

# RL12 Specifications



## Features

- Custom-designed transducers and porting, signature EAW Focusing™ and DynO™ dynamic optimization processing
- 1,250 watts of bi-amplified Class-D Power Factor Corrected amplification
- Symmetrical monitor angles with swappable rear panels to form mirror-image pairs
- Three pre-tuned gig-ready voicings, LED mute function, PowerCON® inlet and loop connectors
- Integral wooden handles, rugged grille and RoadCoat™ enclosure, hyper-black front EAW logo
- 35mm/1-3/8" pole cup and M8 rigging points

## Applications

Concerts, Corporate AV, Portable, Live Clubs, Concert Halls, Theaters, Auditoriums, Houses of Worship

## Description

From corporate events to festivals, every aspect of Redline has been targeted at making life easier for the live sound professional. From transducers and electronics to enclosure design and fitments, Redline is built to live in the working world of demanding clients, tight schedules and even tighter budgets.

The RL12 includes a complete on-board 1,250-watt bi-amplified electronics package mated to highly-customized precision transducers engineered to meet the specific demands of the Redline family. Redline features renowned EAW Focusing™ processing to deliver a pristine impulse response, while DynO™ algorithms optimize the power transfer from amplifiers to transducers for improved headroom and integrity of sound at maximum output.

The RL12 offers perfectly consistent directivity via a Beamwidth-Matched Crossover on 90°x60° user-rotatable horn and painstakingly-engineered ports that provide huge bass support with no turbulence. Three simple pre-defined voicings help the user to set up in minutes, and a rear-panel LED mute keeps Redline invisible in aesthetically-sensitive situations.

The RL12 enclosure incorporates symmetrical monitor angles to form left-right wedge pairs, integral road glove-ready wood handles and sleek but strong sculpted grilles on RoadCoat™ enclosures.

Six year warranty on enclosure. Two year warranty on electronics.

## 2-WAY SELF-POWERED LOUDSPEAKER 90° x 60°

See NOTES TABULAR DATA for details

### Configuration

Subsystem	Transducer	Loading
LF	1x 12 in cone	Vented
HF	1x 1 in exit, 1.75 in voice coil compression driver	Horn-loaded

Operating Mode	Amplifier Channels	Signal Processing
Bi-amp	LF, HF	DSP w/EAW Focusing™ and DynO™

### Acoustical Performance

Operating Range	55 Hz to 19 kHz	
Nominal Beamwidth (user-rotatable)	Horizontal 90°	Vertical 60°
	Axial Output Limit (whole space SPL)	
Calculated LF/HF	Average 129 dB	Peak 135 dB

### Electrical Performance

Input	Type	Electronically balanced XLRF
Max Input Level	22dBu	
Loop	Type	Electronically balanced XLRM
	Amplifier	
Type	LF Class D	HF Class D
Maximum Output	1000 W @ 8 ohm	250 W @ 8 ohm
Driver Protection	Integral DSP limiting	Integral DSP limiting
AC Mains (nominal)	Connector	Neutrik PowerCON®
	Input	100 V to 240 V
	Frequency	50 Hz to 60 Hz

Power Consumption	Idle	21 W
Peak Draw	250 W	

Indicators (LED)	Amplifier Status	
Signal Present	Green (Normal), Red (Fault)	
Limiters Active	Green	
Clip	Yellow	
Voicing Mode	Red	
	3 x Yellow	

Voicing Control	Mode	
	Main / Main + Subwoofer / Monitor	

Weight	42 lbs/19 kg	Shipping: 47 lbs/21 kg
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### Ordering Data

