



## **Engineering Test and Performance Specification**

### Purpose:

To define and establish a reference for the JBL Engineering approved performance characteristics of the stated model. To define the type of testing, and minimum conditions for testing, of production units of the stated model. To insure that the JBL design and performance intent is met. The performance data contained in this document is taken from the JBL Engineering Reference Standard unit that is held in the Harman Northridge facility.

This document is a JBL Engineering specification only and does not attempt to establish AQL or Visual acceptance levels or other criteria that are set forth and enforced by the Customer Purchasing, Incoming Inspection, and Quality Assurance groups.

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#### 1) Physical and Mechanical Specifications

#### 2) Engineering Test Specification (ETS)

Defines minimum testing for production units and response variation tolerance

#### 3) Performance Specification

T/S Parameters

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## Physical and Mechanical Characteristics

**Model #** 1200Fe-8 **NMG Part #** 339200-002  
**Description:** 12 inch, Ferrite, High Power woofer with very low Distortion

**Frame Type:** Heavy Cast Aluminum **Frame Finish:** Powder Coat, Charcoal  
**Outer Dia.** 12.25 inches **Mounting Depth:** 6.050 inches  
**Mounting Dia:** 10.9 inches **Overall Height:** 6.700 inch

**Trim Ring:** **Type:** NBR Rubber one-piece **Color:** Black  
**Surround:** **Type:** EPDM Foamed Rubber **Color:** Black  
**Cone:** **Type:** Kevlar Pulp w/Aquaplas **Color:** Black  
**Dome:** **Type:** Compressed Paper **Color:** Black

**Front Gasket:** **Type:** None **Color:** n/a  
**Rear Gasket:** **Type:** None **Color:** n/a  
**Tinsel Lead** **Type:** SilverPlateCadCopper-twisted **Attachment:** Soldered to Cone Eyelets  
**Terminal:** **Type:** Dual 5-way Binding posts **Lug Size:** n/a  
**Polarity:** EIA STND - Positive applied to RED terminal moves cone away from magnet

**Voice Coil:** **Diameter:** 3 inch **Wire:** Aluminum Ribbon 0.90 x.15mm, Edge wnd.  
**Layers:** 1 **Former:** Hightemp .13mm (FQG) Fiberglass  
**Turns:** 152 **Wrapper:** High temp .13mm NEC - 2 layers  
**Winding Length :** 1.00 inch

**Top Plate:** **Thickness:** 0.50 inches  
**Primary Magnet:** **Type:** Ceramic 5 **OD:** 7.50 inch **Thickness:** 0.75 inch  
**Bucking Magnet:** **Type:** n/a **OD:** n/a **Thickness:** n/a  
**Shield Can:** **Yes or No** n/a **OD:** n/a **Thickness:** n/a

**Notes:** Design is "overhung" type with long coil and short gap height. Incorporates JBL Flux Stabilization ring capability at base of the T-pole. Dual, mirror image spiders are also used to reduce distortion.

|                          |                                |                 |                 |
|--------------------------|--------------------------------|-----------------|-----------------|
| Model<br><b>1200Fe-8</b> | Engineering Test Specification | Document Number | Rev<br><b>A</b> |
|--------------------------|--------------------------------|-----------------|-----------------|

**1. Model Description:** 12 inch, Ferrite, High Power woofer with very low Distortion

Model Part # 339200-002 Design Engineer: Jerry Moro  
 (Part # listed is S/M level for systems and M/I level for transducers)  
 Shipping Weight: approx 22 IBS Packaging Test Method:

**2. Dynamic Test: (100% test)** Input Voltage (@ lowest sweep range): 18vrms sweep  
 Sweep Range: 20 - 600hz Sweep Duration: 4 seconds

**3. Power Test-Production Audit of 6 pcs @ each run: (Must EPR Qualify at 100 hours@same spec)**

Input Signal: Pink Noise Filter: 50-500hz  
 Crest Factor: 6 dB Duration (hours): 2 hrs Input Voltage: 45.0 Vrms

**4. Impedance: (Ref only)** D.C. Resistance: 5.6 ohms  
 Rated Impedance: 8.0 ohms Min.Impedance: 7.5 ohms Motional Impedance:  
 Thiele-Small; See: Impedance Curve; See:

**5. Polarity: (Automatically checked 100% during Canetics test):** EIA STANDARD

EIA = + volt. to + term. gives forward cone movement, phase detector green; JBL = + volt. to + term. gives reverse movement, phase detector red.  
 For System only (this section not applicable to transducers alone):

Description: Polarity:  
 Driver 1:  
 Driver 2:  
 Driver 3:

**6. Frequency Response Test: (100% test)**

Mic Position (inches): X: Y: Z: X=vert., Y=Horiz., Z = Dist from baffle. 0,0,0 = lower left corner facing spiral front

Crossover Frequencies (System Ref):

