

Thank you for your purchase of the NHT CS-6.1 Ci or CS-6.3 Ci in-ceiling loudspeaker. Please take a few minutes to read through this Owner's Manual prior to installing your new speakers. The information provided will help you to obtain maximum performance from your audio system. If you have questions or need assistance at any time during the installation or operation of your new speakers, please call your NHT Dealer or our Toll-Free Customer Hotline at:

**1-800-NHT-9993**

## Specifications

### CS-6.1 Ci

### CS-6.3 Ci

<b>System Type:</b>	2-way in-ceiling design	2-way in-ceiling design
<b>Driver Complement:</b>	6.5" long-throw polypropylene woofer and 1" soft dome tweeter, coaxially mounted	6.5" long-throw polypropylene woofer and 3 x 1" soft dome three-tweeter array
<b>Crossover:</b>	2.2KHz, 18dB/octave high-pass and 12dB/octave low-pass	2.2KHz, 18dB/octave high-pass and 12dB/octave low-pass
<b>Response:</b>	69Hz - 20KHz, +/-3dB	66Hz - 20KHz, +/-3dB
<b>Sensitivity:</b>	86.5dB (2.83V at 1M)	86.5dB (2.83V at 1M)
<b>Impedance:</b>	8 ohms nominal	8 ohms nominal
<b>Recommended Power:</b>	10W/ch minimum, 100W/ch maximum	10W/ch minimum, 100W/ch maximum
<b>Inputs:</b>	Spring clips	Professional grade spring posts
<b>Weight:</b>	4.6 lbs. each	5 lbs. each
<b>Cutout Diameter:</b>	8-13/16" (without PCB: 8-1/2")	8-13/16" (without PCB: 8-1/2")
<b>Bezel Diameter:</b>	9-11/16"	9-11/16"
<b>Depth behind wall:</b>	4-13/16"	4-13/16"
<b>Finish:</b>	Matte white (paintable)	Matte white (paintable)

Specifications are subject to change without notice, in accordance with our policy of continuously upgrading the performance of our products.

## ■ Design

NHT loudspeakers are designed to deliver refined, musical sound from attractive and affordable packages. Our efforts are guided by the study of human hearing and are optimized for real-world use. Every NHT speaker undergoes rigorous testing and quality control at the factory to ensure you years of listening pleasure.

The CS-6.1 Ci and CS-6.3 Ci are designed to deliver the sonics and value of NHT's acclaimed freestanding speakers, while offering the invisibility of in-ceiling installation. The drive units are custom-designed to achieve a level of performance not normally associated with in-ceiling speakers, while its intuitive mounting system makes it ideal for new or existing construction. The CS-6.1 Ci features one coaxially mounted tweeter, while the CS-6.3 Ci employs NHT's innovative three-tweeter array for more even sound dispersion to a wider range of listening areas.

**Caution:** *The CS-6.1 Ci and CS-6.3 Ci should be installed by an experienced and licensed custom installation professional. Be sure that the installer possesses sufficient skill, the proper tools, knowledge of local fire and building codes, and a familiarity with the structure of the building (especially wall and/or ceiling materials, layouts, electrical and plumbing lines, etc.).*

## ■ Placement

The CS-6.1 Ci and CS-6.3 Ci are designed for in-ceiling installation between standard 2" wood joists. Their moisture-resistant drive units allow them to be installed in moisture-prone interior environments such as bathrooms, indoor swimming pool and sauna rooms. Outdoor use is not recommended.

Spend some time considering placement prior to installing the speakers. Once they are installed, they are permanent, so their location should be selected carefully. When possible, locate the speakers at least 3 feet from adjacent side walls. The speakers should be mounted on a flat surface to ensure a good seal between the baffle and the mounting surface. When possible, position the speakers so that they are equidistant from the most likely listening area. If the CS-6.1 Ci or

CS-6.3 Ci is going to serve as rear (surround) channels in a home theater system, make sure to install them toward the "rear" of the room (the opposite side from where the television will likely be). If you wish to get an idea how they will look, try taping the supplied cutout templates to the ceiling.

