

## QLIGHT™ SERIES ENGINEERING INFORMATION

**The TQ-440SP is a three-way self-powered full range enclosure incorporating integral amplifiers and control electronics. The use of active power amplifier technology ensures an exact match between amplifier and speaker for optimum acoustic output, and offers exceptional ease of use by having the entire electro-acoustic system in one convenient, easily transportable physical package.**

It incorporates a custom-designed co-axial 12"/1" driver in an optimally tuned vented trapezoidal enclosure handling low and high frequencies. The critical mid-range frequencies are handled by a proprietary 6.5" cone transducer on a 60° by 40° horn, loaded with a TurboMid™ device.

The exclusive use of cone transducers in both the low and mid frequency bands guarantees a seamless transition at the crossover frequency, with the result that all of the critical vocal range right up to 8kHz is lower in distortion than compression driver-based designs. In addition the 6.5" driver is a highly efficient device, and is able to handle large amounts of amplifier power. The remaining high frequencies are effortlessly

handled by a 1" compression driver, which is subjected to minimal mechanical stress.

The mid and high components are physically time aligned within the enclosure, ensuring perfect time arrival at the listener's ear. When compared to conventional designs, the TQ-440SP is able to offer higher SPL, significantly lower distortion, and unsurpassed vocal projection capabilities in an equivalent sized physical package.

A rear panel switch selects optimised profiles for speech and music applications, enabling real flexibility of use.

The birch plywood enclosure is supplied with integral rigging points, kelping brackets and a standard 35mm pole mount socket, enabling its use with many different types of flying hardware (refer to the flying and lifting section). It is finished in black semi-matt textured paint, and includes a steel mesh / reticulated foam protective grille. Flush side handles are provided for lifting and carrying. Line in and line out connections are provided on 3-pin XLR.

**Recommended complementary products:**

**TQ-425SP sub-bass enclosure**



### FEATURES

- Built-in power amplifiers**
- Unsurpassed vocal projection**
- 60° x 40° dispersion**

### APPLICATIONS

- Corporate / Industrial**
- Theatre**
- Audio Visual**

<b>DIMENSIONS (HxWxD)</b>	588mm x 409mm x 363mm (23.1" x 16.1" x 14.3")	
<b>NET WEIGHT</b>	37.5kgs (82.5 lbs)	
<b>COMPONENTS</b>	1 x co-axial 12" / 1" driver, 1 x 6.5" MF driver on a TurboMid™ device	
<b>FREQUENCY RESPONSE<sup>1</sup></b>	55Hz - 20kHz±4dB	
<b>NOMINAL DISPERSION<sup>2</sup></b>	60°H x 40°V@-6db points	
<b>MAXIMUM SPL</b>	128dB continuous <sup>3</sup> , 134dB peak <sup>4</sup>	
<b>CONSTRUCTION</b>	18mm (3/4") birch plywood throughout; rebated, screwed and glued. Finished in black semi-matt textured paint. Two recessed carrying handles. Integral 35mm pole mount	
<b>GRILLE</b>	Reticulated foam on expanded steel mesh	
<b>CONNECTORS</b>	Input: (1) XLR female, (1) XLR male wired pin 2 hot; AC mains input: Speakon	
<b>OPTIONS</b>	TurboBlue™ semi-matt textured paint	
<b>AMPLIFIER</b>	<b>TYPE:</b>	Class AB
	<b>POWER OUTPUT:</b>	HF: 300 watts program LF: 500 watts program
	<b>THD:</b>	typically 0.01%, 20Hz - 20kHz
	<b>NOISE:</b>	<100dB relative to full output
	<b>INPUT IMPEDANCE:</b>	10kΩ, electronically balanced
	<b>POWER REQUIREMENTS:</b>	230V AC 50Hz, 115V AC 60HZ
<b>SPARES AND ACCESSORIES</b>	LS-1214	12" (305mm) LF loudspeaker
	RC-1214	Recone kit for LS-1214
	LS-6505	6.5" (165mm) MF loudspeaker
	RC-6505	Recone kit for LS-6505
	CD-103	1" HF compression driver
	RD-103	Replacement diaphragm for CD-103
	PX-440SP	Internal passive crossover network
	MG-440	Replacement foam / metal grille
	PB-55	Wall bracket, pole mount fixing

