



VQ 40MH

TANNOY®



Product Description

The VQ 40MH (40x40), is a very high output Mid/High loudspeaker system designed for applications requiring high impact sound reinforcement over large distances 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 40MH addresses the requirement for compact dimensions without compromising performance in any way.

VQ DF (Down Firing) elements which are available in various patterns will integrate seamlessly with the VQ MH enclosures to facilitate tight pack arrays, no more unsightly spaces between separate cabinets in order to splay.
VQ MB or VS 15DR elements can be added to extend bandwidth and pattern control to lower frequencies.

The VQ 40MH can be configured for use in Single-Amp or Bi-Amp mode, in conjunction with 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 40MH 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 40MH 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 & other Sports facilities
- Dance Clubs
- Live sound – concert halls, theatres, open-air venues

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TCGI (ROW sales)
TCGA (Americas sales)
Tannoy Middle East

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TECHNICAL SPECIFICATIONS

System	VQ 40MH
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)	117dB (2.83V @ 8 Ohms)
Bi-Amp	
MF (450Hz - 7kHz)	117dB (2.83V @ 8 Ohms)
HF (7kHz - 23kHz)	115dB (2.83V @ 8 Ohms)
Dispersion (-6dB)	40 degrees conical
Driver Complement	Dual Concentric™ Compression driver loaded into a single PSW™ Waveguide
Crossover	Single Amplified - 7kHz (passive) Bi-amp 7kHz (active) Recommended HighPass Filter @ 400Hz
Directivity Factor (Q)	28.8 averaged 1kHz to 10kHz
Directivity Index (DI)	14.6 averaged 1kHz to 10kHz
Rated Maximum SPL ⁽²⁾	Average Peak
MF	140dB 146dB
HF	138dB 144dB
Passive MF/HF	140dB 146dB (peak)
Power Handling ⁽³⁾	Average Peak
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 (7.0 Ohms Minimum)
HF	8 Ohms (8.7 Ohms Minimum)

Distortion

	2nd Harmonic	3rd Harmonic
110dBSPL		
500Hz	1.202	0.218
2kHz	0.817	0.025
5kHz	1.104	0.046
115dBSPL		
500Hz	2.139	0.347
2kHz	1.420	0.070
5kHz	1.710	0.111
120dBSPL		
500Hz	3.860	0.657
2kHz	2.618	0.241
5kHz	2.418	0.270
125dBSPL		
500Hz	7.014	1.490
2kHz	4.554	0.613
5kHz	2.948	0.653

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 Speakon connector
Fittings	2 x Recessed carrying handles 12 x M10 flying inserts
Dimensions	510mm x 694mm x 515mm (20.08" x 27.32" x 20.28")
Net Weight	46.5kg (102.3 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 NWAA 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 5590	VQ 40MH	BLACK	1
8001 5591	VQ 40MH	WHITE	1

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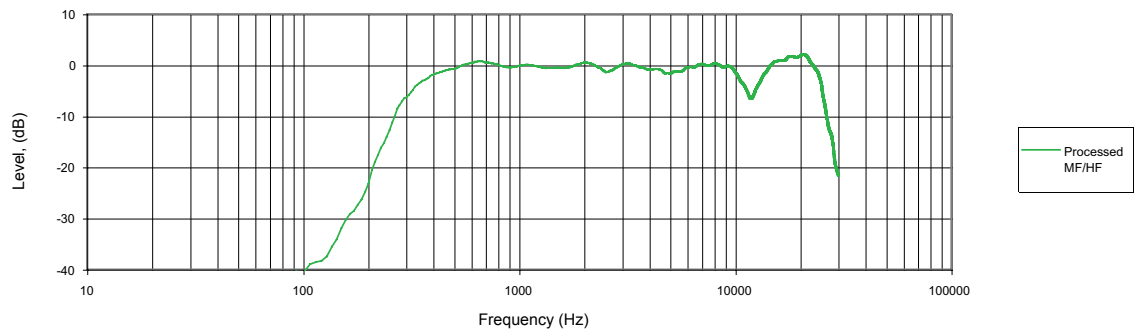


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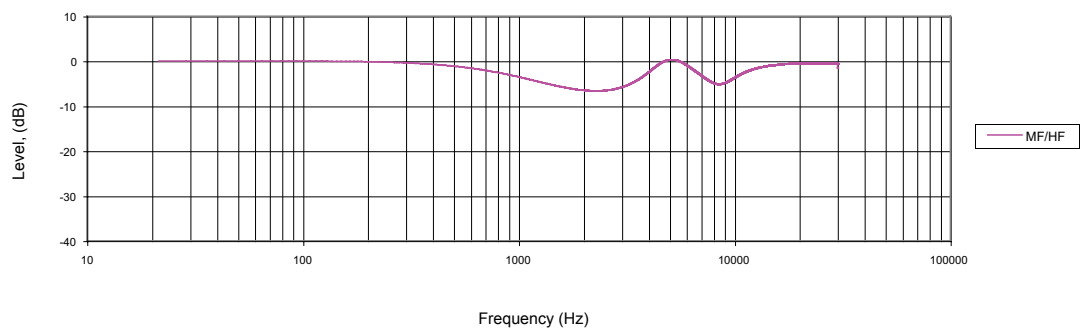
PERFORMANCE MEASUREMENTS

