SONETICS®

SCH305.v2
Wireless DECT7 ComHub
Manual

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Overview

The Sonetics Wireless ComHub is the heart of a Sonetics Portable Wireless Communication System. The SCH305.v2 ComHub supports full duplex, conference call-like digital communication between up to five Sonetics DECT7 Wireless Headsets. Radio PTT-capable headsets can be configured to transmit on a portable radio via the ComHub. For situations that require a large number of connected users, such as education or tour groups, Broadcast Mode supports up to 100 users. Tethering your SCH305.v2 with a second ComHub (SCH305.v2 or SCH310T.v2) lets you connect two teams in a single talk group. SCH305.v2 ComHubs also have DECT channel capability, allowing users to talk on up to five different channels.

Sonetics DECT7 wireless operates on the 1.9GHz band to provide secure, interference-free communication. With internal and external antennas, the ComHub Base Station configures itself for the best reception and a line-of-sight range of up to 1,600 feet. USB programming allows complete customization.

Accessories (not included)

External Antennas
Relocate the line-of-sight point of your ComHub antenna. Magnetic and permanent mount versions available.

Portable Radio Cables (PR Cables)
Connect to virtually any portable two-way radio and many other devices. Call us at (800) 833-4558 to verify your radio's make and model or visit www.sonetics.com/radio-interface-guide/.

Features

Wireless DECT7 Communications

The SCH305.v2 ComHub features wireless DECT7, enabling conference call-like full duplex communication. The ComHub will connect with Sonetics Wireless Headsets. DECT7 networks have up to 1,600 feet line-of-sight range in Region 1 (US) and up to 800 meters in Region 2 (EU). DECT7 ensures interference free, digitally encrypted communications for all parties.

Waterproof Case

Sonetics SCH305.v2 ComHubs are built using genuine Pelican™ cases for superior waterproofing.

External Antenna Connector

An external antenna connector provides an option to relocate the antenna when the ComHub must be placed in a location with poor reception.

Cable Tethering

Connect two teams together in a single talk group when you tether your SCH305.v2 with a second SCH305(.v2) or SCH310T(.v2) ComHub *(requires included CAT5 Crossover Cable)*.

Carry Bag

A rugged nylon carry bag with hi-vis reflective fabric and comfortable shoulder strap. The included Hanger Hook accessory lets you easily and securely elevate the ComHub for improved range.

USB Programmable

The ComHub's Base Station can be configured from the integrated USB port using a Windows PC. Features may be customized and saved. Refer to the Sonetics Configuration Utility software for details, or visit www.sonetics.com/support/firmware-update/.

Backward Compatibility

The SCH305.v2 ComHub is backward compatible with previous generation Sonetics Wireless Headsets, with a reduced feature set.

Wide Band Audio

Wireless DECT7 communications are transmitted in a high definition, wideband audio format for greater voice clarity, and for optional integration with voice activated control systems. Audio bandwidth can be switched to narrowband when necessary.

Dual Antenna Design

The ComHub's Base Station has internal and external antennas for improved reception as you move around the work zone.

Multi-Channel System

The SCH305.v2 ComHub can be configured for use with up to five channels. These can be remotely selected from a paired Wireless Headset.

Broadcast Mode

Connect up to 3 instructors with up to 100 users for training, education, tours and other large group applications. Broadcast Mode users must press PTT to talk with guides or instructors, who remain in Full-Duplex Mode.

Setup

Orientation

The SCH305.v2 has the greatest range when placed in a specific orientation. The handle on the bag should be up when in use. Refer to the orientation stickers on the ComHub for details.

Stickers on the sides of the case help you position the ComHub for best reception.

Height

The higher you can safely place the SCH305.v2 (or its external antenna if equipped), the better its range. Range can be up to 10 times greater with the ComHub or antenna 10 feet high than with it on the ground.

