

SonicWall® SonicWave 231o Safety and Regulatory Information

Regulatory Model Number APL46-0D1

Draft June 2018

IMPORTANT: This device must be professionally installed using either the supplied antennas, or with other approved antennas available from SonicWall.

This document contains safety and regulatory information for the SonicWall® SonicWave 231o. The SonicWave 231o is a wireless access point with an internal wireless radio that can provide wireless access on either 5GHz or 2.4GHz and supports the 802.11 ac/n/g/a/b standards.

Topics:

- Professional Installation Validation
- Mounting the SonicWave 231o
- Safety Information for Installation and Operation
- Informations de sécurité pour l'installation et le fonctionnement
- Sicherheitshinweise für den Einbau und Betrieb
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- 安全信息安裝和操作
- 製品の安全性と規定に関する情報
- 제품 안전 및 규정 정보
- Informações normativas e sobre a segurança dos produtos
- Agency specific information
- **Error! Reference source not found.**
- EMC agency specific information

Professional Installation Validation

Because of the unique market and functionality targeted by this product, the SonicWave 231o requires specially trained professionals to configure and install the product. Also, according to FCC rules (similar rules in other regulatory domains), you are required to consult with an experienced professional RF installer/dealer/technician to conduct the installation, conform to the regulation, and correct the interference from the standard industry measures. The FCC requires you to be notified that any changes or modifications made to the device that are not expressly approved by SonicWall could void your authority to operate the equipment.

A professional installer is responsible for the proper installation and configuration of the SonicWave 231o. The installer needs to understand and prepare for operating near any Terminal Doppler Weather Radar (TDWR) locations based on the FCC Memorandum and comply with all its requirements.

The professional installer needs to choose the correct 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 to ensure the reduction of potential radio interference with other users.

The professional installer must also properly select the current country of operation from the SonicWall configuration interface. Incorrectly entering the country of operation could result in illegal operation and might cause harmful interference to other systems.

SonicWall Inc. hereby declares that this product is distributed through our controlled distribution channel and requires that trained professionals are to install this product, and we will not sell this product directly to the general public through retail stores.



WARNING: Electrical Hazard: Only qualified personnel should perform installation procedures. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems, and circuits in accordance with established safety practices and standards. A qualified person understands the requirements and risks involved with installing outdoor electrical equipment in accordance with national codes.

Restricted Access location. This product is not intended to be installed and used in a home or public area accessible to the general population. When installed in schools, this equipment must be installed in a secure location accessible only by trained personnel.

If you have any questions regarding the authorization, contact your SonicWall vendor for professional installation details.

Mounting the SonicWave 231o



IMPORTANT: This device must be professionally installed. For safety tips when mounting the SonicWave 231o, see [Safety information for installation and operation](#).

Attach the SonicWave 231o to a surface that can support it and withstand its environment. It can be mounted to a post or pole, and the surface material can be concrete, brick, wood, metal, or plastic.

Topics:

- [Ground Connection](#)
- [Mounting the SonicWave 231o on a Pole or Post](#)
- [Installing SonicWave 231o Antennas](#)
- [Connecting Ethernet Cables](#)

Ground Connection

The ground connection for the SonicWave 231o is located on the back of the device. Attach the green ground to earth cable to the grounding terminal.

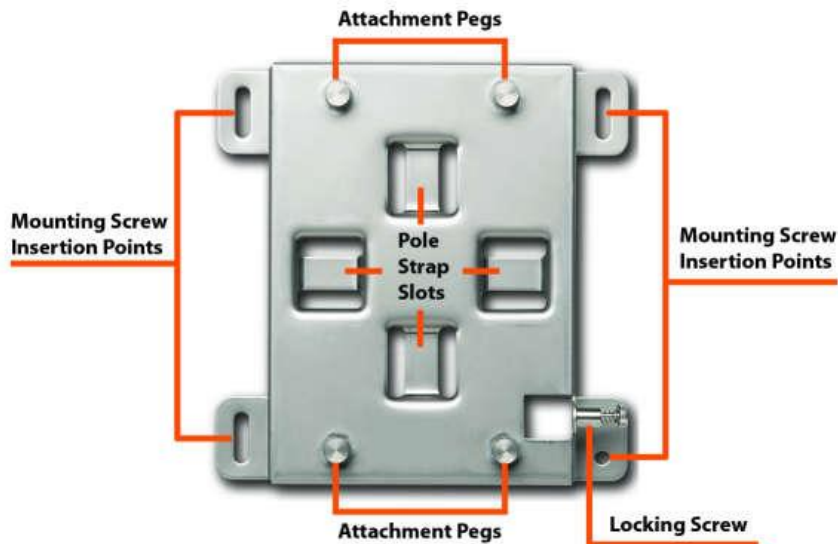
To attach the green ground to earth cable to the grounding terminal:

