



# Engineering Design Specification

**Division:** JBL

**Project:** SK2-1000

**Model Number:** 251J

**Part Number:** 339093-002

**Description:** 10" Dual Drive Mid Bass Transducer

**Where Used:** SK2-1000

**Approved Supplier:** JBL Manufacturing

**Design Engineer:** Greg Timbers

**Approval Sample number:** Manufacturing built EPR Samples

**Approved Production Line Reference  
Standard (chosen from MSB run):**

**Data Code:**

**Revision:** A

#####

## Physical and Mechanical Characteristics

<b>Model #</b>	251J		<b>HCG Part #</b>	339093-002	
<b>Description:</b>	10" Dual Drive Mid Bass Transducer				
<b>Frame Type:</b>	Cast Aluminum		<b>Frame Finish:</b>	Gray Texture	
<b>Outer Dia.</b>	10.25 inch		<b>Mounting Depth:</b>	5.63 inch	
<b>Mounting Dia:</b>	8.9 inch Through hole, 9.63 BH Dia.		<b>Overall Height:</b>	5.75	
<b>Trim Ring:</b>	<b>Type:</b>	None	<b>Color:</b>		
<b>Surround:</b>	<b>Type:</b>	Cloth M Roll	<b>Color:</b>	Black	
<b>Cone:</b>	<b>Type:</b>	Paper, fiberglass stock	<b>Color:</b>	gray	
<b>Dome:</b>	<b>Type:</b>	Paper, felted, 3.25"	<b>Color:</b>	Black	
<b>Front Gasket:</b>	<b>Type:</b>	Vinyl trim strip	<b>Color:</b>	Black	
<b>Rear Gasket:</b>	<b>Type:</b>	Vinyl Noodle	<b>Color:</b>	Black	
<b>Tinsel Lead</b>	<b>Type:</b>	Silver Braid	<b>Attachment:</b>	Solder	
<b>Terminal:</b>	<b>Type:</b>	JBL Push Terminal	<b>Lug Size:</b>		
	<b>Polarity:</b>	M.250 = EIA (positive pressure for positive voltage)			
<b>Voice Coil:</b>	<b>Diameter:</b>	3 inch	<b>Wire:</b>	Aluminum	
	<b>Layers:</b>	1	<b>Former:</b>		
	<b>Turns:</b>		<b>Wrapper:</b>		
	<b>Winding Length :</b>				
<b>Top Plate:</b>	<b>Thickness:</b>				
<b>Primary Magnet:</b>	<b>Type:</b>	Neo	<b>OD:</b>		<b>Thickness:</b>
<b>Bucking Magnet:</b>	<b>Type:</b>	n/a	<b>OD:</b>	n/a	<b>Thickness:</b> n/a
<b>Shield Can:</b>	<b>Yes or No</b>	No	<b>OD:</b>	n/a	<b>Thickness:</b> n/a

### Notes:

## T/S Parameters

<b>Model #</b>	251J	<b>HCG Part #</b>	339093-002		
<b>Description:</b>	10" Dual Drive Mid Bass Transducer				
<hr/>					
<b>Fundamental Resonant Frequency:</b>		<b>Fs</b>	60 Hz	+/-	15%
<b>Transducer Direct Current Resistance:</b>		<b>DCR</b>	12.7 $\Omega$	+/-	7%
<b>Total Driver Q at Fs, Considering all driver Resistance:</b>		<b>Qts</b>	0.35		
<b>Moving Mass:</b>		<b>Mms</b>	58 g	+/-	5%
<b>Motor Strength:</b>		<b>Bl</b>	27 T-M	+/-	7%
<b>Voltage Sensitivity(2.83V@1 meter)</b>		<b>SPL</b>	88	+/-	1.0 dB

