



Product Description

The VQ 85DF (80x50), is a very high output down firing Mid/High loudspeaker systems designed for applications requiring high impact sound reinforcement with class leading pattern control.

The modular design approach allows the sound system designer to create seamless and predictable arrays, or they can be used singly as part of large distributed systems. VQ 85DF addresses the requirement for compact dimensions without compromising performance in any way.

VQ MH elements which are available in various patterns will integrate seamlessly with the VQ 85DF enclosures to facilitate tight pack arrays; the compound angles on the enclosure avoid unsightly spaces between separate cabinets when arrayed horizontally. VQ MB or VS 15DR elements can be added to extend bandwidth and pattern control to lower frequencies.

The VQ 85DF can be configured for use in Single-Amp or Bi-Amp mode, in conjunction with a suitable digital signal processor (DSP).

Horn design involves balancing compromise.....until now.

Our unique approach in keeping what is effectively a Dual Concentric behind a single horn gives us many performance advantages. Performance of the VQ 85DF in terms of accuracy & sound quality is second to none. The VQ horn design principles provide definitive and measurable advantages over multiple-horn and co-axial designs.

Each VQ 85DF incorporates a unique driver technology to radiate a coherent single point source for superior dispersion control when coupled to a PSW™ (Point Source Waveguide). This advanced design aligns the acoustical centres of the transducers providing a single coherent wavefront emanating from the throat. The PSW™ waveguide achieves an optimum balance of extremely well controlled coverage, smooth frequency response, and natural sound character.

For outdoor applications, weather resistant enclosures which incorporate stainless steel hardware are available.

Features

- "PSW™ Waveguide" - Point source design (Patent applied for).
- Excellent Phase Coherence
- Perfect time alignment without the associated problems of multi source interference
- Compact Dimensions
- Class leading directivity characteristics
- Extremely high sensitivity, therefore high SPL's can be achieved with a very modest amount of amplifier power
- Exceptional transient response

Applications

- Large Houses of Worship
- Large Corporate AV applications
- Stadiums & Arenas
- Dance Clubs
- Live sound – concert halls, theatres, open-air venue

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VQ 85DF

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TECHNICAL SPECIFICATIONS

System VQ 85DF

System Type	2-Way Mid/High - Point Source	
Frequency Response (-3dB) ⁽¹⁾	400Hz - 23kHz	
Frequency Range (-10dB) ⁽¹⁾	350Hz - 27kHz	
Operating Modes	Single Amplified Bi-Amp (MF, HF) User Configurable	
System Sensitivity & Operating Freq. (1W @1m) ²		
Single Amplified	Passive MF/HF (450Hz - 23kHz) 111dB (2.83V @ 8 Ohms)	
Bi-Amp	MF (450Hz - 7kHz) 110dB (2.83V @ 8 Ohms) HF (7kHz - 23kHz) 111dB (2.83V @ 8 Ohms)	
Dispersion (-6dB)	80 x 50 degrees	
Driver Complement	MF/HF Dual Concentric™ Compression driver loaded into a single PSW™ Waveguide	
Crossover	Single Amplified - 7kHz (passive) Bi-amp 7kHz (active) Recommended HighPass Filter @ 450Hz	
Directivity Factor (Q)	13.3 averaged 1kHz to 10kHz	
Directivity Index (DI)	11.2 averaged 1kHz to 10kHz	
Rated Maximum SPL (2)	Average	Peak
VQ 85DF MF	134dB	140dB
VQ 85DF HF	133dB	139dB
VQ 85DF Passive MF/HF	134dB	140dB
Power Handling	Average	Programme
MF @ 8 Ohms	200W (40V)	400W
HF @ 8 Ohms	90W (27V)	180W
Passive MF/HF @ 8 Ohms	200W (40V)	400W
Recommended Amplifier Power	MF 400W into 8 Ohms HF 200W into 8 Ohms Passive MF/HF 400W into 8 Ohms	
Nominal Impedance	MF 8 Ohms (6.5 Ohms Minimum) HF 8 Ohms (8.5 Ohms Minimum)	

Distortion

	2nd Harmonic	3rd Harmonic
110dB SPL		
500Hz	2.165	0.773
2kHz	1.507	0.123
5kHz	1.308	0.161
115dB SPL		
500Hz	3.487	0.997
2kHz	2.553	0.212
5kHz	2.252	0.326
120dB SPL		
500Hz	5.895	1.558
2kHz	4.400	0.374
5kHz	3.882	0.789
125dB SPL		
500Hz	11.482	5.364
2kHz	7.516	0.897
5kHz	6.871	2.972

Construction

Enclosure	18mm (0.71") birch plywood. Internally braced.
Grille	Powder coated perforated steel grille
Finish	Textured black or white paint (custom colours on request)
Connectors	Barrier Strip and Neutrik NL4
Fittings	2 x Recessed carrying handles 11 x M10 flying inserts
Dimensions	500 mm x 694 mm x 515 mm (19.69" x 27.32" x 20.28")
Net Weight	27.0kg (59.4 lbs)

Notes:

- (1) Average over stated bandwidth. Measured at 3 metres on axis, then referred to 1 metre
- (2) Unweighted pink noise input, measured at 3 metres in an anechoic chamber, then referred to 1 metre
- (3) Accelerated Life Test (EIA RS426-B)

A full range of measurements, performance data, CLF and Ease™ Data can be downloaded from www.tannoy.com

Full independent verification of published specifications carried out by NWA Labs, California can also be obtained from the downloads section of www.tannoy.com

Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications, which Tannoy reserves the right to alter without prior notice. Please verify the latest specifications when dealing with critical applications.

