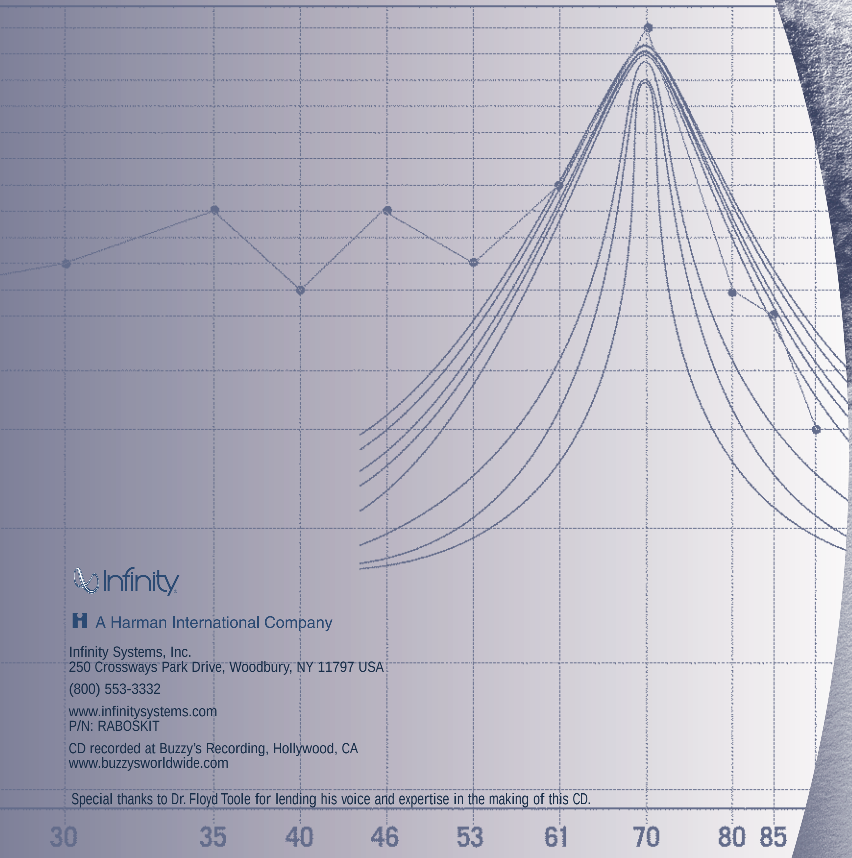

Infinity

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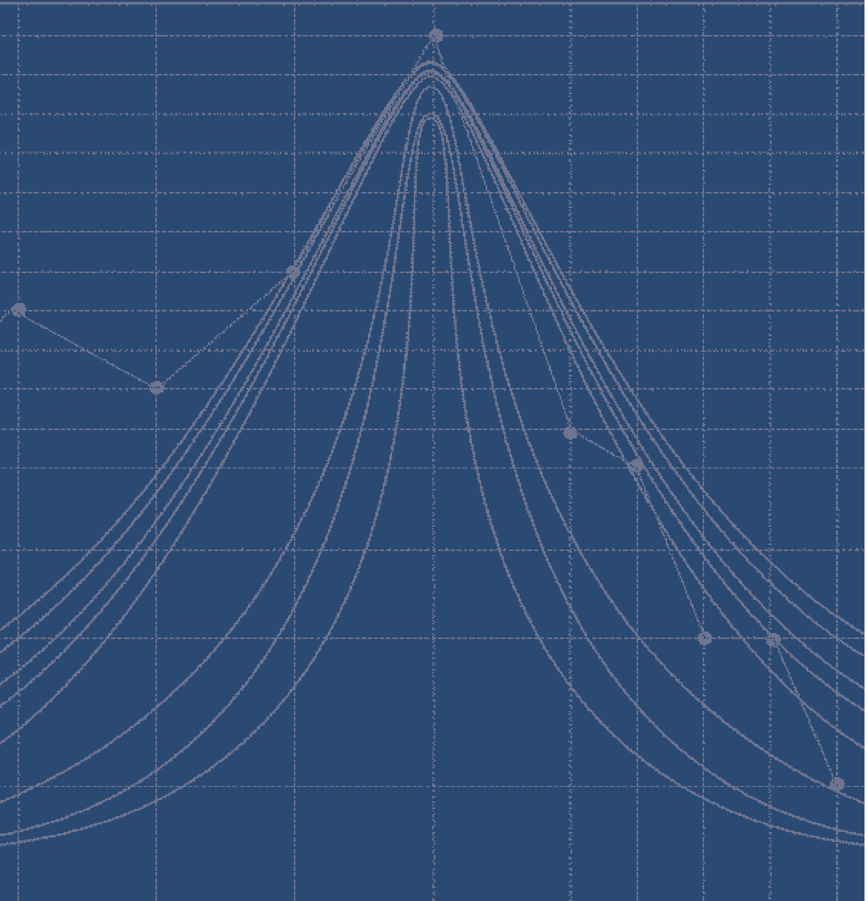
Special thanks to Dr. Floyd Toole for lending his voice and expertise in the making of this CD.

