iCONYX

Digitally Steerable Line Array Loudspeaker Systems

IC Live

ICL-R

Digitally Steerable Line Array

IC215S-R

Dual 15 Inch Subwoofer

OPERATORS GUIDE

RHAON EMPOWERED

RENKUS-HEINZ

General Information

IC Live line array systems were developed specifically for live event productions. They are ideally suited for a wide range of event types and sizes, are easy to transport and setup, and deliver superior sound in a broad spectrum of environments.

Thanks to digitally controlled beam steering they deliver narrow vertical beams of sonic energy that can be directed onto the audience instead of reverberating off the walls and ceilings. Horizontal coverage is a consistent 150^{o} eliminating the need for left and right setups in most venues. Preset configurations for different size and shape venues reduce setup time to a minimum.

This guide was written to assist you in setting up and operating IC Live systems. A separate IC Live owners manual provides detailed system design instructions.

Common Setups

ICL-R digitally steered line arrays and IC215S-R subwoofers were designed to work together, both acoustically and mechanically with the subwoofer supplying both the extra bass impact needed by most musical productions and a solid mounting base for the tall slender columns. Together, the two building blocks form 6 useful configurations.

The unique interlocking hardware system with quick release pins joins the line array and the subwoofer together into a rigid assembly, allowing the subwoofers to be used as mounting bases for the columns. When used as a mounting base, the subwoofers also raise the line array above the floor.

ICL-R arrays perform best when their acoustic center, the point of origination for the narrow acoustic beam, is several feet above the ear level of the audience. If it's placed lower, too much of the sonic beam is absorbed by the first row of the audience and never reaches those in the rear. If it's placed much higher, the narrow vertical beam tends to" light up" the center of the audience and drop off in both the front and rear.

This puts the ideal height for the bottom of an ICL-R array at roughly four feet above the floor for a seated audience.

An IC215S-R standing on end is 4' tall making the combination of an ICL-R array mounted on top of a standing IC215S-R subwoofer an ideal arrangement for many setups.

An IC215S-R subwoofer laid on its side and a single ICL-R array work well when space is available for them on the stage. Mounting two stacked arrays on a single subwoofer is not recommended, as the assembly is unstable.

Operation Without Computer Control
This portion of the Users Guide assumes that all input connections have been made and that you are not using CobraNet digital audio for the program source. If you are using CobraNet digital audio, refer to the IC Live Users Manual for detailed instructions.

If you are working with a stacked array, the Slave (top) module is controlled by the Master module and most of the Slave's controls will be inoperative. Your connections need to be made to the lower Master module. You also need to make sure the CAT5 linking signal cable and the short AC power cable that links the two modules together are in place.

1. Plug in the power cord and/or turn on AC power to the Array. The ICL-R does not have a power switch. However it can be placed in or out of Standby with the Volume Up and Down push buttons. To change hold both buttons down for several seconds. The Power LED will glow when the amplifier is On.

2. Check the Preset read out display to make sure the correct preset is selected. If it isn't, use the Up & Down push buttons to select the desired preset. Then press the Enter button. The display will flash while the new preset is being loaded and return to a steady glow when the procedure is complete. If by accident, you select an empty preset, the dots following the numbers will flash to show no preset is being loaded (is available).

3. If you will be using an AES/EBU digital signal, make sure the AES/EBU input has been selected. The AES/EBU status LED will be glowing green if it is selected.

4. Check the setting of the Input Pad. The pad should be inserted if your analog input source has a high output level. When On, a 10 dB pad is inserted into the input circuit enabling the amplifier to handle input levels of up to + 24 dBu. The yellow LED will glow when the pad is inserted.

5. Set the amplifier's output level using the Volume Up & Down push buttons. Notice that when you are using these buttons the readout will display the level setting in dB. You can also mute the output by pressing the Mute button.

6. During the show monitor the amplifier's operation with the amplifier's status LEDs.

Computer Controlled Operation
Click on the RHAON icon on your computers desktop to open RHAON

Note: RHAON empowered systems feature several levels of password protection to prevent inadvertent or unauthorized changes of the control settings and you may be denied access to some or all of the control settings.

If your computer has been set up for password protection, opening RHAON will produce a Sign-In prompt asking for your password. You will be unable to proceed until you have entered your password. For more details on RHAON and password protection, please refer to your Users Manual.