Frequency Response: Processed



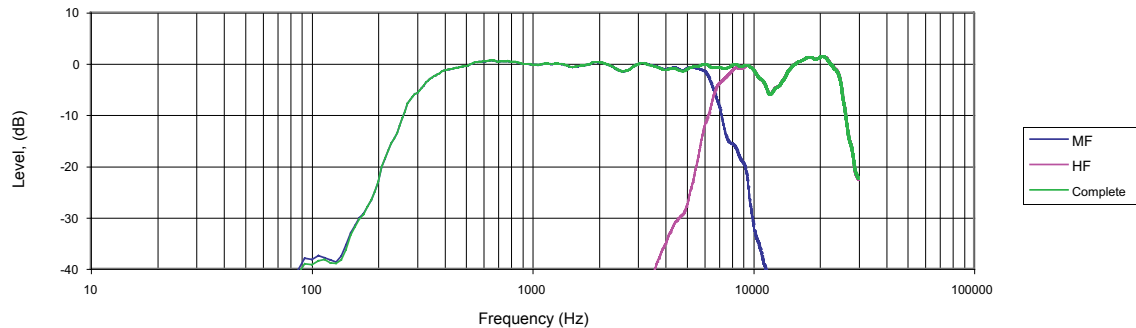
ANECHOIC FREQUENCY RESPONSE (SINGLE AMP MODE)

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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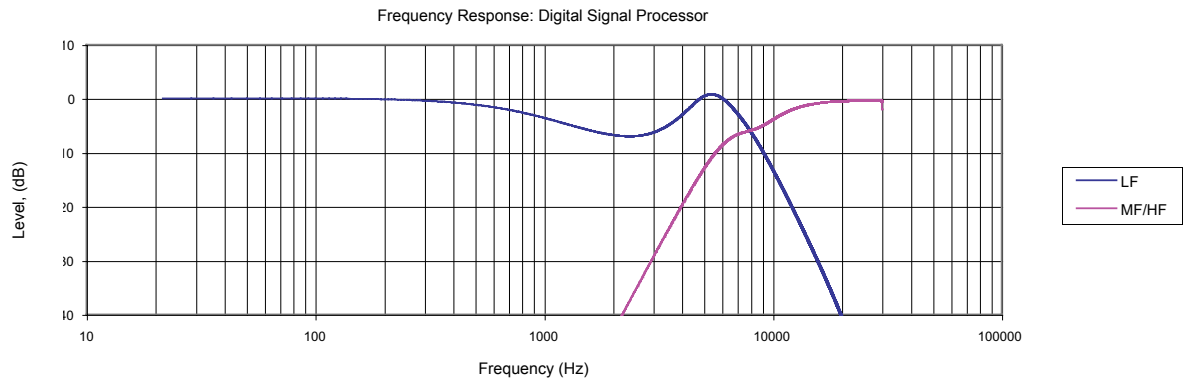
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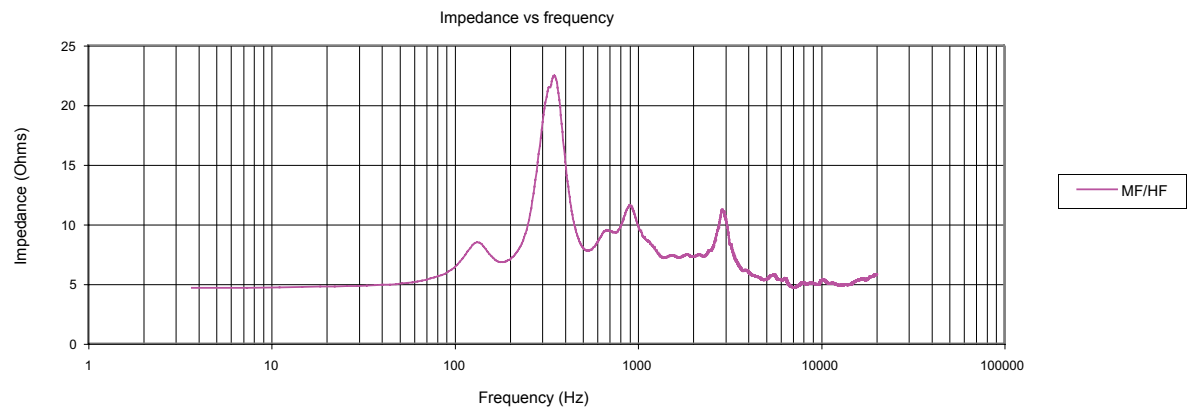
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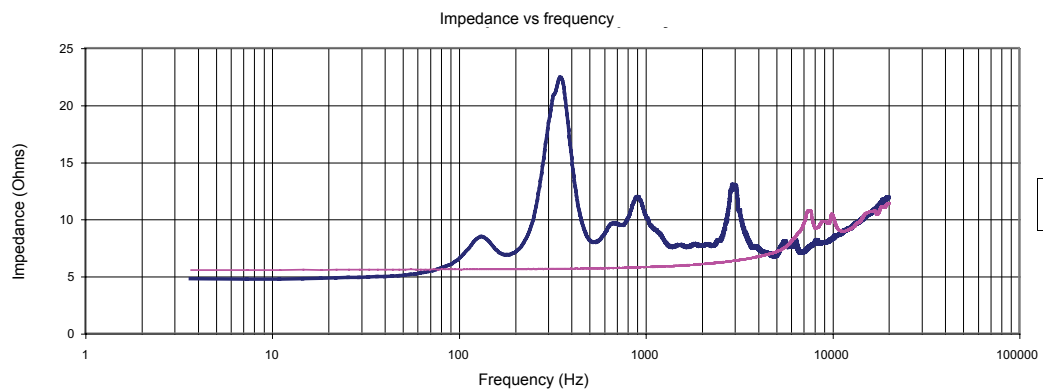
PERFORMANCE MEASUREMENTS



