WPA for data encryption provides the highest degree of security for the wireless network.

ASR-102-G includes a built-in Web server providing a web-based administration utility to configure, monitor, and manage the radio. The network operator can access the ASR-102-G from any immediate or remote host with a Web browser on the connected network. Once the ASR-102-G is properly configured to match up with your wireless network, the radio runs self-sufficiently without the aid of any driver program or connected Web browser.

ASR-102-G 802.11g Access Point

Key Features

- ❑ Portable form factor and transparency to network settings allow quick deployment, especially suitable for temporary wireless network
- ❑ Industry standard IEEE 802.11g-compliant wireless interface; Interoperable with compatible 802.11g as well as 802.11b Station radios from all vendors
- ❑ Highest degree of security provided by the *WPA capability*, including WEP of 64 and 128 bits.
- ❑ Tight access control provided by checking the MAC-address of the Stations
- ❑ 54Mbps data rate at maximum and automatic selection of a suitable lower data rate in degraded RF environment
- ❑ Integrated omni-directional-antenna to provide best tradeoff between link-quality and portability
- ❑ Remote network management achievable through embedded web-based Administration Utility, accessible from any Web browser
- ❑ Capable of Remote firmware/software upgrade through web-based administration utility

Specifications

Model	ASR-102-G
Standard	802.11 and 802.11g; WPA
Host Interface	Ethernet, 100/10 Base T, 802.3, RJ-45 receptacle
Frequency	2.4GHz – 2.497GHz
RF Channels	11 channels (US, Canada, Brazil, Australia, New Zealand) 13 channels (Europe, except France) 4 channels (France, Mexico)
Transmission power	14dBm at antenna input typical
Receiver sensitivity	-65dBm@54Mbps, -80dBm @11Mbps, at 1e-5 BER typical
Antenna	Dipole antenna with ~2dBi gain
Data Rate	1/ 2/ 5.5/ 6/ 9/ 11/ 12/ 18/ 24/ 36/ 48/ 54 Mbps, fixed or automatic rate selection
Modulation	OFDM with BPSK, QPSK, 16QAM, 64QAM (11g) CCK, DQPSK, DBPSK (11b)
Max. Link Distance	~1200 ft in open space
Network Types	Support both the ad hoc mode and the infrastructure mode
Data Encryption	Support the WPA: Wi-Fi Protected Access standard for highest level of access control and communications security. Support standard 64-bit WEP and the optional 128-bit WEP.
Input Power	5 VDC
Current consumption	<500mA (max. reached in transmit-mode)
LED Indicators	4: Power, Transmission, Receiving, Link/Ethernet-connection
Operating Temper.	-10°C – +60°C
Regulatory Compliance	<u>Safety</u> UL 1950, 3rd edition CSA-C22.2 No. 950-95, 3rd edition IEC60950, 2nd edition, 1991+A1, 1992+A2, 1993+A3, 1995+A4, 1996 EN60950, 2000 <u>EMC/Wireless</u> FCC Part 15, Class B, FCC 15.247 RSS-210 ETSI EN 300 328-1, ETSI EN 300 328-2, ETSI EN 301 489-1, ETSI EN 301 489-17
Physical Dimension	2.125" W x 4.625" L x 0.7" D

Chapter 2 Installation and Basic Operation

Safety Statements

Use only the power adapter provided with this product or other OTC authorized replacement power adapter. Connect the power adapter to a properly grounded electrical outlet that is near the product and easily accessible.

Refer service or repairs, other than those described in the user documentation, to a professional service person.

Installing the Hardware

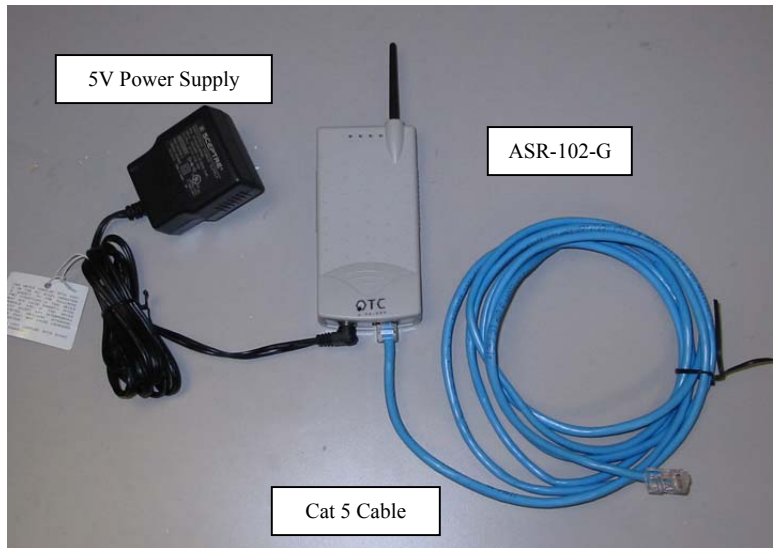
Power

Power is supplied to the radio via the supplied DC power adapter.