Assembly

IC Live is a building block system designed for easy transportation, setup and teardown. It provides for 6 system configurations from two basic modules, the ICL-R array module and the IC215S-R subwoofer.

Setup couldn't be easier. To create a stacked array from two ICL-R modules:

1. Stand the two column arrays side by side and remove the two joining bars and their short quick release pins from the modules.

2. Place one of the modules on top of the other one. Note that the top module should be turned upside down so the horn sections of the two modules are together.

3. Align the two modules and then remove the quick release pin from the upper module's rear cylinder to allow its inner sleeve to drop down into the lower module's rear cylinder.

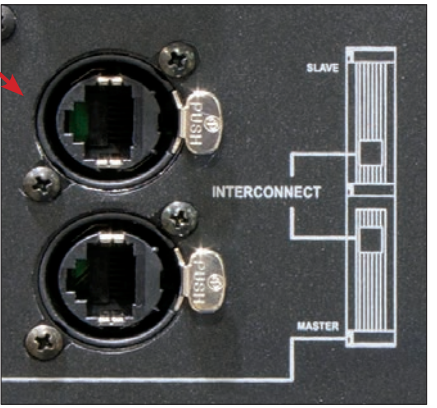
4. Then re-insert the quick release pin into the upper module's cylinder to lock the inner sleeve in place.

Assembly (continued)

5. Slide the two joining bars into the channels as shown and lock the joining bars into place with the short quick release pins to complete the physical assembly.

6. The next step is to electrically link the two modules together

Plug one end of the short CAT5 linking cable into the interconnect socket on the lower module and the other end into the socket on the upper module.

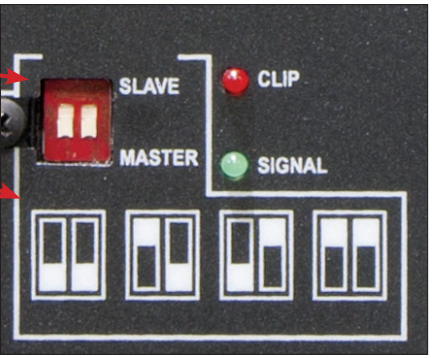


Then plug one end of the short AC power cable into the looping power socket on the lower module and the other end into the power socket on the upper module.

7. The final step is to verify that the setting of the Master/Slave dip switches is correct.

The lower module always functions as the Master and the upper module is the Slave. The dip switches should be set as shown in the graphic below. All signal and AC power connections should be made to the Master module.

When properly set both digital readouts in a dual array will read 20.



Master / Slave Dip Switches

Switch Setting Illustration

Note: If you connected power to the array before setting the dip switches, you will need to disconnect it and then reconnect it before the dip switch settings will take effect.

Do not attempt to mount a two array stack onto a subwoofer standing vertically. The resulting assembly is unstable.

The procedure for mounting an ICL-R array onto an IC215S-R subwoofer is the same. The only difference is the the array's rear cylinder sleeve drops into the socket on either the top or the end of the subwoofer. When mounting a stack (two ICL-R arrays) on top of one or two subwoofers, it is best to first mount the lower line array module onto the subwoofer and then attach the top line array. It's easier and safer.

System Wiring

IC Live arrays were developed for a wide range of different size and types of venues, including even large multi-array events. They include RHAON, the Renkus-Heinz Audio Operations Network, which provides operational control and supervision of multiple arrays from a remotely located computer and multi-channel digital audio distribution.

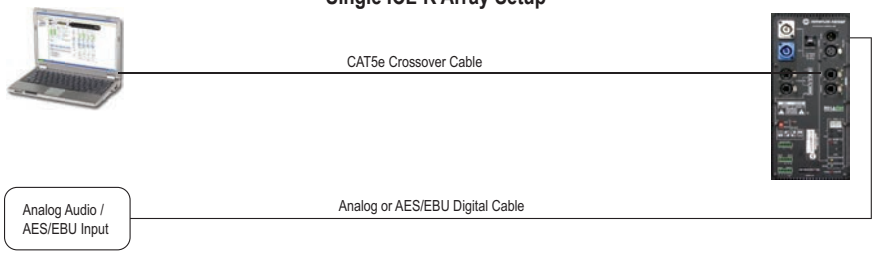
When remote computer supervision and control is not needed, IC Live arrays can be treated just like any other self-powered loudspeaker. Simply connect an analog audio signal, plug in the power, make sure the correct Preset is selected and adjust the level.