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



**IMPEDANCE
(SINGLE AMP MODE)**



IMPEDANCE (BI-AMP MODE)

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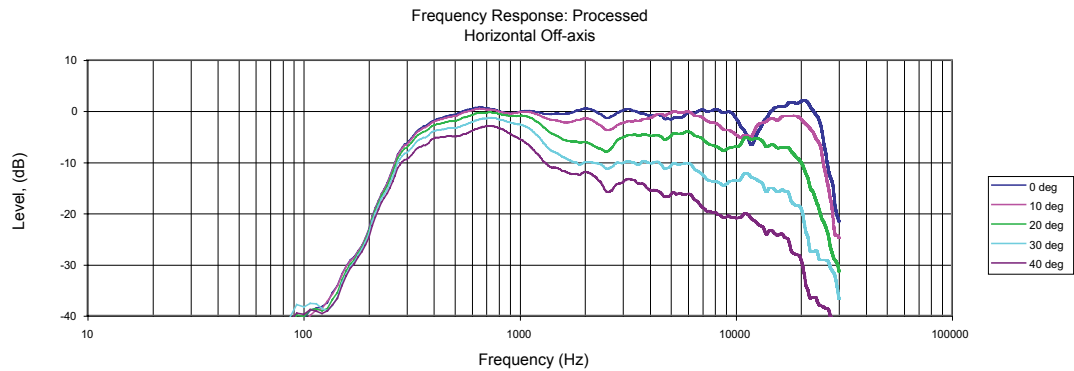
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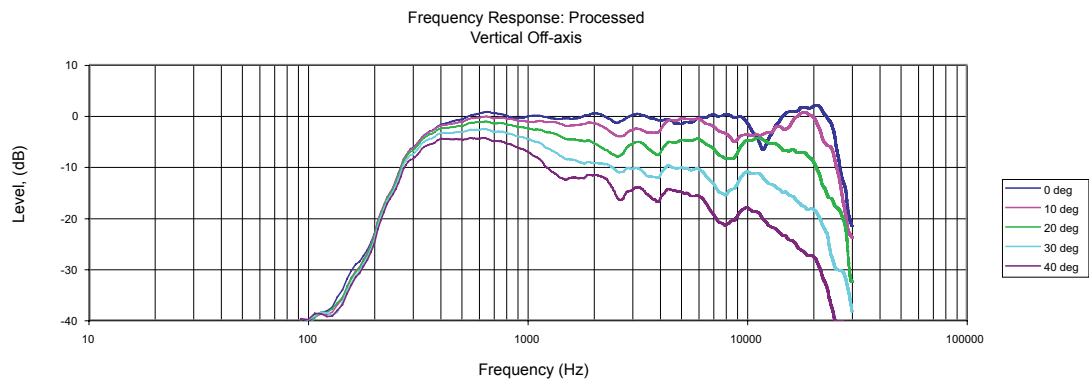
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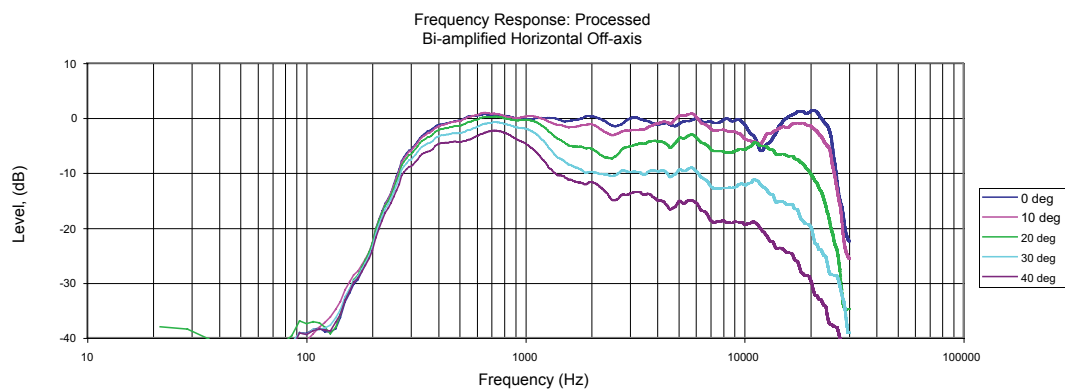
PERFORMANCE MEASUREMENTS