**Notes**

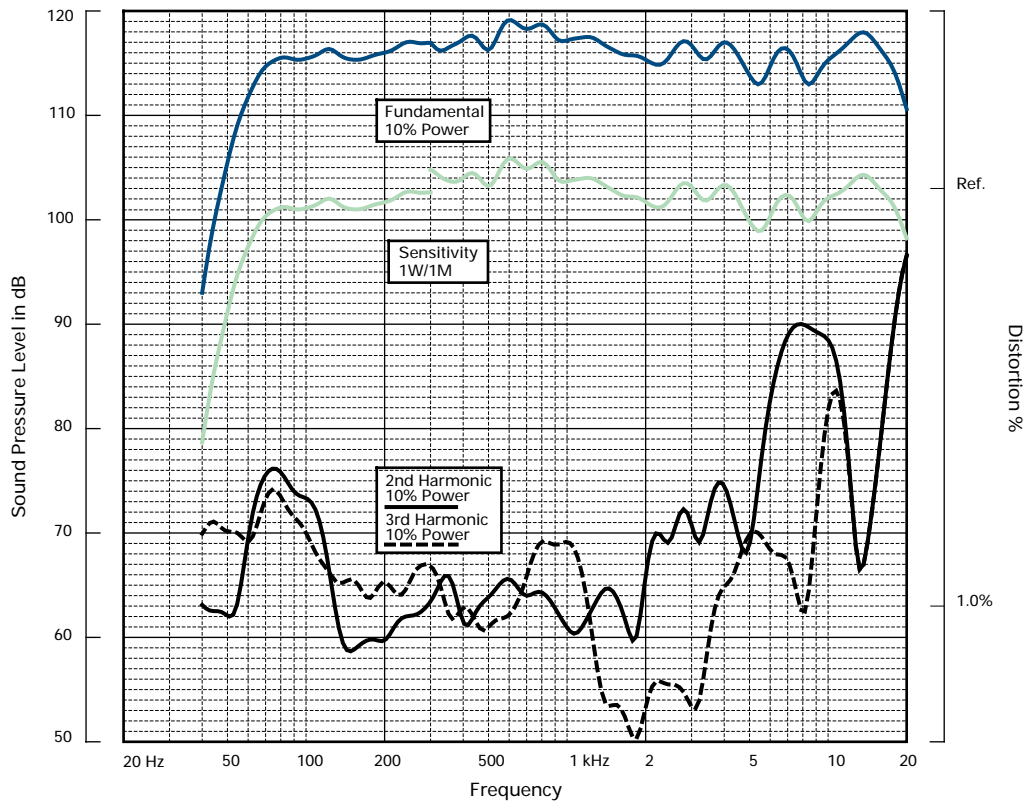
<sup>1</sup>Measured on axis

<sup>2</sup>Average over stated bandwidth

<sup>3</sup>Unweighted diode-clipped pink noise. Measured in a half space environment.

<sup>4</sup>Verified by subjective listening tests of familiar program material, before the onset of perceived signal degradation.

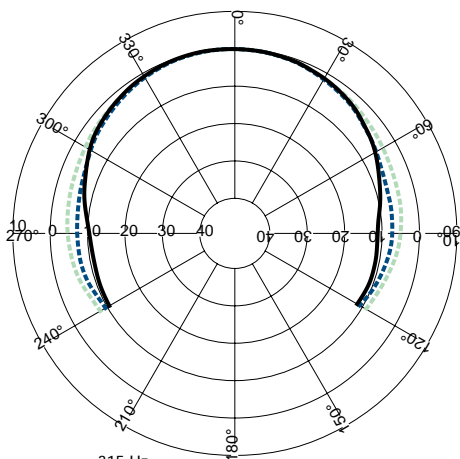
FREQUENCY RESPONSE



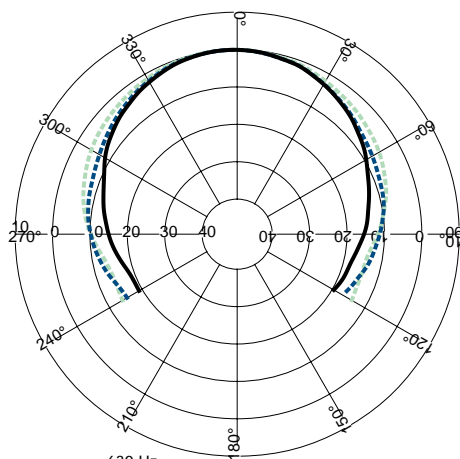
**Frequency response** The frequency response shown was obtained by feeding a swept sine wave through the system in a half space environment. The position of the microphone was vertically on-axis at a distance of 2 metres, then scaled to represent 1 metre. **2nd & 3rd Harmonic Distortion** Distortion measurements were obtained using an Audio Precision harmonic distortion analysis system and comply with AES recommendations for enclosure measurement (AES paper ANSI S4-26-1984). **Data Conversion** All graphs were digitally generated using the APEX custom software system, designed to translate data derived from Audio Precision 'System One' test equipment into AutoCAD™. This program enables graphical information to be plotted to a high degree of accuracy.