Room
Adaptive
Bass
Optimization
System

Infinity

R. A. B. O. S.™

Room Adaptive Bass Optimization System



Infinity R.A.B.O.S. is a simple-to-use, yet sophisticated, low-frequency calibration system. It is designed to work in conjunction with Infinity's self-amplified subwoofers. Each R.A.B.O.S.-equipped loudspeaker or subwoofer contains a parametric equalizer that you will adjust as indicated by the R.A.B.O.S. test results. Following these instructions, you will optimize the subwoofers' response characteristics to complement their environment. This will dramatically improve the sound of your system. The optimization process takes less than 30 minutes.

The R.A.B.O.S. Kit Includes the Following Components:

- Specialized Sound-Level Meter
- Test CD
- Instructions
- Measurement Templates
- Width Selector
- Adjustment "Key"

What R.A.B.O.S. Does

The Test CD provides specially designed signals you will use while performing measurements. The sound-level meter provided is used to "acquire" the information needed for adjustments. You will create a response plot on the Measurement Template. Using the Width Selector, you will then determine the appropriate equalizer settings. The "Key" is used to adjust the parametric equalizer built into each subwoofer. After adjustment, the test sequence is repeated to confirm your settings.

The R.A.B.O.S. Goal

It is a fact of audio that what we hear at low frequencies is determined as much or more by the listening room than by the loudspeaker itself. Placement of the loudspeakers and listeners and the acoustical characteristics of the room surfaces are all important determinants of bass quantity and quality. In most practical situations, there is little that can be done about this except for patient trial-and-error repositioning of the loudspeakers and listeners. Usually, the practical constraints of a living space and the impracticality of massive acoustical treatment mean that equalization is the only practical solution.

Professional sound engineers routinely employ sophisticated measurement systems and equalizers to optimize speakers to the installation. This has never been practical for the home audiophile. This is why R.A.B.O.S. was created. R.A.B.O.S. enables you to identify the dominant low-frequency response characteristic of your room. Once you know the problem, R.A.B.O.S. provides the tools needed to optimize the low-frequency characteristics of the speakers to the room they are in, exactly as professional sound engineers do it.

Performing R.A.B.O.S. Tests

These instructions assume you have already installed your speakers according to the information provided in the Owner's Guide. It is also assumed that all equipment in your entertainment system is interconnected properly and is in good operating condition.

Note: This Guide contains the general instructions for setting up R.A.B.O.S. Please consult your loudspeakers' Owner's Guide for specific instructions and placement of the controls.

Preparations

Warning: Make sure that your system contains a high-pass filter for your main speakers, and that it is on/engaged. The R.A.B.O.S. Test CD produces tremendous amounts of low-frequency energy that will damage some loudspeakers if no high-pass filter is engaged.

Before beginning R.A.B.O.S. tests, please check the following:

• Make sure all three R.A.B.O.S. controls on the speakers or subwoofers are turned fully clockwise.
• Make sure the loudness contour (if any) on your receiver/processor/pre-amp is turned off.
• Set the tone controls (Bass and Treble) to their center or flat positions.
• Bypass all surround and effects features of your receiver/processor/pre-amp or set to *Stereo Bypass.*
• If you are using a multichannel surround processor or receiver, make sure all bass-management features are properly set. All audio channels should be set to "Small" or "High-Pass" and the subwoofer set to "On."

You must have a CD player in the system. A CD-player remote control is quite convenient but not essential.

For best results, it is recommended that all major furnishings are in place and that all doors and windows in the listening area are in their normal positions. That is, if you normally listen to music with all doors closed, then this is how they should be during this procedure.

Try to minimize ambient noise while running tests. Turn off all major appliances and any air conditioning or furnace fans. These can create significant subsonic noise that, although barely perceptible, may wreak havoc on low-frequency measurements.

