L1™ Model I System

Frequently Asked Questions

Focus Categories

The Technology

What is the L1™ Model I system?

The L1™ Model I system represents a new approach to amplification. This approach was designed to address the root cause of complaints by musicians and audience members regarding the quality of live amplified musical performances.

How does this approach work?

In the new approach mixer, PA speakers, monitors and backline amplifiers (e.g. guitar amps) are replaced by special Cylindrical Radiator® loudspeakers, which are located behind the musicians. These speakers have the unique ability to radiate sound evenly across the stage and into the audience with very little change in sound level.

The approach is naturalistic in that it mimics an acoustic instrument performance: Each player has control over his or her individual sound, and the sound comes from the multiple directions that correspond to the musician's positions on stage – a property of acoustic music known to enhance our ability to hear and appreciate individual instruments and voices in ensemble passages. The new approach has many integrated features that allow the user to set up the system in just minutes.

Is this technology better-suited for seasoned musicians who already have tons of gear, or for musicians who are just getting started and need a simple solution?

The system is equally valuable for the seasoned musician and the beginner. Experienced performers immediately will recognize that they can hear better and therefore play better, and they instantly appreciate the easy setup. Musicians who are starting will enjoy playing more because they'll spend more time playing and less time hassling with equipment. They will develop as better players because they can hear themselves and each other. All will benefit from the knowledge that the sound they produce on stage is what is radiated to the audience. Never again will they hear and think one thing, only to find out the audience heard something completely different when they asked "How did we sound?" after the performance.

What is the concept behind ToneMatch™ presets, and what are the benefits?

ToneMatch™ presets make it easy to get exceptional amplified tone from any voice or instrument when used with Bose® L1™ portable line array systems. When you select a proprietary ToneMatch preset for your microphone or instrument, you are tapping into a powerful new technology available only from Bose. A skilled studio engineer listened to the sound of your instrument being played through an L1 system, made adjustments to improve the sound quality and then saved those settings as a ToneMatch preset.

Now the high level of tone customization that most musicians experience only in a recording studio is available on stage at your live performances. Sound check can be as simple as plugging in your instrument or microphone and selecting the appropriate ToneMatch preset.

Are there similarities between the L1™ Model I system and line arrays currently in use?

Line arrays have been used for large concert performances as the PA component of a traditional triple amplification system. Unlike these large-venue systems, the L1™ Model I system is designed as a portable implementation of a line or pole-shaped source. It is designed to be positioned behind each musician, providing accurate coverage for musicians and audiences.

In nightclubs, you normally see very large loudspeakers for bass. How do your smaller bass enclosures compare? What makes them so special?

Bose has a number of propriety technologies for bass and has a long history of developing systems that produce high output in the bass range from smaller enclosures. The B1 bass module is no exception. The fact that it is used in an integrated system (with amplification and signal processing) means that performance can be enhanced in ways that a conventional component-based solution cannot. Large signal performance, for example, can be greatly improved with the use of a dedicated digital signal processor, which is built into the Model I power stand.

At the same time, the B1 bass module has been made modular, so that higher bass output can be created for instruments and styles that require it. An upright bass in a jazz trio might use only one bass module. On the other extreme, the electric bass in a 10-piece funk band might use four.

General (Product)

Does Bose plan to add to the L1™ product family?

In the spring of 2007, Bose announced the introduction of the L1™ Model II system. This system has many similarities to the L1™ Model I and features the introduction of the T1 ToneMatch™ audio engine. To learn more about the benefits and features of L1™ Model II system please visit www.Bose.com/musicians.

I already own an L1™ Model I or Model II system. Can I purchase the T1 separately and use it with the system?

Yes. The T1 is available for purchase separately and may be used with either an L1™ Model I or Model II system. When used with a Model II system, the audio is connected digitally via the ToneMatch™ ports. When used with a Model I, a separate power supply is required to power the T1 and the audio is analog. When using with a Model I, simply connect the T1's Master Output jack to the analog input of Channel 3 or 4 on the Model I power stand. The T1 power supply is available through Bose or authorized dealers of the L1 family of products.

When will additional products be added to the L1™ product family?

We do not publicly discuss new products before their launch date. Our engineers and marketing staff are always researching new solutions for musicians, and we are dedicated to offering products of enduring value.

Are hard-shell cases available for the products?

No. Although Bose does not offer hard shell cases directly, visit www.Bose.com/musicians to view user comments on this topic.

What is the limited warranty?

The limited warranty on all electronic components in the U.S. is one year (the power stand and PackLite amplifier) and five years on loudspeakers (both the L1™ Model I system and B1 bass module). For limited warranty information in other parts of the world, please visit www.Bose.com/musicians for more information.

What are the weights and dimensions of the L1™ Model I system?