**HORIZONTAL OFF AXIS RESPONSE
(SINGLE AMP MODE)**



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



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

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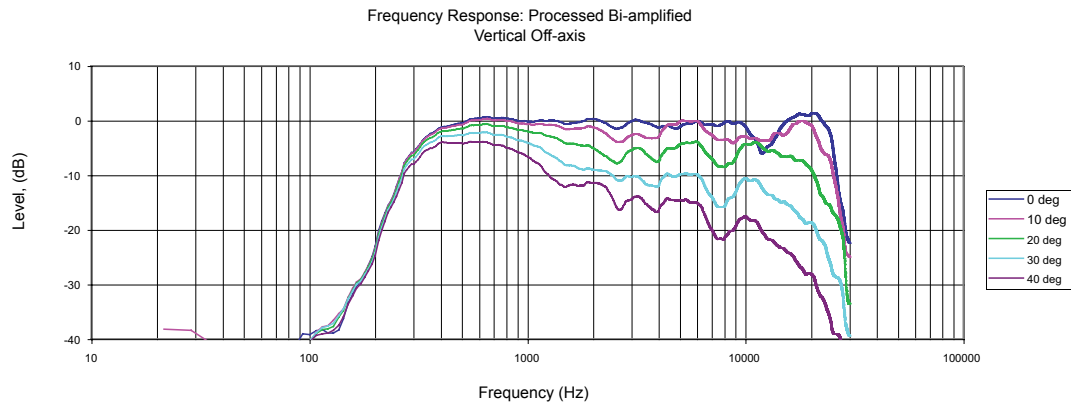
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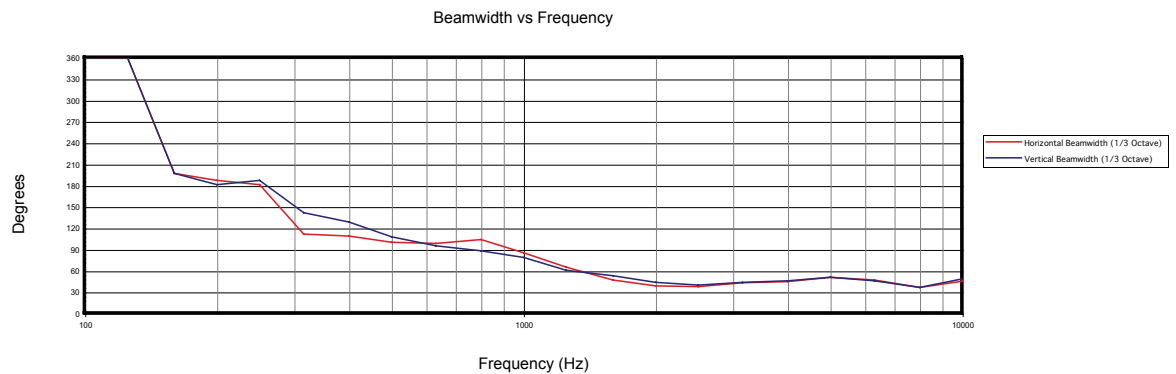
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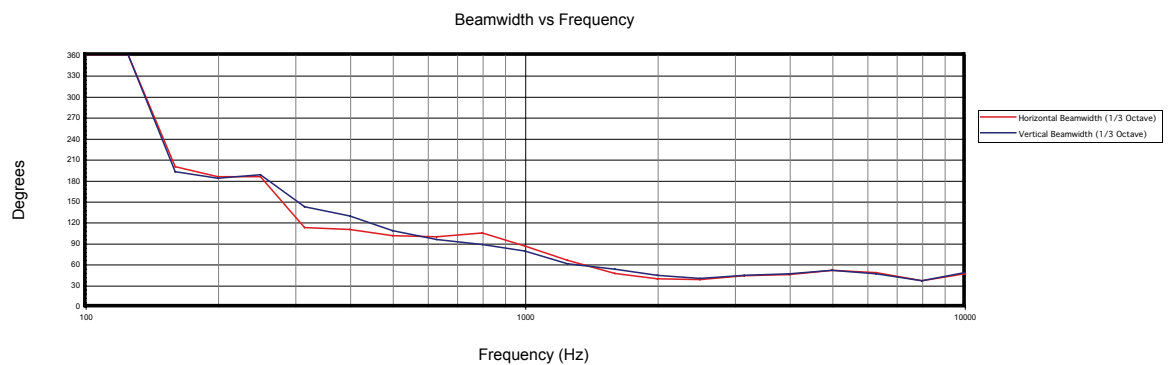
PERFORMANCE MEASUREMENTS