NOTES ON MEASUREMENT CONDITIONS

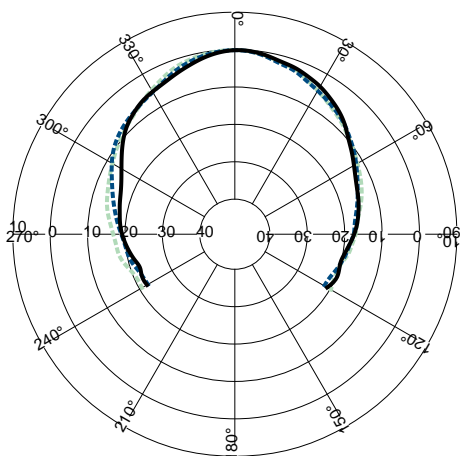
**HORIZONTAL THIRD  
OCTAVE POLARS**



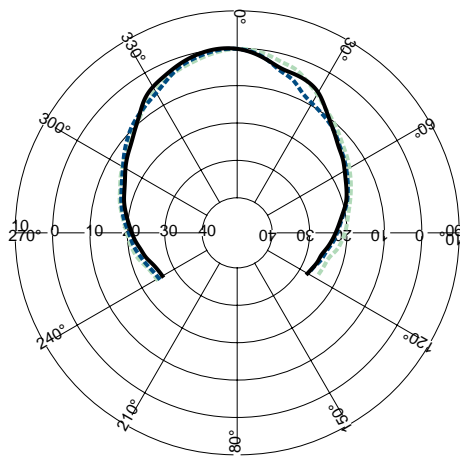
--- 315 Hz  
- - - 400 Hz  
— 500 Hz



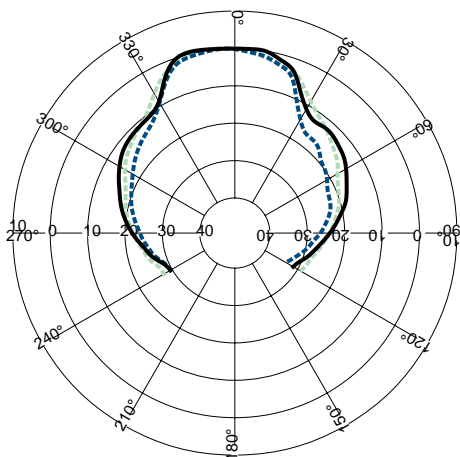
--- 630 Hz  
- - - 800 Hz  
— 1 kHz



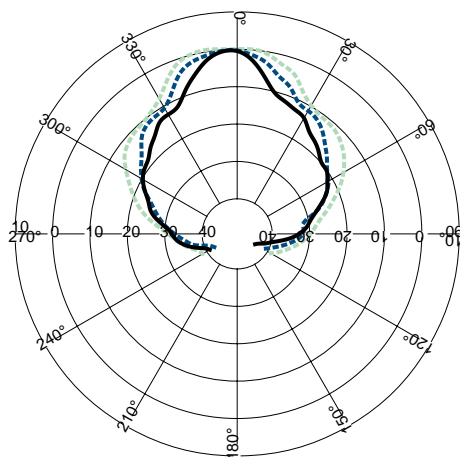