10+ feet = Best range

5-10 feet = Typical range

0 feet = Shortest range

Line of Sight

If you can see the ComHub when wearing your DECT7 Headset, you will experience better reception. When you lose sight of your ComHub, your reception may be reduced depending on your environment. Walls, trucks, or other solid objects may degrade reception. Some objects such as chain link fence may impact reception even though they can be seen through.
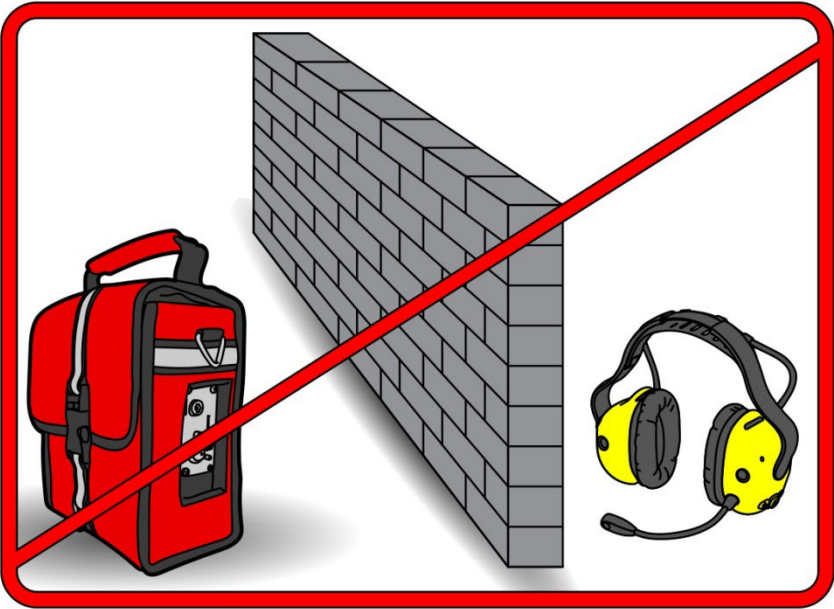
Charging

The SCH305.v2 charges through a connector on the outside control panel. There are two LEDs on its control panel to indicate its status.

- Red LED on the Power Button – This lights when the ComHub is actively charging.
- Green LED next to the Power Button – This lights steady when the ComHub is fully charged. When the ComHub is turned on, this LED flashes to indicate the battery charge level. See the diagram below for details.
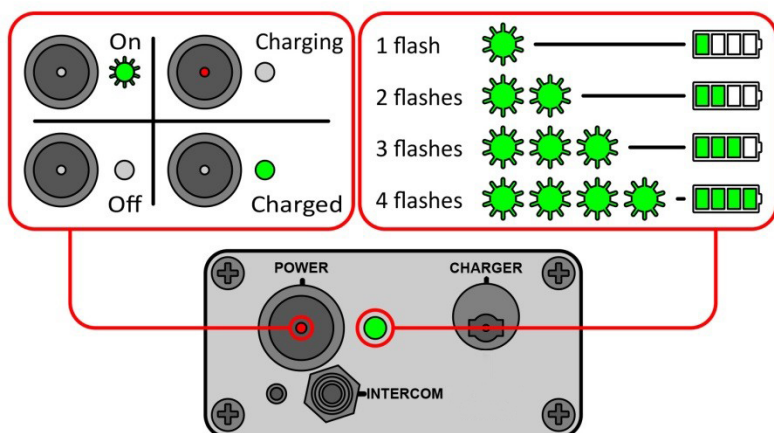
ComHub Controls

- **Power Button** – Turns the ComHub off and on.
- **Charge LED** – Indicates when the ComHub is actively charging.
- **Status LED** – Indicates when the charge cycle is complete. It also indicates the battery level during use.
- **Charge Port** – Connects to an external power supply to charge the ComHub batteries.
- **PR Connector** – Used to connect a portable radio to the ComHub.
- **External Antenna Port** – Connects an accessory external antenna.
- **Tether Port** *(Fig. 2)* – Connects to a second SCH305.v2 or SCH310T using the included CAT5 Crossover Cable.
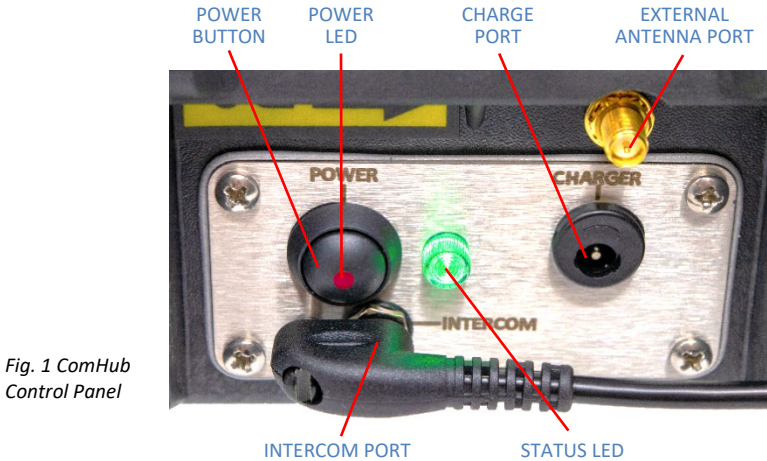
Fig. 1 ComHub Control Panel