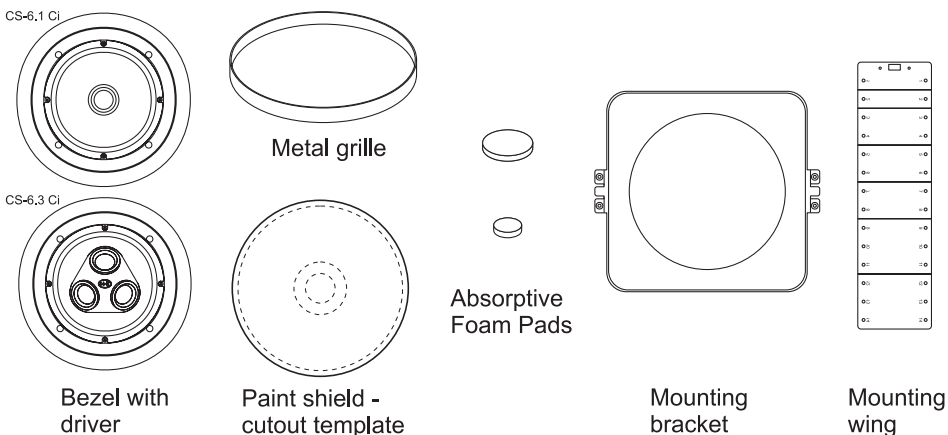
**Parts List (each speaker):**

"Speaker" pack includes:

- (1) Bezel with driver
- (1) Metal grille
- (2) Absorptive foam pads
- (1) paint shield - cutout template

"Mounting Bracket" pack includes:

- (1) Mounting bracket
- (2) Mounting wings
- (4) 5 x 50mm flathead screws



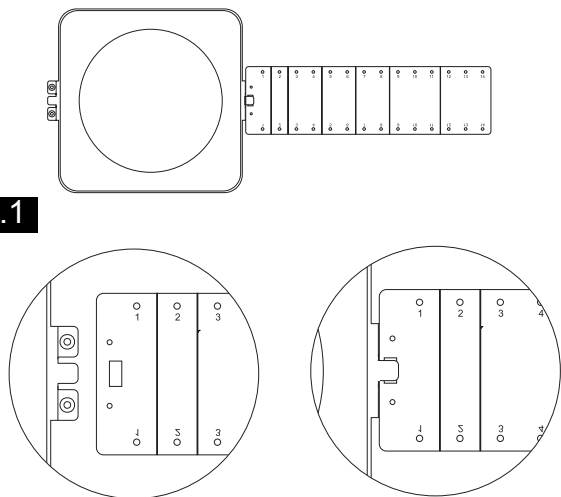
**Tools Needed:**

- #2 Philips screwdriver
- Pencil
- Tape measure
- Utility knife or keyhole saw
- Level
- Wire strippers
- Safety goggles
- Protective gloves

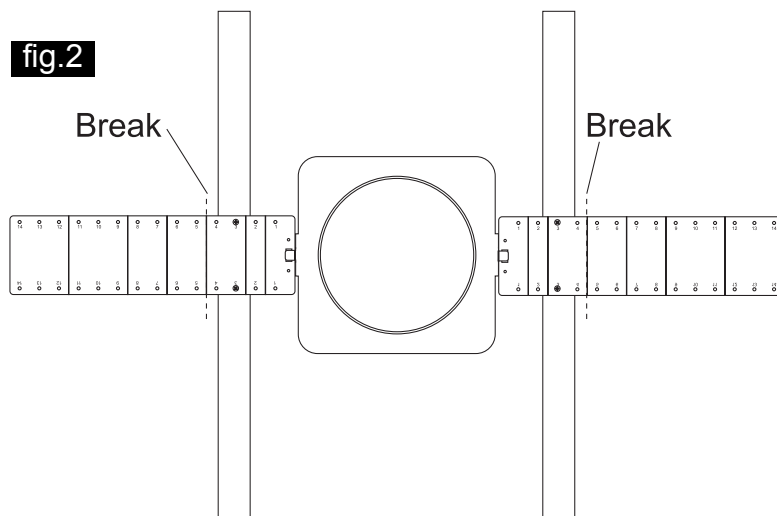
**Tech Tips: Pre-Wiring for New Construction**