Ordering Information

PART NUMBER	MODEL NAME	COLOUR	PACKED QUANTITY
8001 4830	VQ 85DF	BLACK	1
8001 4831	VQ 85DF	WHITE	1

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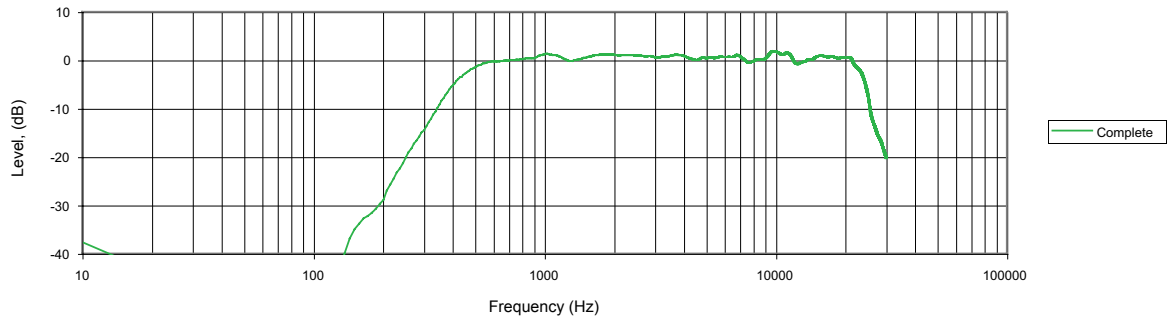
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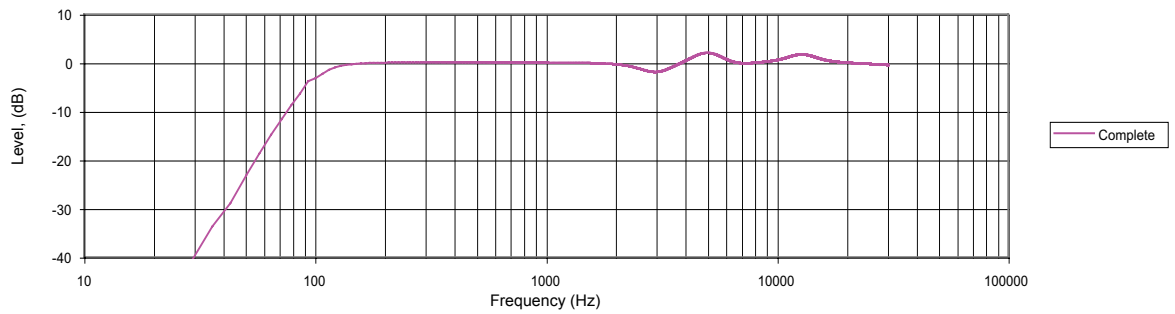
PERFORMANCE MEASUREMENTS

Frequency Response: Processed



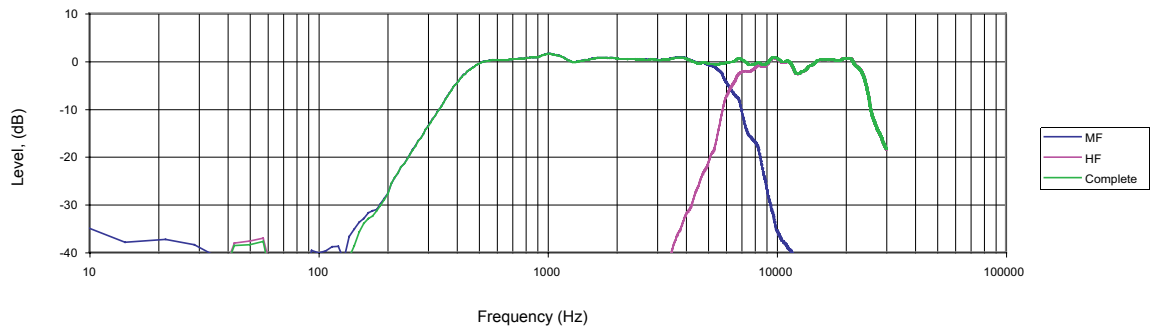
ANECHOIC FREQUENCY RESPONSE (SINGLE AMP MODE)

Frequency Response: Digital Signal Processor



ELECTRICAL TRANSFER FUNCTION FOR OPTIMAL OPERATION (SINGLE AMP MODE)

Frequency Response: Processed Bi-amplified



ANECHOIC FREQUENCY RESPONSE (BI-AMP MODE)