Description	Part Number
EAW RL12 Two-way self-powered loudspeaker	2045270-90



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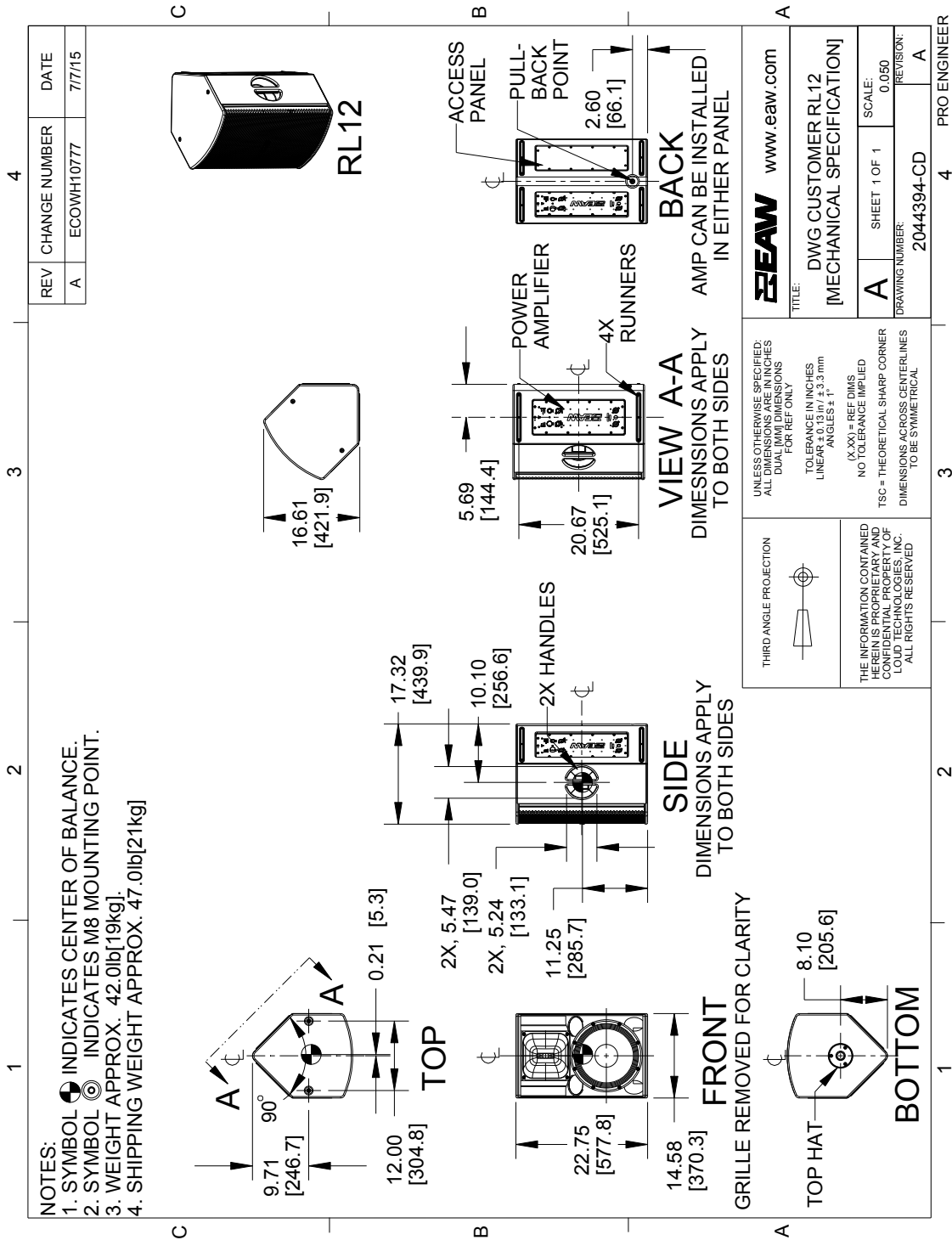
## Enclosure