1. For best results, avoid running speaker cable near electrical wire, as it may induce a 60Hz hum in the audio signal. It's a good idea to run the speaker cable after the electrical wiring has already been completed, so that you can route the speaker cable at least three feet away from the electrical wiring. If speaker cable and electrical wiring must run parallel, install the cable within a metal conduit. Note that low-voltage wiring (doorbell, intercom, telephone, security, etc.) are unlikely to induce hum and can typically be run parallel to speaker cable with no detrimental effects.
2. When drilling holes through wall studs or ceiling joists, use a drill bit that is at least as wide as the speaker cable that will be routed through them. Always drill through the center of the stud or joist. If the hole must be drilled within one inch of the edge of a wall stud, add a nail plate to the drywall side to protect the cable from possible nails and screws put in the wall later. Line up the holes in the studs or joists as you go, so that pulling the cable through them will be easier.

**fig. 1**



**fig. 2**



## ■ Installation: New Construction (unfinished ceilings)

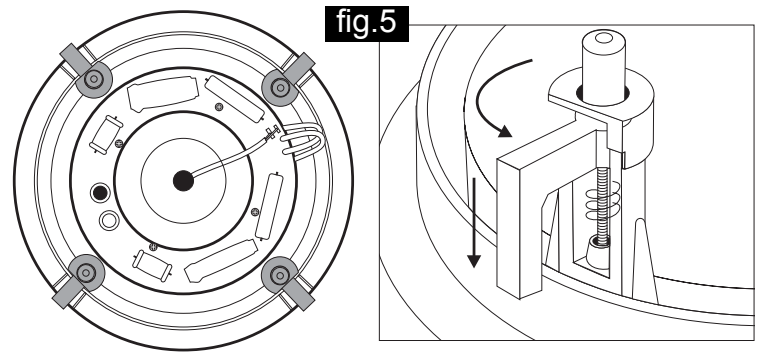
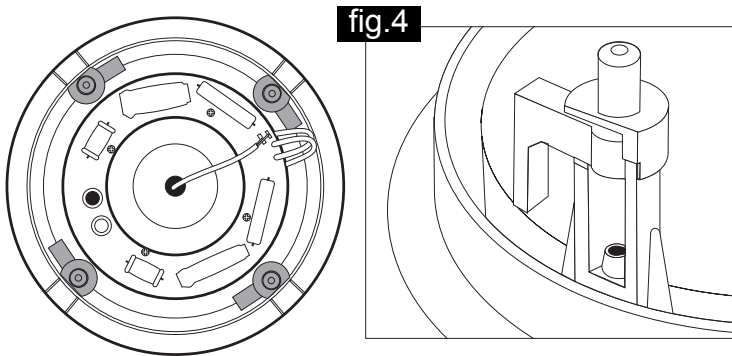
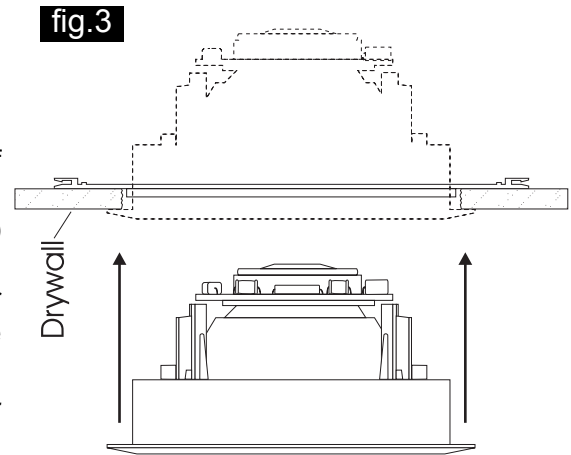
1. Once you've selected the desired location for the speaker, begin by installing the mounting bracket between adjacent ceiling joists. First attach the mounting wings to the bracket by inserting them into the locking plastic tabs in the side of the bracket (fig.1).