Fig. 2 Tether Port

Connecting a Portable Radio

The SCH305.v2 ComHub can be connected to a variety of handheld portable radios using Portable Radio (PR) cables. For details, visit www.sonetics.com/accessories/portable-radio-adapters/

Installing a PR Cable

- Once you have selected the correct PR Cable for your application, attach the end that looks like the image above.
- Use your Sonetics screwdriver to tighten the screw on the connector to the ComHub. *CAUTION:* Overtightening can damage the connector.
- Connect the other end of the PR Cable to your radio.

Adjusting the Gain Controls

Input Gain Adjuster —

Output Gain Adjuster —

Setting Output Gain

1. Set the volume on your radio to between 50 and 75% of maximum volume.
2. Set the volume on your headset to its most commonly used level.
3. Using a #0 Phillips screwdriver, turn the Output Gain Adjuster (on the Right) to its lowest setting (clockwise until it stops).
4. While activating radio transmit and speaking into the headset mic (get a helper if necessary), VERY slowly turn the Output Gain Adjuster counter-clockwise until the volume heard on the radio is at the desired level.
5. **DO NOT** turn up the Output Gain Adjuster too quickly. Adjusting the gains too high will result in poor sound quality, and could cause your radio to shut down.

Setting Input Gain

1. Set the volume on your radio to between 50 and 75% of maximum volume.
2. Set the volume on your headset to its most commonly used level.
3. Using a #0 Phillips screwdriver, turn the Input Gain Adjuster (on the Left) to its lowest setting (clockwise until it stops).
4. While activating radio transmit and speaking into the radio (get a helper if necessary), VERY slowly turn the Input Gain Adjuster counter-clockwise until the volume heard on the headset is at the desired level.
5. **DO NOT** turn up the Input Gain Adjuster too quickly. Adjusting the gains too high will result in poor sound quality.

Pairing Headsets

Pairing creates a connection between the ComHub Base Station and the Headset. This is only required once. After pairing, Headsets will connect automatically.

Full-Duplex Pairing
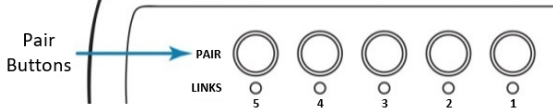
1. Press and hold the desired pairing button until its link indicator begins to flash slowly. Any previous pairing will be forgotten.
2. With the headset powered OFF, place the Sonetics headset into pairing mode by pressing the right PTT button and the power button until you hear "base station registering".
3. The Base Station will automatically connect, showing a solid link LED.
4. If the pairing was unsuccessful, repeat all steps above.
5. Pair on any additional wireless headsets to remaining open positions.

Broadcast Mode Pairing

Broadcast Mode allows 100 devices to be paired. A full duplex pairing must be present to activate Broadcast only. Broadcast users can't Radio Transmit.

Example: Position 1 has a Full Duplex Headset pairing. Positions 2-4 are available for devices to share. Position 5 broadcasts back to the group.
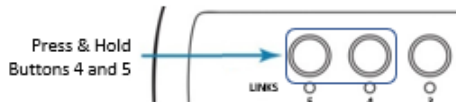
1. Press and hold Buttons 4 & 5 until their link LEDs flash slowly.
2. Place the wireless device you wish to link into pairing mode.
3. The wireless base will automatically connect showing a solid link LED on position 5 and the device will show connected (refer to the Sonetics device manual).
4. If the pairing was unsuccessful, repeat steps 1-3.
5. To pair additional devices, repeat steps 1-4.