Dimensions

•L1 Model I power stand: 26.0"W x 26.0"D x 5.0"H (66 cm x 66 cm x 12.7 cm)
•L1 Model I Cylindrical Radiator® loudspeaker (each section): 3.5"W x 4.0"D x 43.0"H (8.9 cm x 10.5 cm x 109.2 cm)
•R1 remote control: 2.8"W x 5.6"D x 1.6"H (7.1 cm x 14.1 cm x 4.0 cm)
•B1 bass module: 10.3"W x 18.0"D x 15.3"H (25.0 cm x 45.7 cm x 38.0 cm)

Weight

•L1 Model I power stand: 35 lb (16 kg)
•Lower L1 Model I Cylindrical Radiator® loudspeaker: 16.0 lb (7 kg)
•Upper L1 Model I Cylindrical Radiator® loudspeaker: 14.5 lb (6 kg)
•R1 remote control: 0.6 lb (0.27 kg)
•B1 bass module (optional): 28 lb (13 kg)

Functionality

Is this really a “plug and play” solution? How long does it take to set up?

The L1™ Model I system is designed to disassemble into easy-to-carry pieces. Everything can be carried by hand without the need for special equipment. Moreover, the products are designed to assemble in just minutes, and because the approach requires no mixing, the complex task of wiring each instrument to the mixer and then from the mixer to the amplifiers and speakers is eliminated. The musicians simply plug in, and they’re ready to play.

Are sound operators required in the new approach?

No. Just as acoustic-instrument ensembles (such as a string quartet) are able to balance their own sound, so too can a group playing amplified music using the new approach. The reason is that when musicians are in total

control and know that the sound they are creating on stage is what is radiated outward to the audience, they are best-suited to creating the required balance of voices and instruments.

What happens if a musician is blocking the view of the L1™ Model I system? Doesn't that block the sound?

Sound diffracts (bends) around objects. So long as the musician is not standing literally against the L1™ Model I system, the sound diffracts around the musician or other objects such as a keyboard or other musical instrument.

What is the proper method for setting gain on the L1™ Model I power stand?

There are three gain settings for the primary channels (1 and 2) and two gain settings for the secondary channels (3 and 4).

To set the gain for the primary channels (1 or 2):

1) Adjust the input gain. Set the trim for the individual channel at the back panel of the power stand. Supply a maximum source signal and watch the LED. When you start to see it flash red, back off slowly on the trim knob until it flashes green again.

2) Adjust the channel gain with the R1 remote control. With the master at zero, set the respective channel gain to 6. At this point, the LED on the remote will be at the same intensity as the LED on the back panel of the power stand. This is considered optimum gain. The musician then can add a bit more from the R1 remote control if it is required.

3) The R1 remote control MASTER knob is the last stage of gain. This knob gives you control over all four channels of the power stand.

What is the recommended gain staging for Model I systems when using with a T1?

1. Make sure the **Power** switch on the power stand is in the OFF position and the R1 remote control is disconnected.

Note: *The R1 remote control should be disconnected so that the T1 ToneMatch™ audio engine solely controls the volume of the L1™ Model I system.*

2. Make sure the T1 power switch is in the OFF position and the T1 audio engine power supply is connected.

3. Make sure the T1 **Master** volume control is set to **0**.

4. Plug one end of a ¼" phone plug cable (not supplied) into the **Master** output port on the T1. Plug the other end of the ¼" phone plug cable into the Channel 3 (or Channel 4) Line IN jack on the L1 power stand.
5. Set the Line IN **Level** control on the power stand to approximately **2**.
6. Turn on the T1 audio engine.
7. Turn on the L1 Model I power stand.

Note: *In some circumstances, it may be necessary to slightly adjust the Line IN **Level** control from this initial setting to attain the desired gain structure.*

Because the Channel 1 and 2 Mic/Line inputs on the power stand have volume controls, equalization and ToneMatch™ presets that could affect the sound and performance of a T1, we only recommend connecting to the Channel 3 and 4 line inputs.

Adjusting gain for Channels 3 or 4

1) Adjust the input gain of the individual channel. These channels do not have indicator LEDs but are designed for 0 dB line level signals, such as from an effects device, mixer or CD player.

2) As above, the R1 remote control MASTER knob is the last stage of gain. This knob gives control over all four channels of the L1™ Model I power stand.

Can I use the Bass - Line OUT on the L1™ Model I system to connect to a bass amplifier and cabinet?

The bass-line-out connector provides a flat 40-Hz to 180-Hz bandpass signal when no B1 bass modules are connected. We recommend unplugging the B1 bass modules to ensure correct EQ compensation of the Bass - Line OUT jack and phase consistency.

Is the R1 remote control cable an off-the-shelf cable? Is this a standard MIDI (Musical Instrument Digital Interface) cable? Are there extensions available?

