

# LS432i-P85 Specifications



## FEATURES:

- The LS432i-P85 enclosure was designed specifically to work with the Panasonic TH-85PF12U high definition professional plasma display
- Line array effects create consistent 20° x 140° coverage
- High performance Column Array™ system
- Direct radiating drivers provide extra wide horizontal coverage
- For permanent installation only

## DESCRIPTION:

EAW's LS432i-P85 line source loudspeaker system brings the classic column speaker up-to-date. Sophisticated frequency shading integrates the 4x 4-in woofers and 3x 1-in soft dome tweeters, maximizing the benefits of line source coupling while eliminating grating lobes.

The system maintains a well behaved nominal vertical coverage pattern of 20° to below 630Hz. Even at 500Hz, the vertical pattern is still 45°. At the same time, the drivers act as direct radiators in the horizontal plane, giving the system an extra wide 140° horizontal coverage pattern with response that meets professional standards for fidelity and intelligibility.

The internal passive crossover/filter network uses complex, asymmetrical slopes to integrate the subsystems and goes beyond merely dividing the signal to perform critical equalization functions.

The enclosure includes four 8-32 machine screw mounting points on the back configured to accept a user-supplied RDL FP-PA18H amplifier, simplifying installation. In addition, four 1/4-in threaded mounting points on the rear configured to accept a Multimount™ 024 allow speakers to be aimed and locked in almost any direction or angle through the use of independent pan, tilt, and swivel adjustments. Finally, 1/4-in threaded mounting points, one each top and bottom, allow installation using accessory eyebolts.

Six year warranty.

## 2-WAY FULL-RANGE LOUDSPEAKER

See *NOTES TABULAR DATA* for details

### CONFIGURATION

#### Subsystem:

	<i>Transducer</i>	<i>Loading</i>
LF	4x 4 in cone	Sealed
HF	3x 1 in soft dome tweeter	

#### Operating Mode:

	<i>Amplifier Channels</i>	<i>External Signal Processing</i>
Single-amp	LF/HF	High pass filter