Although shown in the diagrams the computer, the Ethernet switch and its associated wiring are optional and needed only when remote computer control and monitoring of the system are required. The diagrams include remote computer control facilities so you can familiarize yourself with the equipment and wiring requirements. Notice that an Ethernet switch is not required in an single array setups. It is needed only when their are two or more devices, such as an array and a subwoofer.

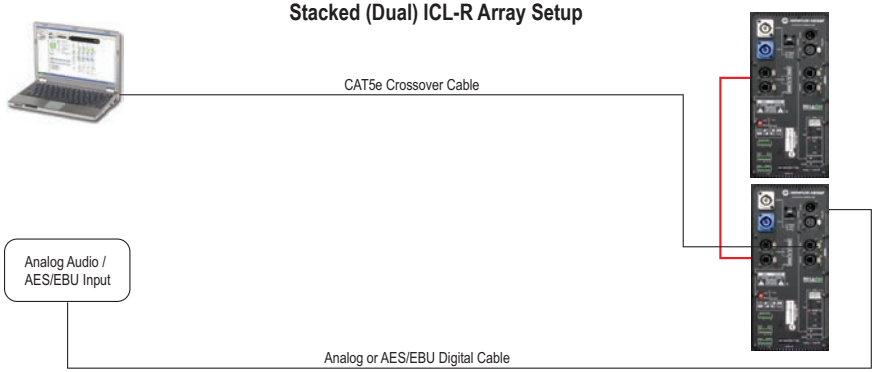
Satisfactory 100 BaseT Ethernet switches of many sizes (output ports) are available from a number of sources. Unmanaged switches are adequate for most applications. Managed switches are not required.

Systems using CobraNet digital audio distribution require either a suitable analog to CobraNet converter or a mixing console with a CobraNet output. Suitable analog to CobraNet converters are available from a number of sources, such as Biamp, Peavey and others. The converter's output would plug into one of the Ethernet switch ports.