The remote uses a special 7-pin DIN cable commonly referred to as "7-Pin Phantom MIDI Cable." This cable configuration is sometimes used to connect rack-mount guitar effects to their pedals. A standard 5-pin MIDI will not work. Bose sells the 7-pin DIN (20-foot) replacement cable. For those customers needing a little extra distance from their power stand to their R1 remote control, Hosa Technology, Inc., manufactures 25-foot cables. These sell at www.MusiciansFriend.com (Product #333039). Coupler adapters are not available.

Does the R1 remote control use MIDI-compatible commands? Can I automate remote functions using MIDI communications protocol? Can I customize my settings using the remote control port on the power stand?

No. The R1 remote control and associated hardware is proprietary and does not use MIDI communications protocol. This port will not function with standard MIDI products.

Will the unit still work without the R1 remote control?

Yes. The power stand continuously senses activity at all preset selectors and what is connected at the input/output jacks. In general, it is not recommended to operate without the remote connected. However, the power stand can function without the R1 remote control. If you power the power stand on without the R1 remote control connected, it will operate as if the R1 remote control was connected and at a fixed setting of 12 o'clock (center position) on all the control knobs. Alternatively, if the unit is powered on with the R1 remote control first connected and the user then disconnects the R1 remote control, it will retain the last settings of the R1 remote control before you disconnected it. This is helpful in the case where sharing may be necessary.

Do the mic inputs have phantom power?

Yes. The primary input channels (Channels 1 and 2) have a button selector for +24V phantom power for microphones that require that feature.

I thought phantom power was 48 volts? Why does the power stand only supply 24 volts?

Phantom power is a DC voltage that powers the preamplifier of a condenser microphone. Phantom power can be in a range of 11-48 volts.

How many B1 bass modules can you connect?

One power stand using an L1™ Model I system can power up to two B1 bass modules.

Can this product be used in other countries?

There are two voltage versions of the power stand and the A1 PackLite® amplifier. 120V versions are available in the U.S., Canada and some Latin American countries. The 230V versions are available in Europe and Australia. Please visit www.Bose.com/musicians for up-to-date information about product availability.

How do I know which half of the Cylindrical Radiator® to insert into the power stand first?

The upper and lower halves of the L1™ Model I system are not identical. The bottom half is easily identifiable because it has a large end cap, which gets inserted first into the power stand. The upper half contains the Bose® logo and uses a tongue-and-groove mechanism to ensure a solid mechanical and electrical connection to the lower half. Both halves are clearly labeled on the back, indicating proper insertion.

Can you use 2-wire Speakon® cables for the B1 bass modules?

No. Only 4-wire Speakon® cables should be used with the power stand. The additional two wires (+2 and -2) in the connector are used for sensing purposes. Upon connection, the power stand is able to sense and adjust (EQ and level) for 0, 1 or 2 B1 bass modules connected to the bass module Out Speakon® connector.

What is the Data IN connector used for?

The Data IN connector is used for updating product software.

Can the customer update the power stand?

Yes. The customer can update the presets in the power stand. For more information about upgrading presets, please visit www.Bose.com/musicians.

How can I tell if I'm using the correct Speakon® cable?

If you plug in a 4-wire Speakon® cable to the Bass-Amp 3 OUT connector with music playing through, you will clearly hear the L1™ Model I system mute for a moment. If you are using an incorrect cable, such as a 2-wire Speakon® cable, the momentary muting will not occur.

Why does the sound coming from the L1™ Model I system change when plug in a ¼-inch plug into the Bass - Line OUT connector?

The L1™ Model I system receives its audio signal from the power stand. The signal is customized by the internal DSP unit according to what other devices are connected to the power stand, such as how many B1 bass modules and/or amplifiers are connected to the Bass - Line OUT connector. The L1™ Model I system when used alone with the power stand produces audio in the range of 110 Hz to 18, 000 Hz. When the Bass - Line OUT connector is in use the frequency cutoff point is moved from 110 Hz to 180 Hz, it will not play any

frequencies below 180 Hz. The Bass - Line OUT connector sends a flat bandpass signal from 40 to 180 Hz to external amplifiers that may be used for extended low frequency reinforcement.

What's the sample rate of the Data OUT connector? The owners' manual only mentions "Channel 1/2 digital output."

The Data OUT connector is a SPDIF connection for digital recording of both Channels 1 and 2. It runs at a sample rate of 48 kHz. Channels 3 and 4 are not included in this output.

Why don't Channels 3 and 4 have presets, XLR inputs and line outs like Channels 1 and 2?

The L1™ Model I system was designed with an individual in mind, as an extension of your musical instruments. For this, we have provided two primary inputs, 1 and 2. These inputs were intended to receive signal from an instrument, such as a guitar or keyboard, and a voice. Each musician's instrument and voice can be heard from his or her own system. The remaining channels, though still suitable for direct instruments, can be used for CD background music for playback in between performance sets.