### PERFORMANCE

**Operating Range:** 140 Hz to 20 kHz

**Nominal Beamwidth:** (*conical*)

Horz 140°

Vert 20°

**Axial Sensitivity** (*whole space SPL*):

LF/HF 93 dB 140 Hz to 20 kHz

**Input Impedance** (*ohms*):

**Nominal** **Minimum**

LF/HF 8 7.0 @ 335 Hz

**High Pass Filter:** High Pass =>110 Hz, 12 dB/octave Butterworth

**Accelerated Life Test:**

LF/HF 34.6 V 150 W @ 8 ohm

**Calculated Axial Output Limit** (*whole space SPL*):

**Average** **Peak**

LF/HF 115 dB 121 dB

### ORDERING DATA

<b>Description</b>	<b>Part Number</b>
EAW LS432i-P85 Black	2039726

#### **Optional Accessories**

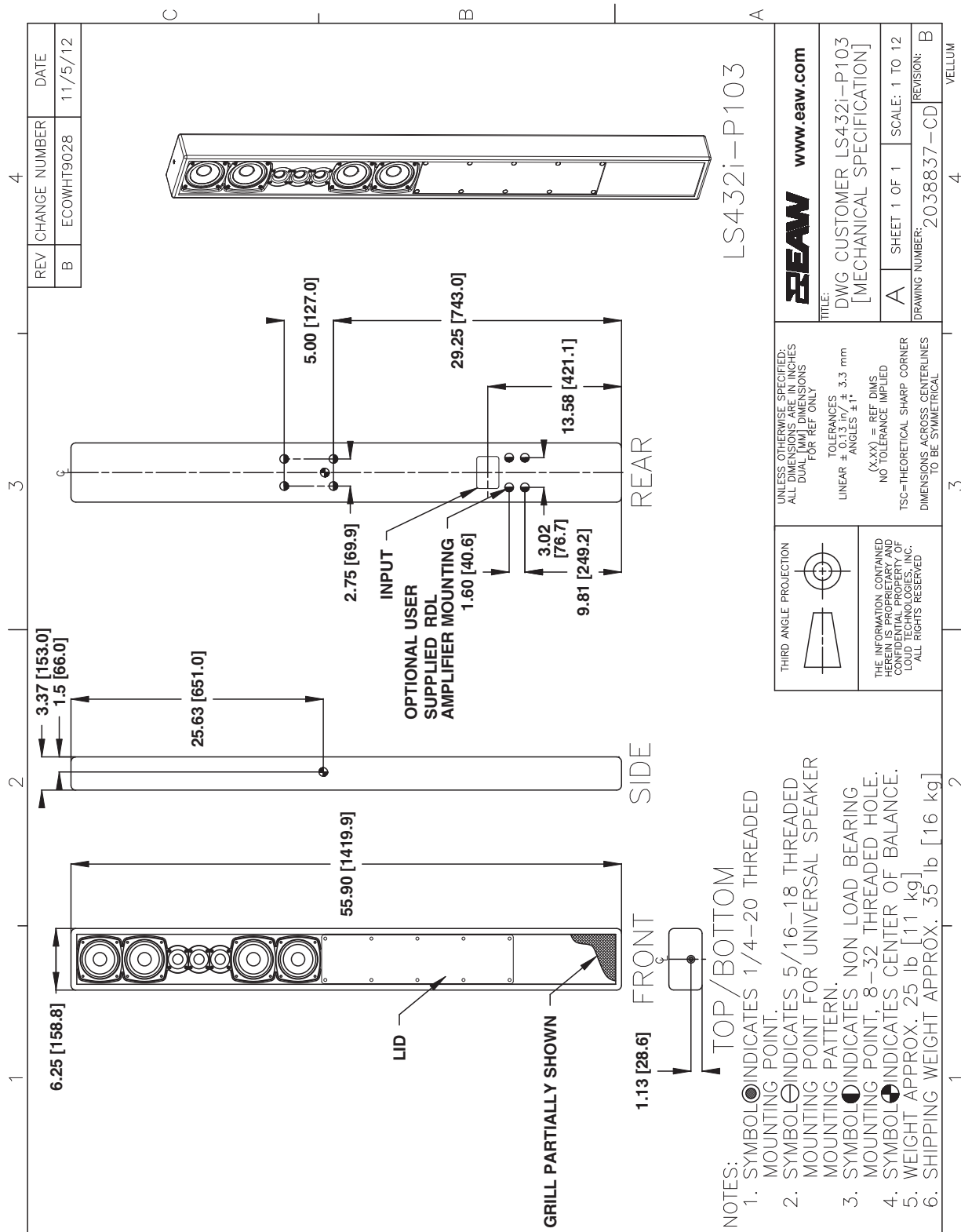
EAW ACC EYE BOLT 0.25-20 X 1in [ACC-EB2500]	104009
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## ENCLOSURE

Material Exterior-grade Baltic birch plywood  
 Finish Wear resistant textured black paint  
 Grille Powder-coated perforated steel



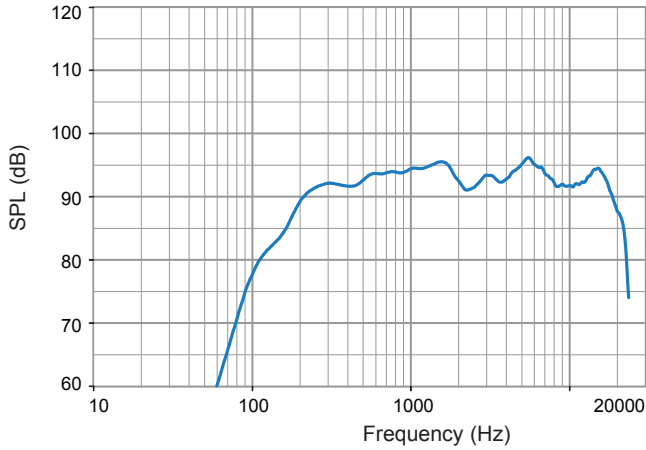
**NOTE:** This drawing has been reduced. Do not scale.

