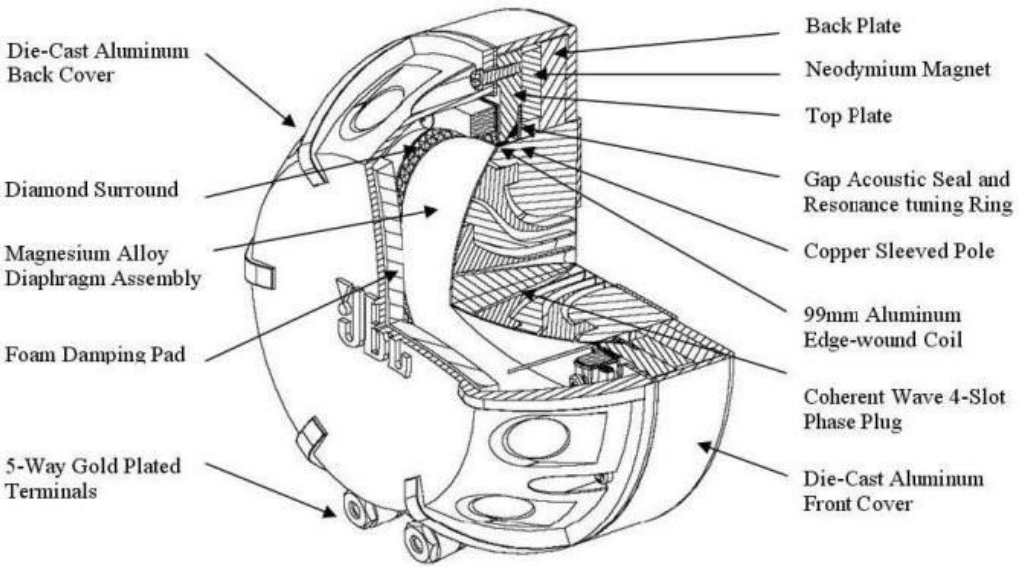
harman consumer group

Engineering Design Specification	Date	Rev #	Document Number
	2/27/2009	A	442793

4 inch Magnesium Compression Driver with 1.5 inch exit

Model Number:	**476Mg**
Part Number:	**440944-001**
Division:	**JBL**
Where Used:	**JBL K2 S9900**
Approved Supplier(s)	**JBL Pro Manufacturing**
Design Engineer:	**Jerry Moro**
Assembled View:	



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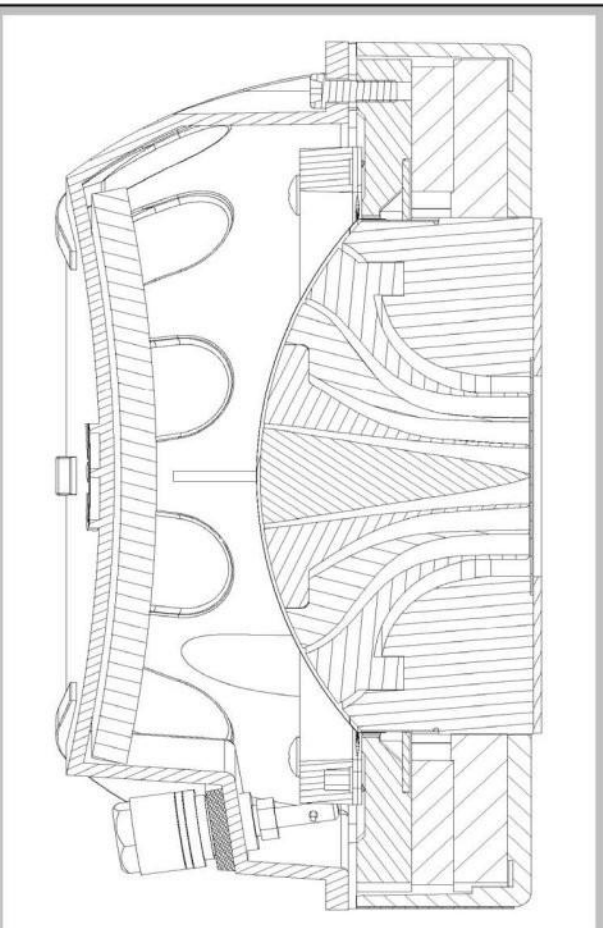
	#REF!	A	442793