I need more inputs. How do I plug in all my instruments?

For some multi-instrumentalists, there may not be enough input connectors. Musicians who require additional inputs can purchase a T1 ToneMatch™ audio engine. The T1 is a powerful multichannel audio device designed for use with L1™ Model I and Model II systems. It contains our largest library of ToneMatch™ presets, proprietary zEQ, and a complete suite of studio-class effects and processing.

The T1 was designed with the needs of musicians in mind. This makes for a completely integrated and powerful unit that is easy to use and alleviates many challenges associated with live performances. When the T1 is used with the Model I system, the audio connects via an analog ¼" TS cable from the Master Output of the T1 into Channel 3 or 4 of the power stand.

Does the L1™ Model I system have built-in effects?

No. While the system does not have built-in effects, there are connectors for inserting effects units into Channel 1 or Channel 2 of the power stand. This requires a standard insert cable, which has a ¼" TRS connection on one end and dual male ¼" TS connectors on the other end.

Additionally, you may purchase a T1 ToneMatch™ audio engine, which includes a complete suite of studio-class effects and processing.

Can you use effects equipment with the power stand?

Yes. Both Channels 1 and 2 allow for a TRS line input/output connection for external effects processors. Inserting the plug halfway connects to "Send"; inserting fully connects to "Return." Some musicians may prefer to keep a "dry" sound intact without the full effects loop. Inserting the plug halfway into the connector will maintain the original signal and not route the channel solely through the effects module.

Using a serial effects connection with the L1™ Model I power stand

Note: *Connecting an effects unit in serial requires a TRS split "insert" cable (with a ¼-inch TRS connector on one side and two mono ¼-inch phone connectors on the other). This type of cable is readily available at most musical instrument stores and on the Internet.*

1. Insert the TRS plug into the **Channel 1** Insert jack on the L1™ Model I power stand.

2. Connect the ¼-inch mono plug (labeled "send," "ring" or ""right") to the input of the effects processor.

3. Connect the other ¼-inch mono plug (labeled "return," "tip" or "left") to the output of the effects processor.

4. Adjust the effects level and mix of the effects processor.

Note: *A very high output from the effects processor can overload the input of the L1 Model I power stand. If the **LED** on the remote turns red, even if the channel **LEVEL** control on the R1 remote control is below the 12 o'clock position, reduce the output level of your effects processor.*

Note: *The effects processor does interrupt the audio path. This may result in no audio output if the effects processor is turned off. To use a "clean" signal, do not turn the effects processor off, but put it in bypass mode.*

Using parallel effects connection with the L1™ Model I power stand

Note: Connecting an effects unit in parallel requires one ¼-inch *unbalanced* (instrument) cable, one mono ¼-inch phone (M) to dual mono ¼-inch phone (F) "Y" cable adapter, and one TRS split "insert" cable (with a ¼-inch TRS connector on one side and two mono ¼-inch phone connectors on the other).

1. Insert the TRS plug into the **Channel 1 Insert** jack on the L1™ Model I power stand.

2. Connect both ¼-inch plugs from the "insert" cable into both receptacles on the "Y" cable adapter.

3. Connect the plug of the "Y" cable adapter into the input of the effects processor.

4. Connect the ¼-inch unbalanced (instrument) cable from the output of the effects processor to **Channel 3 Line IN** of the L1 Model I power stand.

5. Set the effects level of the processor to full and turn the mix level of the effects processor to full "wet."

6. Adjust the **Channel 3 Level control** of the L1 Model I power stand for the desirable effects mix.

What inputs connectors will Channels 1 and 2 accept?

Channels 1 and 2 accept two types of input connections: a balanced XLR (mic) connection, and a ¼-inch phone connector unbalanced (line) input for passive instruments such as guitar.

What are the critical frequencies (Q-points) of the R1 remote control?

The MID control is centered about 1.2 KHz with a Q of approximately 1. HIGH and LOW responses are shelving. We are reluctant to quote shelving frequencies because there is no clear industry standard definition of a shelf's "cutoff frequency."

Can I use the system outside?

Yes. You can use your system for outdoor gigs. The system has been tested to operate in 0°C to 50°C temperatures and be stored in -30°C to 70°C temperatures. In cases of light rain outside, take precautions to cover the back panel of the power stand. Water must not get into the air inlet slits inside the back panel, on the loudspeaker drivers or inside the L1™ cavity on the power stand.

There is a buzz in the system. Any suggestions on how to fix it?

Noise and buzzing are typical problems with pro audio gear. The new Bose® approach is very much immune to noise because it is a simple, independent system. The typical buzzes and hums associated with ground loops are gone when you use an independent system that is not interconnected electronically to other pieces of equipment. This is not a comprehensive guide to noise troubleshooting, but will offer a suggestion. One of the most important suggestions to alleviate buzz and hum in a system is to plug all interconnected gear into the same electrical circuit. Guitar players or vocalists with effects should plug those units into the same electrical outlet as their power stand is plugged into. This normally fixes all problems. Do not use 3-prong to 2-prong adapters, also known as "cheaters" or "ground lifters." Bypassing a safety grounding mechanism is a serious safety threat.