- 1 Use the ground screw assembly with the star washer to attach the ground wire's ring terminal to the SonicWave 231o. The wire should be as close to the SonicWave bottom as possible.
- 2 Tighten the screw securely.

i **IMPORTANT:** This device must be professionally installed using either the supplied antennas or with approved alternate antennas available from SonicWall.

Installing the Mounting Bracket

The SonicWave 231o mounting kit includes hardware for mounting the unit outside on a pole or post, or on a wall or other flat surface. The SonicWave 231o and mounting bracket are designed so that you can first attach the mounting bracket to the pole or wall and then slide the SonicWave onto the bracket.



To attach the mounting bracket to a pole or post:

- 1 Using a screwdriver, loosen and free the ends of the two adjustable pole straps.
- 2 Insert each pole strap through an appropriate slot on the back side of the bracket.
- 3 Loop the straps around the pole or post.
- 4 Insert the strap ends into their respective fittings until snug around the pole.
- 5 Use the screwdriver to tighten each strap and securely attach the mounting bracket to the pole or post.

To attach the mounting bracket to a wall or flat surface:

- 1 Place the back side of the mounting bracket against the wall or surface and mark the locations for four screws positioned at the mounting screw insertion points.
- 2 Drill starter holes at the marked locations. For a wood wall, use a drill bit that fits the provided screws. For drywall, use a drill bit that fits the anchors. Use the screws or anchors that work best in your location.
- 3 For drywall, insert or screw in the anchors.
- 4 Place the mounting bracket against the wall with the mounting screw insertion points lined up on the marks or anchors.
- 5 Using the provided screws and a screwdriver, securely attach the mounting bracket to the wall or surface.

Installing SonicWave 231o Antennas

IMPORTANT: This device must be professionally installed using either the supplied antennas or with approved alternate antennas available from SonicWall.

CAUTION: To prevent damage to the SonicWave 231o, all RF output ports must be attached to an approved antenna before the radios are enabled.

To install the antennas on your SonicWave 231o:

- 1 Remove all four antennas from their bags and place one on each of the appropriate connectors, matching the radio signals marked on the antennas to those marked above the connectors.
- 2 Insert the antenna base firmly into the antenna mount.
- 3 Making sure there is no cross threading, fully tighten the silver knurled fitting using your fingers to the point that it cannot turn with moderate force. Do not use or twist the white antenna housing enclosure while securing the antenna.
- 4 Repeat Step 2 and Step 3 for each antenna.



Available Antennas for the SonicWave 231o

The following antennas are approved for use with the outdoor SonicWave 231o.

NOTE: For NEMA Type 4X compliance use default antennas D121-05/D151-07.

Antenna Mode	Band (GHz)	Antenna Gain (dBi)	Antenna Type	Deflection
Default: D121-05*/D151-07*	2.4/5G	5dBi/7dBi	Omni/Dipole	360°
S122-12†	2.4	12dBi	Sector	120°
S152-15†	5G	15dBi	Sector	120°

* Default antennas provided with appliance.

† S122-12 and S152-15 must be used together.

CAUTION: To prevent damage to the SonicWave 231o, all RF output ports must be attached to an approved antenna before the radios are enabled.

For details regarding these alternately approved antennas (including important safety information) refer to the respective antenna guides. Some antennas might not be offered for sale in all countries. Contact SonicWall for purchasing information.

The SonicWave default antenna configuration only supports Omni/Dipole antennas as shipped from the factory. When any other antenna or antenna pair is installed, the professional installer must correctly configure the SonicWave for the new antennas before enabling the radios. Configuration instructions are included in this guide and with each antenna.

Connecting Ethernet Cables

Provide adequate grounding to the SonicWave 231o and the PoE injector. The grounding screw and wire are provided for this purpose. Consult a certified electrician to ensure that all grounding and cabling is installed in compliance with local electrical codes. The SonicWave 231o is powered through Power over Ethernet (PoE), and should be cabled with CAT5e Ethernet cabling.