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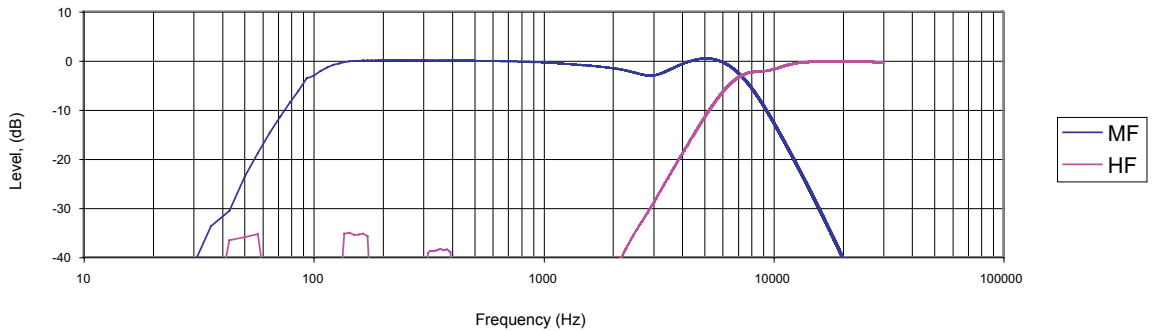
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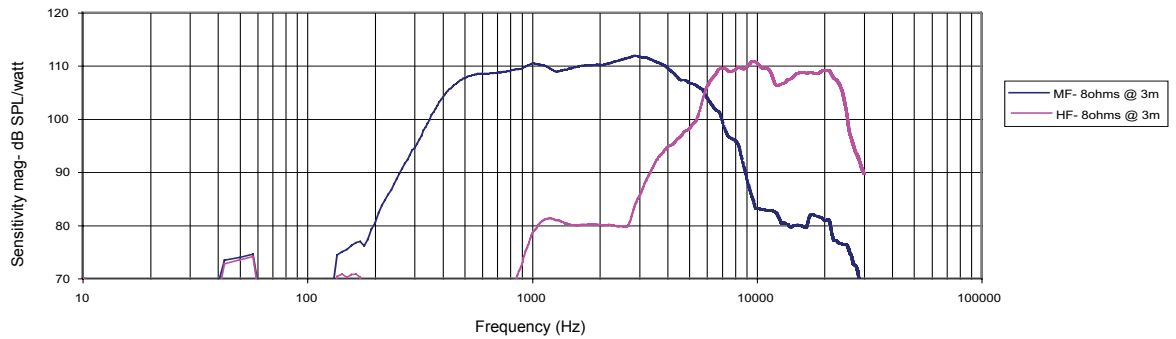
PERFORMANCE MEASUREMENTS

Frequency Response: Digital Signal Processor



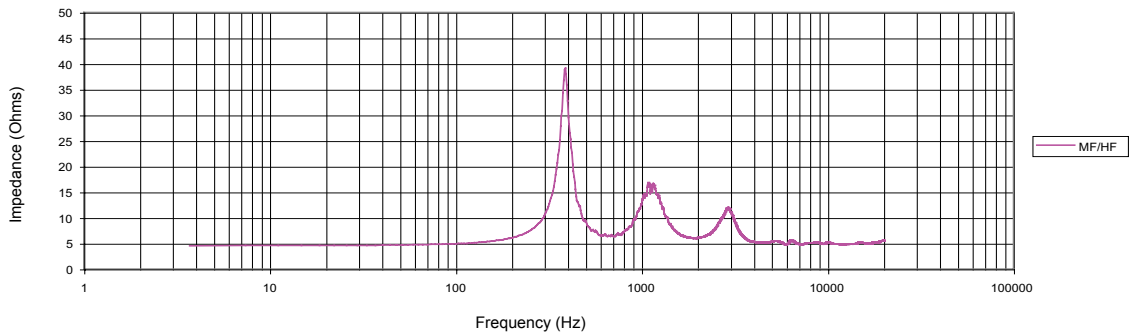
ELECTRICAL TRANSFER FUNCTION FOR OPTIMAL OPERATION (BI-AMP MODE)

Frequency Response: Unprocessed



SENSITIVITY

Impedance vs frequency



IMPEDANCE (SINGLE AMP MODE)

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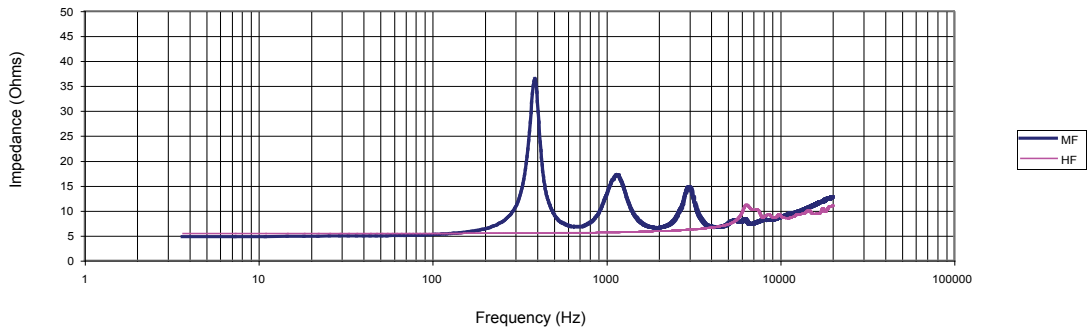


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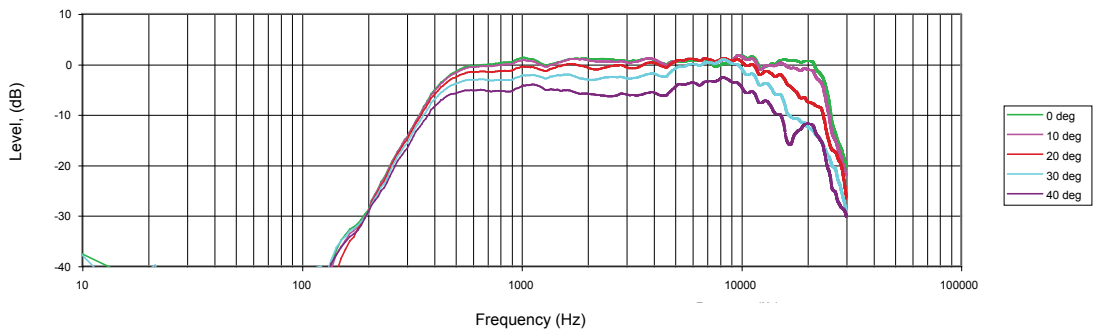
PERFORMANCE MEASUREMENTS