Why doesn't Bose Corporation publish full system specifications?

Most of the specifications that are used to describe sound systems can be very misleading.
They pretend that relatively complex physical or perceptual properties can be condensed to a single number (or a small set of numbers) that determines somehow the quality of a product. These numbers then are used to compare or rank different products. In many cases, these numbers only loosely relate to what a user would experience in a real-world application. Furthermore, there are quite a number of variations in the details of how a specific measurement can be carried out. We believe it serves our customers better to describe the product in terms that they can more directly relate to, and to enable and encourage our customers to experience the product directly either through a demonstration or through actual real-world trials they conduct themselves.

Bose Corporation publishes technical data whenever we think it is helpful. For example, for our products that are used primarily in installed sound systems, detailed technical specifications are available. This data is normally used by professional sound system engineers, who are well-trained to interpret the data correctly and put it into the right context. While some specifications add value in comparing two products that are otherwise very similar, they are mostly meaningless for a product that is fundamentally different, such as the Cylindrical Radiator® loudspeaker and the Bose L1™ Model I system.

How prone is the system to feedback?

The L1™ Model I system is resistant to, but not immune from, feedback. Its performance in this critical dimension has been shown, in the vast majority of cases, to be significantly better than the traditional triple system amplification approach of backline instrument amplifiers, monitor system and PA system.

Can I connect a passive subwoofer to the Bass Module Output?

No. We do not recommend that you connect anything except the B1 bass module to this output, as the internal amplifier and B1 bass module(s) are designed to properly equalize the system when connected. However, you may utilize the **Bass Line Out** connection to feed a powered subwoofer or additional amplifier

Applications

Where can the L1™ Model I system be used?

The L1™ Model I system is suitable for amplified music performances in venues with occupancies up to 500 people. Typically, this translates to maximum listener distances of about 150 feet (45 meters). Thus the system will fill auditoriums, places of worship, gymnasiums, ballrooms, dance clubs, coffeehouses and more – places where the vast majority of live music performances take place. Furthermore, tests have been conducted that show that in larger venues, a musical group can use the new approach on stage and enjoy all the benefits that allow musicians to hear themselves and each other better. Signals from the stage can then be fed to speakers that supply sound to distant seating areas.

What kinds of musical groups can use the new technology?

There are no restrictions in this regard. Any instrument, any group size and any genre will benefit from the advantages of hearing themselves better, of being in complete control of their music, of having their audiences hear them better, and of being able to set up and play in a small fraction of the time it takes to set up a conventional system.

You talk about excessive loudness. Are you saying the new system isn't capable of playing loud? How loud can it play?

The new approach can compete with the maximum levels created by most conventional systems. What's changed is that a band will rarely, if ever, play at the kind of sustained or persistently high sound levels, because the struggle to hear oneself and one's fellow musicians – the reason to increase the volume in the first place – is gone. With the new approach, therefore, the dynamics are vastly improved, one of the major contributors to musical quality. In testing at Bose, musical groups plagued by the problem of excessive loudness were delighted to find that within a very short time (one or two sessions), their average level had dropped drastically while their peak level remained the same. They expressed an enormous increase in the enjoyment of playing, and audiences expressed their appreciation of music that was exciting but not overwhelmingly loud.

Does every musician in the band need his or her own L1™ Model I system?

No. In the fullest embodiment of this new approach, each musician in a group has a L1™ Model I system. In some situations – a larger ensemble on a small stage, for example – testing showed that two or more musicians could share one L1™ Model I system without a significant erosion of the benefits of the concept when the musicians were standing or sitting directly next to each other. Two horn players standing side by side or three support vocalists standing next to each other can use one L1 Model I system, as an example.

Can one musician use an L1™ system while the rest of the band plays through a conventional system?

Yes. There are two ways that a musician can use the L1™ Cylindrical Radiator® loudspeaker onstage with a band using the conventional triple system setup.

A performer can use the system onstage without connecting to any other house reinforcement equipment, including the main front speakers (sometimes known as "house mains") and stage

monitors. However, only some of the benefits of the new approach are enjoyed in this case. The musician using the L1™ Model II system will hear him or herself better, will be heard better by the other musicians and will be heard better by the audience. However, the full potential of this new system is not realized because only the performer and not the complete band is equipped and engaged to perform with the benefits of this new amplification approach.