Critical information is highlighted with this mark: ⓘ

Helpful hints are marked with this symbol:

Note: Tracks 53–62 of the R.A.B.O.S. Test CD are test tones that can be used for general diagnostics of your system. They are not used for R.A.B.O.S. settings.

Contents of the R.A.B.O.S. Test CD

Track #	Track Name
1	Welcome
2	Set System Test Level
3	Set *Subwoofer* Test Level
4	100Hz Test
5	95Hz Test
6	90Hz Test
7	85Hz Test
8	80Hz Test
9	77Hz Test
10	72Hz Test
11	66Hz Test
12	63Hz Test
13	56Hz Test
14	52Hz Test
15	49Hz Test
16	46Hz Test
17	43Hz Test
18	40Hz Test
19	38Hz Test
20	35Hz Test
21	30Hz Test
22	26Hz Test
23	24Hz Test
24	22Hz Test
25	21Hz Test
26	20Hz Test
27	Intro to Quick Retest
28	Quick Retest 100Hz
29	Quick Retest 95Hz
30	Quick Retest 90Hz
31	Quick Retest 85Hz

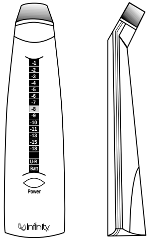
Track #	Track Name
32	Quick Retest 80Hz
33	Quick Retest 77Hz
34	Quick Retest 72Hz
35	Quick Retest 66Hz
36	Quick Retest 63Hz
37	Quick Retest 56Hz
38	Quick Retest 52Hz
39	Quick Retest 49Hz
40	Quick Retest 46Hz
41	Quick Retest 43Hz
42	Quick Retest 40Hz
43	Quick Retest 38Hz
44	Quick Retest 35Hz
45	Quick Retest 30Hz
46	Quick Retest 26Hz
47	Quick Retest 24Hz
48	Quick Retest 22Hz
49	Quick Retest 21Hz
50	Quick Retest 20Hz
51	Final System Level Adjustment
52	Final *Subwoofer* Level Adjustment
53	Wide Band Pink Noise, Left
54	Wide Band Pink Noise, L+R
55	Wide Band Pink Noise, Right
56	Wide Band Pink Noise, L-R
57	Wide Band Pink Noise, Uncorrelated
58	1 to 4kHz Pink Noise, Left
59	1 to 4kHz Pink Noise, L+R
60	1 to 4kHz Pink Noise, Right
61	1 to 4kHz Pink Noise, L-R
62	1 to 4kHz Pink Noise, Uncorrelated

THE R.A.B.O.S. SOUND-LEVEL METER (RSLM)

The RSLM is a battery-operated, handheld, acoustic measurement device specifically designed for Infinity R.A.B.O.S. On the face of the instrument is a light-emitting diode (LED) bar graph that indicates relative sound level. There are also indicators for Power-On, out-of-range signals and a low battery.

FIGURE 1

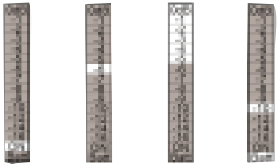
R.A.B.O.S. Sound-Level Meter



Power is switched on or off by pressing the button directly below the bar-graph window. When the unit is on, one or more LEDs will always be illuminated. The function of the LEDs is described at right.

FIGURE 2

RSLM bar-graph indications



On Under-range | Measurement In-range | Over-range | Low Battery

- Power-On/Low Signal: This is indicated by the illumination of any LED on the bar graph. If the sound level in the room is below the measurement range of the instrument, a green LED near the bottom of the bar graph will be illuminated.
- Normal Measurements: When the sound level is within the range of the RSLM, the green LED will be off and one of the red LEDs in the bar graph will be illuminated, indicating the relative sound level, in decibels (dB).
- Over-Range: If the sound level exceeds the range of the meter, 0dB through -5dB will all light simultaneously.
- Low Battery: When the battery voltage is too low for accurate measurements, an LED at the bottom of the bar graph will be illuminated. Replace the battery.

Do not attempt measurements when this light is on.

RSLM Placement

Determine where in the room you are most likely to sit when listening to music or watching a movie. This is where you will want to hold the RSLM during measurements. The RSLM should be oriented so it can be easily read and held at your seated ear level during tests.

You must use this same position for all tests.

The RSLM can be mounted on a standard camera tripod. This will ensure the best results.

Initial System Level Setting

The following steps will set the playback level of the system to the correct level for all tests that follow.

Turn the system volume to minimum.

Cue the R.A.B.O.S. Test CD to Track 2 and press Pause II. This track will produce band-limited pink noise in both the left and right channels.