WARNING: Do not exceed more than 12A@120VAC or 6A@240VAC total current connected to the DC adapter.

Ethernet Connection

The ASR-102-G connects to an Ethernet port of a switch or hub with the supplied *blue* cross-over UTP cable. To connect to a router, a DSL or cable modem, or a computer, use the *white* straight-through UTP cable supplied. Use the status-LED below as a guide to assure that the correct type of Ethernet cable is used.



Status LED's

Use the proper UTP cable to connect the 100/10BaseT port (which resembles an oversized telephone jack) on the ASR-102-G to the 100/10BaseT port of the network equipment (router or switch). Power on the ASR-102-G, the LED's on the front panel should exhibit the following patterns:

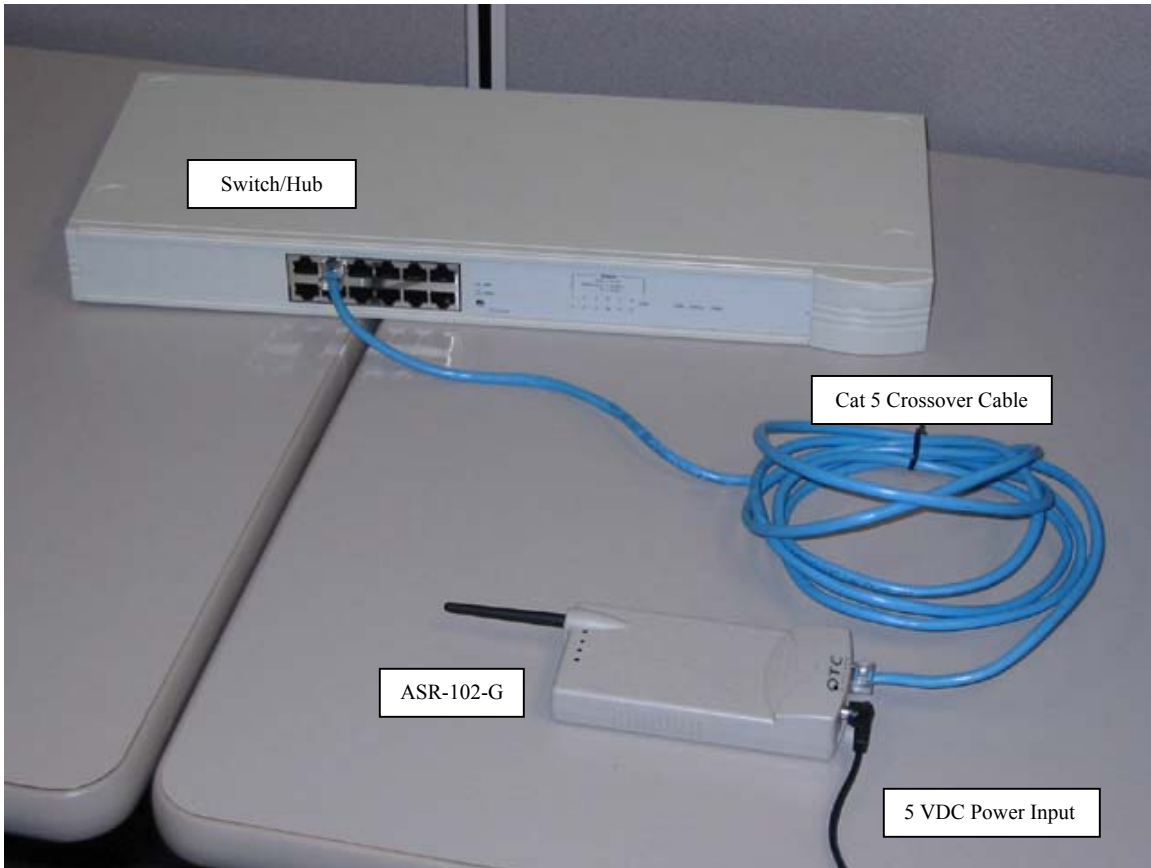
LED	Color	Light Pattern
ON	Red	Steady ON
RX	Green	Steady ON
TX	Red	Blinking ON, when transmitting wireless signal
LINK	Yellow	Blinking ON, when communicating over the Ethernet port; Steady OFF, when Ethernet connection is not present.