Because Broadcast Mode Headsets share communication positions, there can be slight delays in communication. To talk, the Push-To-Talk button on the headset must be held until a position opens. After a Broadcast call is made, there will be a pause in which incoming communications cannot be heard.

To exit Broadcast Mode:
Press and hold 4 _or_ 5 until the link LED flashes slowly indicating pairing mode.

Note: For information on how to pair an Apex Connect, please go to the Apex Connect Manual at: sonetics.com/support/connect-support/

Tethering ComHubs

SCH305.v2 to SCH310T(.v2)
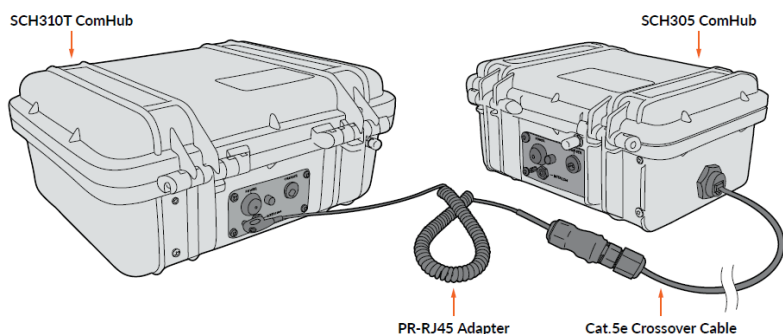
Parts needed:
- (1) Cat.5e Crossover Cable*, any length
- (1) PR-RJ45 Adapter

Setup:
1. Attach a PR-RJ45 Adapter to a Cat.5e Crossover Cable using the instructions included with the PR-RJ45 Adapter.
2. Connect the PR-RJ45 Adapter to the SCH310T(.v2) ComHub as per the PR-RJ45 Adapter instructions.
3. Connect the free end of the Cat.5e Crossover Cable to the SCH305.v2 ComHub.

SCH305.v2 to SCH305.v2

Parts needed:
- (1) Cat.5e Crossover Cable*, any length

Setup:

> Connect each end of a Cat.5e Crossover Cable directly to an SCH305.v2 ComHub using each device's Tether Port.

*Please note: the Cat.5e Crossover Cable is a specialized cable. Must use a "crossover" cable. A standard Cat.5e cable will not work for this application.

IMPORTANT NOTES ABOUT TETHERING:

A minimum of seven (7) feet of separation between the two ComHubs is recommended.

When ComHubs are tethered, portable radio push-to-talk functionality is altered: For example:

- With two SCH305.v2 ComHubs tethered together, only one portable radio may be connected to one of the two ComHubs, for successful radio push to talk communication.
- With an SCH305.v2 ComHub tethered to a SCH310T(.v2) ComHub, a portable radio can only be interfaced to the SCH305.v2 (not the SCH310T(.v2)). Users paired to the SCH305.v2 ComHub can hear and transmit over the radio using the Push-to-Talk Button on their headsets. The users paired to the SCH310T(.v2) ComHub will be able to talk in full duplex mode with users from both ComHubs and hear the portable radio communication, however they ***will not*** be able to push-to-talk over the connected portable radio.

CONNECTING AN EXTERNAL ANTENNA

Fig. 1: Removal of faceplate.

Fig. 2: Internal antenna connection.

Fig. 3: External antenna connection.

Follow these steps to connect an accessory external antenna (*not included*):

1) Remove the ComHub from the red carry bag.
2) Open the lid by releasing the two underside latches.
3) Remove the faceplate around the base station by gently pulling on each corner *(Fig. 1)*.
4) Disconnect the Duck Antenna from the Base Station. Place the Duck Antenna in the side pouch of the red carry bag.
5) Attach the gold coaxial connector to the antenna port on the base station *(Fig. 2)*.
6) Remove the black plastic cover, just above the "Charger" port. Connect the external antenna's coaxial cable to the gold connector located on the outside of the ComHub *(Fig. 3)*.

DECT CHANNEL MODE OPERATION

When used in this configuration, up to 5 channels are available.

Configuring for Channel Selection (ComHub Mode)
To enter configuration mode:

1. Power off the ComHub.
2. While holding the Position 3 pairing button, power on the ComHub.
3. Continue holding the Position 3 pairing button for 10 seconds.
4. The Base Station is now ready to select the number of DECT channels.