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

**Total Flux lines intercepted by Coil Windings [Maxwell turns]:**

**Conversion to Flux Density [Tesla]:**

**Flux lines throughout Gap thickness [Maxwell turns]:**

**Conversion to Flux Density [Tesla]:**

1.0 T

**Method;**

**Notes;**

### SPL vs Freq



LMS

— 7: 251J

Map



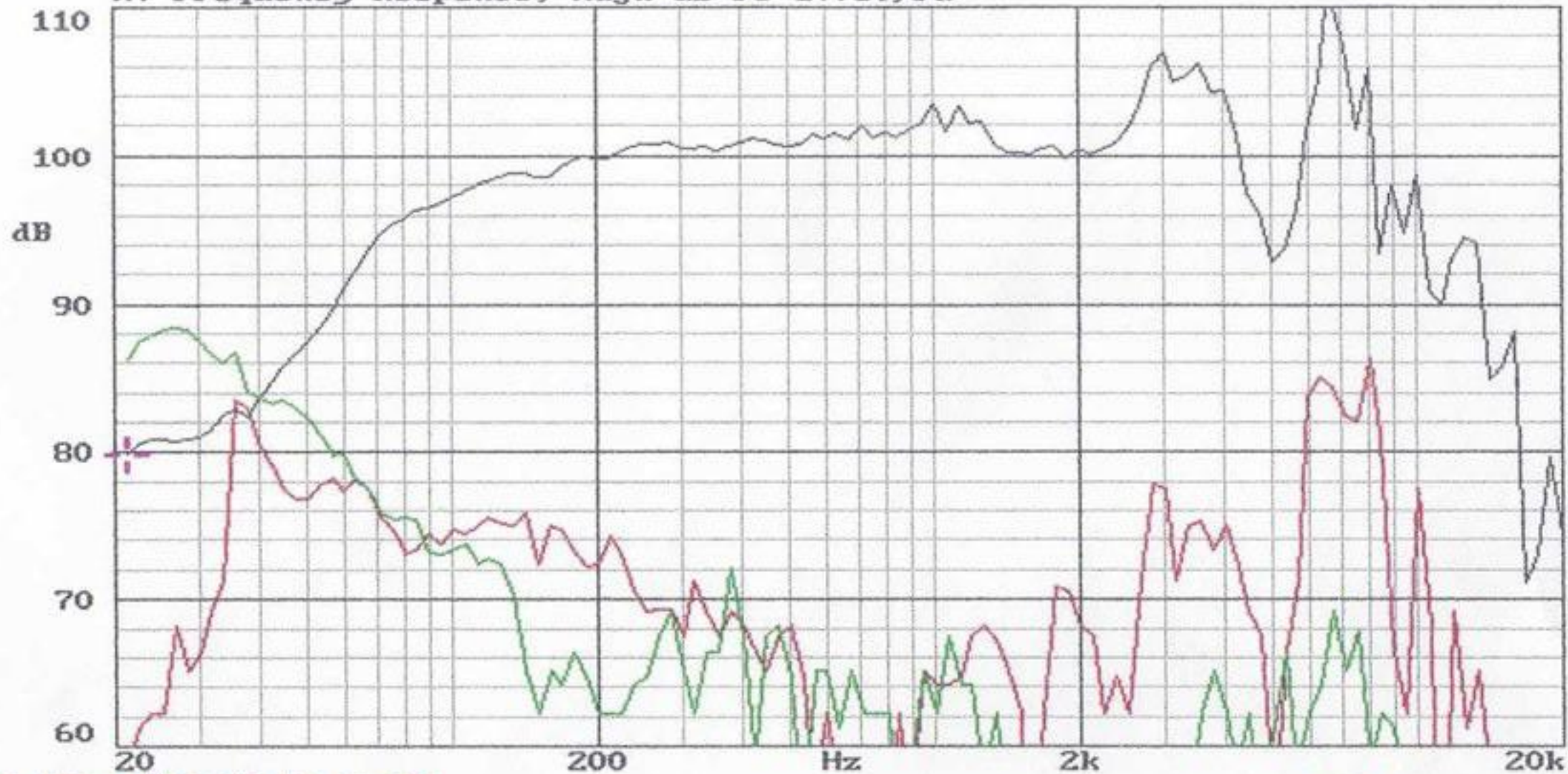
X:21.135Hz

\*Y:79.90dB\*

ZA:1.0000

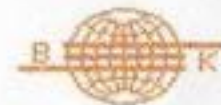
SSR fund.