2. The wings feature progressively elongated sections (1", 1", 2", 2", 2", 3", 3") with screw holes spaced in one-inch increments. Attach the wings to the joists with the 5 x 50mm flathead screws. For maximum stability, use two screws for each wing. Break off the extra portion of the wing by snapping it at one of the pre-molded "break" lines (fig.2).

3. Complete the pre-wiring before the drywall goes up (see "Tech Tips: Pre-Wiring for New Construction"). Leave an extra few feet of speaker cable, and tie it to the mounting bracket for later.

4. During the drywall phase, cut a hole 8-13/16" around the bracket so that the drywall surrounds the protruding lip of the mounting bracket. Once installed, the bezel outer frame will extrude out about 1/2 inch beyond the perimeter of the cutout to hide minor imperfections in the cutout (fig.3).

5. After the drywall is complete, connect the speaker cable to the spring clips (CS-6.1 Ci) or spring posts (CS-6.3 Ci) on the back of the bezel, making sure to observe correct polarity (see "Connections").



6. The bezel (with driver) attaches to the bracket via four plastic mounting clamps on the back of the bezel that swivel to "sandwich" the drywall between the bezel frame and the clamps (fig.4). First rotate the mounting clamps counterclockwise so that the body of the bezel can slide through the mounting bracket. Exercise caution not to damage the driver.

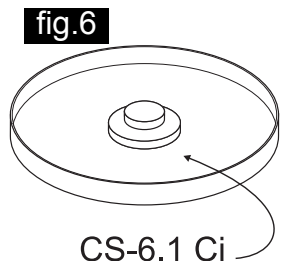
7. Holding the bezel in one hand, rotate the mounting clamps via the four Philips-head screws surrounding the driver on the front of the bezel (fig.5). Tighten screws snugly, making sure not to over-tighten, as this may compromise the fit of the bezel. The use of power screwdrivers is not recommended. The absorptive strip on the drywall side of the bezel frame reduces unwanted vibrations against the drywall and will compress slightly to allow the bezel frame to rest flush against the wall.

8. If the bezel frame and grille are to be painted in the ceiling, install the paint shield to protect the driver from overspray (see "Painting"). Once painting is complete, remove the paint shield and set it aside for use in Step #9.

9a. (CS-6.1 Ci only) The CS-6.1 Ci uses **two absorptive foam pads** on the inside of the grille to control sound radiation (fig.6). There are two circular sections in the center of the paint shield that serve as templates for attaching them. Punch out the larger circle, and the smaller circle from within it. Place the paint shield (minus the circular sections) on the inside of the metal grille and attach the larger absorptive pad onto the grille through the circular cutout. Then attach the smaller absorptive pad on top of the larger pad, using the larger cutout circle as a template. When attached correctly, the two pads resemble a stepped cone.

9b. (CS-6.3 Ci only) The CS-6.3 Ci uses **one absorptive foam pad** on the inside of the grille to control sound radiation (fig.6). There are two circular sections in the center of the paint shield that serve as templates for attaching it. Punch out the larger circle (not the smaller circle within it). Place the paint shield (minus the circular section) on the inside of the metal grille and attach the larger absorptive pad onto the grille through the circular cutout. Do not attach the smaller absorptive pad.

10. Attach the metal grille by inserting it into the grooves in the bezel.

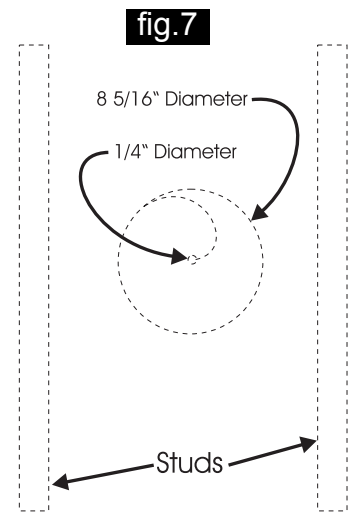


CS-6.1 Ci

## ■ Installation: Existing Construction (retrofitting finished ceilings)

**Warning:** Exercise caution when drilling into existing ceilings. Do not drill through existing wires, pipes, conduits, heating or air conditioning ducts. If you feel resistance while drilling, stop immediately. Do not install the speaker into a drop ceiling or soft ceiling, as this type of construction will not support its weight.

