

STARSOUND[®]

s y s t e m 4 0 0

infrared hearing system



user guide

PE 420E master emitter

PE 421E slave emitter

PE 400R/401R receivers

)))))) **PhonicEar[®]**

specs available on-line at www.phonicear.com

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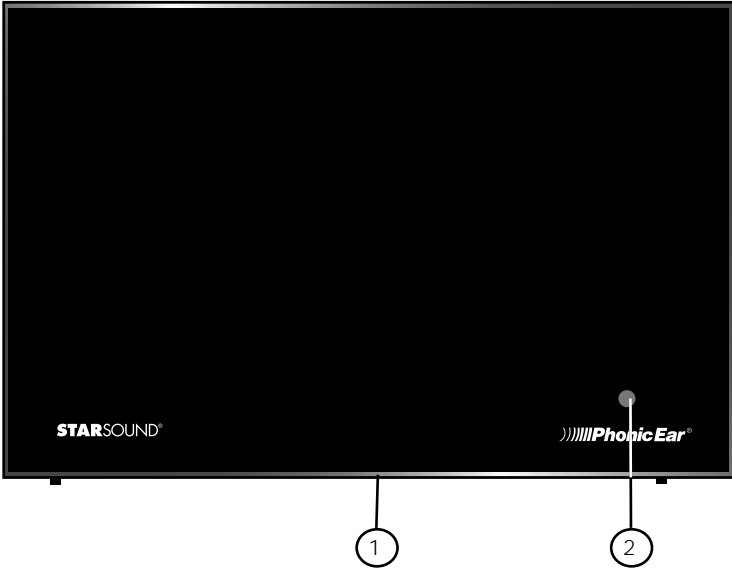
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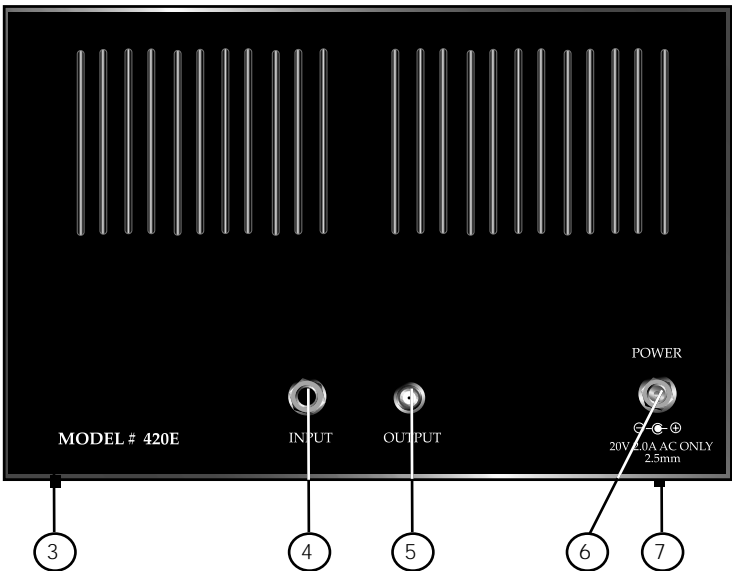
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master emitter: PE 420E

Front



Back

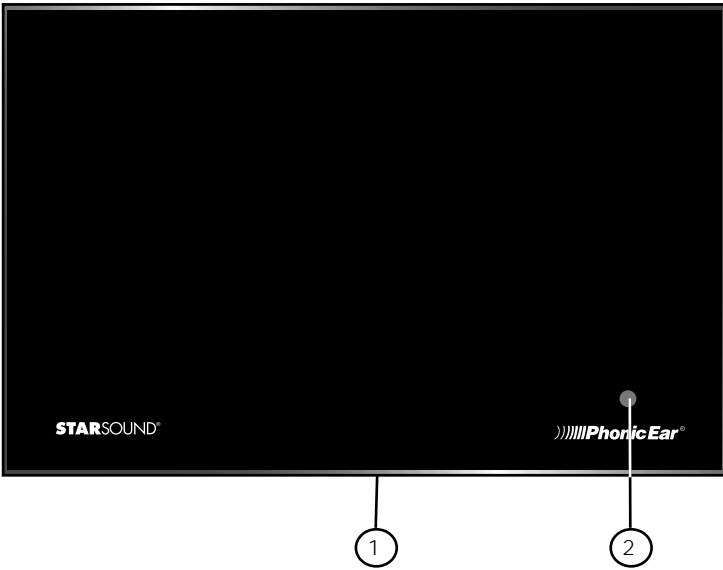


master emitter: PE 420E (cont'd)