Selecting the Number of Available Channels
5. Press the pair button corresponding to the number of channels desired (button 2 = 2 channels, etc.).
6. To exit configuration mode, power off the ComHub and then power it on.

Headset Verification of Available DECT Channels
Before you begin using channels, verify that you have the expected number of available DECT channels by cycling through channels using the Wireless Headset:

1. Turn on your APX377 or APX379 Wireless Headset.
2. Allow the Headset to pair with the ComHub or Base Station.
3. Press the forward ▶ and back ◀ buttons together to toggle DECT Channel Selection. A voice prompt announces "Channel".
4. Press the forward ▶ or back ◀ button on the right-hand side of the Headset. Voice prompts announce "Channel 1", "Channel 2", and so on.
5. If you are unable to access the expected number of DECT channels, repeat Steps 1-6 in "Configuring and Selecting…" above.

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PC Programming

The Wireless Base Station in your ComHub has a USB port located near the Antenna Jack. Using the Sonetics Configurator program, you can adjust additional features using a Windows PC, or perform firmware updates when necessary. Refer to the program for additional information.

Locating the USB Port

(*Left*) The USB port is located in the center of the side wall of the base station, just below the Sonetics logo.

(*Below*) To access the USB port, remove the tray from the case by lifting up at the edges to release the hook-and-loop fasteners.

Installation of the Sonetics Configurator Windows Program
1. Go to www.sonetics.com/software.
2. Download and install the Sonetics Configuration Utility program to update the firmware on the wireless base station.
3. Plug in the USB cable from the Wireless Base Station to the computer. The Base Station will power up.
4. Open the Sonetics program.
5. Follow the directions of the Sonetics program.

Troubleshooting

Note: If you are experiencing symptoms not covered here, or are having difficulty troubleshooting, call us or visit our website. We're here to help.

Service Contact:

Phone: (800) 833-4558
service@sonetics.com

No indication of power to the base station

1. Make sure that the Wireless Base Station cable is fully plugged in.

No audio communication and/or PTT from or to the base.

1. Make sure the Wireless Headset(s) are on, paired, connected, and are using the same channel.
2. Ensure that the communication cable is properly connected.
3. Check the communication cable for continuity.
4. Ensure correct polarity of the modular plug on both ends of the modular cable.

Poor quality audio, low or distorted audio.

1. Check the ComHub gain settings (see "Adjusting the Gain Controls" above).
2. Poor audio quality can also be caused by a defective Headset. Check operation with a known, properly functioning Headset.

Audible interference from portable and mobile radios.

1. Care should be taken to install cables away from radio and antenna cabling to prevent RF interference.

Poor coverage range.

1. Check the Wireless Base Station and external antenna locations. They should not be installed inside metal enclosures or closer than 4 inches to a metal object or surface.
2. Poor range can also be caused by a defective Headset. Check operation with a known, properly functioning Headset.
3. If the problem persists, contact Sonetics Service for additional help.

SCH305.v2 ComHub Specifications

Physical
Length:.. 8.2 in
Width:... 6.1 in
Height: .... 3.9 in
Weight: .... 2.75 lbs

Power
Voltage Input:.. 5 VDC to 16 VDC
Max. Current Input:... 1.2A @ 12V

Environmental
IP-Rating: IP-67
Operating temp: .... -22°F to 140°F / -30°C to 60°C
Storage temp: .... -40°F to 140°F / -40°C to 60°C

SON150 Base Station Specifications

FCC
FCC ID: V9N950325700V1
FCC Part 15: .... All Models

Industry Canada
IC UPN:... 7895A-950325700

MIL SPEC
Humidity: .... MIL-STD 810F and 810G
Temperature Shock: .... MIL-STD 810F and 810G

SAE / NFPA 1901
Vibration:... J1455 Sec. 4.9
Conducted Immunity:.. J1113-11
Electrostatic Discharge: J1113-13
Radiated Emissions:.. CISPR 25
Radiated Immunity: .... ISO 11452-2

ISO
Conducted Transients:... 7637-2
Quality Management System Control: .... ISO 9001:2015