If the yellow LED stays off, then the Ethernet connection to the Ethernet port is not made. Check your UTP cable and make sure that the correct type (straight-through or cross-over) of UTP cable is used. If one cannot communicate and the yellow LED is on, you

may want to re-position the ASR-102-G to a different location for better RF transmission/reception. You may also want to check if the unit is configured with the proper RF channel and security settings by using the Web-based Administration Utility.

Once the hardware is checked out to work properly with the network equipment, the radio can be secured in the desired location by the pair of Velcro tabs.

Typical Installation:



Chapter 3 Web-Based Administration Utility

System Requirements for Using Web-Based Administration Utility

Your computer must meet the following requirements in order to access the ASR-102-G web-based Administration Utility:

- (1) A Web browser must be installed on the computer. The supported Web browsers include Internet Explorer 5.0 and above, Netscape 6.0 and above, Mozilla 1.0 and above. **JavaScript for the browser must be enabled.**
- (2) Ethernet capable computer with RJ-45 port (either built-in or add-on NIC).
- (3) A network (or direct) connection to the ASR-102-G with proper IP addressing.

No installation of any other software program is necessary.

Use the Web-Based Administration Utility

Once the ASR-201-G radio is properly turned on and connected either directly or through network to a compute, the Web-based Utility is ready for use. To access the web-based administration utility, open a Web browser and type in the IP address of the ASR-102-G AP in the address bar. For factory default IP settings, see below:

The factory default IP settings:

IP address: 169.254.98.201

Subnet mask: 255.255.0.0

Gateway: 169.254.1.1

User name: admin

Password: public

NOTE: *The IP address of the network interface of the computer must be in the same IP subnet as the IP address of ASR-102-G radio. For example, the computer network interface should have an IP address like **169.254.1.100***

Warning: *You must keep good record of the IP settings, if changed. Else, you won't be able to access the Administration Utility.*

Upon initial connection with the Administration Utility Web site, a user login page will be shown at the Web Browser. Enter the correct user name and password which you may have modified last time. Otherwise, use the factory default settings shown above.

Overview of the Web Pages

ASR-102-G web-based administration utility allows you to set and modify many operating parameters of the AP. The parameters are organized into nine categories and each category has its own web page. The categories are: *Info*, *Assoc*, *Wireless*, *Access*, *Advanced*, *Security*, *IP Addr*, *Admin*, and *Help*. Each category can be accessed by clicking the tabs at the top of all web pages as shown in the following figure.



Tabs Linking to Different Web Pages

The Home Page: the “Information” Page

The home page, which is the Info page, is shown below. The home page can be re-accessed and refreshed by clicking on the “Info” tab. The title box just below the OTC logo tells you the current page being accessed. In this case, it is the “Information” page. The purpose of each web page is briefly explained in the area to the right of the title box. The remainder of the page shows the parameters in their groups.

ASR-102-G Access Point	
Info Assoc Wireless Access	
Advanced Security IP Addr Admin Help	
Information	Basic information about this access point. NOTE: You may have to reload this page to see the current settings.
Access Point Information	
Access Point Name:	ASR-102-G AP
MAC address of AP:	0060B31398F8
Associated stations:	0
MAC Firmware version:	1.0.4.3
ASR-102 Firmware version:	3.0.0
Current IP Settings	
IP address:	169.254.98.201
DHCP client:	disabled
Current Wireless Settings	
Operational PHY Profile:	802.11b/g Mixed Mode
Wireless network name (SSID):	ASR-102-G
Channel:	1
WEP:	disabled
WPA:	disabled

Home Page: Information Page

Configuration Parameter Organization

The following organization tree displays the web pages and the parameters in groups.

Web Page

Info (display current radio settings and connection status)

Group

Access Point Information

Access Point Name:
MAC address:
Associated stations:
Radio Firmware version:
Bridge Firmware version:

Current IP Settings

IP address:
DHCP client:

Current Wireless Settings

Profile:
SSID:
Channel:
WEP:
WPA:

Assoc (display the associated stations' MAC addresses)

MAC address

- List of associated station radios

Wireless (allow the user to modify wireless configuration parameters)

Visibility Status:
PHY Profiles:
SSID:
Channel:
Transmission rate (Mbps):

Access (set allowable station MAC addresses)

Enable access control
MAC address 1:
MAC address 2:

MAC address 8:
Transmission rate (Mbps):

Advanced – (set detailed wireless operating parameters)

Maximum associated stations:

Fragmentation threshold:
RTS threshold:
Beacon period:
DTIM interval:
Maximum burst time:
Enable PSM buffer:

Security (set WPA, 802.1X, and WEP parameters.)