Canetics File Name Test Voltage

Stimulus File Gate Length Pregate Length

Number of Stacks Mic Distance Max Noise

| Channel 1 | Frequency |         | Bins Per Octave | Rolloff dB/Octave | Tolerance |        |
|-----------|-----------|---------|-----------------|-------------------|-----------|--------|
|           | Start     | Stop    |                 |                   | Upper     | Lower  |
| Group 1   | 60 Hz     | 718 Hz  | 6               | 36                | 1.0 dB    | 1.0 dB |
| Group 2   | 761 Hz    | 905 Hz  | 6               | 36                | 1.5 dB    | 1.5 dB |
| Group 3   | 959 Hz    | 1280 Hz | 6               | 36                | 2.0 dB    | 2.0 dB |
| Group 4   | 1356 Hz   | 2560 Hz | 3               | 36                | 3.0 dB    | 3.0 dB |
| Group 5   |           |         |                 |                   |           |        |
| Group 6   |           |         |                 |                   |           |        |
| Group 7   |           |         |                 |                   |           |        |
| Group 8   |           |         |                 |                   |           |        |

Note: Group ranges listed per OF1004, rev B. Frequencies shown are effective ranges of group(s).

**7. Other:**

**Signatures**

Marketing: \_\_\_\_\_ Date \_\_\_\_\_ Proc. Eng: \_\_\_\_\_ Date: \_\_\_\_\_  
 Mfg Engr.: \_\_\_\_\_ Date \_\_\_\_\_ Dev. Engr.: \_\_\_\_\_ Date: \_\_\_\_\_  
 QA Lab: \_\_\_\_\_ Date \_\_\_\_\_

**Revision History**

| Rev | Release Action     | Date      | Rev Initials |
|-----|--------------------|-----------|--------------|
| A   | Production Release | 6/11/2003 | Jerry Moro   |
|     |                    |           |              |
|     |                    |           |              |



**T/S Parameters**

**Model #** 1200Fe-8                      **NMG Part #** 339200-002  
**Description:** 12 inch, Ferrite, High Power woofer with very low Distortion

|   |            |             |     |               |
|---|------------|-------------|-----|---------------|
| <b>Fundamental Resonant Frequency:</b>                          | <b>Fs</b>  | <u>27</u>   | +/- | <u>10%</u>    |
| <b>Transducer Direct Current Resistance:</b>                    | <b>DCR</b> | <u>5.6</u>  | +/- | <u>5%</u>     |
| <b>Total Driver Q at Fs, Considering all driver Resistance:</b> | <b>Qts</b> | <u>0.26</u> |     |               |
| <b>Moving Mass:</b>   | <b>Mms</b> | <u>97</u>   | +/- | <u>10%</u>    |
| <b>Motor Strength:</b>  | <b>Bl</b>  | <u>19</u>   | +/- | <u>5%</u>     |
| <b>Voltage Sensitivity(2.83V@1 meter)</b>                       | <b>SPL</b> | <u>91</u>   | +/- | <u>1.0 dB</u> |

**Magnetic Flux information: (For Engineering Reference ONLY)**

**Total Flux lines intercepted by Coil Windings [Maxwell turns]:** 377,500  
**Conversion to Flux Density [Tesla]:** 0.614

**Flux lines throughout Gap thickness [Maxwell turns]:** 264,900  
**Conversion to Flux Density [Tesla]:** 0.862

**Method;** MLSSA added MASS  
\_\_\_\_\_  
\_\_\_\_\_

**Notes;** Flux measured with a 3.030 inch diameter, single turn Search coil  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

MLSSA SPO 4WI #010227-3479-3488 for Harman Consumer Group

| Measured Parameters |            | QC Limits |                |
|---------------------|------------|-----------|----------------|
| Line                | Parameter  | Value     | Units          |
| 1                   | RMSE-free  | 0.70      | Ohms           |
| 2                   | Fs         | 27.80     | Hz             |
| 3                   | Re         | 5.60      | Ohms           |
| 4                   | Res        | 331.54    | Ohms           |
| 5                   | Qms        | 15.57     |                |
| 6                   | Qes        | 0.26      |                |
| 7                   | Qts        | 0.26      |                |
| 8                   | L1         | 0.35      | mH             |
| 9                   | L2         | 3.28      | mH             |
| 10                  | R2         | 3.33      | Ohms           |
| 11                  | RMSE-load  | 0.48      | Ohms           |
| 12                  | Vas(Sd)    | 125.13    | liters         |
| 13                  | Mms        | 97.46     | grams          |
| 14                  | Cms        | 336       | $\mu$ M/Newton |
| 15                  | B1         | 19.04     | Tesla-M        |
| 16                  | SPLref(Sd) | 91.9      | dB[Re]         |
| 17                  | Rub-index  | 0.00      |                |

*421kMAP @ .75"  
Rme = 64.7*

Method: Mass-loaded (201.000 grams)  
 DCR mode: Fixed (6.12 - 0.52 ohms)

Area (Sd): 514.72 sq cm  
 QC file: CLOSED

Analysis successful. Shift in Fs = -43.6% (-20% to -50% is recommended).