Single ICL-R Array Setup

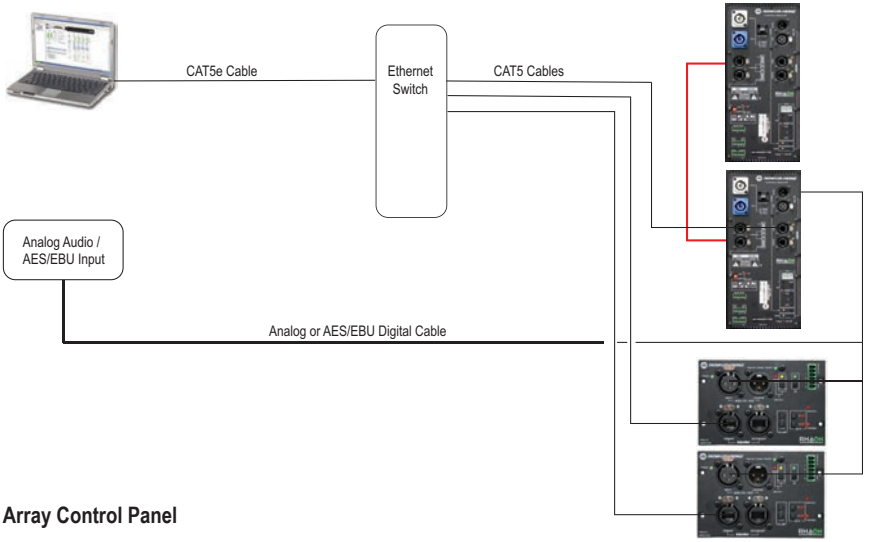


Stacked (Dual) ICL-R Array Setup

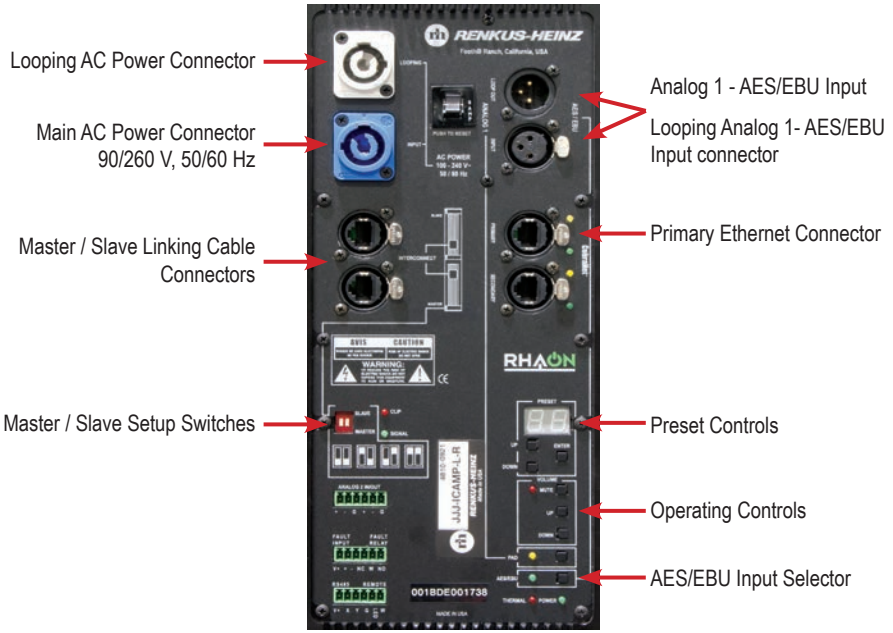


System Wiring (continued)

Stacked (Dual) ICL-R Array & Dual IC215S-R Subwoofers Setup



Array Control Panel

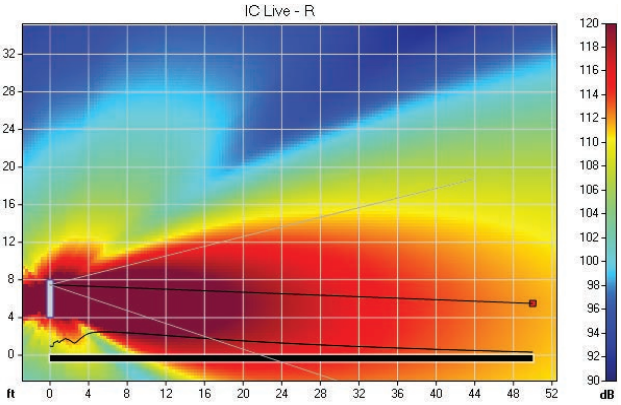


Note: If you are working with a stacked array and one or two subwoofers, make sure your power source (power strip) is adequate to handle the power drain. A stacked array will draw up to 13 Amps at 120 Volts and each IC215S-R needs a 15 Amp source.

ICL-R Presets

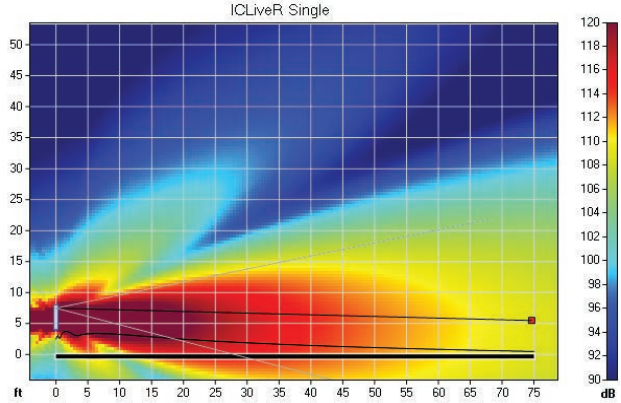
Preset 11

ICL-R with a 30 degree opening angle and a -2.27 degree aiming angle; suggested for venues with 50 foot deep audience areas.



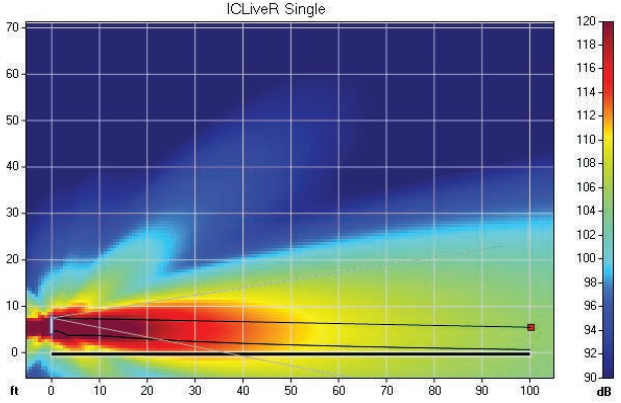
Preset 12

ICL-R with a 25 degree opening angle and a -1.53 degree aiming angle; suggested for venues with foot deep audience areas.