## PERFORMANCE DATA

See *NOTES GRAPHIC DATA* for details

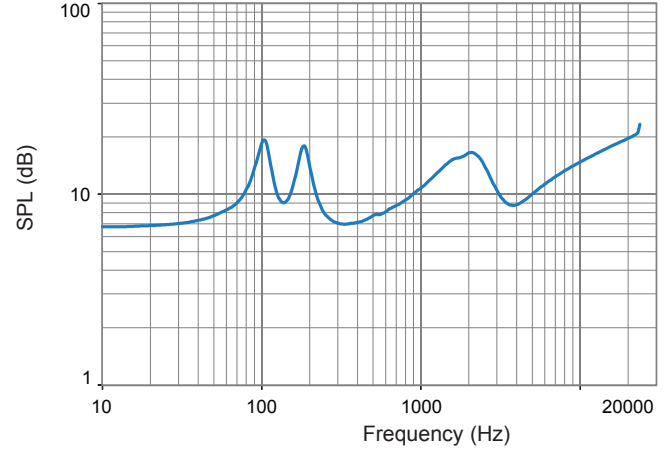
### Frequency Response: Unprocessed

Complete = blue



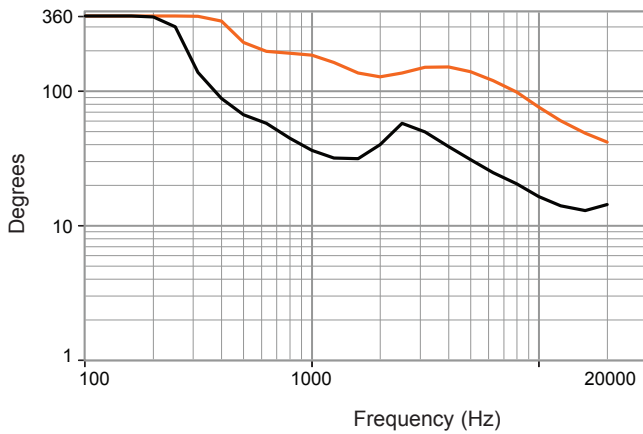
### Impedance

Complete = blue