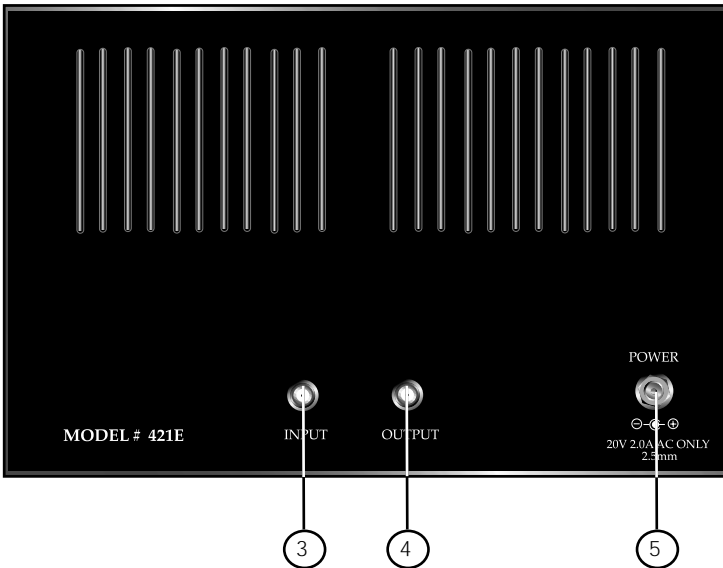
- ① mounting hole
- ② 3-mode performance indicator
 - Solid* = normal
 - Flashing 1x/sec* = inoperative diodes – call for service
 - Flashing 3x/sec* = attenuation switch is set improperly – see 3A
- ③ attenuation switch
- ④ line input (0.25in jack)
- ⑤ line output (BNC jack)
- ⑥ power
- ⑦ transmission frequency switch

slave emitter: PE 421E (requires PE 400T or 420E)

Front



Back

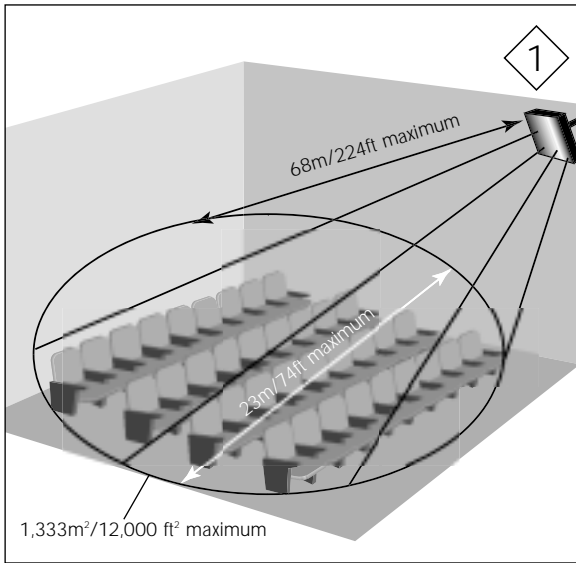


slave emitter: PE 421E (cont'd)

- ① mounting hole
- ② 2-mode performance indicator
Solid= normal
Flashing 1x/sec= inoperative diodes –
call for service
- ③ carrier input (BNC jack)
- ④ carrier output (BNC jack)
- ⑤ power