1. Using a studfinder or the “knocking” method, locate the joists in the ceiling area where you wish to mount the speaker. The speaker will be mounted between adjacent joists, no closer than two inches from either joist.
2. Determine that there are no obstructions above the desired cutout area. This may be accomplished by drilling a hole in the center of the cutout area and using an “L”-shaped piece of metal (like a coat hanger) to “feel around” above the ceiling. If you discover an obstruction, fill the hole with patching compound and try another location.
3. If there are no obstructions found above the ceiling, use the supplied cutout template and a pencil to draw a 8-1/2” diameter outline of the area to be cut out. Begin by drilling a hole on the inside of the circle with a 1/4” bit. Then cut out the ceiling section with a utility knife or keyhole saw, following the line traced around the cutout template (fig.7). If the ceiling is painted, use the keyhole saw. Once installed, the bezel outer frame will extrude out about 1/2 inch beyond the perimeter of the cutout to hide minor imperfections in the cutout.
4. If the ceiling is constructed of lath and plaster, outline the penciled circle with masking tape, drill a 1/4” hole, and use a utility knife to cut through the plaster down to the lath. Use a saber saw with a metal cutting blade or a pair of tin snips to



### Tech Tips: Optimizing Sonic Performance

Bass response is smoothest when the speaker is mounted into a rigid ceiling that flexes very little. For improved performance, add 2”x 4” cross-braces horizontally roughly one foot to either side of the speaker location. Use wood glue and extra screws when attaching the drywall to the joists around the speaker. Additionally, once the speaker cutout has been made in the drywall, add a strip of wood glue where the drywall meets the joists and cross-braces.

For more controlled bass response, add insulation to the ceiling cavity around and behind the speaker to provide acoustic damping. Be sure to add the same amount of insulation to speakers in the same room to ensure consistent sound. Use R-12 or R-19 fiberglass insulation, and be sure to wear protective gloves to avoid contact with the fibers. If the insulation is paper- or foil-faced, position the paper or foil side away from the speaker. If the new or existing insulation is the “loose” type, place a thin sheet of fiberglass over the top of the speaker to keep out small debris.

gently cut through the lath, being careful not to vibrate plaster off the ceiling.

5. To mount the CS-6.1 Ci or CS-6.3 Ci into an existing ceiling, the use of a mounting bracket is optional.
6. Connect the speaker cable to the spring clips (CS-6.1 Ci) or spring posts (CS-6.3 Ci) on the back of the bezel, making sure to observe correct polarity (see “Connections”).
7. The bezel (with driver) mounts to the existing ceiling via four plastic mounting clamps on the back of the bezel that swivel to “sandwich” the bezel in place between its protruding outer frame and the rear surface of the drywall. First rotate the mounting clamps counterclockwise so that the body of the bezel can slide through the cutout in the ceiling. Exercise caution not to damage the driver (fig 4).
8. Holding the bezel in one hand, rotate the mounting clamps via four Philips-head screws surrounding the driver on the front of the bezel (fig 5). Tighten screws snugly, making sure not to over-tighten, as this may compromise the fit of the bezel. The use of power screwdrivers is not recommended. The absorptive strips on the back the bezel frame reduce unwanted vibrations against the drywall and will compress slightly to allow the bezel frame to rest flush against the ceiling.
9. If the bezel frame and grille are to be painted in the ceiling, install the paint shield to protect the driver from overspray (see “Painting”). Once painting is complete, remove the paint shield and set it aside for use in Step #10.
- 10a. **(CS-6.1 Ci only)** The CS-6.1 Ci uses **two absorptive foam pads** on the inside of the grille to control sound radiation (fig.6). There are two circular sections in the center of the paint shield that serve as templates for attaching them. Punch out the larger circle, and the smaller circle from within it. Place the paint shield (minus the circular sections) on the inside of the metal grille and attach the larger absorptive pad onto the grille through the circular cutout. Then attach the smaller absorptive pad on top of the larger pad, using the larger cutout circle as a template. When attached correctly, the two pads resemble a stepped cone.
- 10b. **(CS-6.3 Ci only)** The CS-6.3 Ci uses **one absorptive foam pad** on the inside of the grille to control sound radiation (fig.6). There are two circular sections in the center of the paint shield that serve as templates for attaching it. Punch out the larger circle (not the smaller circle within it). Place the paint shield (minus the circular section) on the inside of the metal

grille and attach the larger absorptive pad onto the grille through the circular cutout. Do not attach the smaller absorptive pad.