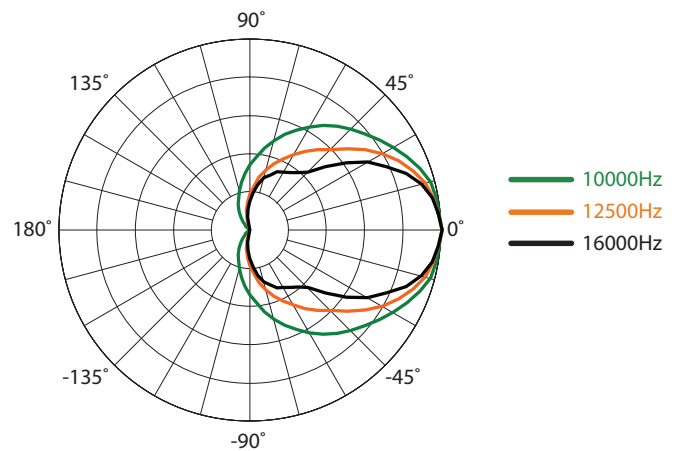
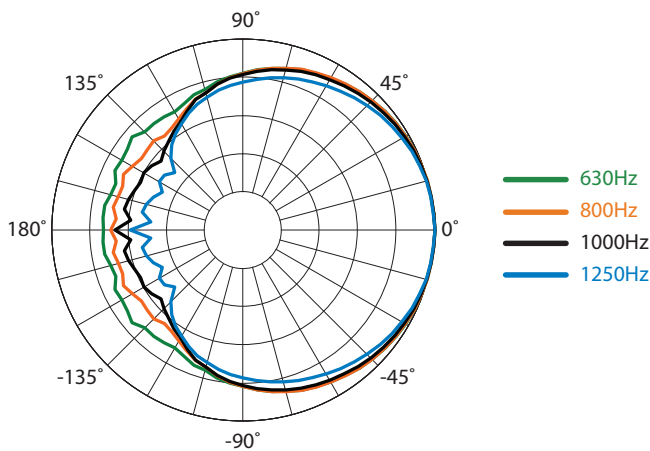
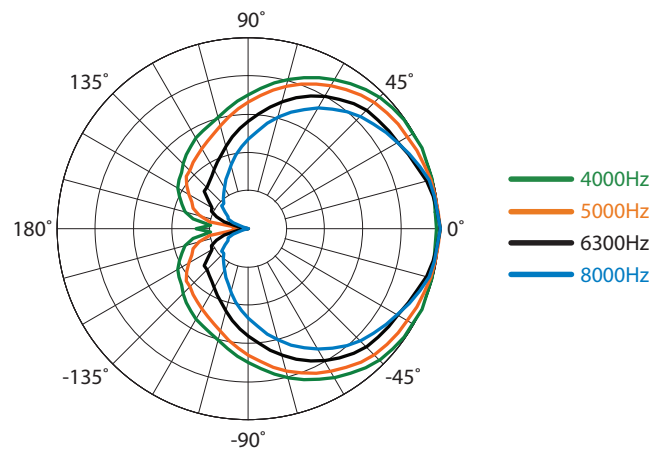
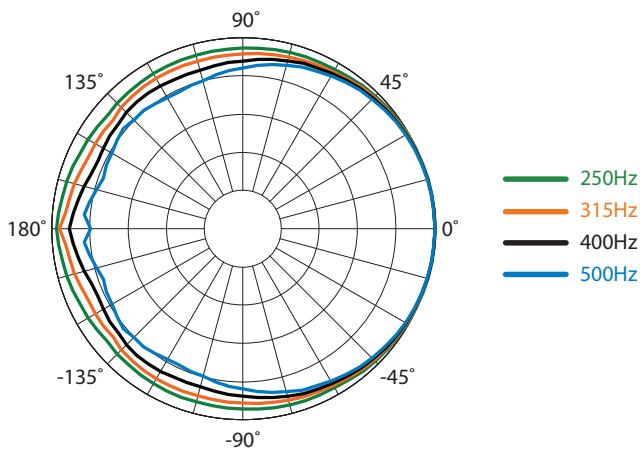
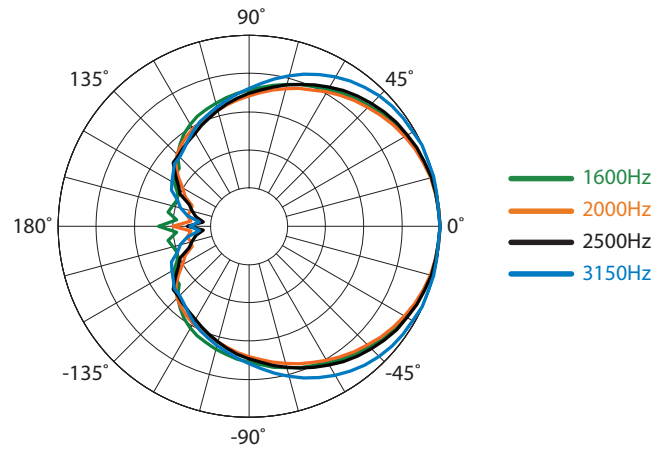
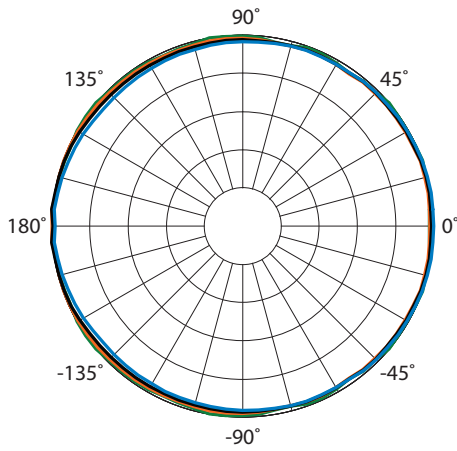
### Beamwidth