Performers can also use L1™ Model II systems to enhance their sound onstage, and use the available Line Output jacks on the primary channels to send the audio signal(s) to a house PA. In this case, the musician and the band enjoy the benefits from the musician's sound onstage and only onstage. There are no advantages for the audience. Loss of the benefits of the "cocktail party" effect, lack of eye-ear coordination, the potential for excessive reverberation, and the problems of bulky and complex equipment all exist if the remainder of the band plays through a triple system.

Can DJs use this system?

Yes. The system has important advantages over conventional systems. One problem with portable PA systems is the use of stand-mounted speakers, which are very loud close to the speaker and not loud enough away from the speaker. The L1™ Cylindrical Radiator® loudspeaker is unusual in that you can adjust for the desired level on the dance floor and in the audience, and then walk literally right next to the speaker without it getting excessively loud. This translates into much greater comfort for the guests.

The system also has a sleek, elegant profile that fits nicely into event décors and minimizes sight-line issues.

Can L1™ systems be used as a traditional PA system?

Yes. L1™ Model I systems can be used to replace PA speakers. Their unique radiation properties help them deliver more even sound coverage and a larger stereo field – a benefit that has been confirmed in listening tests. The benefits of compactness for transportation and rapid assembly will also be enjoyed.

Can musicians really mix themselves?

Yes, when they are in complete control of their sound. Musicians know how to play together acoustically and have done so countless times, regardless of whether they also play with amplification. All musicians know how to alter their playing in order to create a balance when playing with others. In extensive testing at Bose, it was found that this skill is quickly revived when using the L1™ system.

Does this approach work for electric guitar? Aren't guitarists particular about their guitar amplifiers?

Yes. For most electric guitarists, the guitar amplifier is considered a part of their instrument, as inseparable from the sound of their instrument as is the wood and body shape of an acoustic guitar. For example, the distortion created by the electronic tubes in some guitar amplifiers produces tones essential to many guitarists' sound. Even the speaker transducers and speaker cabinets used in guitar amplifiers produce unique tone essential to some players' sound.

How can these elements of the electric guitar's tone be included in the L1™ system approach?

There are at least three ways this can be done, and each has been extensively tested by guitarists participating in the Bose® research that led to the new approach. The advantage gained in these approaches constitutes what is arguably the most important gain in electrical guitar sound since the invention of the guitar amplifier itself. The reason is that the Cylindrical

Radiator® loudspeaker overcomes the problem of uneven radiation of sound to the stage and audience from traditional guitar amplifiers. This is of particular interest for the electric guitar because the radiation pattern of typical guitar amplifiers is so harshly directional as to be painful to listeners on-axis, and dull and muddy off-axis. Before, guitarists could create the desired "sweet spot" sound in one location (theirs), while all others were blasted on-axis or couldn't hear the detail well off-axis.

1) A number of companies have in the past 10 years produced electronic devices that model the tone produced by tubes, guitar transducers and guitar amplifier speaker cabinets. These modeling amps initially helped to solve the problem of recording electric guitar and have become increasingly popular on stage. The electric guitarist simply plugs into one of these devices and the output of the device is then plugged into the L1™ Model II system. This is the most convenient and elegant way to use electric guitar with the L1 system.

2) One of a number of tube-based or solid-state guitar preamplifiers can be used. The output of these preamplifiers is plugged directly into the power stand.

3) The third way is for purists who are not satisfied that the modeling amps (first solution above) capture all of the nuances of a traditional guitar amplifier. These guitarists can use a tube amplifier with a microphone in front of the amplifier. Exceptional results have been obtained with the use of one of a growing number of low-wattage tube amplifiers. This class of guitar amplifier is becoming popular with players who want the tone of a tube amplifier but do not want to produce extremely high sound levels in order to get that tone.

<u>How does the output of an L1™ Model I system compare to a loud stack of guitar amplifiers and cabinets?</u>

The full stack is considered a standard by many guitarists, both in terms of tone and output. An L1™ Model I system can compete effectively with the output of a full stack. However, there are other benefits, such as the radiation pattern of the L1 Model I system, that distinguish it from the full stack's acute directional beam. Moreover, the Model I system can be used to amplify other instruments at the same time. The full stack is for one thing only: electric guitar.

<u>Can you create distortion for guitars with the L1™ system?</u>

No. Distortion must be produced first and then fed into the power stand as a clean, non-clipping signal. To achieve distortion, the guitarist can use a few methods:

- Inline devices: One popular method would be to use any of the effects pedals on the market or use a DSP-based amplifier modeler, such as the Line 6 "Pod," which models the tone produced by amplifier tubes, guitar transducers and guitar amplifier speaker cabinets.

- Miking a guitar amplifier: Another method would be to use a guitar amplifier and mic the speaker as closely as possible. The trick here is to run the amplifier at the lowest possible level at which the correct tone is attainable but does not diminish the benefits of the L1™ Model I system. Louder amplifiers can be located and miked offstage. Miking small, low-watt amplifiers is a better technique for this method.