Press Play ▶. With the RSLM positioned as described above, increase the system volume until the RSLM display indicates -10dB. See Figure 3.

FIGURE 3

RSLM indicating the correct system level to begin tests (-10dB)

When you have completed this adjustment, press Pause II.

Setting the Subwoofer Test Level

Each of the following test tracks is about one minute long. This is normally much longer than required. Press Pause II or advance to the next test as soon as you are ready.

This step will set the subwoofer levels for measurement purposes. The objective is to scale the subwoofers' output to make full use of the RSLM indicator range. Scaling is optimum when a 0dB reading is observed on the highest peak without triggering the over-range indication. Later, you will rebalance the subwoofers to the main speakers.

The speaker/subwoofer should be shipped with the three R.A.B.O.S. controls set to fully clockwise positions, and all measurements should be conducted with their level controls in this position. Confirm this setting before you begin this test. The gain control should be set to the mid position (5).

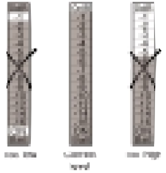
Cue Track 3 and Pause II. Track 3 continuously steps through all subwoofer test tones for approximately 1 minute. Each tone will play just long enough for the RSLM to give a stable reading.

To get accurate measurements, it is necessary to play the woofers quite loud. The 0dB indication is about 94dB. At this level, frequencies below 100Hz can cause doors, windows, furnishings and other objects in the room to vibrate. This frequently results in clearly audible buzzes and/or rattles that come and go as each test tone plays. Strong buzzes not only sound bad, they can cause measurement errors. If you hear a buzz or rattle during this test, it is highly recommended that you locate the source and eliminate its effects. This is actually a valuable room-diagnostic tool.

Press Play ▶. As Track 3 plays, watch the RSLM carefully. Watch for peak readings. The peak reading may flash for no more than a brief moment. Readjust the subwoofers' gain control until the peak level observed is 0dB without triggering the over-range indication. See Figure 4.

FIGURE 4

Adjusting the subwoofer levels for a 0dB peak



When finished, press Pause II.

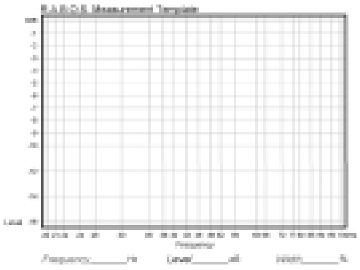
Performing Low-Frequency Measurements

Read the following instructions fully before beginning tests.

For the following steps, you will need a Measurement Template and a pencil.

FIGURE 5

R.A.B.O.S. Measurement Template



Each of the following tracks produces a low-frequency test tone. The range of these tests is from 100Hz down to 20Hz. The frequency of each test is announced before it begins. The first test is the highest frequency (100Hz); therefore, you will be marking the template from right to left. Each frequency point is listed across the bottom of the Measurement Template (this is called the X-axis).

See Figure 5. The vertical scale on the left side of the template indicates relative level, in dBs (the Y-axis). The template's vertical scale matches that of the RSLM bar graph.

Cue Track 4 and Pause II.

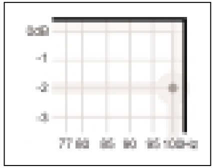
From now on, you will want to keep your CD player's remote control handy.

Press Play ▶. As Track 4 plays, observe the level indicated on the RSLM.

EXAMPLE: The test frequency is 100Hz and the level indicated is -2dB. Find the intersection of 100Hz (X-axis) and -2dB (Y-axis). Place a dot at that point. See Figure 6.

FIGURE 6

Locating a test point

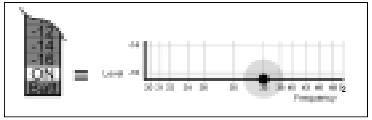


It takes a few seconds for the RSLM reading to stabilize, especially at very low frequencies. Don't rush. Give each test adequate time for the meter to stabilize.

At the bottom of the bar graph is a green "ON" LED. This LED is illuminated whenever the sound level is below the measuring range of the RSLM. If this occurs during a test, place a dot at the intersection of the test frequency and the bottom frame of the template. See Figure 7.

FIGURE 7

Indicating an under-range test

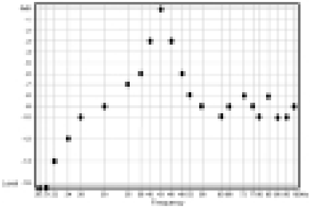


When finished, press Skip ▶▶I to advance to the next test. Repeat the process described above for Tracks 5 through 26.