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



**BEAMWIDTH
(SINGLE AMP MODE)**



BEAMWIDTH (BI-AMP MODE)

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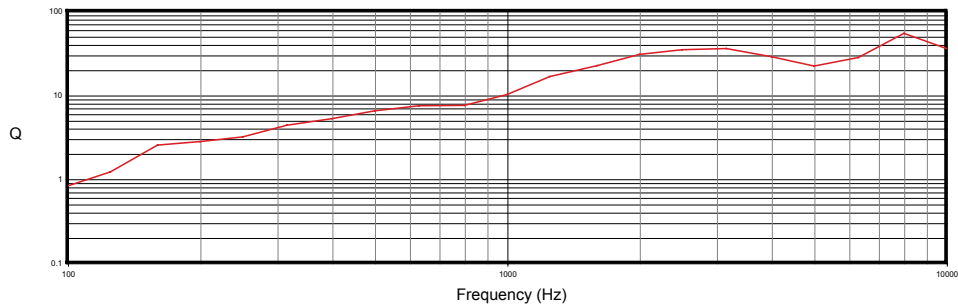
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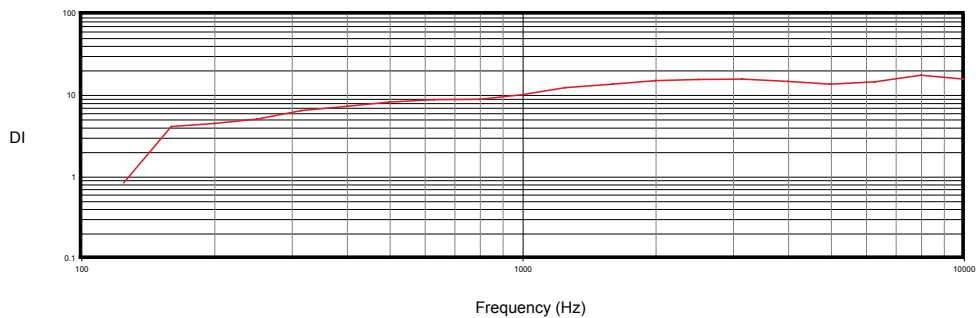
PERFORMANCE MEASUREMENTS

