Dayton Audio RSS390HF-4 15" Reference HF Subwoofer 4 Ohm

Brand: Dayton Audio | Model: RSS390HF-4
http://www.parts-express.com/pe/showdetl.cfm?Partnumber=295-468
Part #: **295-468** Weight: **30.00 lbs.**

The Dayton Reference Series subwoofers take the quality and performance of the much acclaimed RS line into the subwoofer realm. As with the rest of the Reference Series, the main focus of these subwoofers is ultra-low-distortion. Second, third, and intemodulation distortion are kept extremely low by utilizing three short-circuit paths within the motor structure. A durable aramid fiber spider and extensive venting throughout provide quiet and uniform excursion. Black anodized cone, rubber surround, and custom basket.

Specifications:
• Power handling: 500 watts RMS/800 watts max
• VCdia: 2-1/2"
• Le: 1.00 mH
• Impedance: 4 ohms
• Re: 3.3 ohms
• Frequency range: 18 - 800 Hz
• Fs: 18 Hz
• Magnet weight: 150 oz.

• SPL: 90 dB 2.83 V/1m, 87 dB 1W/1m
• Vas: 9.95 cu. ft.
• Qms: 3.10
• Qes: 0.49
• Qts: 0.42
• Xmax: 14 mm
• Dimensions: Overall diameter 15-5/16", Cutout diameter 14-1/8", Depth 6-1/8".