--- 1.25 kHz  
- - - 1.6 kHz  
— 2 kHz



--- 2.5 kHz  
- - - 3.15 kHz  
— 4 kHz

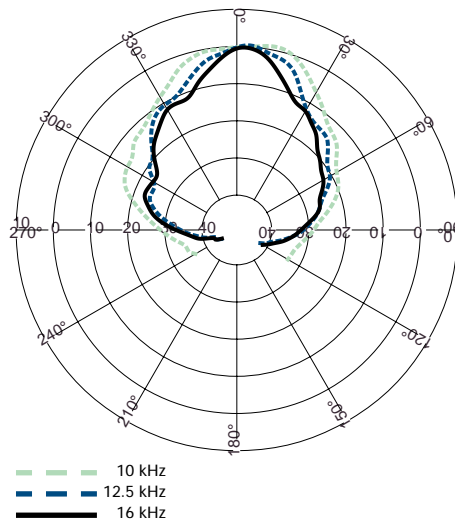
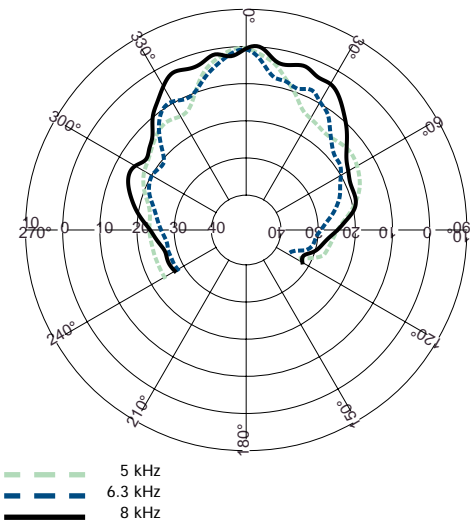
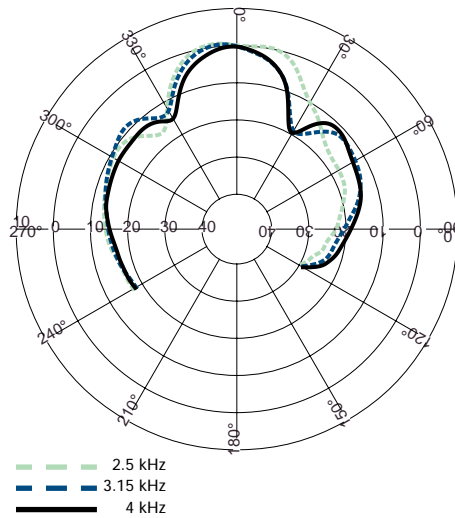
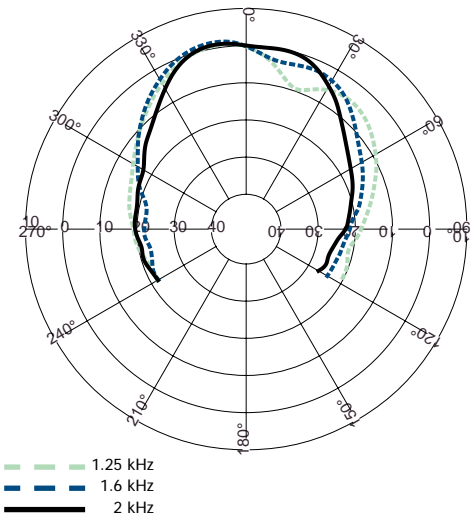
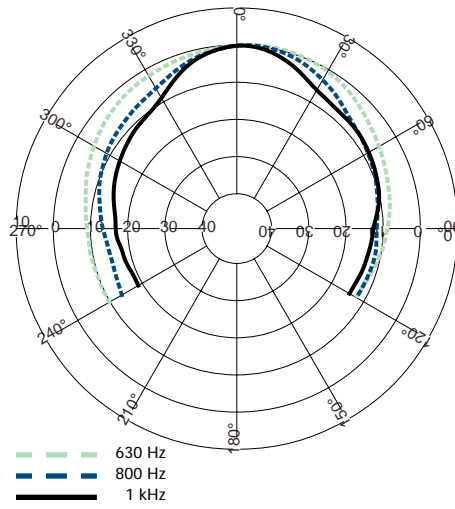
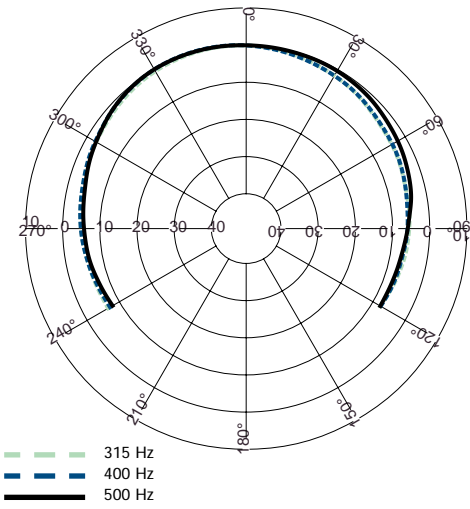