Q vs Frequency



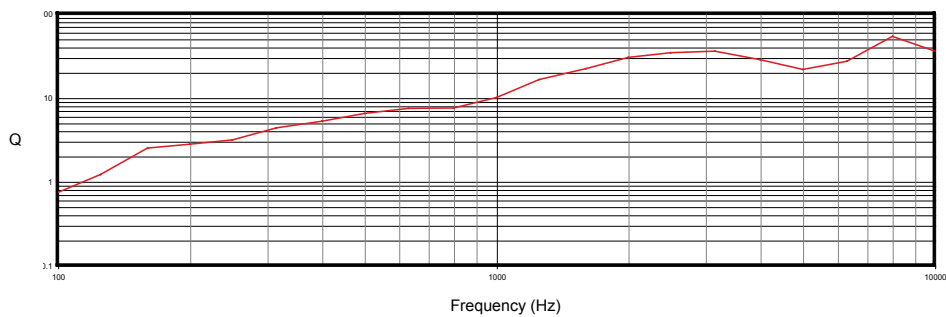
**Q VS FREQUENCY
(SINGLE AMP MODE)**

DI vs Frequency



**DIRECTIVITY INDEX
(SINGLE AMP MODE)**

Q vs Frequency



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

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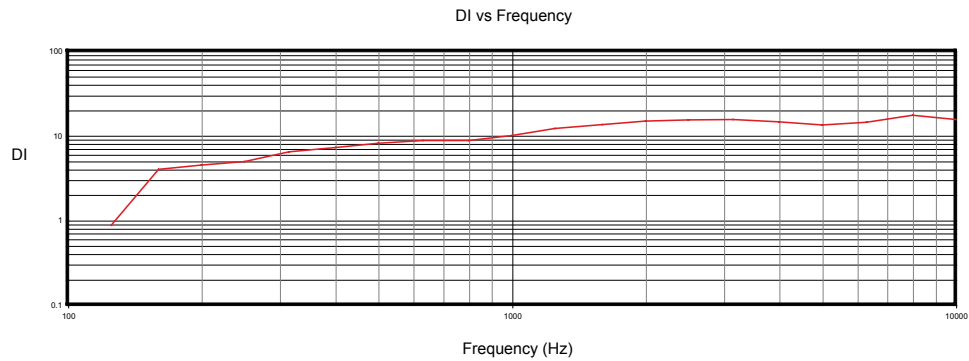
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PERFORMANCE MEASUREMENTS



DIRECTIVITY INDEX
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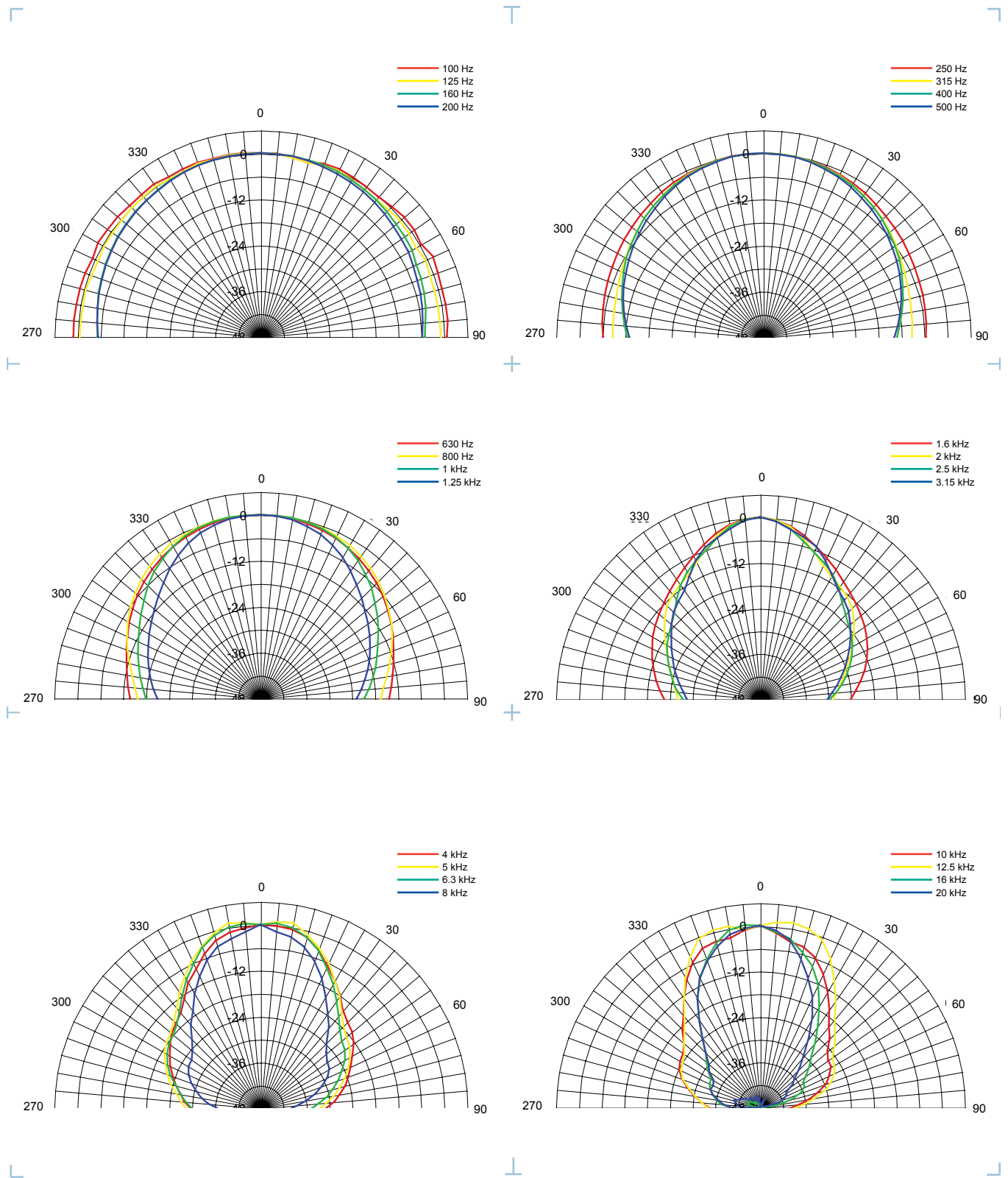
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PERFORMANCE MEASUREMENTS POLAR PLOTS (1/3 OCTAVE) HORIZONTAL