**Material** Exterior-grade hardwood plywood

**Finish** Weather-resistant textured RoadCoat™

**Grille** Pre-treated, powder-coated perforated steel

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



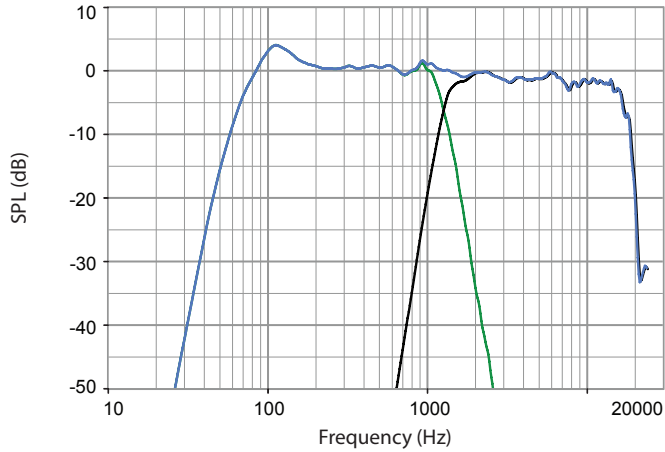
# RL12 Specifications

## Performance Data

See *NOTES GRAPHIC DATA* for details

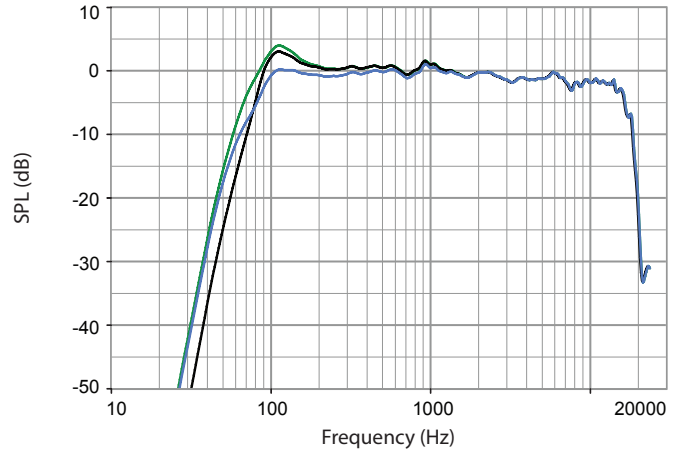
### Frequency Response: Processed

LF = green, HF = black, Complete = blue



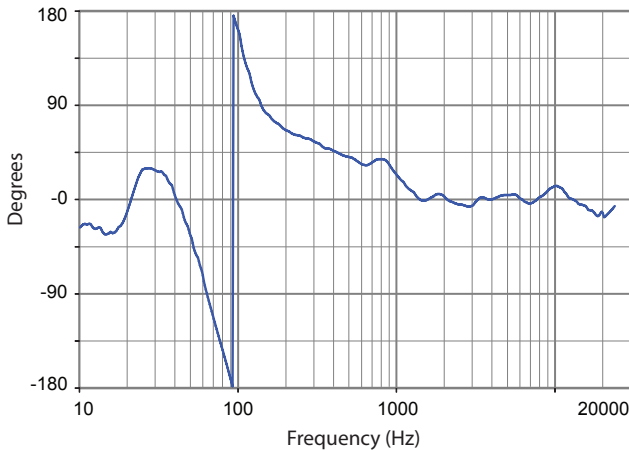