StarSound 400 setup and operation

1 where to mount it



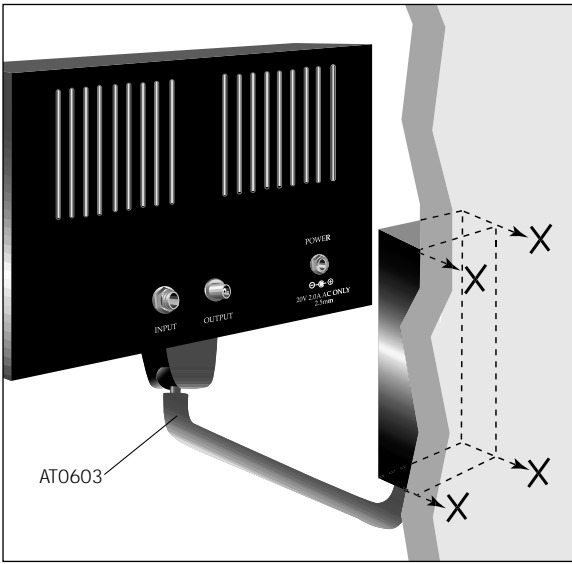
1 Point emitter toward listening area

2a floor/table mount

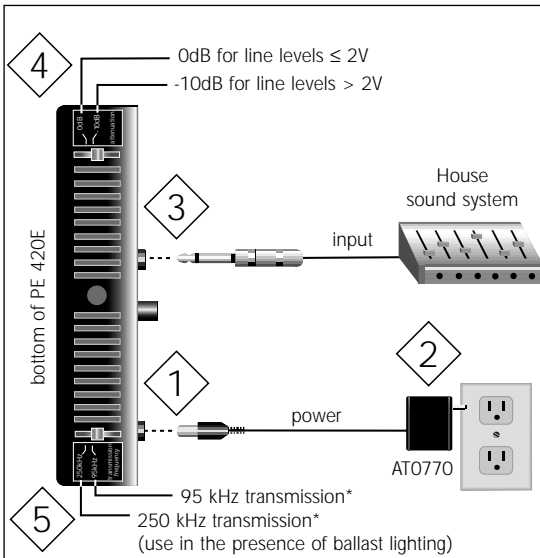


StarSound 400 setup and operation (cont'd)

2b adjustable wall mount



3 master emitter installation



- 1 Plug AT0770** transformer and cord into emitter
- 2 Plug AT0770** transformer and cord into wall socket
- 3 Plug house sound system into emitter (house system output is typically labeled HI)
- 4 Check attenuation setting
- 5 Check transmission frequency setting

*make sure frequency matches receivers

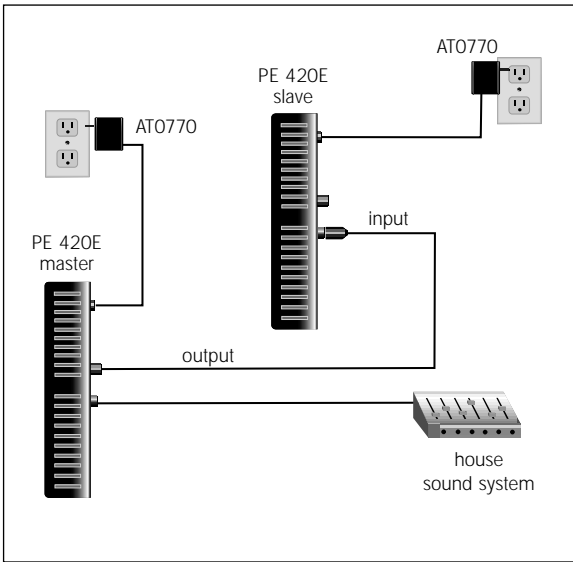
**The AT0770 is composed of an AT0724 transformer and an AT0755 cord

StarSound 400 setup and operation (cont'd)

4

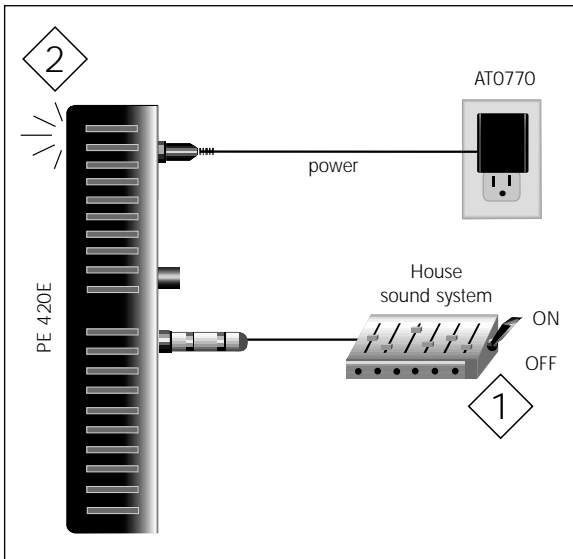
expanding coverage

For coverage greater than 1,333m²/12,000ft² you can daisy chain an unlimited number of slave emitters.