4 inch Magnesium Compression Driver with 1.5 inch exit

Section View

Model # 476Mg Part # 440944-001



Document Revision History

Rev #	Date	Description of Change	ECO#	Approval	
				M.E.	T.E.
X1	2/27/2009			JM JM JM	JM
A	2/27/2009	Release to production	37458	JM	JM

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4 inch Magnesium Compression Driver with 1.5 inch exit

Transducer Mechanical Characteristics

Model #	476Mg	Part #	440944-001

Assembly

Overall Height:	3.4 inches	Overall Diameter:	6.6 inches
Mounting Detail:	3.00 inch Bolt Circle Dia. , 1/4 x 20 thread, x4		
Other:	****		

Throat

O.D.:	N/A	Length:	N/A
I.D. (Entrance):	N/A	I.D. (Exit):	1.526 inch
Mounting Feature(s):	N/A		
Other:	****		

Dome

Material:	AZ31B Magnesium Alloy	Thickness:	130 Micron
Shape:	3.27 inch spherical dome	O.D.:	3.904 inches
Other:			

Surround

Material:	AZ31B (one-piece with dome)	Type:	Diamond pattern
Other:			

Rear Cover

Material:	380 Cast Aluminum	Features:	****
Color / Finish:	Gray / Textured Powder Coated		
Other:	*****		

Mounting Gasket

Material:	Volara Foam	Color:	Black

Cover Gasket

Material:	Rubber	Color:	Black

Voice Coil

I.D.:	3.904 inch	Max. O.D.:	3.942 inch
Wire Type:	Aluminum Ribbon	Wire Size:	0.014 x 0.0041 inches
Wire Turns:	30.5 +/- 1 (9.52 Meters)	Wire D.C.R.:	8 Ohms
Winding Width:	0.128 inch	Winding layers:	1
Former:	0.005 inch thick Nomex	Wrapper:	None
Other:			

Magnet

Material:	Neodymium - 42SH Grade	Thickness:	0.300 inch
O.D.:	6.28 inch (made from 8 arc segments)	I.D.:	4.39 inch (made from 8 arc segments)
Other:	*****		

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4 inch Magnesium Compression Driver with 1.5 inch exit

Transducer Mechanical Characteristics (Motor)

Model #	476Mg	Part #	440944-001

Top Plate

Material:	Low Carbon Steel (less than 0.1%)	Thickness:	.385 inch (0.125 at gap)
O.D.:	6.33 inch	I.D.:	3.967 inch
Other:	***		

Pole Piece

O.D.:	3.8895 inch (includes Copper sleeve)	Copper Cap:	0.009 inch thick Copper sleeve
Other:	Low Carbon steel (less than 0.1%), Glued in Zinc Phasing Plug (4-slot)		

Back Plate

Material:	Low Carbon Steel (less than 0.1%)	Thickness:	.380 inch
O.D.:	6.33 inch	I.D.:	1.526 inch exit (from pressed-in pole)
Other:	Pole piece assembly is press into 3.9275 inch Back Plate ID		

Bucking Magnet

Material:	N/A	Thickness:	N/A
O.D.:	N/A	I.D.:	N/A
Other:	******		

Shielding Can

Material:	N/A	Thickness:	N/A
Other:	****		

Misc

Magnetic Fluid:	None	Polarity:	JBL Standard
Tinsel Lead Type:	Berylium Copper Ribbons		
Tinsel Lead Attach.:	Soldered to Aluminum coil wire and extends up through slits in diaphragm		
Terminal Size / Type:	5-way Binding posts (bolt through cover)		
Other:	JBL Polarity = negative throat pressure for positive voltage at Red terminal		

Notes:

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4 inch Magnesium Compression Driver with 1.5 inch exit