### Frequency Response: Voicings

Main = green, Main + Subwoofer = black, Monitor = blue



### Phase Linearity

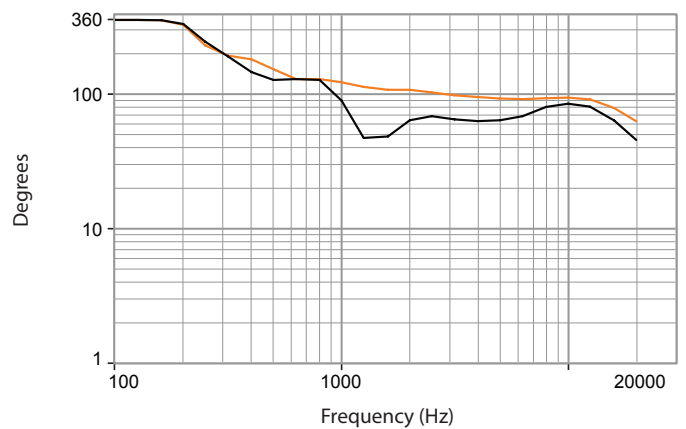
Complete = blue



### Beamwidth

Horizontal = orange

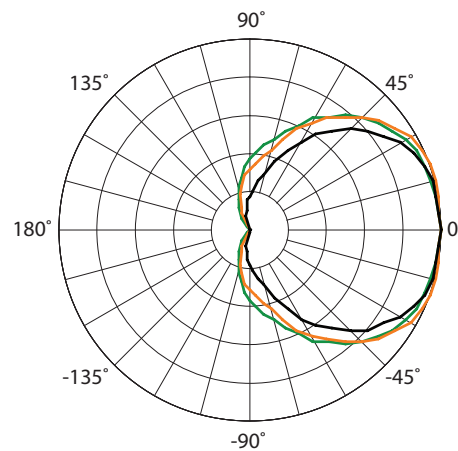
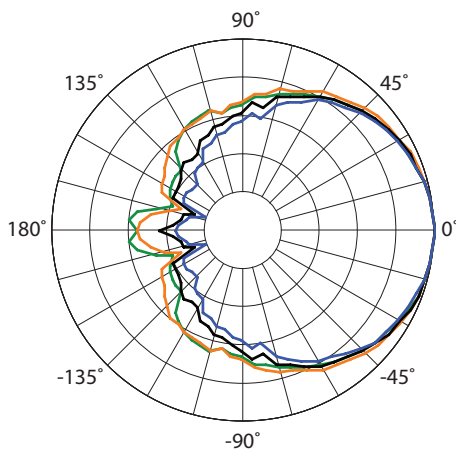
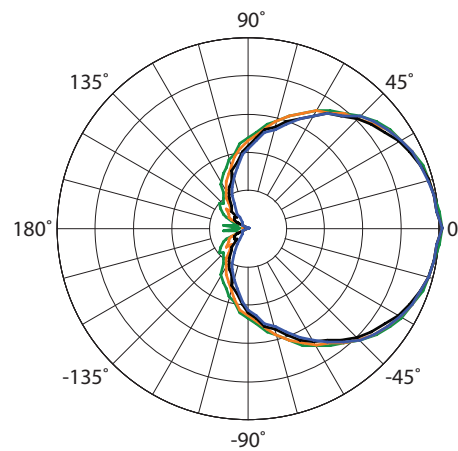
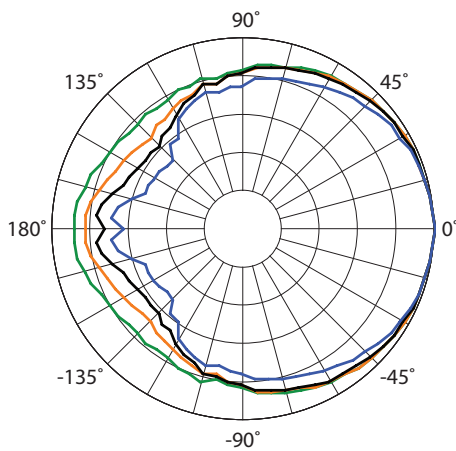
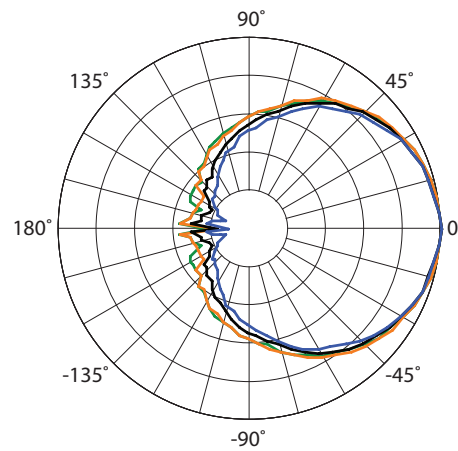
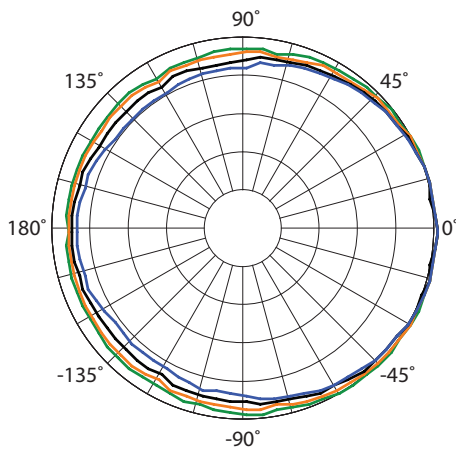
Vertical = black