Horizontal = orange Vertical = black



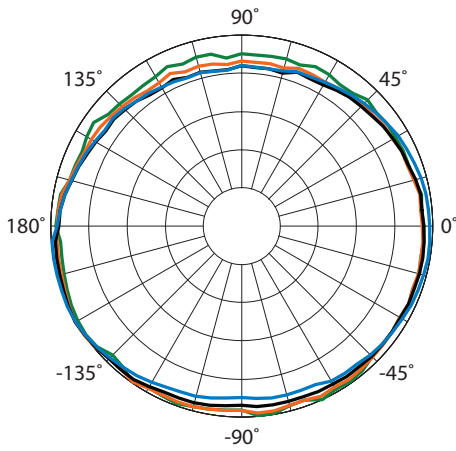
## HORIZONTAL POLAR DATA

See *NOTES GRAPHIC DATA* for details

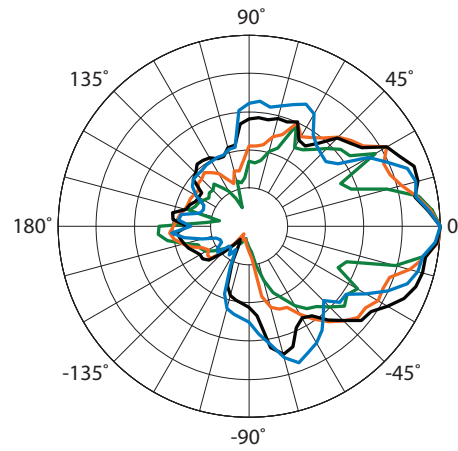


## VERTICAL POLAR DATA

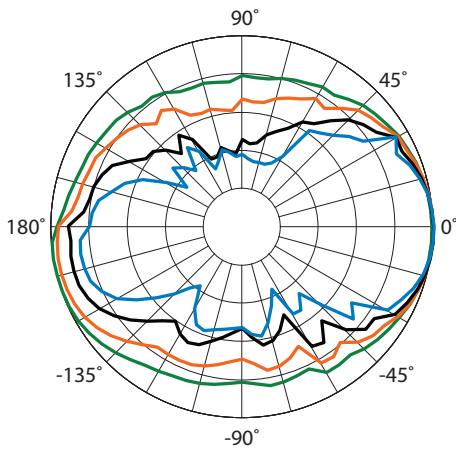
See *NOTES GRAPHIC DATA* for details



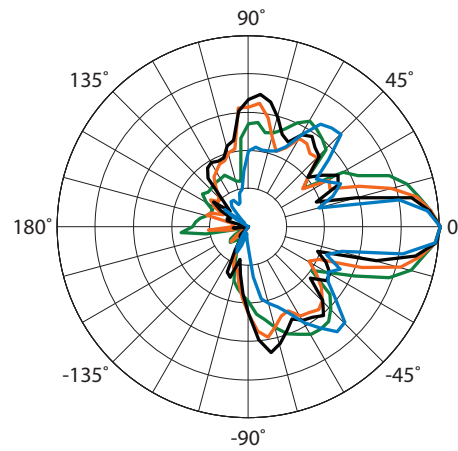
- 100Hz
- 125Hz
- 160Hz
- 200Hz



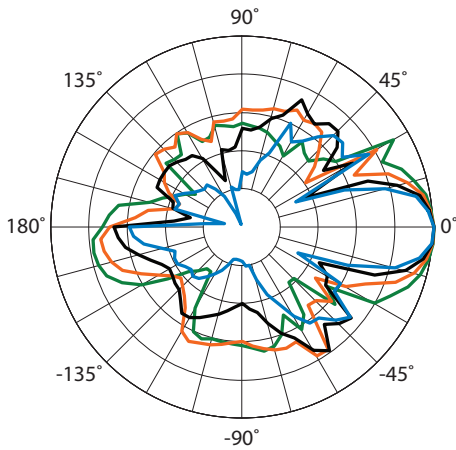
- 1600Hz
- 2000Hz
- 2500Hz
- 3150Hz



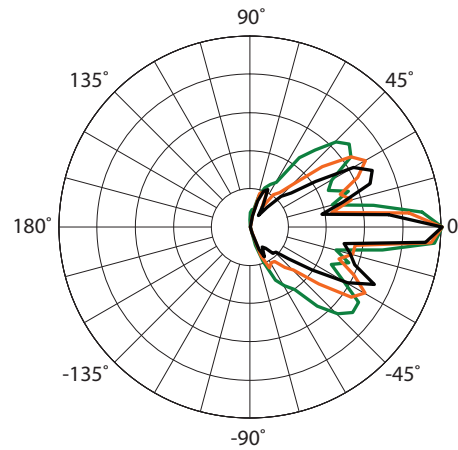
- 250Hz
- 315Hz
- 400Hz
- 500Hz



- 4000Hz
- 5000Hz
- 6300Hz
- 8000Hz

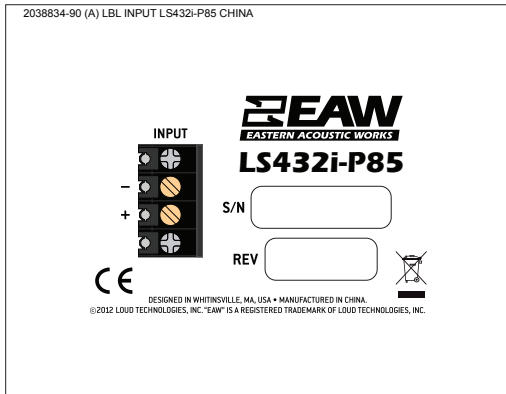