Impedance vs frequency



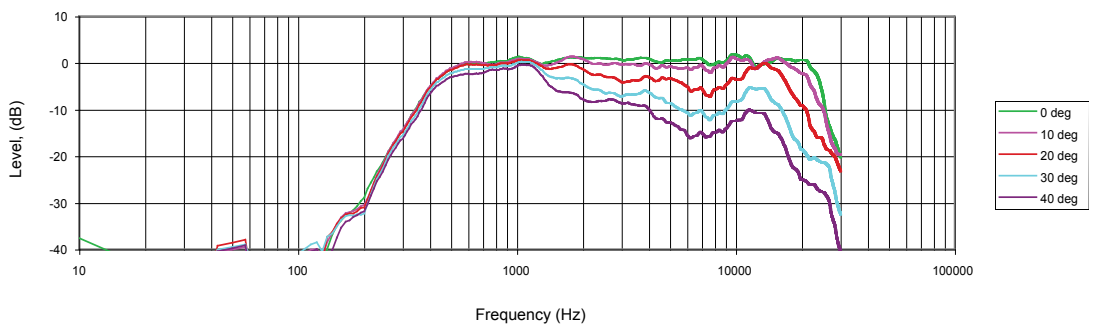
IMPEDANCE (BI-AMP MODE)

Frequency Response: Processed
Horizontal Off-axis



HORIZONTAL OFF AXIS RESPONSE (SINGLE-AMP MODE)

Frequency Response: Processed
Upper Vertical Off-axis



VERTICAL UPPER OFF AXIS RESPONSE (SINGLE-AMP MODE)

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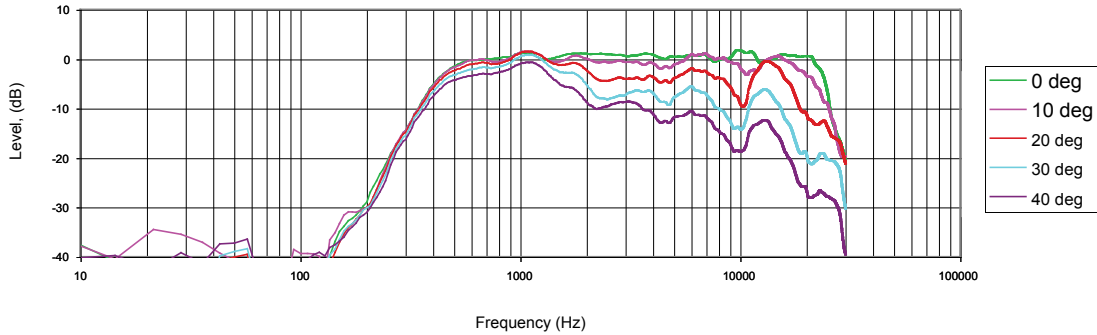
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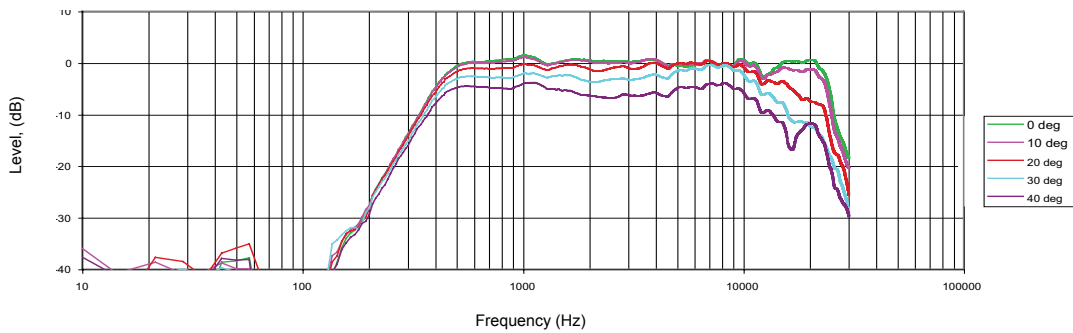
PERFORMANCE MEASUREMENTS

Frequency Response: Processed
Lower Vertical Off-axis



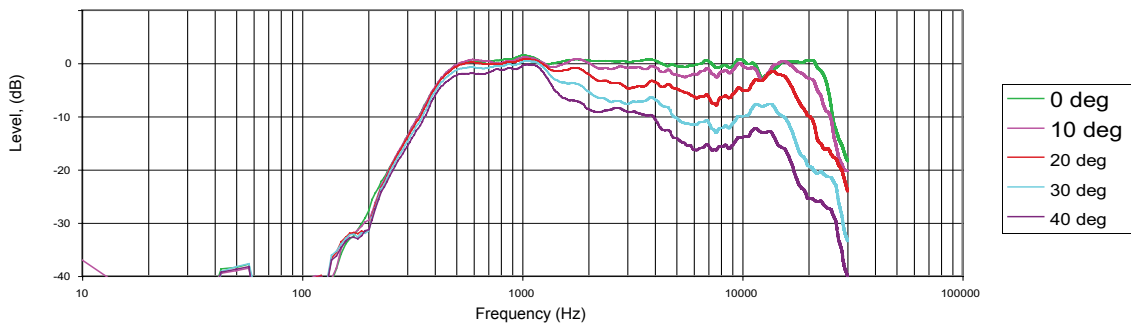
**VERTICAL LOWER OFF AXIS
RESPONSE (SINGLE-AMP MODE)**