When using PoE, a SonicWall 802.3afcompliant midspan PoE line injector (sold separately), or an 802.3afcompliant switch is required to power each SonicWave 231o.

NOTE: To maximize the SonicWave 231o's power capabilities, connect the PoE to a 2.5Gb port on the firewall.

To connect PoE to a SonicWave 231o:

- 1 Install the cable gland adapter assembly through the LAN/PoE sealing nut, slide claw, and seal onto the RJ45 Ethernet cable.
- 2 Slide the seal and claw into the SonicWave 231o port.
- 3 Secure the seal nut onto the main assembly body.
- 4 Tighten the assembly by hand (finger-tight).

 **IMPORTANT:** Be sure cables are connected correctly.

- 5 Plug the power cord of the SonicWall PoE injector into an appropriate power outlet.
- 6 Wait for the **LAN1** LED on the SonicWave 231o to illuminate green. This indicates an active connection.



CAUTION: A multi-gigabit 802.3afcompliant PoE injector or PoE-capable switch is required to provide power to each SonicWave 231o. To maintain power to the SonicWave 231o, the maximum length of CAT 5e cable from the 802.3afPoE injector to the SonicWave 231o is 100 meters (333 feet).

Configuring the Antennas

Once the SonicWave 231o is powered up, the professional installer can use an app such as BusyBox to SSH to it at the default IP address (192.168.1.20) and run the **proinstall** command sequence. After typing proinstall on the command line, you are prompted for a passcode. Type in the serial number of the SonicWave as a hex string with all letters in uppercase for the passcode.

The following is an example configuration:

~ # proinstall

Welcome to SonicWall SonicWave Professional Install Mode. By entering the passcode, you accept and agree to the terms and conditions of the agreement from

[HTTPS://WWW.SONICWALL.COM/LEGAL/EUPA.ASPX](https://www.sonicwall.com/legal/eupa.aspx).

You also confirm yourself as the certified RF professional installer and are obligated to ensure the SonicWave is operating according to the channel limitations, outdoor restrictions and license requirements for different domains and countries.

Passcode:*****

PRO->help

help -- Provide all commands available with description.

show all-antennas -- Show all available antennas

show radio-antenna-settings -- Show the current antenna

options for both radio 0(5GHz) and radio 1(2.4GHz)

set radio [0 | 1] antenna [0|1|2|3|4|5|6|7] -- Set antenna for radio 0(5GHz radio) or radio 1(2.4GHz)

commit -- Apply changes

exit -- Leave the professional install mode

PRO->show all-antennas

All Available antennas:

0 - Default (2.4GHz / 5GHz)

1 - S124-12 (2.4GHz Only)

2 - S154-15 (5GHz Only)

PRO->show radio-antenna-settings

Radio 0 (5GHz): 0 - Default (2.4GHz / 5GHz)

Radio 1 (2.4GHz): 0 - Default (2.4GHz / 5GHz)

PRO->set radio 0 antenna 2

PRO->set radio 1 antenna 1

PRO->show radio-antenna-settings

Radio 0 (5GHz): 2 - S154-15 (5GHz Only)

Radio 1 (2.4GHz): 1 - S124-12 (2.4GHz Only)

PRO->commit
Are you want to save changes and reboot system to take effect
(y/n):y
The system will reboot in 0s ...

Safety Information for Installation and Operation

This section provides the following product safety and regulatory information:

- [Installing the Appliance](#)
- [Approved Alternate Antennas](#)
- [RF Safety Distance](#)
- [Professional Installation Notice](#)
- **Error! Reference source not found.**
- [Power Supply Information](#)
- [Restricted Environments](#)
- [Radio Approvals](#)
- [Radio or Television Interference](#)
- [Wireless Interoperability](#)

SonicWave 231o complies with FCC U-NII New Rules.

Regulatory Model/Type	Product Name
APL46-0D1	SonicWave 231o

i | **NOTE:** Additional regulatory notifications and information for this product can be found online at: <https://www.sonicwall.com/support/technical-documentation>.

i | **NOTE:** For NEMA Type 4X compliance, use the optional NEMA Type 4X mounting kit (purchased separately) and default antennas D121-05/D151-07.