# Frequency Response, 2.83Vrms @ 1Meter

X:20.535Hz \*Y:78.26dB\* ZA:Live Curve SSR Fund.



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Mode: SSR EPR STD

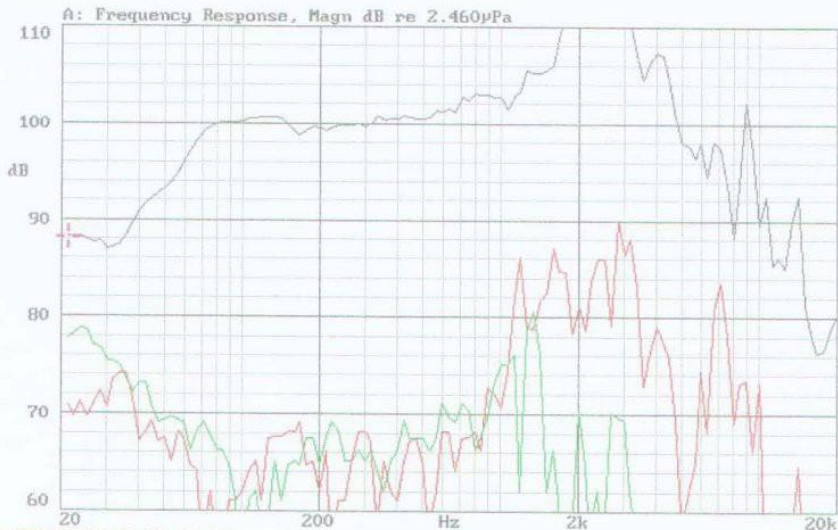
# 7- 1200FE-B-REV.3



## 2nd and 3rd Harmonic distortion raised 20dB relative to Fundamental

8.1 volt at 1 Meter for 100dB midband output

X:21.135Hz \*Y:88.21dB\* ZA:1.0000 SSR fund.



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Mode: 283 HARM EPR STND



# 7- 1200FE-8-RMB. @ 8.10 V



2nd and 3rd Harmonic distortion raised 20dB relative to Fundamental

16.1 volt at 1 Meter for 106dB midband output

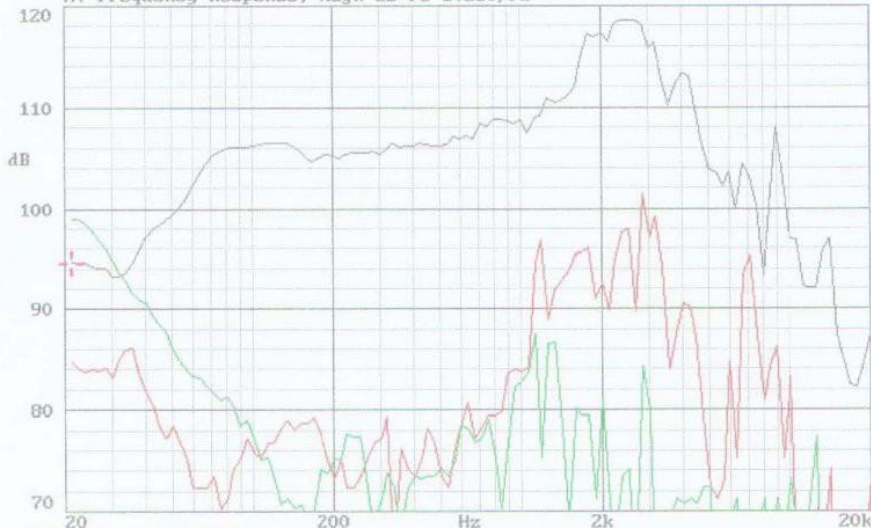
X:21.135Hz

\*Y:94.61dB

ZA:1.0000

SSR fund.

A: Frequency Response, Magn dB re 1.230pPa



25-FEB-2003 02:19:01 PM

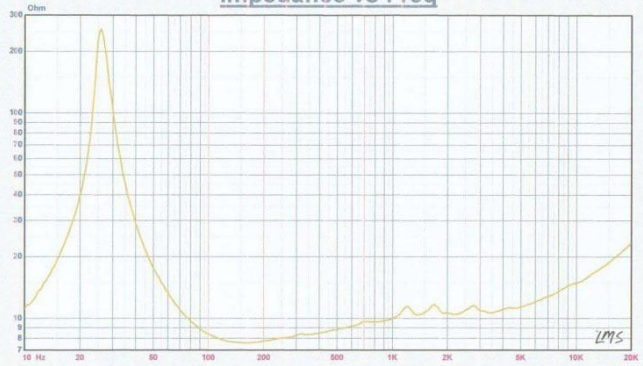
Mode: 283 HARM EPR STD

#7-1200FF-8 Run B. @ 16.18V



Insert LMS impedance curve

# Impedance vs Freq



Map 19: 1200Fe-8 #7 Rev.B @158.352Hz. *EPR STD*

Notes @155.364 Hz

# Approved Assembly