Frequency Response: Processed Bi-amplified
Horizontal Off-axis



**HORIZONTAL OFF
AXIS RESPONSE
(BI-AMP MODE)**

Frequency Response: Processed Bi-amplified
Upper Vertical Off-axis



**VERTICAL UPPER OFF AXIS
RESPONSE (BI-AMP MODE)**

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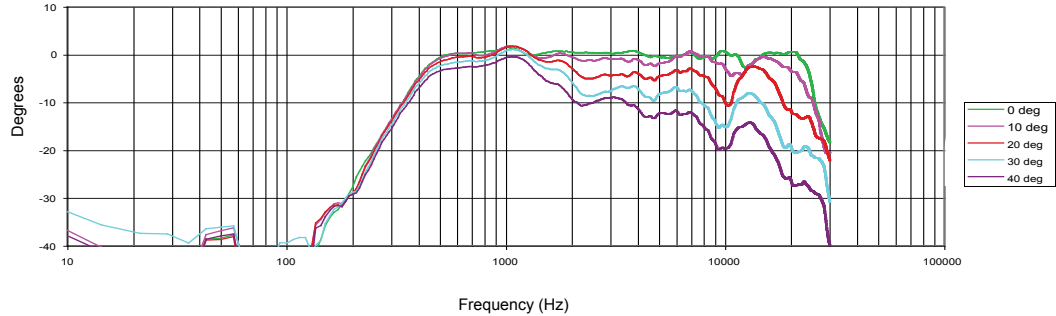
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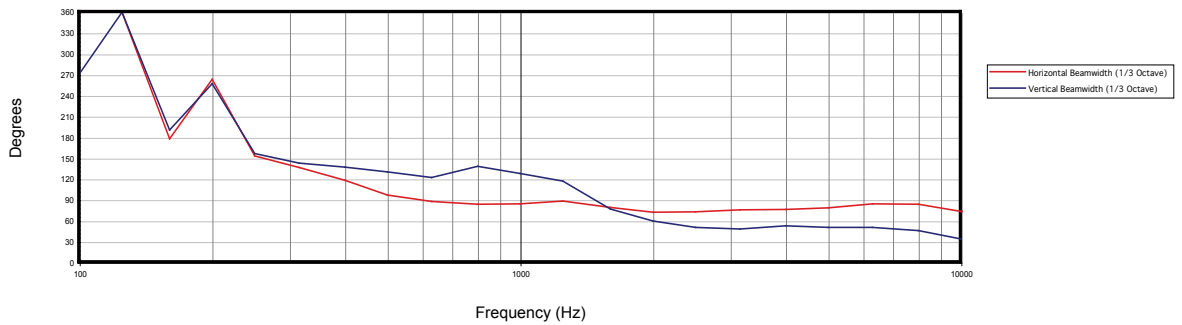
PERFORMANCE MEASUREMENTS

Frequency Response: Processed Bi-amplified
Lower Vertical Off-axis



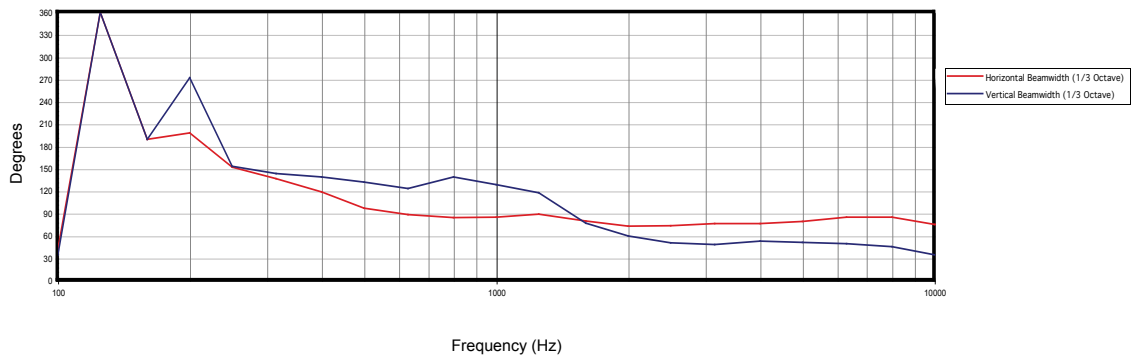
**VERTICAL LOWER OFF AXIS
RESPONSE (BI-AMP MODE)**

Beamwidth vs Frequency



**BEAMWIDTH
(SINGLE-AMP MODE)**

Beamwidth vs Frequency



BEAMWIDTH (BI-AMP MODE)

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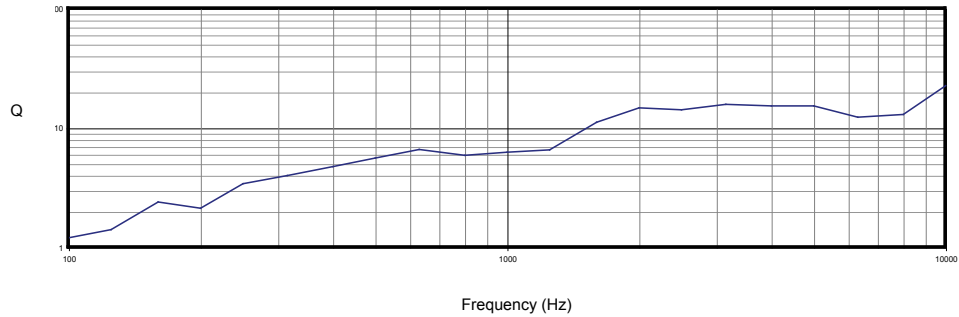
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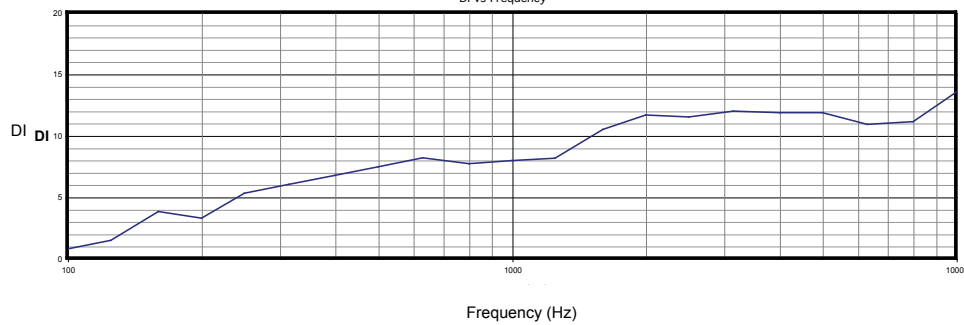
PERFORMANCE MEASUREMENTS