Installing the Appliance



WARNING: The following conditions are required for proper installation:

- 1 Mount in a location away from direct sunlight and sources of heat. A maximum ambient temperature of 140° F (60° C) is recommended.
- 2 Route cables away from power lines, fluorescent lighting fixtures, and sources of noise such as radios, transmitters, and broadband amplifiers.
- 3 Ensure that no water or excessive moisture can enter the unit.
- 4 Allow unrestricted airflow around the unit. A minimum of 1 inch (25.4mm) clearance is recommended.
- 5 Consideration must be given to the connection of the equipment to the supply circuit and that the effect of overloading the circuits has minimal impact on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings must be used when addressing this concern.
- 6 This equipment is not intended for use at workplaces with visual display units, in accordance with §2 of the German ordinance for workplaces with visual display units. To avoid incommuting reflections at visual display workplaces, this device must not be placed in the direct field of view.
- 7 This product is not intended to be installed and used in a home or public area accessible to the general population. When installed in schools, this equipment must be installed in a secure location accessible only by trained personnel.

Approved Alternate Antennas

Alternate antennas used with the SonicWave 231o must be approved and certified before use. However, in order to comply with the local laws and regulations, an approval might be required by the local regulatory authorities.

The included antennas have been tested and approved for use with the SonicWave 231o model.

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

Contact SonicWall for a list of antennas approved for use with the SonicWave 231o.

RF Safety Distance

The antennas used for this transmitter must be installed to provide a separation distance of at least **40 cm** from all persons and must not be co-located or operating in conjunction with another antenna or transmitter.

Professional Installation Notice

To comply with FCC part 15 rules in the United States, the SonicWave 231o must be professionally installed to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States. The use of the system in any other combination (such as co-located antennas transmitting the same information) is expressly forbidden.

Power Supply Information

This product's power is provided by the Ethernet cable plugged into the "LAN1" port, this is called "Power Over Ethernet" or "POE." The POE source should only be UL listed marked "Class 2" or "LPS," with an output rated 48 VDC, minimum 0.3 A, Tma: minimum 40 degrees C.

Restricted Environments

The SonicWall wireless device, like other radio devices, emits radio frequency electromagnetic energy. The SonicWall wireless device operates within the guidelines found in radio frequency safety and recommendations. 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. In some situations or environments, the use of the SonicWall wireless device may be restricted by the proprietor of the building or responsible representatives of the applicable organization.

Examples of such situations include the following:

- Using the SonicWall wireless device equipment on board airplanes, or
- Using the SonicWall wireless device equipment in any other environment where the risk of interference with other devices or services is perceived or identified as being harmful.

If you are uncertain of the policy that applies to the use of wireless devices in a specific organization or environment (an airport, for example), you are encouraged to ask for authorization to use the SonicWall wireless device before you turn it on.



WARNING: Explosive Device Proximity Warning: Do not operate a portable transmitter (such as a wireless network device) near unshielded blasting caps or in an explosive environment unless the device has been modified to be qualified for such use.



WARNING: Use on Aircraft Caution: Regulations of the FCC and FAA prohibit airborne operation of radio-frequency wireless devices because their signals could interfere with critical aircraft instruments.

Radio Approvals

It is important to ensure that you only use your radio device in countries where the device is approved for use. To determine whether you are allowed to use your wireless network device in a specific country, check to see if the radio type number that is printed on the identification label of your device or listed on the radio approval list posted on the general SonicWall support site at: <https://www.sonicwall.com/support>.

Radio or Television Interference

The SonicWall SonicWave 2310 wireless network device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. SonicWall Inc. is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this SonicWall Wireless device kit, or the substitution or attachment of connecting cables and equipment other than that specified by SonicWall Inc. The correction of interference caused by such unauthorized modification, substitution or attachment is the responsibility of the user. SonicWall Inc. and

its authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user failing to comply with these guidelines.

Wireless Interoperability

The SonicWall Wireless WLAN products are designed to be interoperable with any wireless LAN product that is based on direct sequence spread spectrum (DSSS) radio technology and orthogonal frequency division multiplexing (OFDM) and to comply with the following standards:

- IEEE 802.11a\ac Standard on 5 GHz Wireless LAN
- IEEE 802.11b-1999 Standard on 2.4 GHz Wireless LAN
- IEEE 802.11g Standard on 2.4 GHz Wireless LAN
- IEEE 802.11n Standard on 2.4 GHz and 5 GHz Wireless LAN
- Wireless Fidelity (Wi-Fi) certification, as defined by the WECA (Wireless Ethernet Compatibility Alliance)

Informations de sécurité pour l'installation et le fonctionnement

- [Exigences relatives à l'installation](#)
- [Autres Antennes Approuvées](#)
- [Distance de Sécurité RF](#)
- [Raccordements](#)
- [Informations sur l'alimentation électrique](#)