Model #	476Mg	Part #	440944-001

Transducer Electro-Mechanical Parameters

Fundamental Resonant Frequency (Hz):	Fs	800	+/-	10%
Transducer Direct Current Resistance (Ohms):	DCR	8	+/-	3%
Total Driver Q at Fs, Considering all driver Resistance:	Qts	***	+/-	5%
Moving Mass (g):	Mms	3.7	+/-	5%
Motor Strength (T*m):	Bl	16.95	+/-	5%
Voltage Sensitivity(2.83V@1 meter)	SPL	110 dB	+/-	1dB
Radiation Area	Sd	78.54 cm^2		

Method

Software:	****
Mass Loading:	****
Misc.:	BL determined by gap flux measurement with search coil

Magnetic Flux Information (For Engineering Reference Only)

Total flux lines intercepted by coil windings [Maxwell Turns]:	176,509
Conversion to flux density [Tesla]:	1.78
Flux lines throughout gap thickness [Maxwell Turns]:	176,509
Conversion to flux density [Tesla]:	1.78

Notes

Parameters provided are nominal values which are closest to the Engineering Referance Standard

Voltage Sensitivity takes precedence over possible T/S combinations that would produce SPL

SPL value of 110dB is with 476Mg compression driver mounted on 4338 reference horn measured on axis a in 4 pie chamber (SPL value taken at 2 KHz).

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4 inch Magnesium Compression Driver with 1.5 inch exit

Transducer Test Specifications

production testing quantities per HCG QA AQL

Model # 476Mg Part # 440944-001

Polarity Test

Polarity: JBL Standard

Dynamic Test

Sine Sweep Voltage: 1.2 Vrms
Frequency Range: 100 Hz to 1,000 Hz
Sweep Duration: 4 sec

Power Test

Signal: 600Hz- 6KHz Pink Noise, 6dB CrF, 12.0 Vrms
Duration: 8 + 92 hours

Impedance

DC Resistance: 8 Ohms
Min. Impedance @ Frequency: 11

Frequency Response

Freq. Response:

Window	Averaging	Slope
508Hz - 640Hz +1.0dB / - 1.3dB	1/3 Octave	36 dB / Octave
640Hz - 3,225Hz +/- 0.8dB	1/3 Octave	36 dB / Octave
3,225Hz - 5,120Hz +/- 1.0dB	1/3 Octave	36 dB / Octave
5,120Hz - 10,240Hz +/- 2.0dB	1/3 Octave	36 dB / Octave
10,240Hz - 20,000Hz +/-3.0dB	1/3 Octave	36 dB / Octave
	1/3 Octave	36 dB / Octave
	1/3 Octave	36 dB / Octave
	1/3 Octave	36 dB / Octave
	1/3 Octave	36 dB / Octave
	1/3 Octave	36 dB / Octave

Notes:

Test Voltage 2.0 Vrms, Stimulus file: 1/24 OCT

Engineering Standard Frequency Response	Date	Rev #	Document Number
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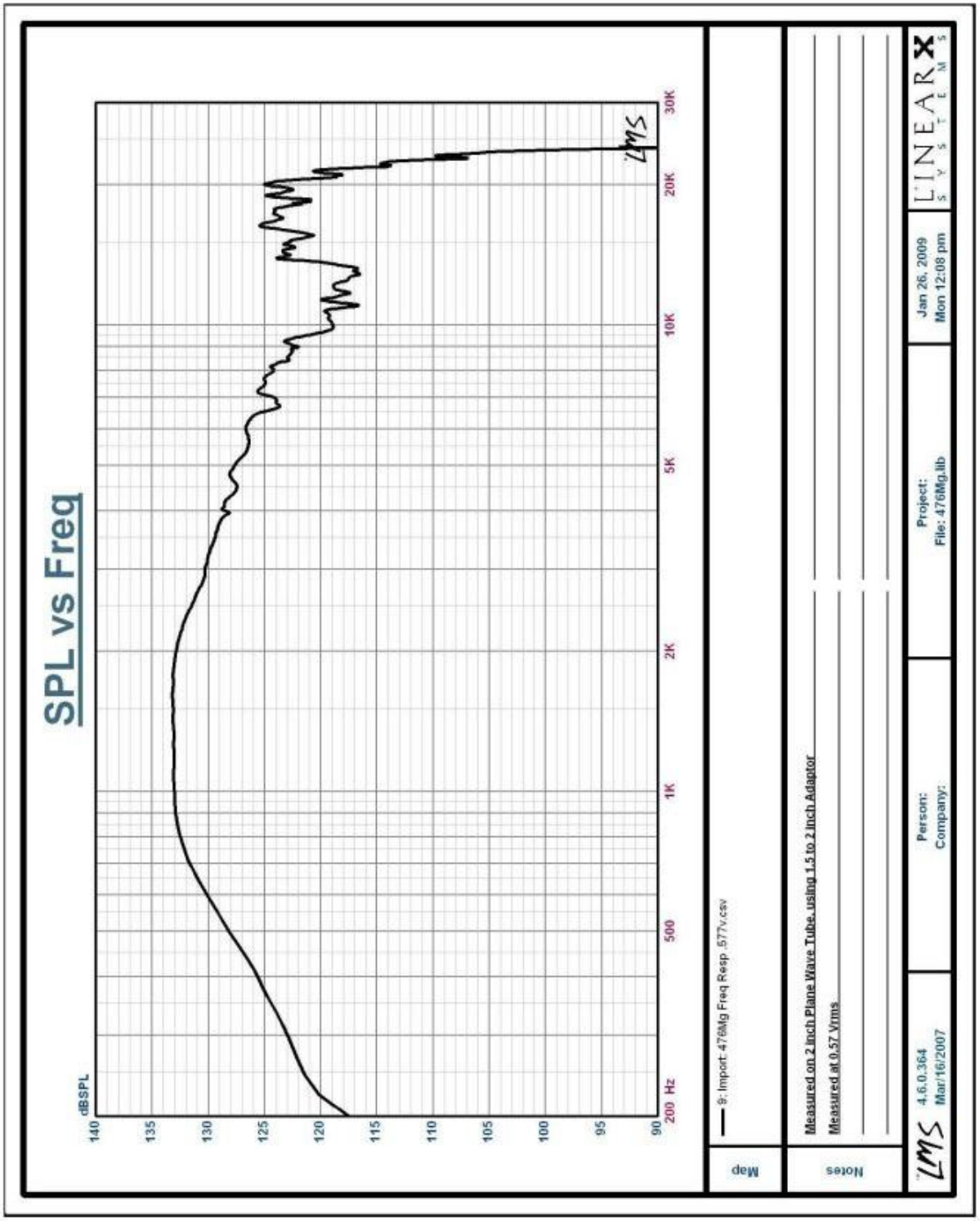
4 inch Magnesium Compression Driver with 1.5 inch exit