Q vs Frequency



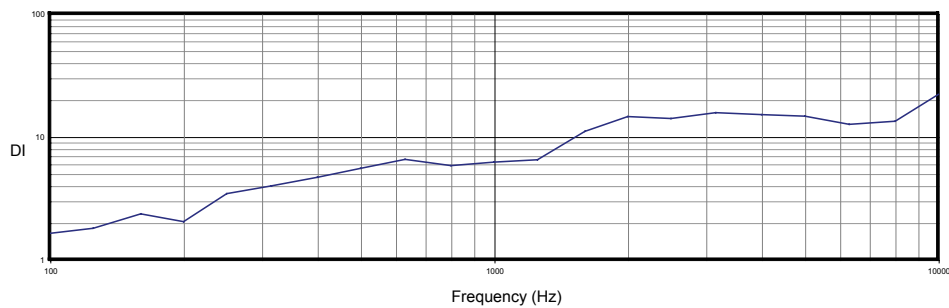
**Q VS FREQUENCY
(SINGLE-AMP MODE)**

DI vs Frequency



**DIRECTIVITY INDEX
(SINGLE-AMP MODE)**

Q vs Frequency



**Q VS FREQUENCY
(BI-AMP MODE)**

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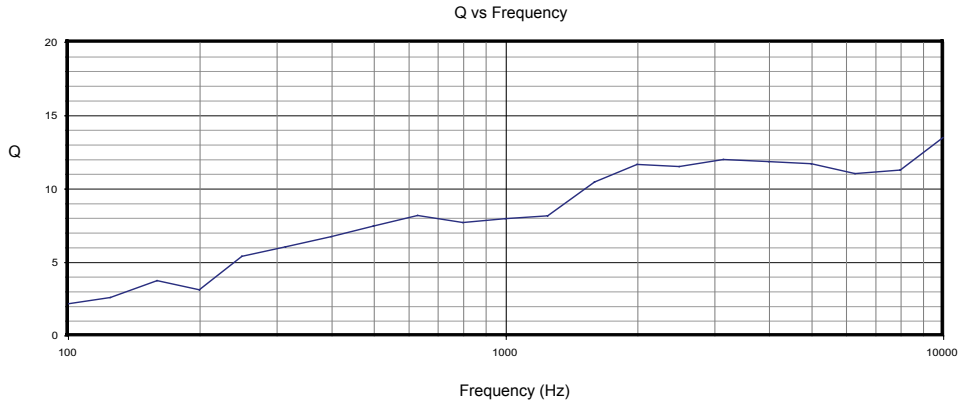
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Q VS FREQUENCY
(BI-AMP MODE)

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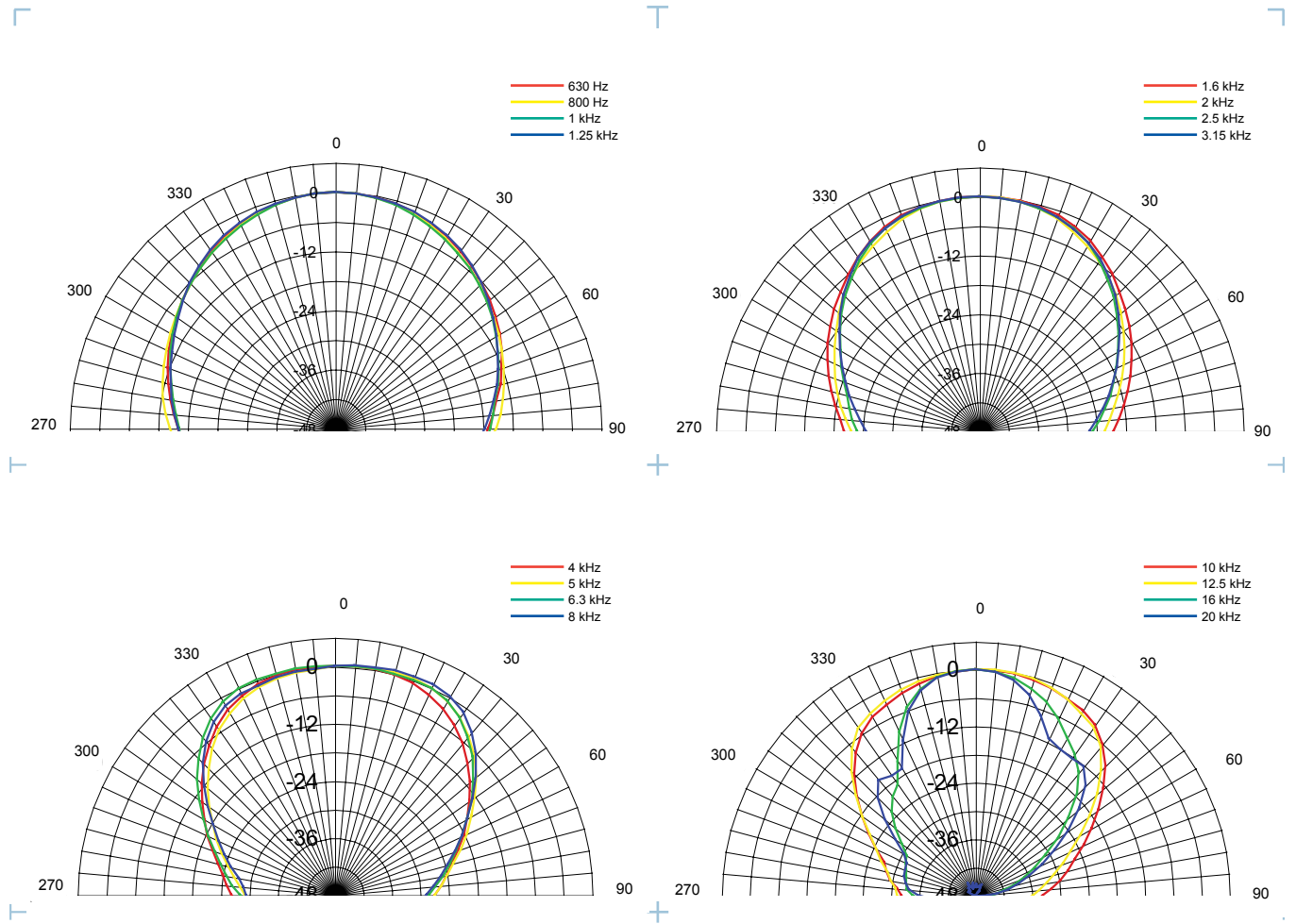
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PERFORMANCE MEASUREMENTS POLAR PLOTS (1/3 OCTAVE) HORIZONTAL