Exigences relatives à l'installation



AVERTISSEMENT : Les conditions suivantes sont requises pour une installation correcte :

1. Procédez au montage dans un endroit à l'abri des rayons du soleil et des sources de chaleur. Une température ambiante maximale de 60 °C (140 °F) est recommandée.
2. Faites passer les câbles à une distance raisonnable des lignes électriques, des luminaires à lampe fluorescente et des sources de bruit telles que les radios, les émetteurs et les amplificateurs à large bande. The included power cord(s) are approved for use only in specific countries or regions. Before using a power cord, verify that it is rated and approved for use in your location.
3. Veillez à éviter tout contact de l'appareil avec de l'eau ou une humidité excessive.
4. Veillez à ce que l'air puisse facilement circuler autour de l'unité et à travers les aérations prévues sur le côté de l'unité. Laissez un espace d'au moins 25,44 mm.
5. Portez une attention particulière au raccordement de l'équipement au circuit d'alimentation, de manière à ce qu'une éventuelle surcharge des circuits ait un impact minime sur la protection contre les surintensités et sur les câbles d'alimentation. Respectez pour cela les mentions figurant sur la plaque d'identification du produit.

Autres Antennes Approuvées

Tout autre type d'antenne utilisé avec le SonicWave 231o doit être approuvé et certifié avant l'utilisation. Il est possible que les lois et règlements locaux exigent l'approbation préalable des organismes de réglementation locaux.

Les antennes comprises avec le produit ont été testées et approuvées pour l'utilisation avec le modèle SonicWave 231o.

Afin de réduire les perturbations radioélectriques affectant d'autres utilisateurs, veuillez à choisir un type d'antenne et une valeur de gain de manière à ce que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas la valeur requise pour une communication optimale.

Communiquez avec SonicWall pour obtenir une liste d'antennes approuvées pour l'utilisation avec le SonicWave 231o.

Distance de Sécurité RF

Les antennes utilisées avec cet émetteur doivent être installées de manière à laisser une distance de sécurité d'au moins 40 cm avec toute personne se trouvant à proximité. Les antennes ne doivent pas être situées à proximité d'autres antennes ou émetteurs et ne doivent pas être utilisées conjointement avec ces derniers.

Informations sur l'alimentation électrique

Ce produit est alimenté par le câble Ethernet branché sur le port « LAN1 »; ce type d'alimentation est appelé « alimentation par câble Ethernet » ou « PoE » (Power over Ethernet). La source d'alimentation par câble Ethernet (PoE) utilisée doit impérativement être homologuée UL, porter la mention « Classe 2 » ou « LPS », et avoir une puissance de sortie nominale de 48 V CC, 0,3 A minimum, TA : 40 °C minimum.

Sicherheitshinweise für den Einbau und Betrieb

- Weitere hinweise zur montage
- Kabelverbindungen
- Informationen zur stromversorgung

Weitere hinweise zur montage



WARNING: Zu Ihrer eigenen Sicherheit beachten Sie alle in diesem Abschnitt aufgeführten Anweisungen.

- 1 Wählen Sie für die Montage einen Ort, der keinem direkten Sonnenlicht ausgesetzt ist und sich nicht in der Nähe von Wärmequellen befindet. Die Umgebungstemperatur darf nicht mehr als 60 °C betragen.

- 2 Führen Sie die Kabel nicht entlang von Stromleitungen, Leuchtstoffröhren und Störquellen wie Funksendern oder Breitbandverstärkern.
- 3 Stellen Sie sicher, dass das Gerät vor Wasser und hoher Luftfeuchtigkeit geschützt ist.
- 4 Stellen Sie sicher, dass die Luft um das Gerät herum zirkulieren kann und die Lüftungsschlitze an der Seite des Gehäuses frei sind. Hier ist ein Belüftungs-abstand von mindestens 26 mm einzuhalten.
- 5 Prüfen Sie den Anschluss des Geräts an die Stromversorgung, damit der Überstromschutz sowie die elektrische Leitung nicht von einer eventuellen Überlastung der Stromversorgung beeinflusst werden. Prüfen Sie dabei sorgfältig die Angaben auf dem Aufkleber des Geräts. Überlasten Sie nicht den Stromkreis.
- 6 Dieses Produkt ist nicht dafür entwickelt, um in Bereichen mit öffentlichem Zugang betrieben zu werden. Wenn es in Schulen betrieben wird, stellen Sie sicher, dass das Gerät in einem abgeschlossenen Raum installiert wird, der nur von speziell ausgebildetem

Informationen zur stromversorgung

Die Stromversorgung durch das Ethernet-Kabel in die "LAN"-Anschluss angeschlossen vorgesehen ist, wird dies als "Power over Ethernet" oder "PoE." Dieses Produkt darf nur in Verbindung mit einem für den Europäischen Markt genehmigten und mit dem Logo „LPS.“ Ausgang: 48 VDC Gleichspannung, mind. 0,3 A, mindest TMA mindestens 40° Grad C, betrieben werden.