When you have completed the 23 measurements, you are ready to analyze the data and make corrective adjustments. The completed Measurement Template will look something like the example in Figure 8.

Figure 8

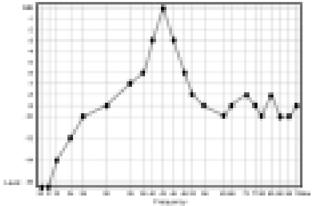
Completed R.A.B.O.S. template



Now connect the dots as shown in Figure 9. This will make interpretation of the data much easier.

Figure 9

Test example with dots connected



What Does a Parametric Equalizer Do?

The R.A.B.O.S. system uses one band of parametric equalization for response correction. Parametric equalizers are the most versatile class of filters. The effect an equalizer will have on the signal is dependent on three parameters:

Frequency: The equalizer will have maximum effect at one frequency, usually described as the center frequency.

Level: This refers to the amount of cut (in dBs) the equalizer is set for.

Bandwidth: Defines the range of frequencies over which the equalizer will have an effect. This adjustment is abbreviated as "Width."

Only parametric equalizers allow independent adjustment of all three parameters.

These will be explained more fully in the sections that follow.

Completing the Measurement Template

Along the bottom of the Measurement Template are three fields where you will enter the equalizer settings needed to complete system optimization.

These instructions are based on the example in Figure 9. Use this tutorial to become familiar with the process. Strategies for several other test results will be presented later. After you have completed these three entry fields, you will be ready to perform the adjustments, completing R.A.B.O.S. optimization.

Frequency

The frequency of the R.A.B.O.S. equalizer may be adjusted to any one of nineteen frequencies from 20Hz to 80Hz. This determines where you are going to apply equalization.

NOTE: Positions 1–3 will all be at 20Hz.
CCW: Fully Counterclockwise
CW: Fully Clockwise

In this example, the highest level recorded is at 43Hz. This will be the frequency of the equalizer. Write 43 in the space provided.

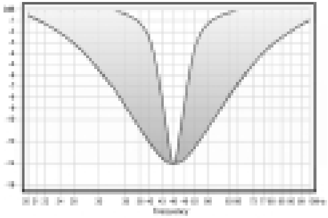
Width

The frequency range of the R.A.B.O.S. equalizer may be set from 5% to 50% of an octave in 21 steps. This setting defines how much of the subwoofers' output will be equalized.

Width is expressed as a percentage of an octave. For example, a width setting of 25% means the equalizer will affect a frequency band of 1/4 of an octave: 1/8 of an octave above and 1/8 of an octave below the center frequency.

Figure 10

Effect of adjustable width



The octave is a logarithmic expression. From any point in the spectrum, one octave above or below that point is always double or half the frequency. Therefore, one octave above 100Hz would be 200Hz. One octave below 100Hz is 50Hz.

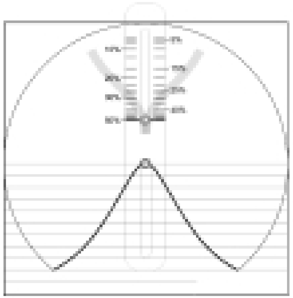
In the section that follows, we will discuss the use of the Width Selector.

Using the Width Selector

🛈 Read the following instructions carefully. The example presented may not look like the graph you just created. Focus on the concepts and techniques presented. Specific cases will be discussed later.

FIGURE 11

Width Selector

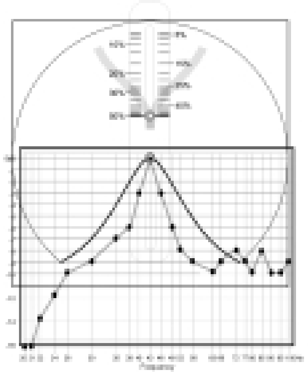


You will use the Measurement Template just completed and the Width Selector to determine the correct width setting. The Width Selector graphically depicts a single resonant peak. The peak looks similar to a slice of a pie. See Figure 11. At the top of the Selector is a pull tab. When you slide the tab up and down, the width of the pie slice becomes narrower and wider, respectively. The pointers on the sides of the button point to the bandwidth that corresponds to the width of the slice.

Place the Width Selector over the Measurement Template, positioning the center rivet of the Selector over the response peak, as shown in Figure 12. Be sure to align the horizontal lines of the Width Selector with those of the Measurement Template.