--- 5 kHz  
- - - 6.3 kHz  
— 8 kHz

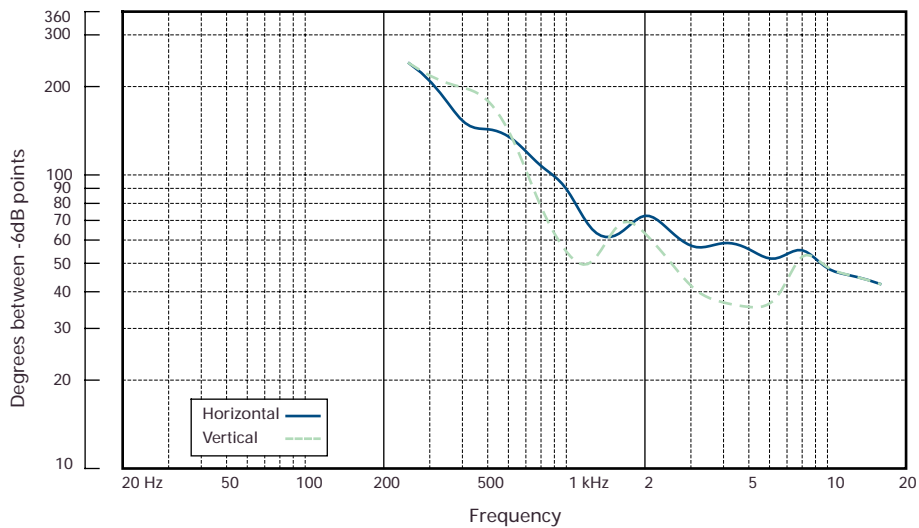


--- 10 kHz  
- - - 12.5 kHz  
— 16 kHz

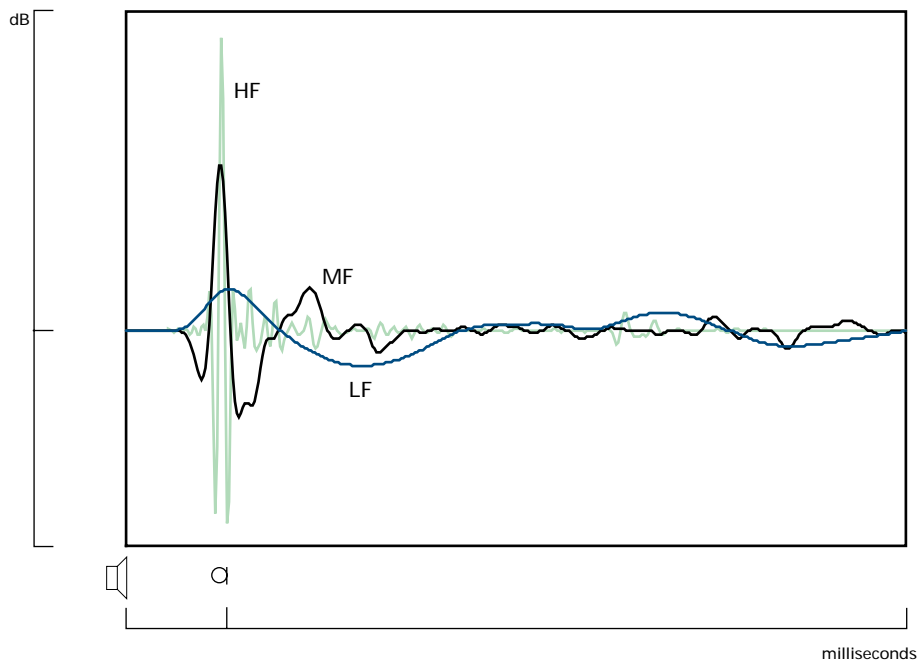
**VERTICAL THIRD  
OCTAVE POLARS**



**BEAMWIDTH**

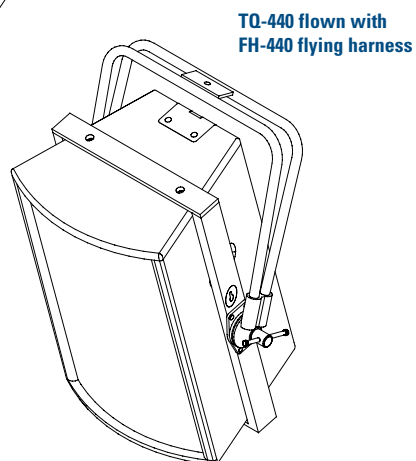
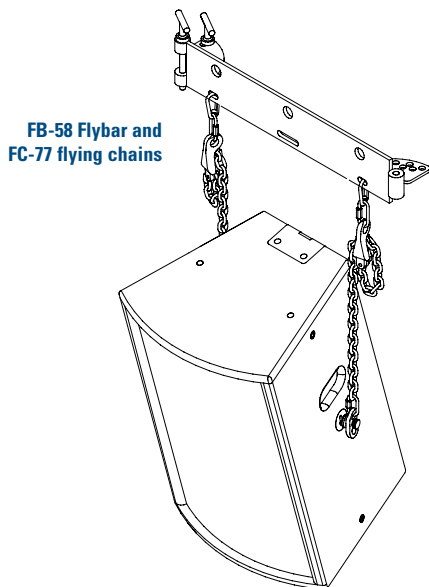
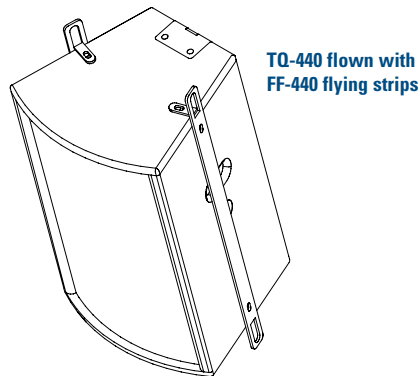
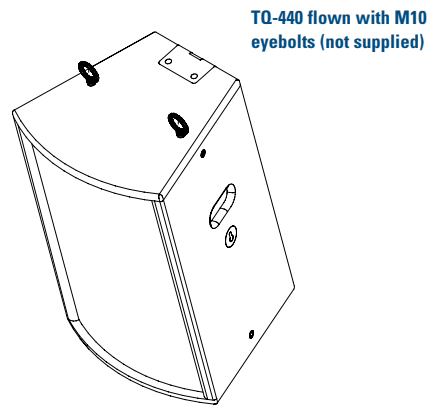
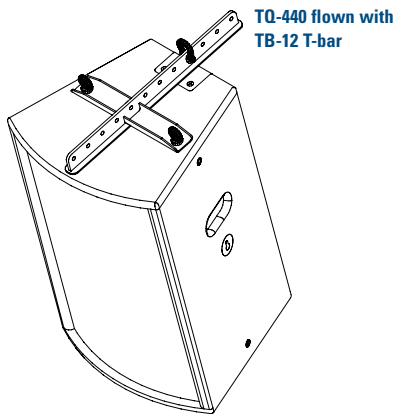


**IMPULSE RESPONSE**



The diagrams below illustrate several different methods of rigging a single TQ-440SP enclosure. In each case the lower kelping bracket is used to set the desired downward inclination of the cabinet. When using the T Bar, the enclosure may be rigged either using two points or only a single pick up point. The downward angle will be determined by which attachment hole is chosen.

**INSTALLATION  
HARDWARE**



**ARCHITECTURAL  
& ENGINEER'S  
SPECIFICATIONS**

The loudspeaker shall be of the self-powered, three way, bi-amplified type, consisting of one reflex loaded 12" (305mm) low frequency loudspeaker in a vented trapezoidal enclosure, one 6.5" (165mm) mid frequency loudspeaker loaded with a TurboMid™ device and a 1" (25mm) high frequency compression driver mounted co-axially to the low frequency loudspeaker. The integral power amplifier module shall provide two channels of Class AB amplification, output limiting and equalisation incorporating frequency responses optimised for speech and music. Performance specifications of a typical production unit shall be: Frequency response, measured with swept sine wave input, shall be flat within  $\pm 4\text{dB}$  from 55Hz to 20kHz. Nominal dispersion, at -6dB points, shall average  $60^\circ\text{H} \times 40^\circ\text{V}$ . Maximum SPL (peak) measured with music program at stated amplifier power shall be 134dB. Dimensions: 588mm x 409mm x 363mm (23.1" x 16.1" x 14.3"). Weight: 39kgs (85.8lbs). The loudspeaker shall be the Turbosound TQ-440SP. No other loudspeaker shall be acceptable unless submitted data from an independent test laboratory verify that the above combined performance/size specifications are equalled or exceeded. A range of flying and lifting hardware shall be available.

**DIMENSIONS**