11. Attach the metal grille by inserting it into the grooves in the bezel.

## ■ Painting

The bezel frame and grille of the CS-6.1 Ci and CS-6.3 Ci are finished in a matte white powder-coated finish that may be painted to match the ceiling. The frame and grille may be painted either before or after the speaker is installed. Keep in mind that the grille contains hundreds of tiny holes that are essential to the sound of the speaker. Take care not to cover these holes with paint.

1. Paint the bezel frame and the grille at the same time using the same paint. Use the supplied paint shield to protect the driver and inside of the bezel from overspray. Fold the edge of the shield down and insert it into the groove in the bezel where the grille would attach. Be careful not to punch through the round hole in the middle.
2. When using spray paint, apply two thin coats, making sure to let the first coat dry completely before applying the second. This will avoid running. When using a compressor and spray gun, apply the paint using its finest setting. Painting with a brush is not recommended, but when necessary be sure to thin the paint so as not to cover the holes in the grille. If paint does cover any of the grille holes, poke them out with a paper clip.
3. Once painting is complete, remove the paint shield from the bezel by carefully punching out the round hole in the middle, and using this hole to pull the shield free. Keep the paint shield and the round cutout, as they will serve as templates for attaching the absorptive foam pad(s) to the inside of the grille.

## ■ Connections

***Before connecting speakers to your system, it is important that you turn off the power to your amplifier / receiver to avoid damage to the equipment. Before installing the CS-6.1 Ci or CS-6.3 Ci, map out the wiring paths between the speakers and the amplifier. Make sure that the speaker cable does not rest on sharp or pointed objects.***

The CS-6.1 Ci and CS-6.3 Ci are compatible with virtually all quality amplifiers. Proper wiring of the speakers is essential to good sound. At a minimum, 16AWG 2-conductor speaker cable is recommended for runs of 10 feet or less, with heavier special purpose speaker cable used for longer runs. ***When permanently installing cable inside walls, be sure to use cable that is rated for in-wall use and has special jacketing for fire prevention. In the U.S., the U.L. standard is CL-2, CL-3 and CM cable, and in Canada the CSA standard is FT4 cable. The cables should be run in accordance with National Electrical Code and any applicable local building codes.*** Prepare the cable by stripping 1/4" to 3/8" of insulation from the ends and twisting the exposed wire strands tightly. The spring-loaded binding posts on the back of the speakers will accept raw wire only.

***Be sure to wire both the left and right speakers "in-phase." That is, the Positive (red) terminal on the amplifier output must be connected to the corresponding Positive (red) terminal on the speaker. Likewise with the Negative (black) terminals.*** All speaker cables have some sort of marking along one or both conductors to help you make the correct connections. Incorrect speaker phase is indicated by weak bass and the lack of a well-defined stereo image.

## ■ Operation

The CS-6.1 Ci and CS-6.3 Ci are designed to handle a wide range of listening levels, but every speaker has limits. It is important to use common sense and listen for signs of possible distress from the speakers. Underpowered amplifiers are most often the cause of speaker damage. For example, a 60-watt amplifier runs out of power when called upon to produce more than 60 watts, and the resulting distortion can damage the speaker. If you tend to listen at high volume levels, more powerful amplifiers are preferable because they are less likely to run out of power.

Noticeable distortion or harsh breakup is an indication that either your amplifier or your speakers are running beyond their capacity, and the volume should be decreased. Speaker damage most often occurs from sustained high volume levels, not from transient sounds or brief musical peaks. Excessive boosting of bass, treble or equalizer controls can worsen the problem, and is not recommended.