WPA configuration

WPA enabled:
PSK pass-phrase
(select either ASCII or HEX format)
WPA Multicast Cipher Type:
WPA Pairwise Cipher Type:
WPA Group Key Update Interval:

802.1X configuration

802.1X enabled:
Authentication timeout (min's):
RADIUS server IP address:
RADIUS server port number:
RADIUS server shared secret:
MAC Address Authentication:

WEP configuration

Enable WEP:
WEP key lengths:
WEP key:
Default WEP key to use:
Deny unencrypted data:
Authentication:

IP Addr (set IP Settings for web-based administration utility purpose)

IP Address

IP Address Mode:
Default IP address:
Default subnet mask:
Default gateway:
MAC address 1:

Access point name

Access point name

Admin (configure the radio administration settings)

Administrator

User name:
Administrator password:

Commands

Reboot access point:
Reset to factory defaults:

Upgrade firmware

File to upload:
Upload:

[Help](#) (Help and Support Information)

- Information on technical support

Configuration Parameter Setting

The Web pages have been designed to explain the parameters clearly in place. The same information would not be duplicated in this Technical Manual. The following shows one example page where an administrator sets parameter values. Observe that the meaning of each field is clearly explained. The check boxes and dropdown list of valid values are provided wherever applicable in some web pages.

OTC WIRELESS		ASR-102-G Access Point			
		Info	Assoc	Wireless	Access
		Advanced	Security	IP Addr	Admin
		Help			
Administration	On this page you can change the password, reboot the access point, or reset all settings to their factory defaults. If you have changed any settings it is necessary to reboot the access point for the new settings to take effect.				
User name:	<input type="text" value="admin"/>				
This is the user name that you must type when logging in to these web pages.					
Administrator password:	<input type="password" value="XXXXXXXX"/>				
This is the password that you must type when logging in to these web pages. You must enter the same password into both boxes, for confirmation					
<input type="button" value="Save"/> <input type="button" value="Cancel"/>					
Commands					
Reboot access point:	<input type="button" value="Reboot"/>				
Reset to factory defaults:	<input type="button" value="Reset"/>				
Upgrade firmware	File to upload: <input type="text"/> <input type="button" value="Browse..."/>				
<input type="button" value="Upload"/>					
The upload may take up to 60 seconds.					

Example: Administration Page

Chapter 4 Troubleshooting

No Page Displayed When Accessing the Web-based Utility

This is either because the radio is extremely busy on the RF side or because the Ethernet connection is problematic. Try hitting the “Refresh” or “Reload” button of the Web browser a few times. If the same message persists, it is unlikely that the problem is caused by a busy radio. Check your Ethernet connection. Make sure you use at least a legitimate CAT-3 cable, but preferably a CAT-5. Make sure that it is a straight-through cable between the radio and the computer, or a crossover cable between the radio and the hub, if a hub is involved. Check to make sure that the Ethernet card of the computer running the Web-based Utility program is functional and has a correct IP address and subnet mask setting.

No Radio Link

Check the following possible causes:

- Make sure that the target radio, the Station, is turned on and operating properly.
- Make sure that the “Signal Strength” indicator on the target Station radio’s utility program is not zero. A minimum of 20% is recommended. If the “Signal Strength” is less than 20%, the distance between the ASR-102-G and the targeted Station radio may be too far. Decrease the distance to see if the radio link can be established.
- Make sure that the target Station radio’s SSID is “*any*” or “*ANY*” or the same as that for the ASR-102-G Access Point.
- If the WPA is turned on, make sure that the entire chain of necessary configuration from the host supplicant to the RADIUS is properly configured. If you only turned on WEP and/or 802.1X, again make sure that all the necessary configuration is correct.
- For troubleshooting purposes, turn off all the security settings and see if the station radio and the AP can be linked.
- Make sure that the target Station radio’s MAC address is added to the “Allowed Station List” if this feature on ASR-102-G is turned on.
- Make sure that there is no RF interference present in the radio network.