- 630Hz
- 800Hz
- 1000Hz
- 1250Hz

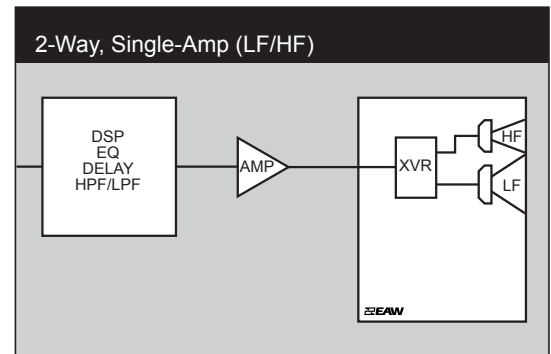


- 10000Hz
- 12500Hz
- 16000Hz

## INPUT PANELS



## SIGNAL DIAGRAM



## LEGEND

- HPF:** High Pass Filter for crossover –or– Recommended High Pass Filter.
- LPF:** Low Pass Filter for crossover.
- LF/MF/HF:** Low Frequency / Mid Frequency / High Frequency.
- AMP:** User Supplied Power Amplifier –or– Integral Amplifier for NT products.
- XVR:** Passive LPFs, HPFs, and EQ integral to the loudspeaker.
- EAW Focusing:** Digital Signal Processor capable of implementing EAW Focusing.