- Use a loading device. Some electric guitarists may prefer to use their amplifier's output as an input signal into the power stand. Before doing this, they must use a load device such as a "Plate Soak" or a "Hot Plate" to give a line-level output suitable for the input stage of the power stand.

- Use the “line output” of a guitar amplifier. Some amplifiers have this option and may be suitable for some guitarists. The only suggestion here is to turn the volume of the amplifier down so only the L1™ Model I system is heard.

Refer to the Bose® website and Musicians Community Forum at http://www.Bose.com/musicians to learn how to interface additional instruments with the system.

Can acoustic instruments be amplified with the L1™ Model I system?

Yes. If the acoustic instrument has a pickup system, then you may connect directly into the system. In cases where pickups are not present, a microphone may be used. The Model I power stand is equipped with 24 v phantom power capability for Channels 1 and 2 to power condenser microphones.

How many B1 bass modules can I stack up on stage or when transporting?

Up to four B1 bass modules may be stacked in a column using the integrated alignment tabs on the sides of the enclosures.

Where can I collaborate with Bose staff and existing owners to learn more on how the L1™ Model I system can work for my specific application?

We host a public forum that allows our helpful user community to share their experiences and collaborate in real time on topics that are important to them. You will find extensive application specific documentation and helpful hints. The forum is fully searchable and can be accessed at http://Bose.infopop.cc/6/ubb.x.

You also may contact our product support team and speak with our knowledgeable staff of musicians. They may be reached at 877-335-2673.

The L1™ Product Family

When was the L1™ Model I system first available for consumers to purchase?

On October 15, 2003, Bose Corporation began selling the L1™ Model I family of products

Do the new products compete with Bose’s other portable professional systems?

There are some situations where in the past we would have recommended a Bose® solution comprised of our other portable products, where today we would recommend the L1™ Model II system instead. Live music performance is the most obvious application where we would do so. There remain a number of applications where our other portable products are an excellent choice.

How does the cost of the L1™ Model I compare to traditional PA equipment?

Because of the enormous reduction in complexity, the new system compares favorably with the cost of a high-quality conventional amplification system for a four piece band. However, the enormous reduction in transportation and set up costs mean that the new system is much less expensive to own and operate. Superiority is achieved when this cost advantage is combined with what we feel is a quantum improvement in sound quality.

What do the different salable packages include in the box?

The L1™ Model I Basic Package includes the following:

- L1™ Model I system
- Power stand
- R1 remote control
- Carrying bag for the power stand
- Two carrying bags for the L1™ Model I system
- Power cord
- Remote control cable (15 ft)
- Protective plug
- Owners' guide, quick setup guide, warranty card and spare fuse

The Single Bass Package includes the following:

- L1™ Model I system
- Power stand
- B1 bass module
- R1 remote control
- Carrying bag for the power stand
- Carrying bag for the B1 bass module
- Two carrying bags for the L1™ Model I system
- Power cord
- Bass module cable
- Remote control cable (15 ft)
- Protective plug
- Owners' guide, quick setup guide, warranty card and spare fuse

The Double Bass Package includes the following:

- L1™ Model I system
- Power stand
- Two B1 bass modules
- R1 remote control
- Carrying bag for the power stand
- Two carrying bags for the B1 bass modules
- Two carrying bags for the L1™ Model I system
- Power cord
- Two bass module cables
- Remote control cable (15 ft)
- Protective plug
- Owners' guide, quick setup guide, warranty card and spare fuse

The PackLite® Extended Bass Package includes the following:

- PackLite® power amplifier
- ¼-in TRS cable (18 in)
- Nylon carry pouch for the amplifier
- Power cord
- Two B1 bass modules
- Two B1 bass module 4-wire cables (5 ft)

- Two B1 bass module soft covers

PackLite® power amplifier Model A1
Designed for instruments that require additional headroom and increased output in the deep bass range, such as electric bass, bass drum and high-output playback of recorded dance music. The PackLite® power amplifier can power up to two additional B1 bass modules.

- PackLite power amplifier
- ¼-in TRS cable (18 in)
- Nylon carry pouch for the amplifier
- Power cord
- Owners' guide, quick setup guide and spare fuse

What are the available accessories?

For a detailed list of the accessories below, please refer to Appendix A.

Accessories:

B1 bass module
This compact, powerful bass enclosure is designed to be used with L1™ systems helping to deliver the depth and impact of such instruments as bass guitar, drums and low voices. Low-pitched wind or stringed instruments, guitars and keyboards also can benefit from the additional low-end output that the B1 provides. Includes professional padded gig bag, and one cable to connect the B1 bass module to the power stand and slip cover.

B1 cable 5.5ft (1.7m)
Heavy-duty 4-pin cable connects B1 bass modules to L1™ Model II or II power stands. Longer B1 cables may be obtained from www.audiopile.net.