No Network Connection While the Radio Link is Good

If the target Station radio’s utility indicates good “link quality” with ASR-102-G, but the host computer/device cannot be connected to the network

- Make sure that the Yellow LED on the radio is NOT constantly ON. If it is, Ethernet connection is questionable.
- Make sure the Ethernet Adapter of the host computer/device is properly installed.
- Make sure that the UTP cable connecting the ASR-102-G radio and the network equipment (switch or router) meets at least the CAT-3 standard and has the correct straight-through or cross-over connection. Perform similar checks of the Ethernet cable connection of the target Station radio to its host device.
- Make sure that the IP address of the host computer/device connected to the target Station radio is properly set up for the network.

Poor Link Quality

If the “Signal Strength” is reasonably high (>20%) and the “Link Quality” is not zero, but the “Link Quality” stays in the Poor range, it could be due to one of the following reasons:

- Make sure that **radio interference** is not present in the radio network.
- Make sure that the radio is not surrounded by many strongly reflecting (metallic) surfaces. With multiple reflecting surfaces between the radio in question and the target radio, a severe “**multi-path**” problem may introduce high bit error rate despite a strong “Signal Strength”.
- Make sure that there is not a condition of severe **packet collision** caused by a “hidden node” problem. A “hidden node” problem is the situation where the RF signal from two or more Station radios cannot reach each other (but can reach the AP). In such situation, multiple Stations may attempt to transmit data packet to the AP at the same time and therefore cause packet collision. To solve this problem, either re-arrange the Stations in question such that the RF signals are mutually sensible by all Stations, or turn-on the RTS/CTS protocol by setting the “[RTS threshold](#)” on the “Config” tab to a reasonably small value (500, for example). There is no guarantee that the packet collision can be entirely eliminated by invoking RTS/CTS protocol, but the severity can be reduced enough to see visible improvement of the link quality.

Radio Interference

You may be able to eliminate RF interference by trying the following:

- Find the “channel” used by the source of the interference and coordinate your network and the interference source to be on channels that are at least 20MHz, but preferably 30MHz, apart.
- Reseat the ASR-102-G radio to a location where the interference is minimized for all Station radios in the network.
- Avoid using 2.4GHz cordless phone in the vicinity of the radio
- Keep the computer with the ASR-102-G radio and its associated Station radios away from the microwave oven and large metal objects.
- Consult the dealer or an experienced radio technician for help.

Settings Appear not to be Modified

Check the version of the software to be upgraded and the software currently running in the ASR-102-G AP radio. If they are the same, you must click “Reset to factory defaults” button on index.html page to make software upgrading take effect. This upgrade effectively overwrites the current software with a different set of factory defaults.

Adapter Settings and Password Recovery

You can recover the adapter’s settings by uploading the saved template file back to the adapter (see section “Use Settings Template” for details). The template file contains valuable information in case you forgot the IP address, user name or password, as long as you saved the settings to template right after you made any configuration change. Simply open the template file in a web browser. You can see the device’s IP address listed in the “Device current IP address” field. If you forgot the user name and password, you can open the template file with a text editor, and search for “user name” and “password”. The corresponding values are listed as the value attributes for these two fields.

IMPORTANT: please save your configuration to template right after you have any change so that you can recover your settings.

Technical Support

Please contact OTC Wireless for Technical Support.

E-mail: support@otcwireless.com

Telephone: 1-800-770-6689 (Inside USA), 011-510-490-8288 (Outside USA)

Appendix A: Limited Warranty

The seller warrants to the end user ("Customer") that this product will be free from defects in workmanship and materials, under normal use and service, for one (1) year from the date of purchase from the seller or its authorized reseller. The seller's sole obligation under this express warranty shall be, at the seller's option and expense, to repair the defective product or part, or deliver to Customer an equivalent product or part to replace the defective item.

All products that are replaced will become the property of the seller. Replacement products may be new or reconditioned.

Appendix B: Regulatory Compliance

Federal Communications Commission (FCC) Compliance Information Statement

FCC Part 15 Declaration of Conformity (DoC)

The following equipment:

Product Name: Wireless Ethernet Adapter

Model Number: AirEZY2411-BT WLAN is herewith confirmed to comply with the requirements of FCC Part 15 rules. The 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.

FCC ID: MKZWEA11G03682

A declaration of conformity with the requirements of the directives is available from OTC Wireless, Inc. 48507 Milmont Drive, Fremont, California 94538, USA
1-800-770-6698 (USA); 011-510-490-8288 (International)

FCC Rules and Regulations - Part 15

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. 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.