Preset 13

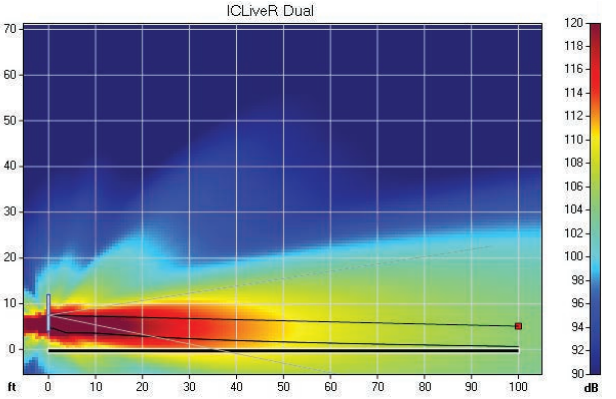
ICL-R with a 20 degree opening angle and a -1.14 degree aiming angle; suggested for venues with 100 foot deep audience areas.



ICL-R Presets (continued)

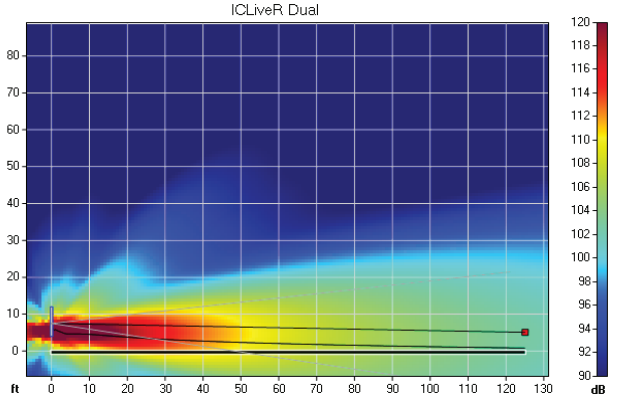
Preset 21

Stacked (Dual) ICL-R array with a 20 degree opening angle; provides better directivity control and higher sound levels in venues with 100 foot deep audience areas than a single ICL-R array.



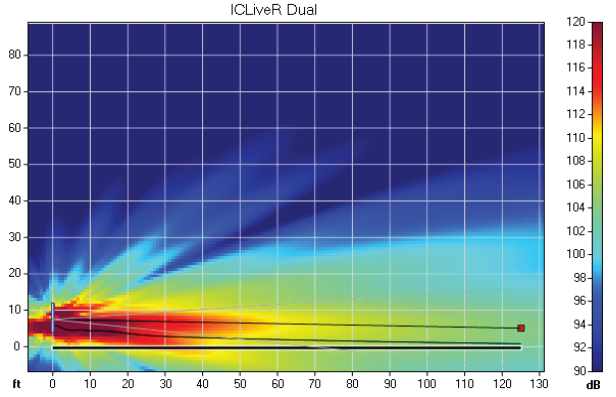
Preset 22

Stacked (Dual) ICL-R Array with a 15 degree opening angle; suggested for venues with 125 foot deep audience areas.



Preset 23

ICL-R with a 10 degree opening angle; suggested for venues having audience areas more than 125 feet deep.



Dual subwoofer assemblies combined with either a single ICL-R array or with two stacked ICL-R arrays are two other popular configurations.

The dual subwoofers provide the desired mounting height for the array(s) and enough bass for even the most demanding musical events.

Stacked ICL-R arrays provide tighter beam control than a single ICL-R and a much higher output level. They are especially desirable in reverberant rooms where tight control of the beam is needed to deliver clear speech over a considerable distance.

When only speech is involved and the bass support provided by the subwoofers is not needed, single or stacked ICL-R arrays are an ideal solution.

They can be attached to the truss work with Chesebrough clamps or by removing the array's rear pole/handle and using the pole clamps to secure the array to the truss.

ICL-R arrays are also equipped with Aeroquip fly-track, so they can also be easily flown from the truss with industry standard Aeroquip hardware.