# RL12 Specifications

## Horizontal Polar Data

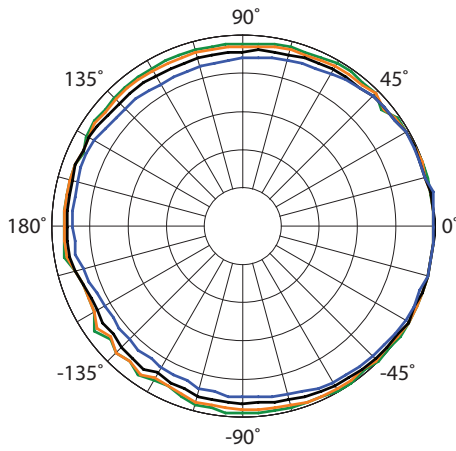
See NOTES GRAPHIC DATA for details



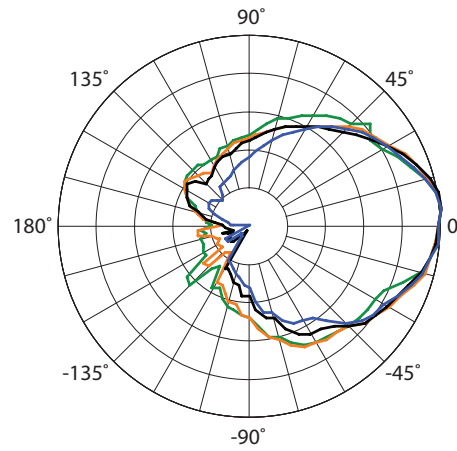
# RL12 Specifications

## Vertical Polar Data

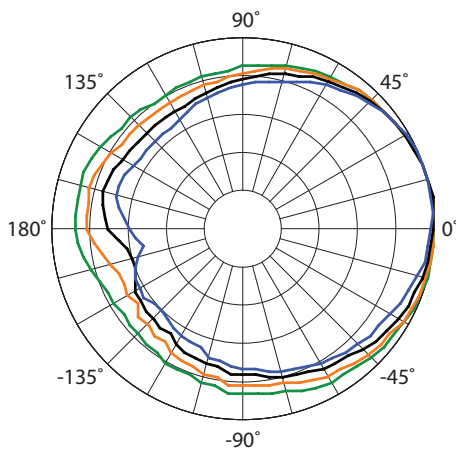
See NOTES GRAPHIC DATA for details



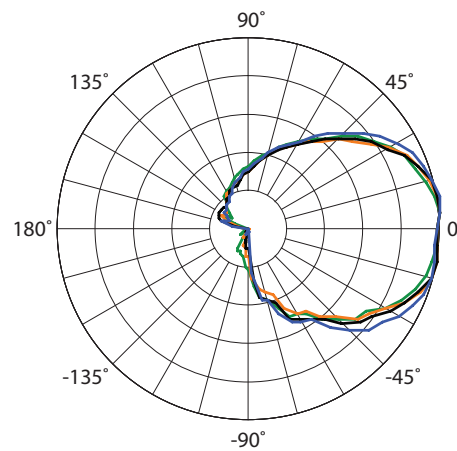
- 100Hz
- 125Hz
- 160Hz
- 200Hz



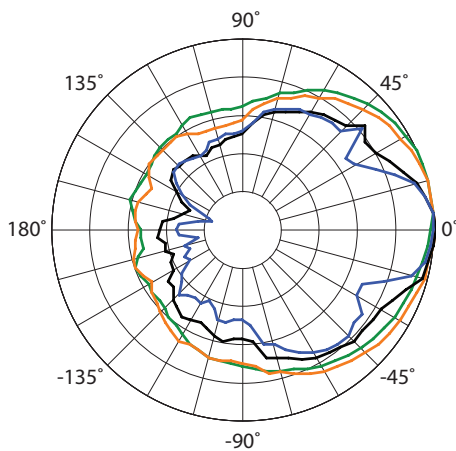
- 1600Hz
- 2000Hz
- 2500Hz
- 3150Hz



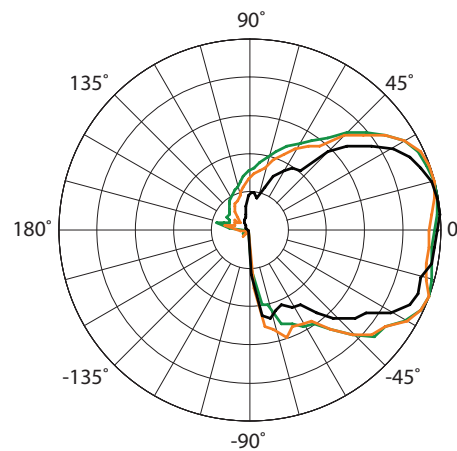
- 250Hz
- 315Hz
- 400Hz
- 500Hz



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