FIGURE 12

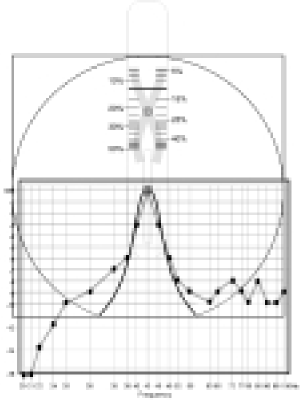
Placement of the Bandwidth Selector



Apply pressure to the upper and lower left corners of the Selector using the thumb and forefinger of your left hand. Now gently slide the tab up or down until the adjustable slice most closely fits the response data. See Figure 13.

FIGURE 13

Selector adjusted for the "best fit"



The pointer on the slider will indicate the correct width setting. Enter this number in the Width field of the Measurement Template. In our example, the width is 12.5 percent.

It is not realistic to expect a perfect fit. Acoustic measurements encompass the behavior of not only the speakers but of the room and its contents, as well. Reflected energy, standing waves and ambient noise all add their part. Determining the best width setting nearly always requires compromise.

Level

This setting will define the amount (level) you want to reduce the peak, in decibels.

The R.A.B.O.S. level adjustment is limited tO attenuation only, and is adjustable from 0dB to -14dB. After optimization, the R.A.B.O.S. equalizer will eliminate the largest low-frequency peak; therefore, the broadband bass level can be increased without overpowering the midrange frequencies. R.A.B.O.S. applies this compensation automatically.

You will use the Width Selector as an aid in determining the correct level setting. Place the Width Selector as described above and adjust it to the correct width. Observe the first frequency point on the high-frequency side of the peak that no longer follows the slope of the Width Selector. In this example this is 56Hz. Calculate the average level of the readings from 56Hz up to 100Hz; that is, 10 data points in this example.

56Hz	63Hz	66Hz	72Hz	77Hz	80Hz	85Hz	90Hz	95Hz	100Hz	
-9	-10	-8	-9	-10	-9	-8	-10	-10	-9	-92 ÷ 10 = -9.2

Whenever your answer has a remainder, always round down (disregarding the negative (-)) to the next whole number.

In our example, you would enter 9 in the attenuation field.

This may not be the best method in all cases. The next section contains several other examples.

What You Measure, What To Do

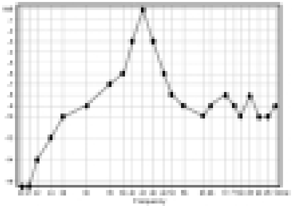
As stated earlier, it is not possible to anticipate the effect of every possible listening environment. However, most residential sound rooms share many characteristics, and their dimensions fall into a range that make some response irregularities far more likely than others. On the following pages are examples of what you may encounter. Following each example is a strategy for correction. Compare your measurement results with the following examples. Find the one that best fits your graph and follow the instructions presented for that scenario.

Remember, when looking for a match, look at the descriptive characteristics, not any specific frequency or level. Each of these examples can occur at any frequency, bandwidth and level. It is unlikely that your test results will be exactly as depicted in these examples.

Example 1. Single Dominant Peak:

FIGURE 14

Single dominant peak



This is the most common result of speaker/room interaction.

Apply the Width Selector as described in Figure 12. Align the center line of the Selector over the center of the peak, as shown in Figure 13. Now, adjust the Selector until you have achieved the "best fit." The slider now points to the correct bandwidth setting. In this example, the frequency is 43Hz and the best-fit width is 12.5 percent. Fill in the Width and Frequency fields provided on the template.

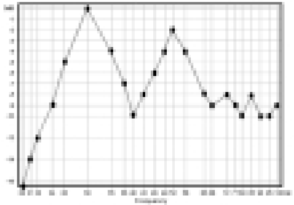
Determine the appropriate level using the technique described earlier. In this example, -9dB would be best. Enter the level in the field provided.

Skip to the "Adjusting the R.A.B.O.S. Equalizer" section on page 18.

Example 2. Two Response Peaks:

FIGURE 15

Two response peaks



Characterized by two response peaks, approximately equal in amplitude and width. This requires that you make a choice between the two peaks. In situations like this, the higher frequency peak will always be more audible and objectionable. Response peaks below 45Hz, unless extreme, can actually be beneficial toward achieving visceral impact. Perform corrections on the upper frequency peak.

Apply the Width Selector as described earlier. Align the center-line of the Selector over the center of the higher frequency peak. Now adjust the Selector until you have achieved the "best fit." The slider now points to the correct width setting. In this example, this is at 52Hz. The best-fit width is 28 percent. Fill in the Width and Frequency fields provided on the template.