DECT Specifications

Common DECT Specifications

Carrier Spacing:	1.724 MHz
Time Slots:	2 x 12 (up and down stream)
Channel Allocation:	Dynamic
Encryption:	DECT Standard Cipher with 35-bit initialization vector
	64-bit audio stream encryption
Audio Bandwidth:	300Hz to 3.4 kHz, Narrow Band, G.726 compression
	50Hz to 7 kHz, Wide Band, G.722 compression

Region 1 Specific Specifications

Authorized for use in:	Canada, USA
Frequency Bandwidth:	1921.536 MHz to 1928.448 MHz
Number of Carriers:	5
Total Time Slots:	60 in G.726 (narrow band) / 30 in G.722 (wide band)
Average Output Power:	4mW
Maximum Output Power:	100mW
Range (line of sight):	1,600 feet maximum

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Sonetics Standard Limited Warranty

Sonetics Corporation ("Sonetics") warrants to the original purchaser of its products that products will be free from defects in materials and workmanship under normal and proper use for the period of **one (1) year** from date of purchase.

Sonetics Corporation will repair or replace, at its option, any products showing factory defects during this warranty period, subject to the following provisions and obligations:

1. This warranty applies only to a new product sold through authorized channels of distribution.
2. All work under warranty must be performed by Sonetics Corporation or Sonetics Authorized Service Center.
3. All returned products must be shipped to our address, freight prepaid and Sonetics will return products to customer via ground freight. Any expedite fees or additional freight charges will be charged to customer.
4. Any attempt to repair, service, or alter the product in any way voids this warranty.
5. This warranty does not apply in the event of accident, abuse, misuse, liquid contact, improper installation, unauthorized repair, tampering, modification, fire, earthquake, or damage from other external sources – including damage caused by user-replaceable parts.
6. This warranty does not apply: (a) to consumable parts such as batteries, ear seals, intercom bags, cables, external power supplies, parts listed as accessories to a system, or other parts designed to diminish in function over time unless a failure is due to a defect in materials or workmanship; (b) to cosmetic damage or to defects caused by normal wear and tear or aging of the product; (c) to damage caused by use with non-Sonetics products; (d) to damage caused by operating the product outside the permitted or intended uses or environments described by Sonetics; (e) to damage caused by service performed by anyone who is not a representative of Sonetics or an Sonetics Authorized Service Provider; (f) to a product or part that has been modified without the written permission of Sonetics; (g) if any Sonetics serial number has been removed or defaced.
7. This warranty does not extend to any other equipment, apparatus, vehicle, aircraft, or watercraft to which this product may be attached or connected.

THE FOREGOING IS YOUR SOLE REMEDY FOR FAILURE IN SERVICE OR DEFECTS. SONETICS CORPORATION SHALL NOT BE LIABLE UNDER THIS OR ANY IMPLIED WARRANTY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, NOR FOR ANY INSTALLATION OR REMOVAL COSTS OR OTHER SERVICE FEES. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS OF USE, WHICH ARE HEREBY EXCLUDED. TO THE EXTENT THAT THIS EXCLUSION IS NOT LEGALLY ENFORCEABLE, THE DURATION OF SUCH IMPLIED WARRANTIES SHALL BE LIMITED TO ONE YEAR FROM DATE OF PURCHASE. NO SUIT FOR BREACH OF EXPRESS OR IMPLIED WARRANTY MAY BE BROUGHT AFTER ONE (1) YEAR FROM DATE OF PURCHASE.

Subject to the terms and limitations of this Sonetics Standard Limited Warranty, this warranty covers any new covered product found to be defective within the applicable warranty period. Sonetics reserves the right to examine the alleged defective covered product to determine whether this Sonetics Standard Limited Warranty is applicable, and final determination of warranty coverage lies solely with Sonetics. If Sonetics determines that warranty coverage applies, Sonetics reserves the right to either repair or replace a covered product or any part thereof, as determined by Sonetics in its sole discretion. If the product has been subjected to conditions which exclude coverage under the warranty, customer will be so advised. Customer may then authorize paid repair service or other disposition of the product. Notwithstanding any other provision of this warranty, if you sell or otherwise transfer ownership of your covered product, this Sonetics Standard Limited Warranty shall automatically terminate.

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regulatory information
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