5

how to use it



1 Turn on house sound system and present test signal

2 Confirm performance indicator is solidly lit

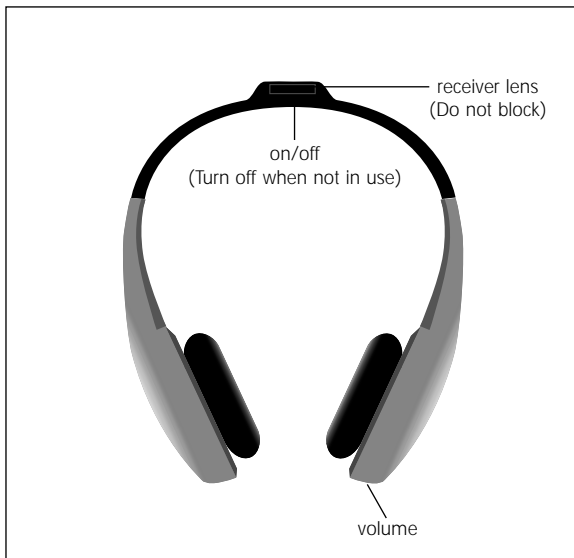
NOTE: Built-in automatic level control requires no adjustment

StarSound 400 setup and operation (cont'd)

6a headset receiver* battery installation



6b headset receiver* operation

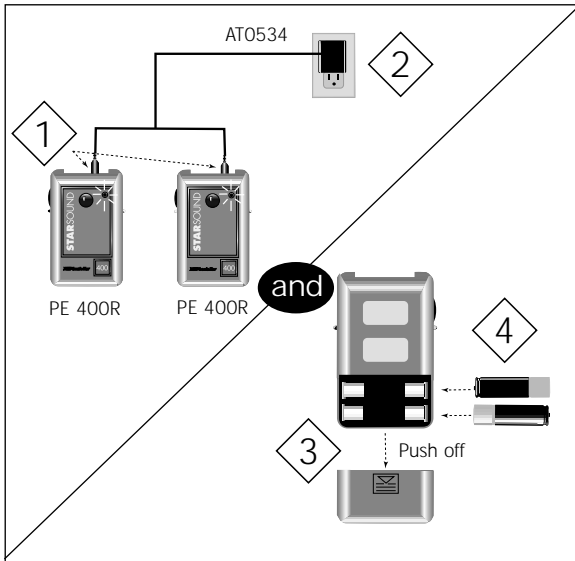


NOTE: Headsets can work with T-coil-equipped hearing aids—set hearing aid to “T” position

*PE 420E users: Make sure emitter transmission frequency is set to 95kHz for PE 401R receivers or to matching frequency for PE 400R receivers (see [3](#))

StarSound 400 setup and operation (cont'd)

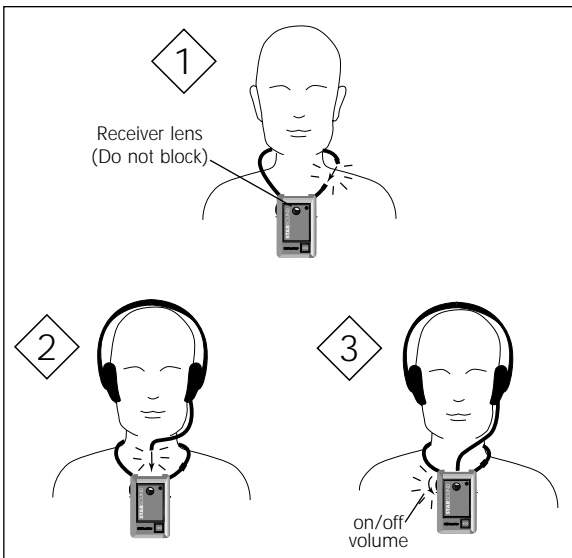
7a body-worn receiver* battery management



- 1 Plug AT0534 charger into 400R receiver(s)
- 2 Plug AT0534 charger into wall socket
- 3 Push off battery compartment door
- 4 Place new AA batteries into battery compartment

NOTE: Never recharge alkaline batteries!

7b body-worn receiver* operation



- 1 Place body-worn receiver around neck
- 2 Plug headphones into receiver
- 3 Turn receiver on and adjust volume.