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

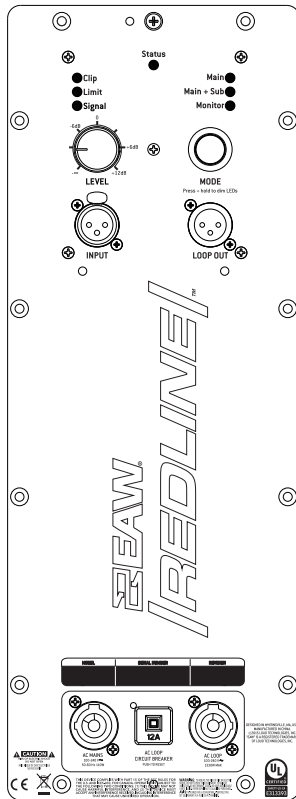


- 10000Hz
- 12500Hz
- 16000Hz

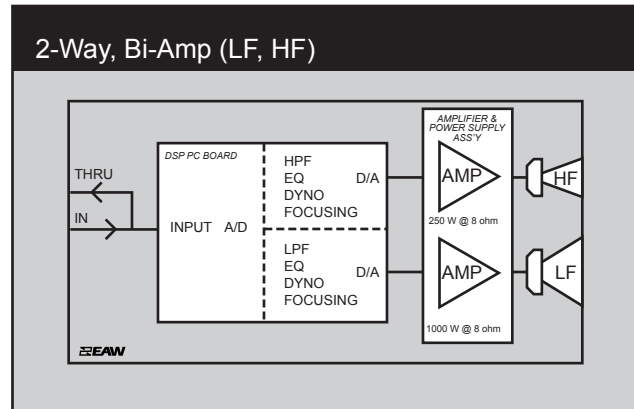


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## Input Panel



## 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
- EAW DynO** Digital Signal Processor capable of implementing EAW DynO processing

## 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  $\mu$ s, precision +/-0.5  $\mu$ s, resolution 10.4  $\mu$ s; 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.