Existing Box:
LF driver enclosure volume 9.28 cu ft; inner:46.5x22.5x16.5"; outer:48x24x18"
Minus the MF driver inner enclosure volume 0.7 cu ft; inner:9x22.5x6"; outer:10.5x24x7.5"
Chart is for sealed box, the present situation and woofer. (ignore tuning frequency)
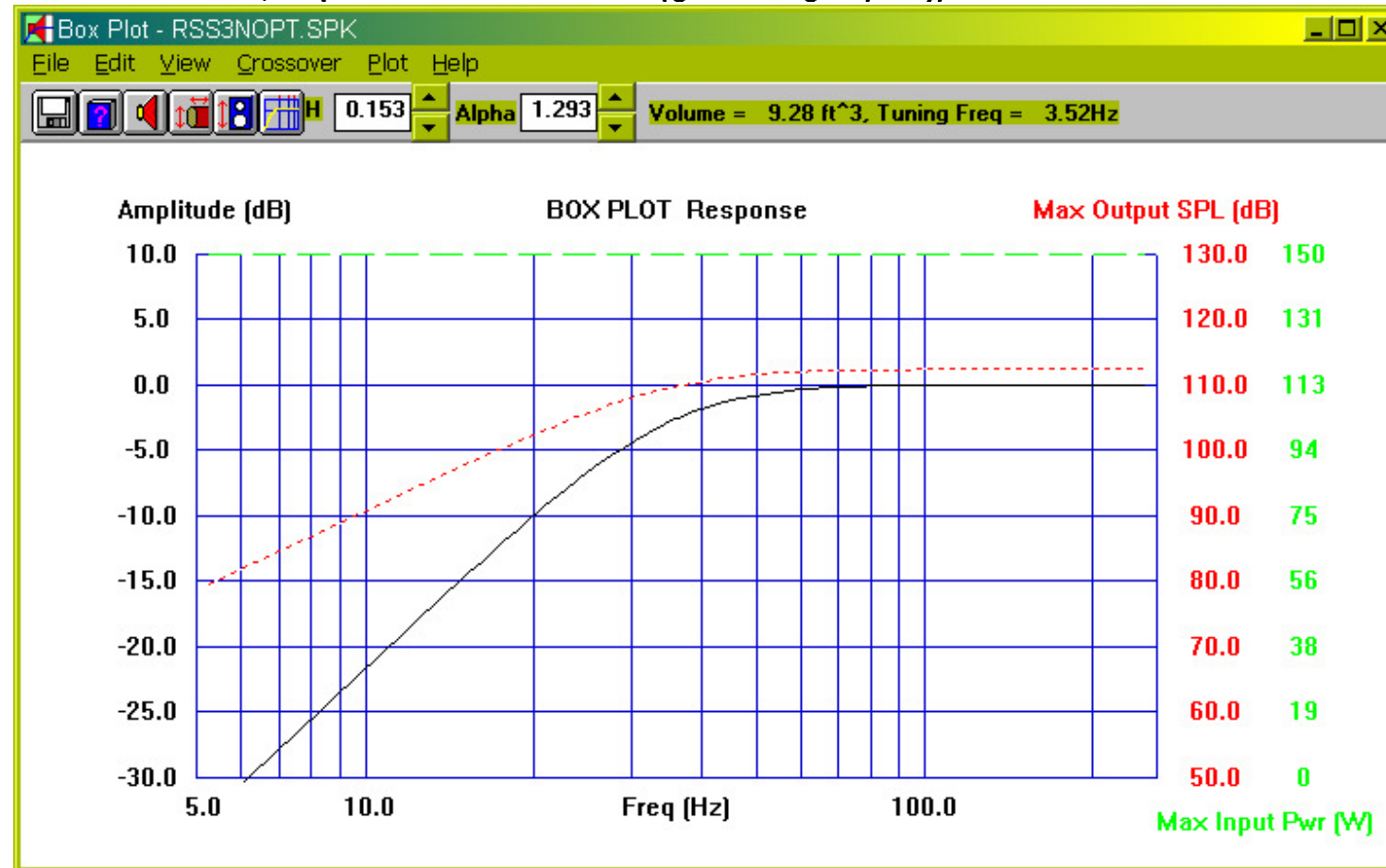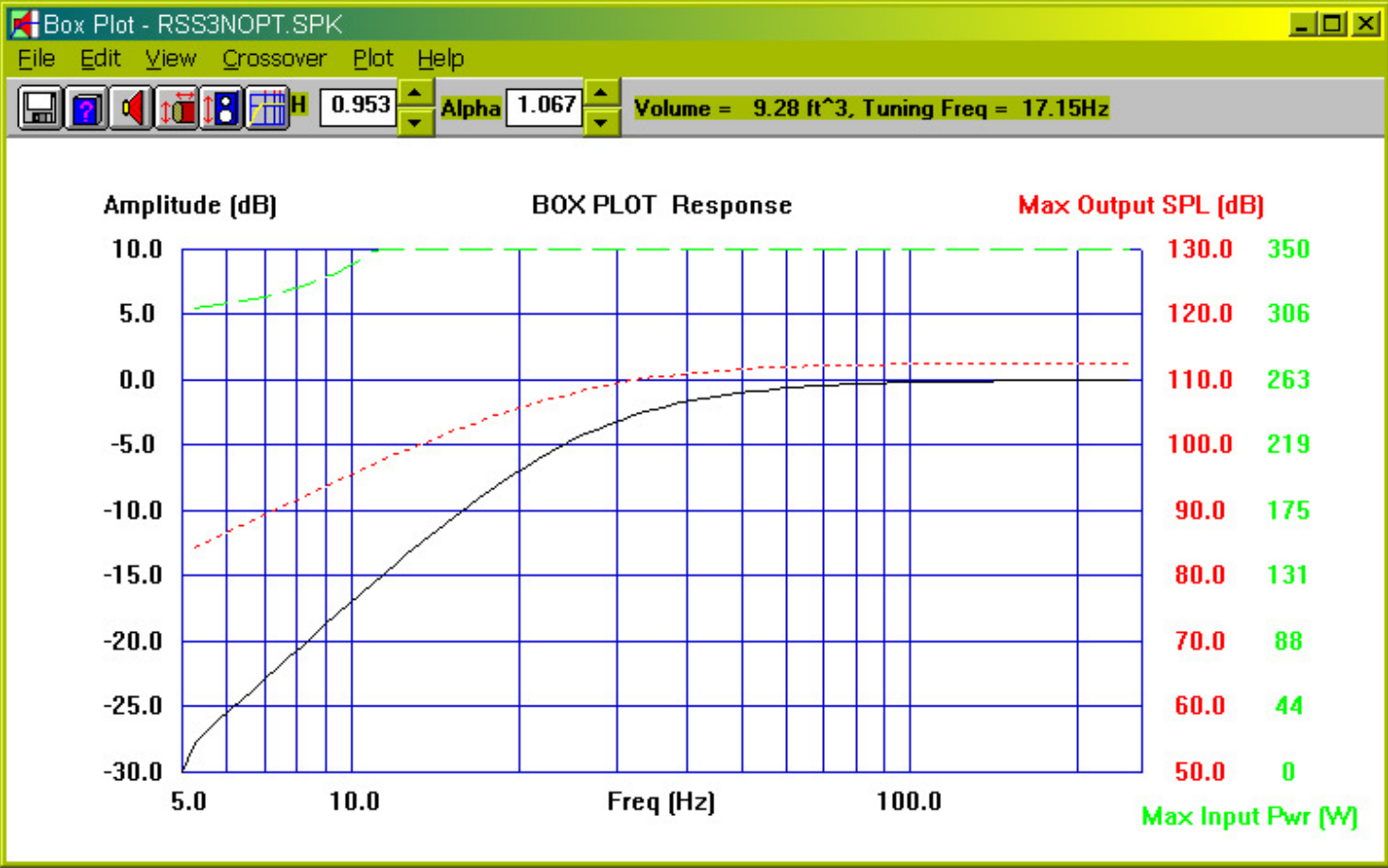
Chart is for sealed box, the present situation except with proposed RSS390HF woofer. (ignore tuning frequency)