## ■ Maintenance

The CS-6.1 Ci and CS-6.3 Ci require minimal maintenance under normal use. The grille and bezel frame may be cleaned using a damp cloth or a mild, non-abrasive cleaner. Do not expose the speakers to direct sunlight or high temperatures. Do not attempt to clean the actual drivers.



# **CS-6.1 Ci and CS-6.3 Ci**

In Ceiling Loudspeakers

**OWNER'S MANUAL**

**Now Hear This**  
535 Getty Court  
Benicia, CA 94510  
800-NHT-9993

## **Limited Warranty Valid Only in the U.S.A.**

### **Warranty Period**

For the period of 5 years for parts and 5 years for labor from date of original purchase (the warranty period) from an authorized NHT dealer, Now Hear This (NHT) warrants that if our product fails to function properly under normal use due to a manufacturing defect when installed and operated according to the owner's manual instructions enclosed with the unit, it will be repaired or replaced with a unit of comparable value at the option of NHT without charge to you for parts or actual repair work. Parts supplied under this warranty may be new or rebuilt at the option of NHT.

### **What's Not Covered**

This warranty does not cover any product which is used in any trade or business, or in an industrial or commercial application.

This warranty does not cover the cabinet or any appearance item, or any damage caused to the product resulting from: alterations, modifications not authorized in writing by NHT, accident, misuse or abuse, damage due to lightning or power surges, or being subjected to power in excess of the speaker's published power rating.

This warranty does not cover the cost of parts which would otherwise be provided without charge under this warranty, obtained from any source other than an authorized NHT service location. This warranty does not cover defects or damage caused by the use of unauthorized parts or labor or from improper maintenance.

**Altered, defaced or removed serial numbers void this warranty.**

### **Your Rights**

The liability of NHT will be limited to the purchase price of the product, and NHT will not be liable for incidental or consequential damages. NHT limits its obligations under any implied warranties under state laws to a period not exceeding the warranty period. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages. The above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

### **To Obtain Service**

NHT has appointed a number of authorized service companies throughout the USA should your product ever require service. To receive warranty service, you will need to present your sales receipt showing place and date of original owner's transaction.

To find the name and address of the nearest authorized NHT service location, call or write: **Customer Service Department, Now Hear This, 6400 Goodyear Road, Benicia, CA 94510. 800-NHT-9993.**

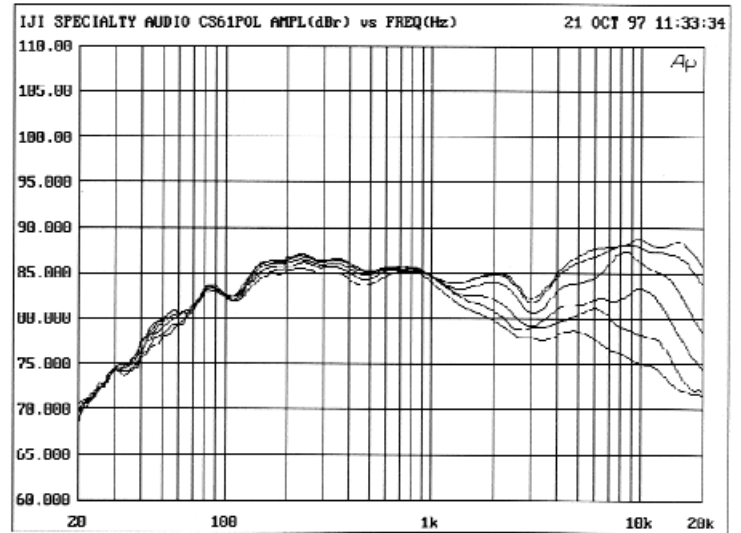
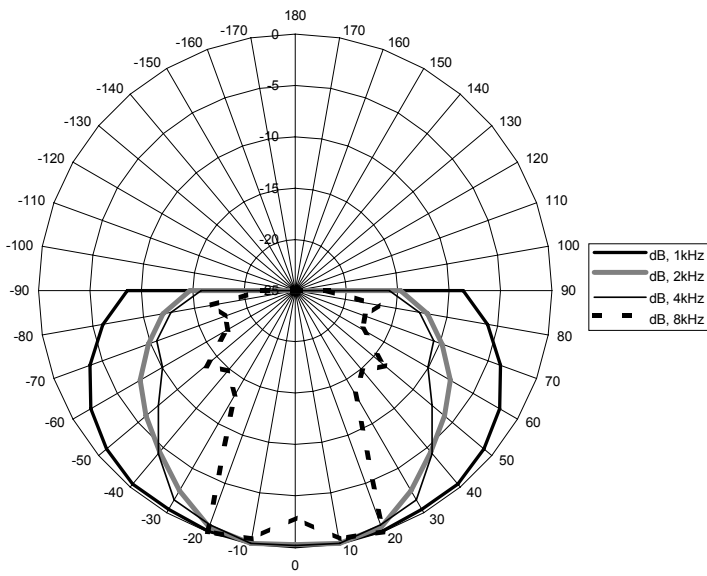
Please do not return product to this address. It is not a service location.