*PE 420E users: Make sure emitter transmission frequency is set to 95kHz for PE 401R receivers or to matching frequency for PE 400R receivers (see [3](#))

troubleshooting (refer to previous pages for explanatory diagrams)

no sound from the receiver

- Check the receiver volume control setting (see [6B] or [7B])
- Check that the receiver lens is clear and facing the emitters (see [6B] or [7B])
- Recharge or replace the batteries (see [6A] or [7A])
- Check connections (see [3])
- If emitter performance indicator is not lit, see “emitter performance indicator won’t light” below

weak or distorted sounds from the receiver

- Check for correct fitting of earphones or headset
- Check the volume control setting on receiver (see [6B] or [7B])
- Check that the receiver lens is clear and facing the emitters (see [6B] or [7B])
- Recharge or replace the batteries (see [6A] or [7A])
- Adjust house sound system controls
- If emitter performance indicator is flashing, see “emitter performance indicator flashes” below

noise or static

- If used in the presence of ballast lighting, change transmission frequency switch to 250kHz setting and use 250kHz receivers (PE 420E only – see [3])

emitter performance indicator flashes

- If flashing 3x/sec, change attenuation switch setting (PE 420E only – see [3])
- If flashing 1x/sec, one or more diodes may be inoperative; contact your service center

emitter performance indicator won’t light

- Make sure audio source is present at input
- Make sure power cord (AT0770) is plugged in

batteries won’t charge

- Verify that the power cord is plugged into the charger and into a working outlet; power light should be on (PE 300C only)
- Check the charge connections to the receiver
- Try a different charge cord
- Verify that the charge LED on the receiver lights up when the charge cord is plugged in
- Check that the receiver is turned OFF
- Check that the batteries are the rechargeable type

CAUTION: Never recharge alkaline batteries – they may rupture and damage the unit

product specifications

emitter: PE 420E

transmitting frequency	95 or 250 kHz (switchable)		
modulation	FM wide-band		
number of diodes	144		
3-mode performance indicator	normal diode fault audio overload	Solid 1Hz 3Hz	Blinking Blinking
time-out circuit power downtime on threshold	5 minutes		
power downtime on threshold	100mVrms (0dB)		
	1Vrms (-10dB)		
coverage	Up to 1,333m ² /12,000ft ² (elliptical pattern)		
input/output connections	2.5mm power jack 0.25in input jack BNC output jack		
line input levels	0dB setting 100mV – 2.5Vrms -10dB setting 1V – 22Vrms		
input/output impedance	Approximately 10k Ω		
input protection	2A Fuse		
power input	20VAC @ 2.0A		
operating current	1.2A		
operating voltage	20VAC		
current drain	1.4 A maximum		
mounting boss	0.25in (20 threads)		
size	66.6 x 29.2 x 18.1 cm / 11.5 x 7.125 x 2.625 in		
weight	855g / 30oz		
case	Aluminum with baked enamel finish and red acrylic lens		
maximum cable length	244m/800ft (use RG 58/u only)		

emitter: PE 421E

transmitting frequency	95 or 250 kHz (automatically switches to accommodate either frequency)		
modulation	FM wide-band		
number of diodes	144		
coverage	Up to 1,333m ² /12,000ft ² (elliptical pattern)		
input/output	2.5mm power jack		
connections	BNC input jack BNC output jack		
input protection	2A Fuse		
power input	20VAC @ 2.0A		
operating current	1.2A		
operating voltage	20VAC		
current drain	1.4A maximum		
mounting boss	0.25in (20 threads)		
size	66.6 x 29.2 x 18.1 cm / 11.5 x 7.125 x 2.625 in		
weight	855g / 30oz		
case	Aluminum with baked enamel finish and red acrylic lens		

product specifications (cont'd)

body-worn receiver: PE 400R

receiving frequency	95 or 250 kHz (factory-set)
modulation	FM wide-band
audio frequency	100Hz to 7 kHz \pm 3 dB
response	(electrical)
max sound pressure	134dB (with 100 Ω transducer) 113dB (with AT0541 headset)
signal-to-noise ratio	> 50dB
sqelch	25dB
power supply	2 AA NiCad or alkaline cells
operating time	35Hr between charges (NiCad) 100Hr (alkaline)
current drain	20mA, nominal volume setting
output/charge jack	3.5mm
detector lens	Infrared element with ambient light filter
user controls	On /Off / Volume
displays	Charging LED
color	Smoke grey with red and white lettering
size	2.5 x 9.4 x 5.6 cm / 1 x 3.7 x 2.2 in
weight	100g / 3.5oz
case	ABS Cycolac plastic
hearing aid interface	T-Coil reception capability