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 unplugging the equipment and then plugging it back in, 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.

Caution: Changes or modifications not expressly approved by OTC Wireless could void the user's authority to operate the equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Exposure to Radio Frequency Radiation

Caution: The radiated output power of this device is far below the FCC radio frequency exposure limits. In order to avoid the possibility of exceeding the FCC radio frequency

exposure limits, a minimum separation of 20 cm (8 inches) is recommended between the antenna and any persons.

Industry Canada compliance statement

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

This device complies with Industry Canada specification RSS-210. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF fields in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's Web site: www.hc-sc.gc.ca/rpb.

Avis de conformité aux normes d'Industrie Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.


Cet appareil est conforme à la spécification RSS-210 d'Industry Canada. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne peut engendrer aucune interférence et (2) il doit accepter toute interférence qu'il reçoit, y compris celles qui peuvent altérer son fonctionnement.

Pour éviter toute interférence radio au service sous licence, cet appareil est conçu pour être utilisé à l'intérieur et loin des fenêtres afin de garantir une protection optimale. L'équipement (ou son antenne émettrice) est soumis à l'obtention d'une licence s'il est installé à l'extérieur.

L'installateur de cet équipement radio doit veiller à ce que l'antenne soit implantée et dirigée de manière à n'émettre aucun champ HF dépassant les limites fixées pour l'ensemble de la population par Santé Canada. Reportez-vous au Code de sécurité 6 que vous pouvez consulter sur le site Web de Santé Canada: www.hc-sc.gc.ca/rpb

European Community (EC) Directives Conformity and Restrictions

This product is in conformity with the protection requirements of EC Council directives 89/336/EEC, 73/23/EEC, and 1999/5/EC on the approximation and harmonization of the laws of the Member States relating to electromagnetic compatibility, safety of electrical equipment designed for use within certain voltage limits and on radio equipment and telecommunications terminal equipment.

Compliance is indicated by the CE marking 

Hereby, OTC Wireless, Inc. declares that this ASR-102-G is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

OTC Wireless, Inc. vakuuttaa täten että ASR-102-G tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Hierbij verklaart OTC Wireless, Inc. dat het toestel ASR-102-G in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG

Bij deze verklaart OTC Wireless, Inc. dat deze ASR-102-G voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.

Par la présente OTC Wireless, Inc. déclare que l'appareil ASR-102-G est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE

Par la présente, OTC Wireless, Inc. déclare que ce ASR-102-G est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables

Härmed intygar OTC Wireless, Inc. att denna ASR-102-G står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Undertegnede OTC Wireless, Inc. erklærer herved, at følgende udstyr ASR-102-G overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF

Hiermit erklärt OTC Wireless, Inc., dass sich dieser ASR-102-G in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMW)

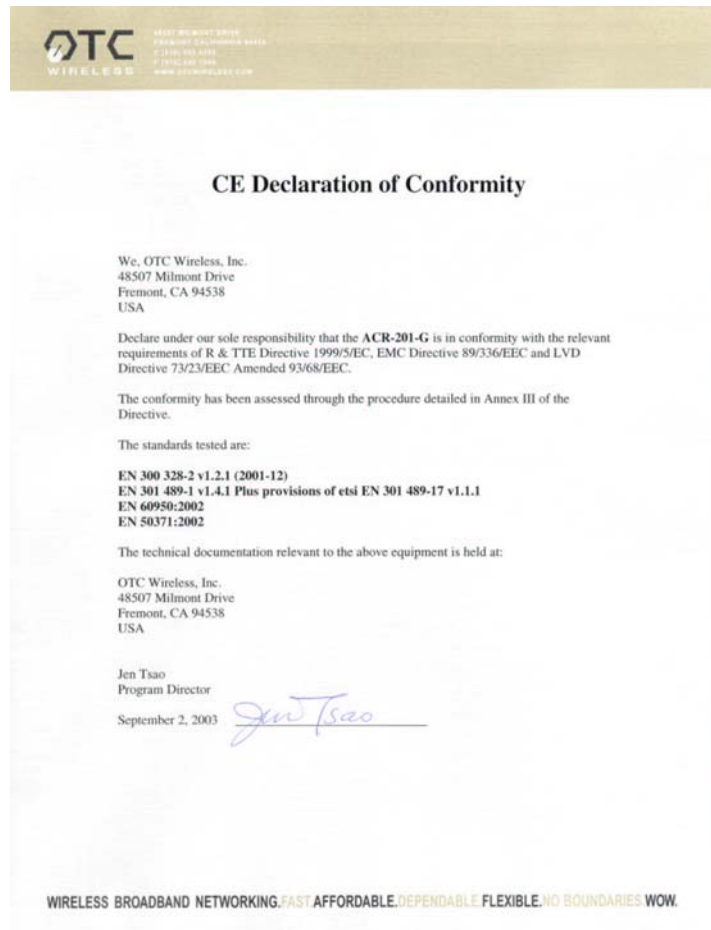
Hiermit erklärt OTC Wireless, Inc. die Übereinstimmung des Gerätes ASR-102-G mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. (Wien)

ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ ΟΤC Wireless, Inc. ΔΗΛΩΝΕΙ ΟΤΙ ΑSΡ-102-G ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ

Con la presente OTC Wireless, Inc. dichiara che questo ASR-102-G è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

Por medio de la presente OTC Wireless, Inc. declara que el ASR-102-G cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE

OTC Wireless, Inc. declara que este ASR-102-G está conforme com os requisitos essenciais e outras provisões da Directiva 1999/5/CE.



This product satisfies the radio spectrum requirements of EN 300 328-1, the EMC requirements of EN 301 489-17 and the safety requirements of EN 60950.

Notice:

In some countries of operation, using this product may be subject to specific restrictions as listed below. This product is intended only for indoor use. Outdoor usage may require licensing.

France

Restricted frequency band: only channels 10 through 13 (2446.5 MHz through 2483.5 MHz) may be used in France.

Not allowed for outdoor use in public areas.

Bande de fréquences restreinte : seuls les canaux 10 à 13 (2446,5 MHz à 2483.5 MHz) peuvent être utilisés en France.

Utilisation extérieure interdite dans les zones publiques.

Glossary

100/10BaseT An IEEE standard (802.3) for operating 10/100 Mbps Ethernet networks (LANs) with twisted pair cabling and a wiring hub.

Access Point An internetworking device that seamlessly connects wired and wireless networks. Access Points combined with a distributed system support the creation of multiple radio cells that enable roaming throughout a facility.

Ad Hoc Network A network composed solely of stations within mutual communication range of each other (no Access Point connected). The Ad Hoc network offers peer-to-peer connections between workstations, allowing communication between computers within range that have an 802.11 DSSS compatible PC card installed.

BSS *Basic Service Set*. A set of stations controlled by a single coordination function.

Channel A medium used to pass data units that can be used simultaneously in the same volume of space by other channels of the same physical layer, with an acceptably low frame error ratio due to the absence of mutual interference.

CSMA/CA *Carrier Sensing Multiple Access/Collision Avoidance* The medium access control method used by the 802.11 standard. Basically, a radio can start transmitting signal only when no carrier from another radio is sensed and after a randomized wait time has expired.

DTIM *Delivery Traffic Indication Map* The Stations that currently have data held in an AP are identified by a Traffic Indication Map (TIM). This TIM is included in the beacon sent by an AP. DTIM is a special type of TIM. When a DTIM is sent in a beacon frame, it signals that all the broadcast and multicast data held for Stations in PS mode will be sent immediately following the beacon frame.

Encapsulated An Ethernet address mode that treats the entire Ethernet packet as a whole and places it inside an 802.11 frame along with a new header.

EAP *Extended Authentication Protocol*. EAP is an extension to the RADIUS protocol. [IETF RFC 2869] It establishes a framework that allows a variety of authentication methods to be used between a requester and RADIUS.

ESS *Extended Service Set*. A set of one or more interconnected Basic Service Sets (BSSs) and integrated Local Area Networks (LANs) can be configured as an Extended Service Set.

Ethernet The most widely used medium access method, which is defined by the IEEE 802.3 standard. Ethernet is normally a shared media LAN; i.e., all the devices on the network segment share the total bandwidth. Ethernet networks operate at 10Mbps/100Mbps using CSMA/CD to run over 100/10BaseT/100BaseT cables.

Hidden Node The situation where two or more radios in a multiple-radio network fail to detect the RF signals from each other. For example, in a 3-radio network, radio 2 and 3 both have good link to radio 1. Radio 2 and 3, however, are isolated from each other by, say, a metal wall. Radio 2 therefore is a "hidden node" to radio 3, and vice versa. Since an 802.11 network relies on the CSMA/CA protocol to control network access, hidden nodes break down the Carrier Sensing mechanism of controlling medium access because two or more radios cannot sense the carrier from each other.