**Keep this warranty with your sales receipt. Record date and place of purchase for future reference.**

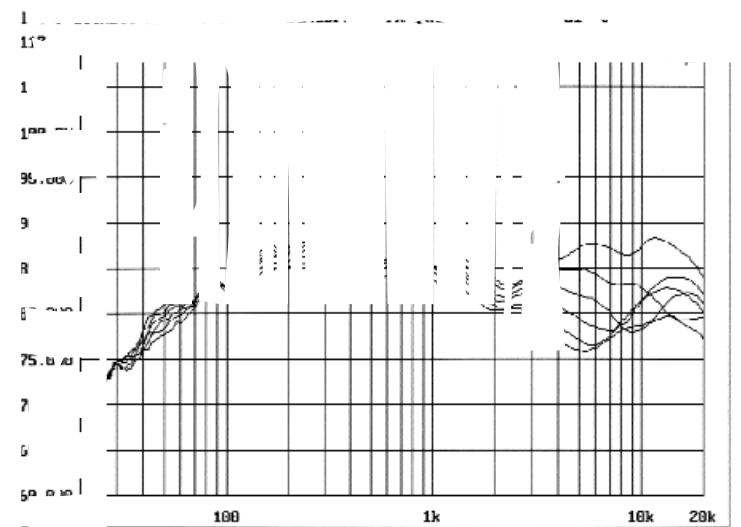
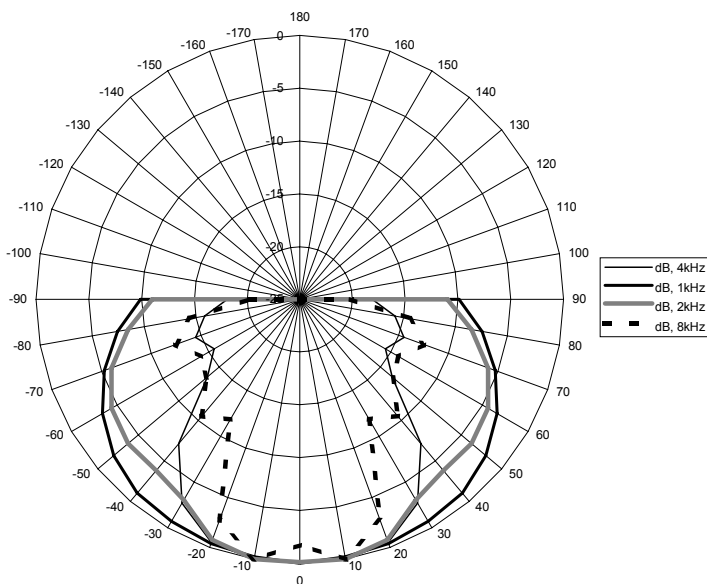
## Tech Tips: Placement

For best results, position the CS-6.1 Ci and CS-6.3 Ci 20 to 30 degrees off-axis from the listening position. The polar plots below indicate smoother frequency response from these areas.

### CS-6.1 Ci



### CS-6.3 Ci





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