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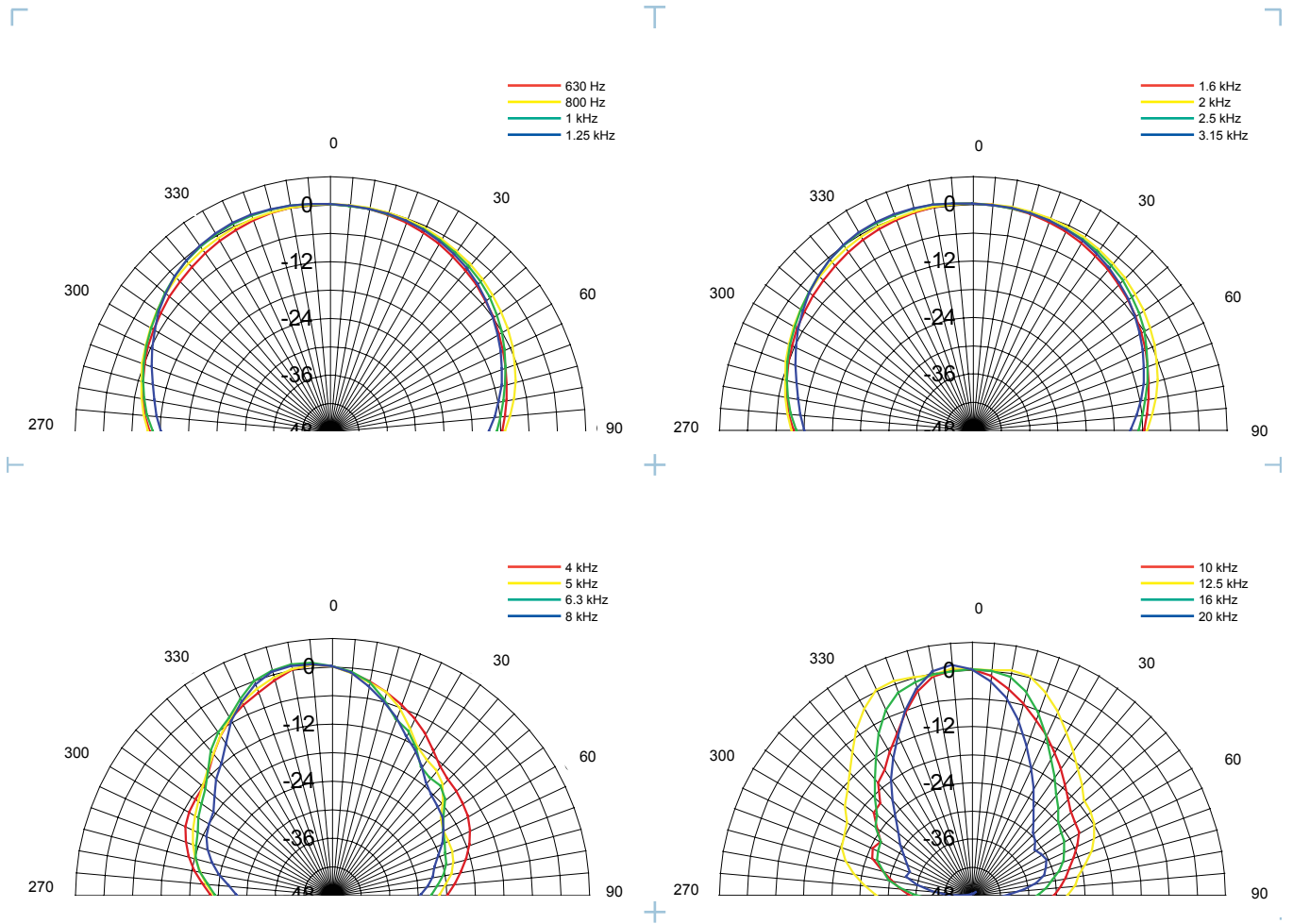
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PERFORMANCE MEASUREMENTS POLAR PLOTS (1/3 OCTAVE) VERTICAL