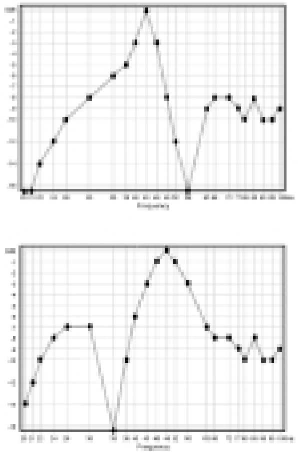
Determine the appropriate level using the technique described earlier. This calculation will indicate a -8dB setting. However, this peak does not reach the 0dB level as the lower peak does. Therefore, a -8dB setting would be excessive. The 52Hz peak stops at -2dB. Subtracting 2 from 8 yields the correct setting, -6dB. Enter -6 in the Level field.

Skip to the "Adjusting the R.A.B.O.S. Equalizer" section on page 18.

Example 3. Peak Adjacent to a Dip:

FIGURE 16

Dip above or below peak



Response dips can occur at any frequency, sometimes immediately adjacent to the peak you want to correct. Two examples are shown, one immediately above and one immediately below the peak. Deep response dips such as these are caused by destructive wave interference. Destructive interference dips occur only in one spot within the room. It is not uncommon to completely eliminate the effect by moving the RSLM to a different location. Note that this does not eliminate the dips. We have simply moved away from them. Sometimes only a few inches are required. Do not attempt to correct this condition with equalization. If you encounter dips like this, take the following steps:

1. Select a new test position: Cue the test track corresponding to the center frequency of the dip. In the first example in Figure 16, you would play Track 13 (56Hz). Press Play ▶. You will see a reading very close to what you had before. Now, slowly move the RSLM around the area, if possible remaining within approximately a foot of the original test point. As you move the RSLM, watch the bar graph. You will observe large level fluctuations. Find a position that restores the level to approximately that of the adjacent test points. You may find it helpful to move the RSLM vertically. Dips can be oriented in any axis. The position that restores the level to approximately that of the adjacent test points is your new test position.

2. Reset the test level: Return to the section "Setting the Subwoofer Test Level" on page 7. Perform the procedure as described.

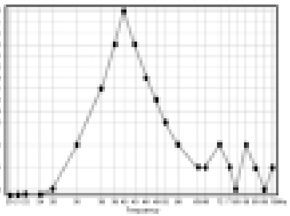
3. Repeat the measurements: Now that you are familiar with the measurement process, you can go much faster by using Tracks 27–50. These tracks contain all the test tones necessary for measurement. However, each test is only about three seconds, and there is no frequency announcement. The first test is 100Hz. Just place each test mark in order until finished. Connect the dots.

Your second measurement will no longer exhibit the deep response dip. However, the peak will still be evident. Without the influence of the response dip, the amplitude and center of the peak may have changed. Compare your new data to the examples given in this section of the manual. Follow the instructions for the example that most closely matches your new measurement.

Example 4. Narrow Response:

FIGURE 17

Narrow response



Although it looks as though this speaker is quite bass-deficient, this is actually indicative of a single, very narrow peak in excess of 10dB high.

Apply the Width Selector as described above. Align the center line of the Selector over the center of the peak, as shown in Figure 12. Now adjust the Selector until you have achieved the "best fit." The slider now points to the correct width setting. In this example, the frequency is 40Hz and the best-fit width is 10%. Fill in the Width and Frequency fields provided on the template.

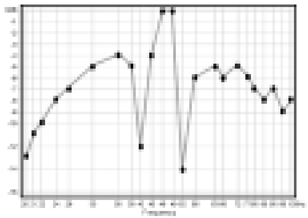
Determine the appropriate level using the technique described earlier. In this example, -13dB is indicated. Enter 13 in the field provided.

Skip to the "Adjusting the R.A.B.O.S. Equalizer" section on page 18.

Example 5. One or More Narrow Dips:

FIGURE 18

Example of two narrow dips



Response dips can occur at any frequency, sometimes immediately adjacent to the peak you want to correct. In this example, there are two such dips on either side of the peak. Deep response dips such as these are caused by destructive wave interference. Destructive interference dips occur only in one spot within the room. It is not uncommon to completely eliminate their effect by moving the RSLM to a different location. Note that this does not eliminate the dips. We have simply moved away from them. Sometimes only a few inches are required. Do not attempt to correct this condition with equalization. If you encounter dips like this, take the following steps:

1. Select a new test position: Cue the test track corresponding to the center frequency of the dip. In the example in Figure 18 you would play Tracks 14 (52Hz) and 18 (40Hz). Press Play ▶. You will see a reading very close to what you had before. Now, slowly move the RSLM around the area, if possible remaining within approximately a foot of the original test point. As you move the RSLM, watch the bar graph. You will observe large level fluctuations. Find a new location for the subwoofer or a test location that raises the response of these frequencies. You may find it helpful to move the RSLM vertically. Dips can be oriented in any axis. The position that restores the level to approximately that of the adjacent test points is your new test position.