Box Plot - RSS3NOPT.SPK

File Edit View Crossover Plot Help

H 0.953   Alpha 1.067   Volume = 9.28 ft^3, Tuning Freq = 17.15Hz

Amplitude (dB)   BOX PLOT Response   Max Output SPL (dB)

Amplitude (dB)	Max Output SPL (dB)	Max Input Pwr (W)
10.0	130.0	350
5.0	120.0	306
0.0	110.0	263
-5.0	100.0	219
-10.0	90.0	175
-15.0	80.0	131
-20.0	70.0	88
-25.0	60.0	44
-30.0	50.0	0

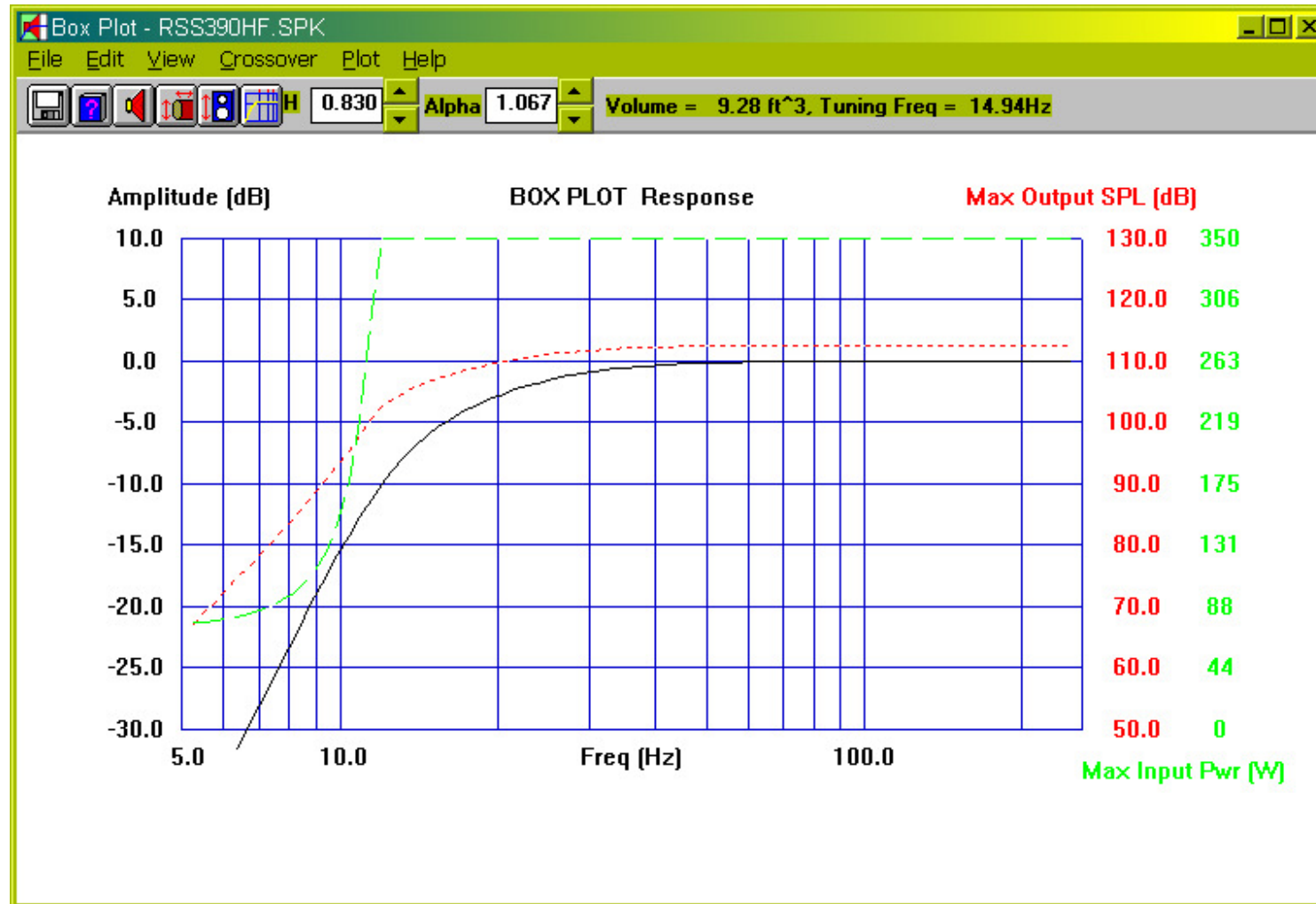Freq (Hz)   5.0   10.0   100.0

Max Input Pwr (W)

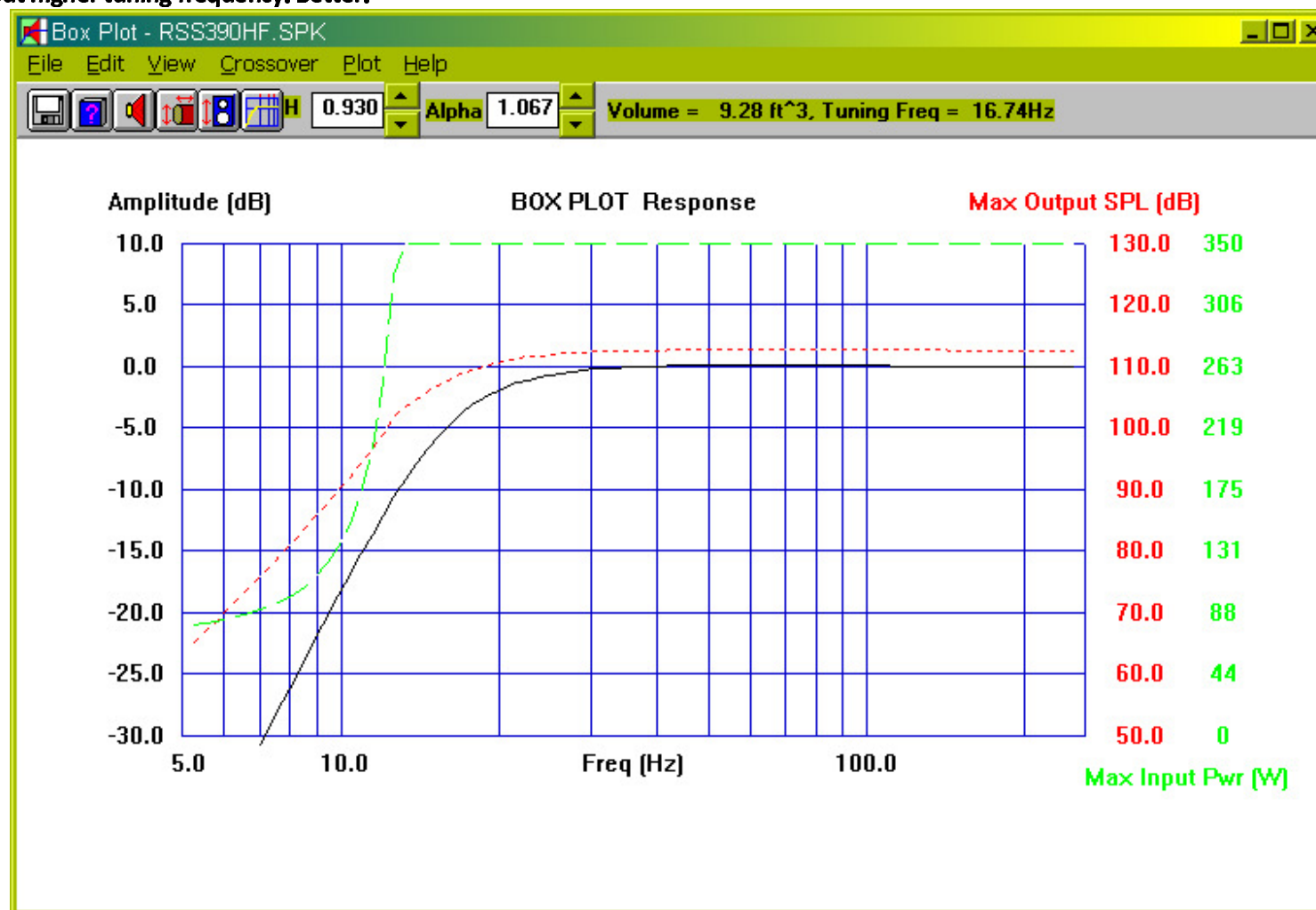**Chart is for existing box and proposed woofer, plus a port added.**
Vent diameter 4.00"
Vent length 9.17"
Air speed mach nr. 0.112