headset receiver: PE 401R

receiving frequency	95kHz
modulation	FM wide-band
audio frequency	60Hz to 7.5kHz \pm 3dB (electrical)
signal-to-noise ratio	> 40dB
power supply	2 AAA alkaline cells
operating time	70Hr
current drain	15mA, nominal volume setting
maximum output power	15mW (108 dB SPL)
detector lens	Infrared element with ambient light filter
power light	Red LED located on top
user controls	Volume /On /Off
color	Grey and black with red lettering
weight	156g / 5.5oz
hearing aid interface	T-coil reception capability

warranty

time period of warranty

This warranty will go into effect upon the date of purchase and will stay in effect as long as the instrument remains the property of the original owner. ONWAVE™ has a 3-year warranty; VOCALPORT™ and VOCALIGHT™ have a 2 year warranty. All other products have a 1 year warranty.

what is covered by this warranty

Any electronic component, which because of workmanship, manufacturing or design defects, fails to function properly under normal use during the life of this warranty will be replaced or repaired at no charge for parts or labor, when returned to the factory service center. Transportation in and out is paid by the customer. If it is determined that repair is not feasible, the entire unit may be replaced with an equivalent unit upon mutual agreement of the manufacturer and customer.

what is not covered by this warranty

This limited warranty does not apply to:

1. Malfunctions resulting from abuse, neglect or accident
2. Instruments connected, installed, used or adjusted in any manner contrary to instructions provided by the manufacturer
3. Consequential damages and damages resulting from delay or loss of this instrument. The exclusive remedy under this warranty is strictly limited to repair or replacement as herein provided
4. Products damaged in transit unless investigated by the shipper and returned to the warrantor with the investigation report
5. Peripheral accessories as itemized within the product specification sheet as applicable, when such items are returned within 90 days from original purchase
6. Batteries if applicable

Phonic Ear Inc. reserves the right to make changes in the design or construction of any of its instruments at any time without incurring any obligation to make any changes whatsoever on units previously purchased.

This warranty is in lieu of all other expressed warranties. All expressed and implied warranties will terminate upon the expiration of this written warranty. No representative or person is authorized to represent or assume for us any liability in connection with the sale or use of our products other than as set forth above.

what to do if you have questions

If you have any questions about service, call the service department at 800.227.0735, then press 7.

service

what to do if you need service

If you require service under the warranty terms, obtain a service order form either online at www.phonicear.com/support.asp or through our U.S. customer service department at 800.227.0735, then press 5 (or +1.707.769.1110 outside the U.S.). Fill the form out completely remembering to include:

1. Description of the problem
2. Your billing address
3. Your shipping address
(if different from billing address)
4. Contact name and phone number
5. A P.O. number if the equipment is not under a warranty or service contract

Then, carefully package the equipment in the original shipping container to prevent damage and send it postpaid to the service center near you:

USA/International:

Phonic Ear Inc.

3880 Cypress Drive
Petaluma, CA 94954-7600
U.S.A.

In Canada:

Phonic Ear Ltd.

10-7475 Kimbel Street
Mississauga, Ontario
L5S 1E7 Canada

what to do if you have questions

If you have any questions about service, call the service department at 800.227.0735, then press 7.

about your batteries

To ensure that your batteries are as fresh as possible upon arrival, we have intentionally not installed them in your equipment.

install your batteries in your equipment now, then charge overnight before initial use (see user guide for charging procedure).

avoid battery corrosion

To avoid battery corrosion and damage to your equipment, do not recharge disposable or rechargeable alkaline batteries. Before charging any Phonic Ear equipment make sure only NiCad or NiMH rechargeable batteries are installed. As an added precaution, remove batteries if the equipment will not be used for several weeks.

approvals

Phonic Ear receivers and transmitters are approved by the Federal Communications Commission in the U.S. and Industry Canada. Other government approvals available upon request. (Other international regulations may also apply.)

NOTE: FCC Rules, Part 15, Subpart A, 15.19 (a)(3) and (c.) This device complies with 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. Any changes or modifications made to any government-approved element of this wireless system without the expressed approval of Phonic Ear Inc. in writing could void the user's authority to operate those elements of the system. If any changes or modifications are made it will be the responsibility of the party performing the changes or modifications to ensure continued compliance with the FCC regulations, and that party is required to: (1) file for a new equipment authorization, or (2) relabel the product(s) with "This product has been modified by [insert the name, address and telephone number of the party performing the modification]."

us: 800.227.0735, then press 5 • canada: 800.263.8700
outside u.s./canada: Call your local Phonic Ear dealer • website: www.phonicear.com