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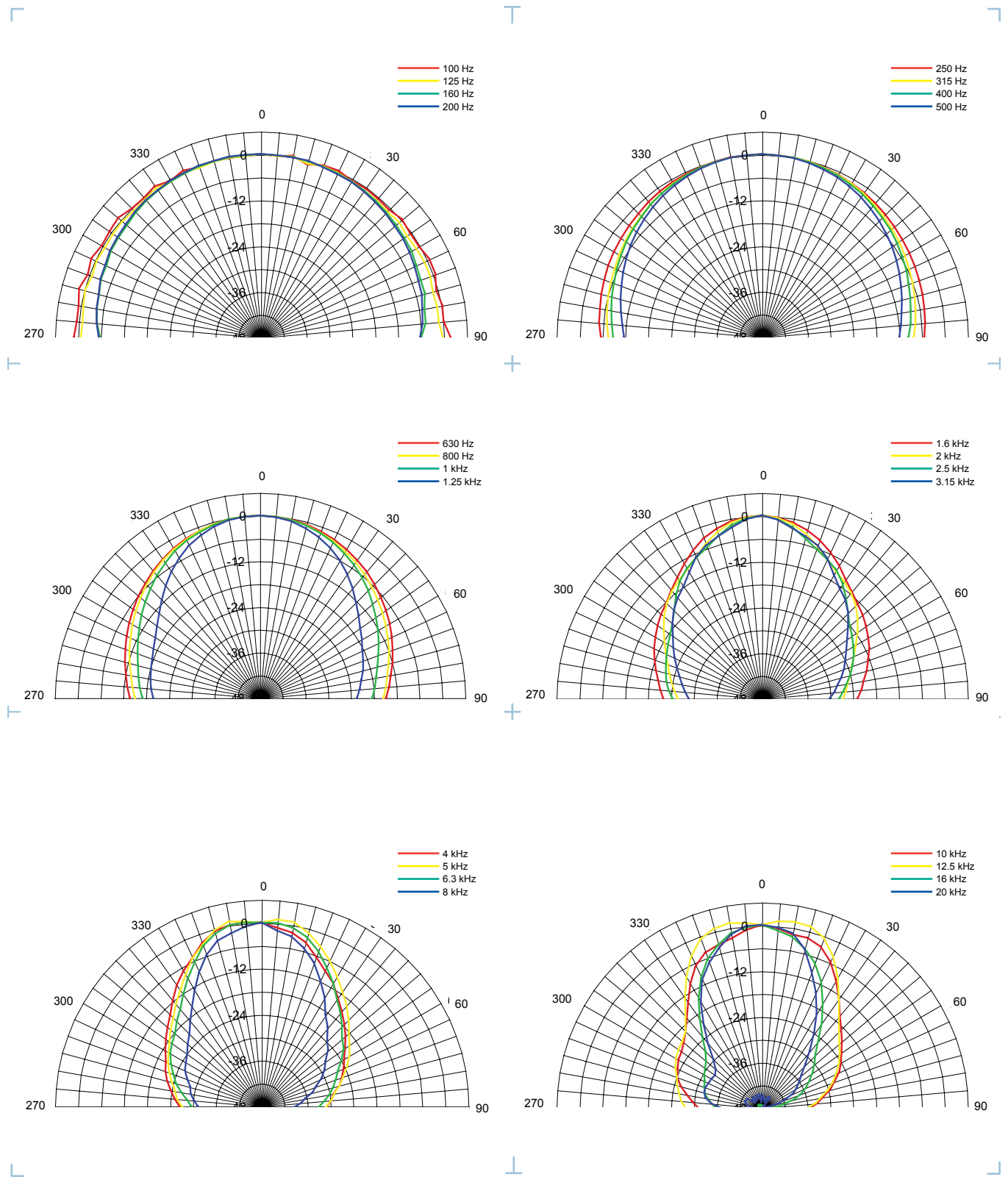
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VQ 40MH