Same but higher tuning frequency. Better.

Box Parameters from the help file:

Box Parameters are entered in a dialog box. To bring up the dialog box select Box Parameters under EDIT the menu. After parameters are entered click on the OK button. When the OK button is clicked, all of the parameters are entered and range checked and the new response is calculated. If autoplot is on, the screen will be updated with the new response. The Align button will reset all of the box parameter to an optimally tuned box for the specified speaker. The particular alignment used is the QB3-B4-C4 series of responses based on the work of R.H. Small and others. This alignment is optimized for a flat frequency response with a good low frequency cutoff. Some significant optimizations can be made by adjusting the H and Alpha parameters to get a lower cutoff or different box size. Use the Iconbar's H and Alpha scroll buttons to adjust these parameters without bringing up the Box Parameter dialog box.

Box Type Selects either a Sealed or Vented enclosure to use for all box calculations.

EQ Type This selection controls the type of external ACTIVE equalizer than is used with the system. An external equalizer may be used with the speaker system but is not necessary.

Number of Drivers: This selects the number drivers (woofers) in the system. Most systems use a single driver, but any number of drivers can be installed in the system. For multiple driver systems certain parameters must be scaled so the proper box dimensions can be found. Checking 2-drivers will enable the Driver configuration box an perform the appropriate parameter scaling.

Driver configuration: If two or more drivers are installed in the system then they can be in a number of different physical as well as electrical configurations. Electrically they can be wired in series or parallel and in phase or out of phase. Physically they can be mounted both facing forward, one can be facing forward and one mounted with the magnet facing out (Push-Pull) or in an Isobaric configuration. NOTE: The shareware version of Boxplot can only calculate a normal driver configuration.

Alpha: System Compliance ratio. Alpha determines how big to make the box. Alpha is the ratio of box volume (Vb) to speaker Vas.
Alpha = Vas / Vb

H: System tuning ratio. H determines what frequency the system will be tuned to, and therefore how to design the vent. H is the ratio of the speaker free air resonance to the system tuning frequency (Fsb). H = Fs/Fsb

Ql or Q7: Q from box leakage losses. This is a measure of how airtight a box is. Even vented boxes MUST be airtight (except for the vent hole of course). This is the enclosure Q at Fb from leakage loss. (better sealed boxes have higher Q's) This parameter must be measured after the enclosure is built. Start with 7 as a good estimate. A Ql of 3 or less is unacceptable and must be improved, a Ql of 15 or higher is very good.

Fe/Fs: This is the ratio of the Equalizer resonant frequency to the box frequency.

D This is the equalizer Damping coefficient. D = 1/Q