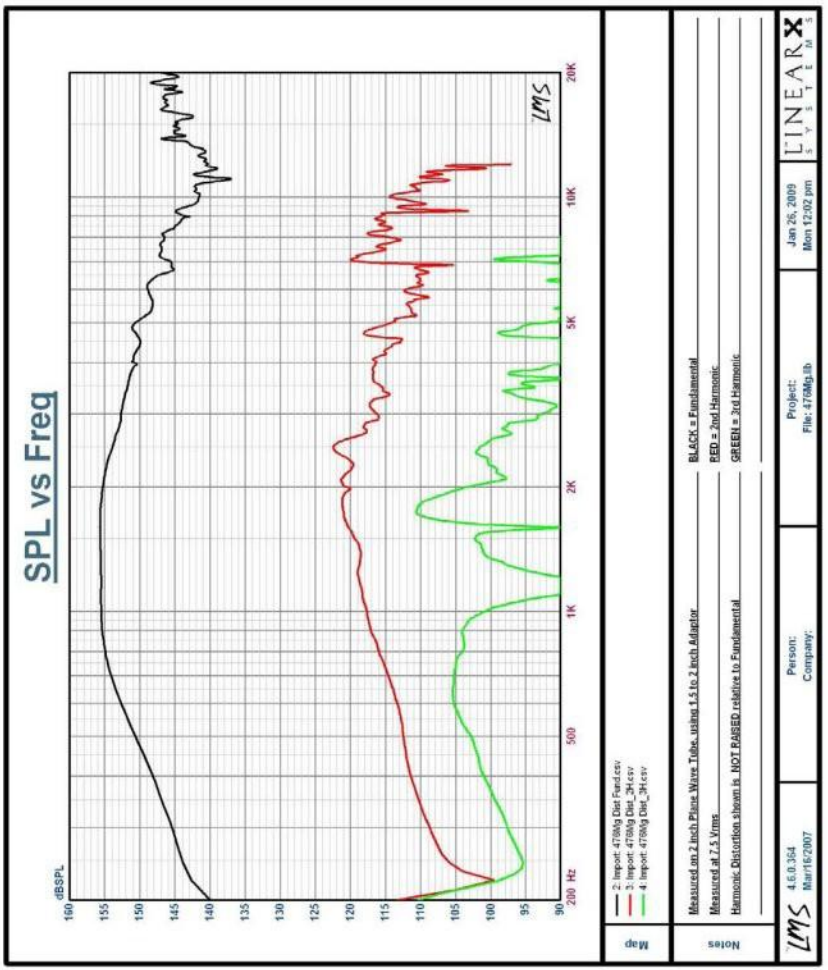
Model # 476Mg Part # 440944-001



Engineering Standard Distortion (Low Level)	Date 2/27/2009	Rev # A	Document Number 442793