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PERFORMANCE MEASUREMENTS POLAR PLOTS (1/3 OCTAVE) VERTICAL



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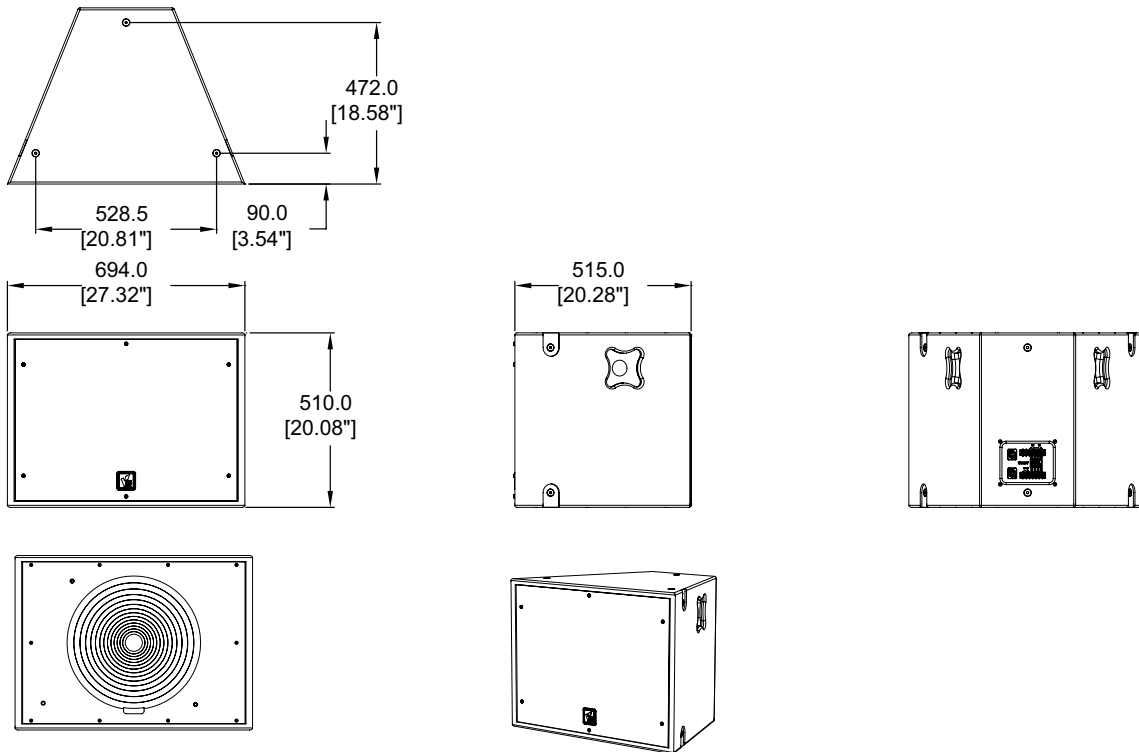
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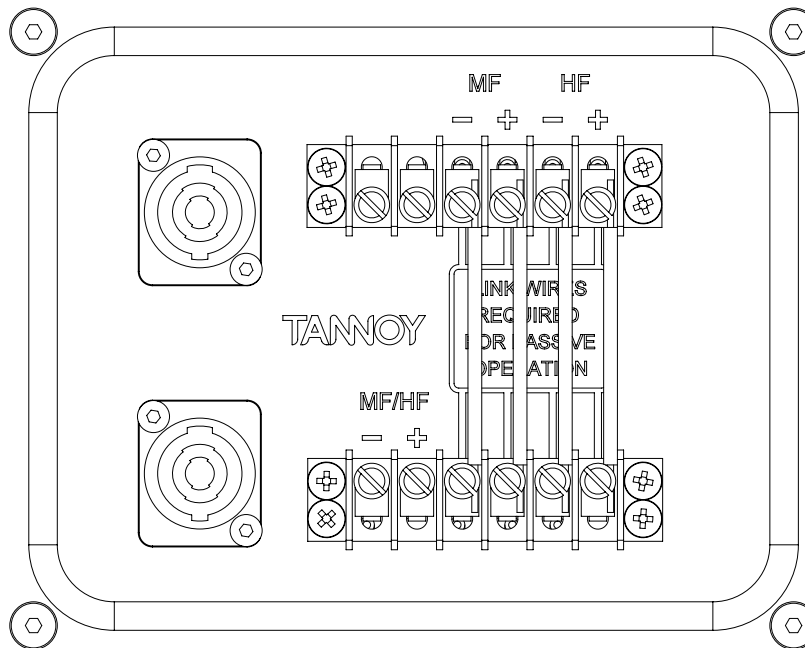
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DIMENSIONAL SKETCHES



INPUT PANEL



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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 117dB SPL on axis at 1 meter with a power input of 1 Watt, and shall be capable of producing a peak output of 146dB 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 40 degrees conical (-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): 510mm x 694mm x 515mm (20.01" x 27.32" x 20.28").

The loudspeaker shall be the Tannoy...VQ 40MH.

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