## NOTES

### TABULAR DATA

1. **Measurement/Data Processing Systems:** Primary - FChart: proprietary EAW software; Secondary - Brüel & Kjær 2012.
2. **Microphone Systems:** Earthworks M30; Brüel & Kjær 4133
3. **Measurements:** Dual channel FFT; length: 32 768 samples; sample rate: 48 kHz; logarithmic sine wave sweep.
4. **Measurement System Qualification** (includes all uncertainties): SPL: accuracy +/-0.2 dB @ 1 kHz, precision +/-0.5 dB 20 Hz to 20 kHz, resolution 0.05 dB; Frequency: accuracy +/-1 %, precision +/-0.1 Hz, resolution the larger of 1.5 Hz or 1/48 octave; Time: accuracy +/-10.4 µs, precision +/-0.5 µs, resolution 10.4 µs; Angular: accuracy +/-1°, precision +/-0.5°, resolution 0.5°.
5. **Environment:** Measurements time-windowed and processed to eliminate room effects, approximating an anechoic environment. Data processed as anechoic or fractional space, as noted.
6. **Measurement Distance:** 7.46 m. Acoustic responses represent complex summation of the subsystems at 20 m. SPL is referenced to other distances using the Inverse Square Law.
7. **Enclosure Orientation:** For beamwidth and polar specifications, as shown in Mechanical Specification drawing.
8. **Volts:** Measured rms value of the test signal.
9. **Watts:** Per audio industry practice, "loudspeaker watts" are calculated as voltage squared divided by rated nominal impedance. Thus, these are not True Watt units of energy as defined by International Standard.
10. **SPL:** (Sound Pressure Level) Equivalent to the average level of a signal referenced to 0 dB SPL = 20 microPascals.
11. **Subsystem:** This lists the transducer(s) and their acoustic loading for each passband. Sub = Subwoofer, LF = Low Frequency, MF = Mid Frequency, HF = High Frequency.
12. **Operating Mode:** User selectable configurations. Between system elements, a comma (,) = separate amplifier channels; a slash (/) = single amplifier channel. DSP = Digital Signal Processor. **IMPORTANT:** To achieve the specified performance, the listed external signal processing must be used with EAW-provided settings.
13. **Operating Range:** Range where the processed Frequency Response stays within -10 dB SPL of the power averaged SPL within this range; measured on the geometric axis. Narrow band dips are excepted.
14. **Nominal Beamwidth:** Design angle for the -6 dB SPL points, referenced to 0 dB SPL as the highest level.
15. **Axial Sensitivity:** Power averaged SPL over the Operating Range with an input voltage that would produce 1 W at the nominal impedance; measured with no external processing on the geometric axis, referenced to 1 m.
16. **Nominal Impedance:** Selected 4, 8, or 16 ohm resistance such that the minimum impedance point is no more than 20% below this resistance over the Operating Range.
17. **Accelerated Life Test:** Maximum test input voltage applied with an EIA-426B defined spectrum; measured with recommended signal processing and Recommended Protection Filter.
18. **Calculated Axial Output Limit:** Highest average and peak SPLs possible during the Accelerated Life Test. The Peak SPL represents the 2:1 (6 dB) crest factor of the Life Test signal.
19. **High Pass Filter:** This helps protect the loudspeaker from excessive input signal levels at frequencies below the Operating Range.

### GRAPHIC DATA

1. **Resolution:** To remove insignificant fine details, 1/12 octave cepstral smoothing was applied to acoustic frequency responses and 1/3 octave cepstral smoothing was applied to the beamwidth and impedance data. Other graphs are plotted using raw data.
2. **Frequency Responses:** Variation in acoustic output level with frequency for a constant input signal. Processed: normalized to 0 dB SPL. Unprocessed inputs: 2 V (4 ohm nominal impedance), 2.83 V (8 ohm nominal impedance), or 4 V (16 ohm nominal impedance) referenced to a distance of 1 m.
3. **Processor Response:** The variation in output level with frequency for a constant input signal of 0.775 V = 0 dB reference.
4. **Beamwidth:** Average angle for each 1/3 octave frequency band where, starting from the rear of the loudspeaker, the output first reaches -6 dB SPL referenced to 0 dB SPL as the highest level. This method means the output may drop below -6 dB SPL within the beamwidth angle.
5. **Impedance:** Variation in impedance magnitude, in ohms, with frequency without regard to voltage/current phase. This means the impedance values may not be used to calculate True Watts (see 9 above).
6. **Polar Data:** Horizontal and vertical polar responses for each 1/3 octave frequency band 100 Hz to 16 kHz or Operating Range.