Standard B1 carrying cover
A standard carrying cover for the B1 bass module. Cover is a direct replacement for the cover included with a new L1™ Model II system package.

Heavy-duty B1 gig bag
Custom designed to hold your B1 bass module. Incorporates our high-end construction features to protect from scuffs and scrapes on all six sides.

PackLite® power amplifier Model A1
Designed for instruments that require additional headroom and increased output in the deep bass range, such as electric bass, bass drum and high-output playback of recorded dance music. The PackLite® power amplifier can power up to two additional B1 bass modules.

Carry pouch for Model A1 amplifier
Standard nylon protective pouch for the A1 PackLite power amplifier.

¼-in TRS Cable for A1 amplifier 18-in (0.5m)
Standard, balanced tip-ring-sleeve ¼-inch cable connects the A1 PackLite power amplifier to a power stand.

Heavy-duty gig bag set

Durable and form-fitted, the heavy-duty gig bag set will help protect the L1™ loudspeaker and power stand components during transport. Telescoping travel handle and roller wheels makes for a very easy transport of the power stand. The L1™ bag, lined with extra padding, comes with a shoulder strap. A rugged duffle bag contains convenient pockets and can hold the R1 remote control with plenty of room for cables and accessories.

Standard carrying bag set
Standard carrying bags for the power stand and L1™ loudspeaker. Set of three bags is a direct replacement for the set included with a new L1™ Model I or II system package.

R1 remote control
Rugged and easy-to-operate remote control allows performers to control their L1™ Model I systems sound from almost anywhere on stage. Features 3-band EQ/volume control for both of the mic/line inputs and a master level control to adjust overall system volume. Includes one loop-and-hook fastener strip for quick mounting to a microphone stand or flat surfaces like keyboards and music stands. (Does not include remote cable. Long or standard remote cables may be purchased separately.)

Standard R1 remote control cable 16ft (5m)
This proprietary 7-pin cable comes standard with the power stand.

Fuse kit (120 volt only)
Four spare 15-amp fuses for the 120V power stand.

L1™ Model I or II power stand cord (120 volt only)
Designed to connect a 120 volt power stand to an AC outlet.

Protective plug
Molded rubber plug snaps into the power stand to protect the loudspeaker mount and connector during travel.

Support

What is the limited warranty?

The limited warranty on all electronic components in the U.S. is one year (the power stand and PackLite® amplifier) and five years on loudspeakers (the L1™ Model I system and B1 bass module). For limited warranty information in other parts of the world, please visit www.Bose.com/musicians for more information.

Can I use this 120-volt system in another country?

No. The unit does not have a universal power supply. Use the 120V version only in 120V countries. Use the 240V version in countries with 220, 230 or 240V systems at 50 Hz. We do not have a 100V system.

I need a longer NL4 cable for my B1 bass module. What are my options?

It is generally good practice to locate the B1 bass modules near the Cylindrical Radiator® loudspeaker. If you require more length, ensure that it is a 4-conductor NL4 speaker cable. One vendor that we have used is www.audiopile.net.

Are there any user-replaceable parts?

Yes. User-replaceable parts are available. We offer easily replaceable parts such as power stand I/O Panel covers, R1 remote control knobs, cables, and L1™/B1 loudspeaker grilles and end caps. We feel that this service is extremely important to reduce working musicians' downtime.

Are the products repairable? To what extent?

Yes. The products are repairable. The power stand is currently repairable at the board level. Drivers, end caps and grills can be replaced on the L1™ and B1 units.

What are the replacement costs?

In the U.S. call 877-335-2673 or e-mail support@Bose.com for further details.

Appendix A:

For the L1™ family of products

Accessories	Product Code
B1 bass module	
B1 bass module	032494
B1 cable 5.5ft (1.7m)	035404
Standard B1 carrying cover	035025
Heavy-duty B1 gig bag	041785
Accessories	**Product Code**
A1 amplifier	
PackLite® power amplifier Model A1	039057
Model A1 amplifier carry pouch	039860
Model A1 ¼" TRS cable 18-in (0.5m)	039861
Model I	
Power stand power cord	035393
R1 remote control	035394
R1 7-pin cable (5m)	035403
R1 7-pin cable (10m)	035411
L1 carry bags	034273
Power stand fuse kit (120V)	035408
Power stand protective plug	035410
Heavy-duty power stand/L1™/duffle carrying bag set	041784
Standard L1™ Model I power stand/L1™ carrying bag set	034273
Model II	
L1™ Model II Cylindrical Radiator® carry bag	044023

L1™ Model II power stand carry bag	044024
Heavy duty power stand/L1™/duffle carrying bag set	041784
Standard L1™ Model I power stand/L1™ carrying bag set	034273

T1 ToneMatch™ audio engine

T1 ToneMatch™ audio engine power supply	042533
ToneMatch™ audio engine microphone stand bracket	042535