4 inch Magnesium Compression Driver with 1.5 inch exit

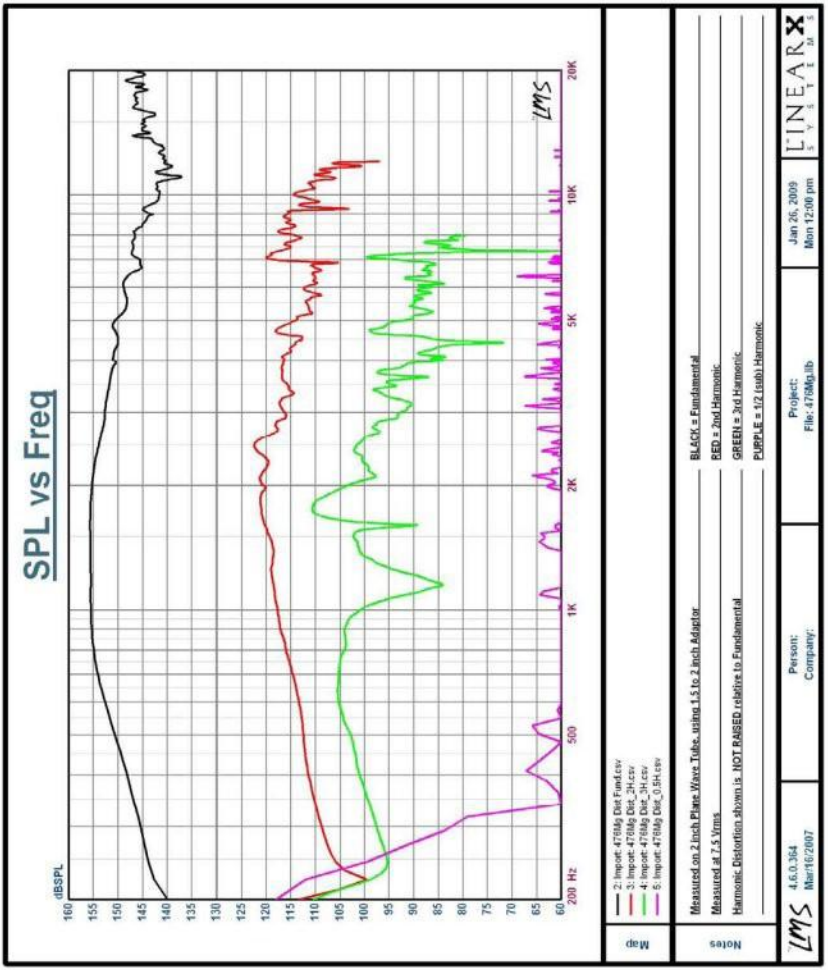
Model # 476Mg Part # 440944-001



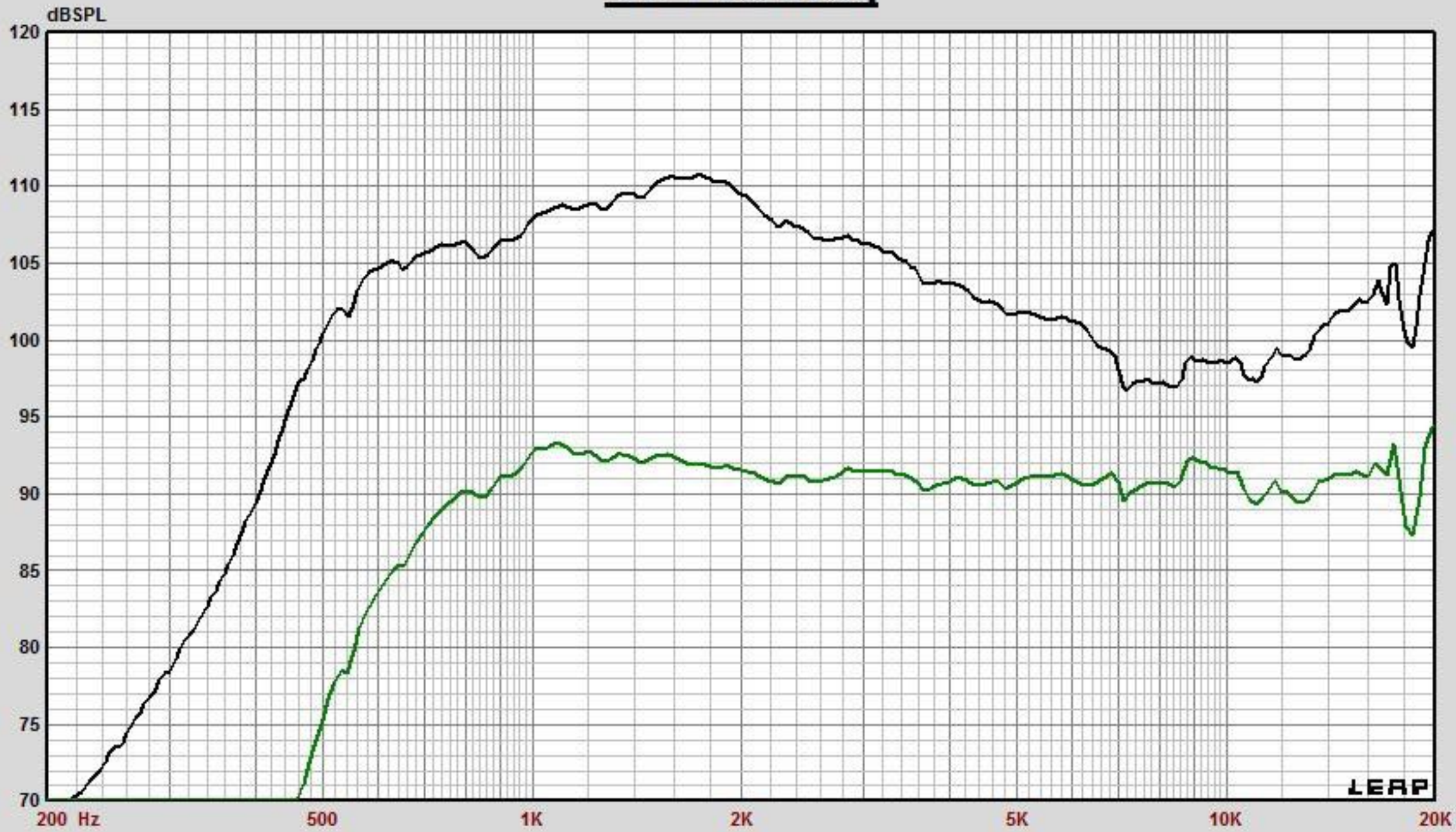
Engineering Standard Distortion (High Level)	Date 2/27/2009	Rev # A	Document Number 442793

4 inch Magnesium Compression Driver with 1.5 inch exit

Model # 476Mg Part # 440944-001



SPL vs Freq



Map

8: SPL@1M,0H,0V HF
3: 476MG H4365

Notes

black = 476MG on 4365 horn in anechoic chamber

green = with network

LEAP 5.1.0.341 Jul/10/2005 Crossover Shop	Person: Company:	Project: File: GT_4365.lcd	Nov 20, 2010 Sat 11:09 am

LINEARX SYSTEMS