2. Reset the test level: Return to the section "Setting the Subwoofer Test Level" on page 7. Perform the procedure as described.

3. Repeat the measurements: Now that you are familiar with the measurement process, you can go much faster by using Tracks 27–50. These tracks contain all the test tones necessary for measurement. However, each test is only about three seconds, and there is no frequency announcement. The first

test is 100Hz. Just place each test mark in order until finished. Connect the dots.

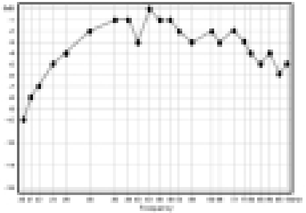
Your second measurement will no longer exhibit the deep response dips. However, the peak will still be evident. Without the influence of the response dips, the amplitude and center of the peak may have changed.

4. Interpret the new data: Compare your new data to the examples given in this section of the manual. Follow the instructions for the example that most closely matches your new measurement.

Example 6. Ideal Response:

FIGURE 19

Ideal response, no EQ needed



If your test data looks similar to the example in Figure 19, you have a very favorable setup. Skip to the "Final System Balance" section, page 19.

Adjusting the R.A.B.O.S. Equalizer

Now that you have performed the measurements and interpreted the data, you have the information needed to adjust the subwoofer equalizers.

There are three equalizer adjustments on each speaker/subwoofer. Left to right, they are marked "F" (frequency), "L" (level) and "W" (width). Each control has 21 positions. These are numbered from left to right. Therefore, Position 1 is the full counter-clockwise position. The following table illustrates all switch positions:

Position	F (Hz)	L (dB)	W
1 CCW	20	-14.1	4.5%
2	20	-13.9	5%
3	20	-13.5	7.5%
4	21	-13.1	10%
5	22	-12.7	12.5%
6	24	-11.7	16.5%
7	26	-11.0	20.5%
8	30	-10.2	23%
9	35	-9.5	26%
10	38	-8.9	28%
11	40	-8.3	29.5%
12	43	-7.9	31%
13	46	-6.4	34%
14	49	-4.4	39%
15	52	-2.9	41.5%
16	56	-1.9	43.5%
17	63	-1.1	45%
18	66	-0.5	46.5%
19	72	0.0	48%
20	77	0.0	49%
21 CW	80	0.0	49.5%

You must use the R.A.B.O.S. key (or knobs on some models) to adjust these controls. Always adjust both subwoofers together. Using the adjustment key, adjust the controls as indicated by the Measurement Template. Each value shown in the table is represented by detents in the R.A.B.O.S. controls. Simply count the number of detents necessary, indicated by the results of your R.A.B.O.S. Test.

After performing these adjustments, you may skip forward to the "Final System Balance" section on this page. It is recommended that you perform a second measurement to confirm that the settings are correct.

If you are going to retest the system after EQ adjustments, repeat the steps in the "Setting the Subwoofer Test Level" section on page 7.

Retesting the system will go much faster if you use Tracks 27–50. These tracks contain all the same test tones you just used. However, each tone plays for only a few seconds and there is no frequency announcement. If you are uncomfortable operating at this pace, you may, of course, perform measurements with the original test tracks.

Your first interpretation of the data and choice of settings may not be the optimal one. You can repeat the test-adjust-test cycle as often as needed to get the desired results. To do this, return to page 7, "Setting the Subwoofer Test Level." You may prefer to retest using the same template. Doing so makes it easy to evaluate the improvement. When you are satisfied with the results, go to "Final System Balance" below.

Final System Balance

Cue Track 51 of the R.A.B.O.S. Test CD. Press Play ▶. Increase the system volume until the RSLM indicates -10dB. Now play Track 52. Adjust the subwoofer gain controls until -10dB is indicated on the RSLM. Of course, you may fine-tune the subwoofer gain control to your listening preference.

This concludes the R.A.B.O.S. process. It is recommended that you remove the battery from the RSLM. Store the Test CD, Width Selector, Adjustment Key and the RSLM together.