Agency Specific Information

- [FCC ID: 2AKCZ-0D1](#)
- [FCC, Class B](#)
- [Radiation exposure statement \(FCC\)](#)
- [United States of America authorized channels](#)
- [Industry Canada notices](#)
- [Industrie Canada notifications](#)
- [低功率電波輻射性電機管理辦法](#)
- [CE Notice](#)
- [EU and EFTA](#)
- [Declaration of Conformity](#)
- [Simplified EU/CE Declaration of Conformity](#)

FCC ID: 2AKCZ-0D1

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception.

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.

- This device may not cause harmful interference, and

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

i **NOTICE:** The FCC regulations provide that changes or modifications not expressly approved by SonicWall Inc. could void your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the system with respect to the receiver.
- Move the system away from the receiver.
- Plug the system into a different outlet so that the system and the receiver are on different branch circuits.

If necessary, consult a representative of SonicWall Inc. or an experienced radio/television technician for additional suggestions.

i **NOTE:** This SonicWall Wireless WLAN device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Any other installation or use will violate FCC Part 15 regulations. Modifications not expressly approved by SonicWall could void your authority to operate the equipment.

The following information is provided on the device or devices covered in this document in compliance with FCC regulations:

- Product name:
SonicWall SonicWave 2310
Regulatory Model: APL46-0D1
- Company name:
SonicWall Inc. is the responsible party for this product. For an EMC compliance issue or a regulatory inquiry, please use the following contact information:
SonicWall Inc.
1033 McCarthy Blvd
Milpitas, CA 95035
408-745-9600

FCC, Class B

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. 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.

i **NOTICE:** The FCC regulations provide that changes or modifications not expressly approved by SonicWall Inc. could void your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by

turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the antenna of the radio/television receiver.
- Increase the separation between this equipment and the radio/television receiver.
- Plug the system into a different outlet so that the system and the receiver are on different power mains branch circuits.
- Consult a representative of SonicWall Inc. or an experienced radio/television technician for additional suggestions.

Radiation exposure statement (FCC)

 **CAUTION:** The radiated output power of this device is below the FCC radio frequency exposure limits. Nevertheless, this device should be used in such a manner that the potential for human contact during normal operation is minimized. This device has been evaluated for and shown compliant with the FCC RF Exposure limits under mobile exposure conditions (antennas are greater than 40 cm from a person's body). Details of the authorized configurations can be found at <https://fjallfoss.fcc.gov/oetcf/eas/reports/GenericSearch.cfm> by entering the FCC ID number on the device.

United States of America authorized channels

SonicWall declares that the APL46-0D1 (FCC ID: 2AKCZ-0D1) when sold in the USA is limited to CH1-CH11 by specified firmware controlled in the USA.

High power radars are allocated as primary users of the 5.25GHz to 5.35GHz and 5.65GHz to 5.85GHz bands. These radar stations can cause interference with this device or can cause damage to this device, or both.

The APL46-0D1 device has been designed to operate with an antenna having a maximum gain of 14.60 dBi at 5 GHz and 12.6 dBi at 2.4 GHz. Antenna having a higher gain is strictly prohibited. The required antenna impedance is 50 ohms. Only antennas approved by Sonicwall are allowed.

Specific to the USA, at the urging of the Federal Communication Commission (FCC) user/installers should avoid operation frequencies near Terminal Doppler Weather Radar (TDWR) systems frequencies 5600-5650 MHz when installing a SonicWave within 35km of line-of-site of TDWR sites. If TDWR is within 35km the SonicWave, frequencies should be set to at least 30MHz above or below any TDWR system frequency at that site. TDWR locations and specific frequencies used can be found at <http://spectrumbridge.com/udrs/home.aspx>. Detailed current and background information can be found at http://www.wispa.org/?page_id=2341.