A: Frequency Response, Magn dB re 1.730 $\mu$ Pa



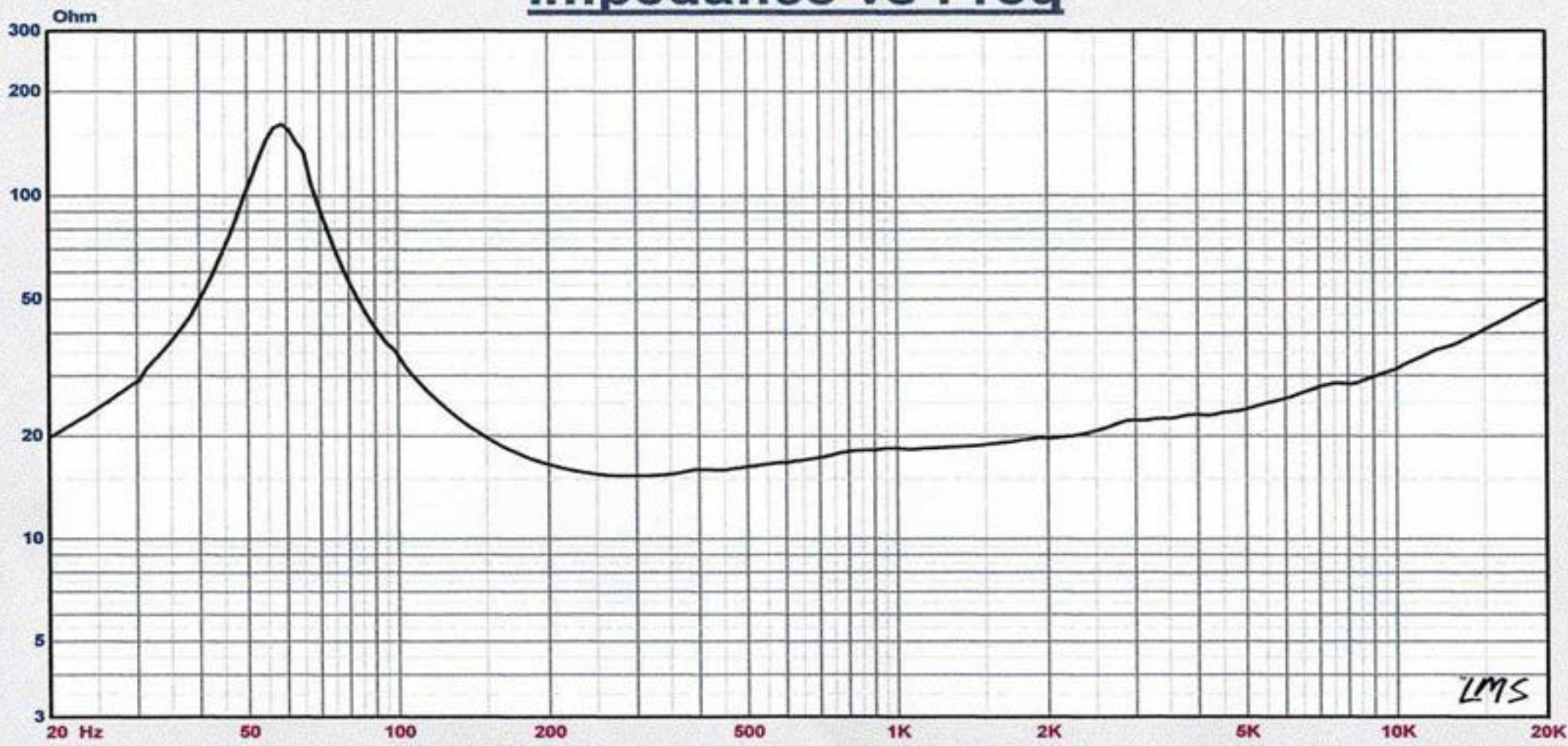
03-APR-2003 03:13:16 PM

Mode: 2&3 HARM



Distortion @ 100 dB, 11.5 V  
D2 and D3 Raised 20 dB

# Impedance vs Freq



Impedance Curve

Map

— 16:251J



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

Measured Parameters

QC Limits

Line	Parameter	Value	Units
1	RMSE-free	1.46	Ohms
2	Fs	59.72	Hz
3	Re	12.68	Ohms
4	Res	159.30	Ohms
5	Qms	4.74	
6	Qes	0.38	
7	Qts	0.35	
8	L1	0.42	mH
9	L2	2.52	mH
10	R2	7.31	Ohms
11	RMSE-load	0.82	Ohms
12	Vas(Sd)	16.98	liters
13	Mms	57.93	grams
14	Cms	123	$\mu\text{M}/\text{Newton}$
15	B1	27.04	Tesla-M
16	SPLref(Sd)	91.6	dB[Re]
17	Rub-index	0.00	

Method: Mass-loaded (94.000 grams) Area (Sd): 314.00 sq cm

DCR mode: Fixed (13.21'-'0.53'ohms) 'QC file: CLOSED

Analysis successful. Shift in Fs = -39.6% (-20% to -50% is recommended).

#2- 251J. 4-3-03

MLSSA: Parameters