IEEE 802.11 The IEEE 802.xx is a set of specifications for LANs from the Institute of Electrical and Electronic Engineers (IEEE). Most wired networks conform to 802.3, the specification for CSMA/CD-based Ethernet networks or 802.5, the specification for token ring networks. IEEE 802.11 defines the standard for wireless LANs encompassing three incompatible (non-interoperable) technologies: Frequency Hopping Spread Spectrum (FHSS), Direct Sequence Spread Spectrum (DSSS), and Infrared. IEEE standards ensure interoperability between systems of the same type.

IEEE 802.1X. The "Port Based Network Access Control" requires that a device that accesses a network be first authenticated. [<http://www.ieee802.org/1/pages/802.1x.html>] The initial connecting point of the network is the "authenticator." It relays the accessing device's credential to a backend "authentication server." The process that presents the request is referred to as the "Supplicant." Only when the authentication server so determines, the network access device will open its port for the requesting device. The authentication server is generally a RADIUS. In order for the request to be granted, the RADIUS must be properly configured to recognize the requester's credential.

Infrastructure Network A wireless network centered about an Access Point. In this environment, the Access Point not only provides communication with the wired network but also mediates wireless network traffic in the immediate neighborhood.

IP Internet Protocol. The standard protocol within TCP/IP that defines the basic unit of information passed across an Internet connection by breaking down data messages into packets, routing and transporting the packets over network connections, then reassembling the packets at their destination. IP corresponds to the network layer in the ISO/OSI model.

IP Address An IP address is a 32-bit number that identifies each sender or receiver of information sent across the Internet. An IP address has two parts: the identifier of a particular network on the Internet and an identifier of the particular device (which can be a server or a workstation) within that network.

ISP Internet Service Provider. An organization that provides access to the Internet. Small ISPs provide service via modem and ISDN while the larger ones also offer private line hookups (T1, fractional T1, etc.).

LAN Local Area Network. A communication network that serves users within a defined geographical area. The benefits include the sharing of Internet access, files, and equipment, such as printers and storage devices. Special network cabling (100/10BaseT) is often used to connect the PCs together.

NAT Network Address Translation. The translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the internal network and the other is the external. The internal network then appears as one entity to the outside world.

PCMCIA Personal Computer Memory Card International Association. This Association develops standards for PC cards, formerly known as PCMCIA cards. These cards are available in three types, and are about the same length and width as credit cards. However, the different cards range in thickness from 3.3 mm (Type I) to 5.0 mm (Type II) to 10.5 mm (Type III). These cards can be used for various functions, including memory storage, landline modems, and wireless modems.

PS Mode Power Save Mode. This mode is recommended for devices where power consumption is a major concern, such as battery-powered devices.

RADIUS Remote Authentication Dial-in User Service. This service generally authenticates users by their credentials. The host of a user uses the RADIUS protocol to send the credential of the user to a designated RADIUS server. The user will be granted access rights based on the privilege configured in the RADIUS server. A Microsoft article provides a good review: "RADIUS Protocol Security and Best Practices."

[<http://www.microsoft.com/windows2000/techinfo/administration/radius.asp>]

Radio Frequency RF, Terms: GHz, MHz, Hz —The international unit for measuring frequency is Hertz (Hz), equivalent to the older unit of cycles per second. One megahertz (MHz) is one Million-Hertz. One gigahertz (GHz) is one Billion-Hertz. The standard U.S. electrical power frequency is 60 Hz, the AM broadcast radio frequency band is 0.55–1.6 MHz, the FM broadcast radio frequency band is 88–108 MHz, and wireless 802.11 LANs operate at 2.4GHz.

SSID Service Set ID. A group name shared by every member of a wireless network.

Station The Station is the component that connects a host computer or device to the wireless medium. It may be referred to as the Wireless Network Adapter or the Wireless Network Interface Card.

WPA Wireless Protected Access. WPA is the current industry-agreed requirement for secured wireless 802.11 communications. It is a subset of the upcoming 802.11i standard. It comprises 802.1X and EAP based access control and communications confidentiality based on TKIP data encryption. For more details, visit Wi-Fi Alliance Web page: http://www.wifialliance.com/OpenSection/protected_access.asp.

WEP Wired Equivalent Privacy. The optional cryptographic confidentiality algorithm specified by 802.11 used to provide data confidentiality that is subjectively equivalent to the confidentiality of a wired LAN medium that does not employ cryptographic techniques to enhance privacy.