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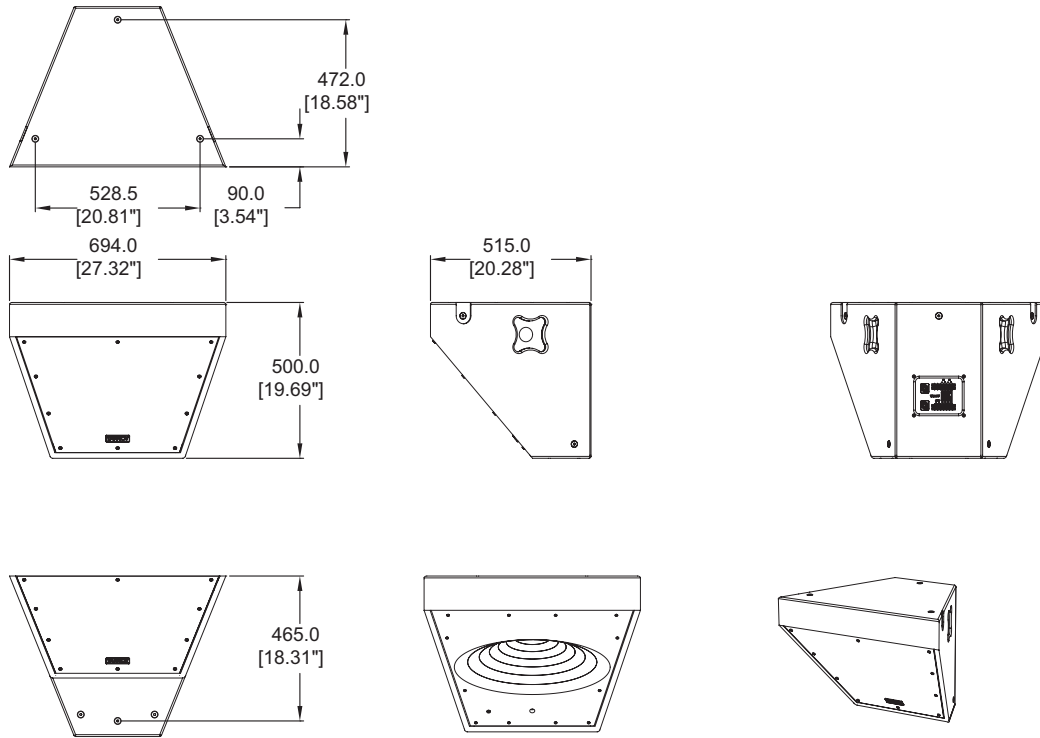
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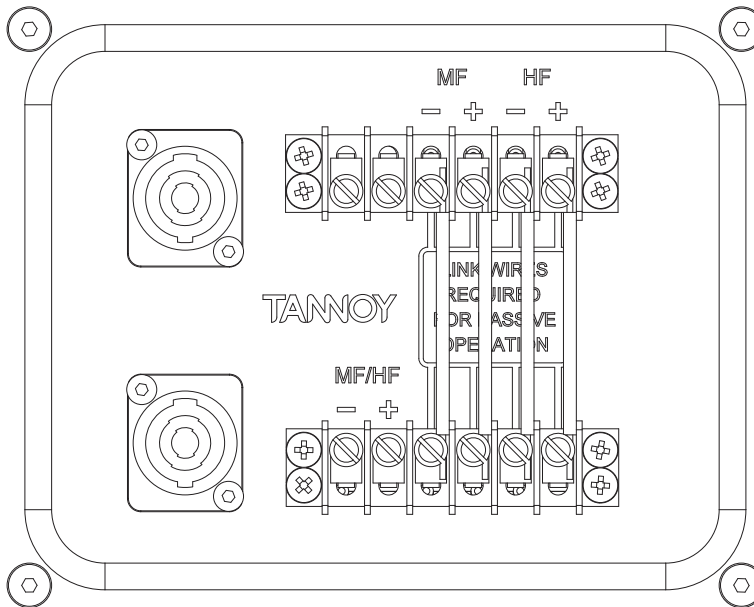
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DIMENSIONAL SKETCHES



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Architectural specifications

The loudspeaker shall consist of a Dual Concentric™ Compression driver with a 3.5" Midrange voice coil and a 2" High Frequency voice coil, both mounted in a common subsystem with a common 2" exit. This Dual Concentric™ compression driver shall be coupled to a PSW™ (Point Source Waveguide) constant directivity horn operating over the frequency range of 400Hz to 23kHz. The loudspeaker shall be user configurable for Bi-Amp operation via the rear input panel. The loudspeaker shall be trapezoidal in shape.

Performance of the loudspeaker, using the recommended electronic control shall meet or exceed the following criteria:

In Bi-amp mode the Mid/High section shall produce a sound pressure level of 110dB SPL on axis at 1 meter with a power input of 1 Watt, and shall be capable of producing a peak output of 139dB SPL on axis at 1 meter. In Bi-amp mode the Mid/High section shall handle 400 Watts of amplifier power and shall have a nominal impedance of 8 Ohms. The High Frequency section shall handle 180 Watts of amplifier power and shall have a nominal impedance of 8 Ohms. The dispersion of the loudspeaker shall be 80 (horizontal) x 50 (vertical) degrees (-6dB). The enclosure shall be of birch plywood construction and internally braced. The enclosure shall be fitted with eight integral carrying handles, and twelve M10 inserts for flying hardware. The enclosure shall not exceed the following dimensions (H x W x D): 500 mm x 694 mm x 515 mm (19.69" x 27.32" x 20.5").

The loudspeaker shall be the Tannoy...VQ 85DF.



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