Important:
If you will be controlling/supervising your RHAON empowered system with a laptop, do not close the laptop's lid or allow your laptop to go to sleep (hibernate) during operation. To prevent this set your laptop's Hibernation / Sleep settings to "Never".

Some CobraNet components may not wake up from hibernation when your computer awakens. Your system will continue to operate normally until you attempt to change any of the settings. For example, until you attempt to change your Presets (they won't load) or change your EQ settings and you can't save them to the loudspeaker(s). Communications between your computer and the loudspeakers on the network have been disrupted by the malfunctioning CobraNet components.

Note that this does not affect normal operation. Your system will continue to operate normally until you try to change some of the settings. If this occurs or some other Windows™ event causes the CobraNet components to malfunction, you will need to either Restart your computer or use the Windows Task Manager to return to normal operation. To use the Task Manager, close RHAON (and, if running, CobraNet Discovery) and use "Ctrl-Alt-Delete" to open the Task Manager. Select the "Processes" tab and look for 'PACNDISCO.EXE' and 'PASSBRIDGE.EXE' (Windows may shorten the names and add '~1'). Select them and click "End Process". Then re-open RHAON.

Computer Controlled Operation (continued)
When RHAON opens, select Scan Network from the menu in the upper left corner of the screen.

RHAON will then scan the Ethernet network for any connected loudspeakers and list them in the Network folder in the directory tree below the Scan Network command button.

Use your mouse to drag the array listing into the work space where it will show up as an Icon. The Status Bar at the bottom of the icon will be red while the array is being synced and then turn green. It will also turn red whenever the program detects a problem with the associated array. Double clicking on the Icon will open that array's Connect Properties window.

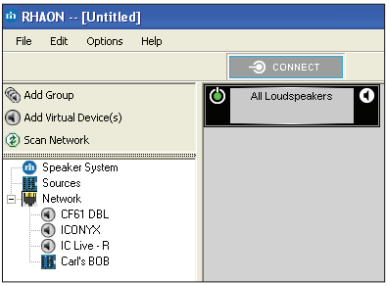
Selecting the Beams/Presets tab at the top of the RHAON workspace window will open the RHAON Beam Steering/Presets module and allow you to check what Preset configuration is selected or select a new Preset.

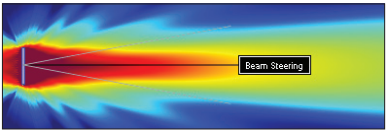
Selecting the Supervise tab will change the loudspeaker icons in the work space from the Connect mode to the Supervise mode. Three of the control buttons allow you to turn the array On or Off (Standby), to wink the array's wink light to help you identify it in multi-array setups and to mute its output. The other tells you if the array is receiving signal.

Double clicking on the icon will open the array's Supervision window which allows you to see at a glance how the array is performing and adjust its input gain (output level). You can also mute its output and turn the array On or Off (Standby).

The usual method of monitoring a multi-array system during a program is to watch the array icons in the work space. Green status bars mean everything is fine, yellow bars indicate the array is being overdriven and red bars indicate a problem has been detected. Double clicking on that array's icon will open its supervisory window and provide more details on the problem.

For more details on RHAON, refer to the IC Live Users Manual.





ICL-R Preset Listing

Single Array

10 - Factory preset to 'flat" and locked; for use in aural testing of transducers
11 - Beams factory preset for 50 foot throw and locked; DSP settings are not locked *
12 - Beams factory preset for 75 foot throw and locked; DSP settings are not locked *
13 - Beams factory preset for 100 foot throw and locked; DSP settings are not locked *
14 - See Note _____
15 - _____
16 - _____
17 - _____
18 - _____
19 - _____

Stacked Arrays

20 - Factory preset to 'flat" and locked; for use in aural testing of transducers.
21 - Beams factory preset for 100 foot throw and locked; DSP settings are not locked *
22 - Beams factory preset for 125 foot throw and locked; DSP settings are not locked *
23 - Beams factory preset for 150 foot throw and locked; DSP settings are not locked *
24 - See Note _____
25 - _____
26 - _____
27 - _____
28 - _____
29 - _____

* Factory installed presets do not include DSP settings and are left open so DSP settings can be added.

Note. Bean steering information is loaded into Preset 14 (24) by quality assurance during final performance testing to verify proper software/DSP operation. It is not locked and may be changed.

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