datasheet

TQ-440SP

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 dual-concentric 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.

FEATURES

Built-in power amplifiers

Unsurpassed vocal projection

60° x 40° dispersion

APPLICATIONS

Corporate / Industrial

Theatre

Audio Visual

Turbosound

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TQ-440SP

QLIGHT SERIES ENGINEERING INFORMATION

DIMENSIONS (HxWxD)	588mm x 409mm x 363mm (23.1" x 16.1" x 14.3")
NET WEIGHT	39kgs (85.8 lbs)
COMPONENTS	1 x dual concentric 12" / 1" driver, 1 x 6.5" MF driver on a TurboMid™ device
FREQUENCY RESPONSE[1]	75Hz - 17kHz±4dB (music setting); 90Hz - 17kHz±4dB (speech setting)
NOMINAL DISPERSION[2]	60˚H x 40˚V@-6db points
MAXIMUM SPL	128dB continuous[3], 134dB peak[4]
CONSTRUCTION	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
GRILLE	Reticulated foam on expanded steel mesh
CONNECTORS	Input: (1) XLR female, (1) XLR male wired pin 2 hot; AC mains input: Speakon
OPTIONS	TurboBlue™ semi-matt textured paint

AMPLIFIER

TYPE:	Class AB
POWER OUTPUT:	HF: 300 watts program
	LF: 500 watts program
THD:	typically 0.01%, 20Hz - 20kHz
NOISE:	<100dB relative to full output
INPUT IMPEDANCE:	10kΩ, electronically balanced
POWER REQUIREMENTS:	230V AC 50Hz, 115V AC 60HZ

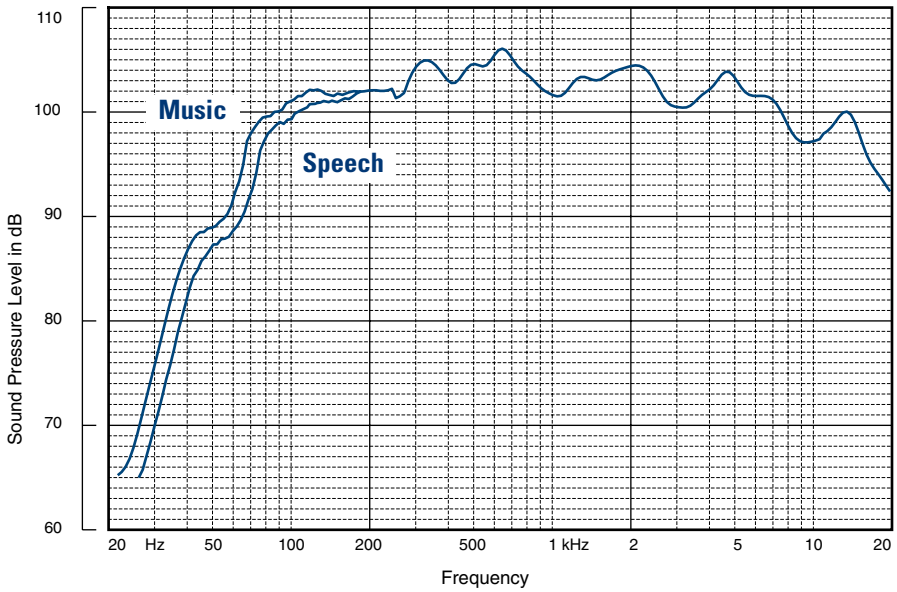
SPARES AND ACCESSORIES

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

Notes

[1]Measured on axis
[2]Average over stated bandwidth
[3]Unweighted diode-clipped pink noise. Measured in a half space environment.
[4]Verified by subjective listening tests of familiar program material, before the onset of perceived signal degradation.

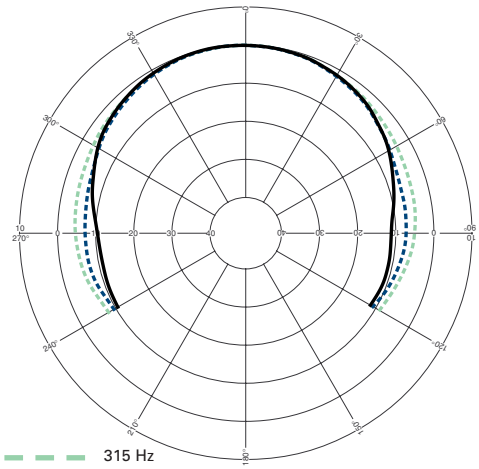
FREQUENCY RESPONSE

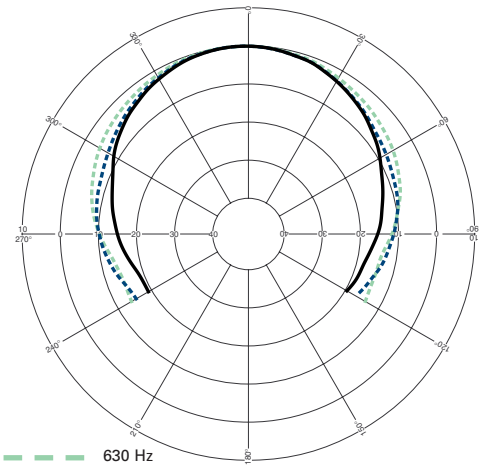


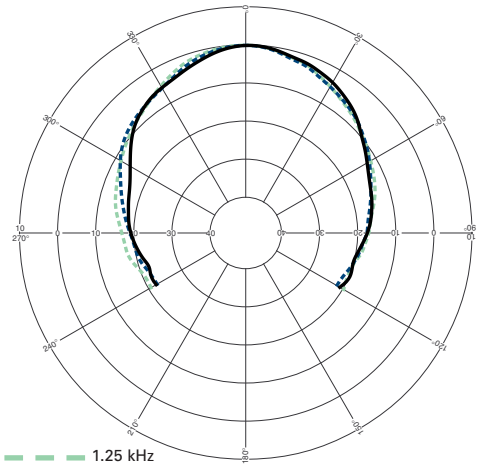
NOTES ON MEASUREMENT CONDITIONS

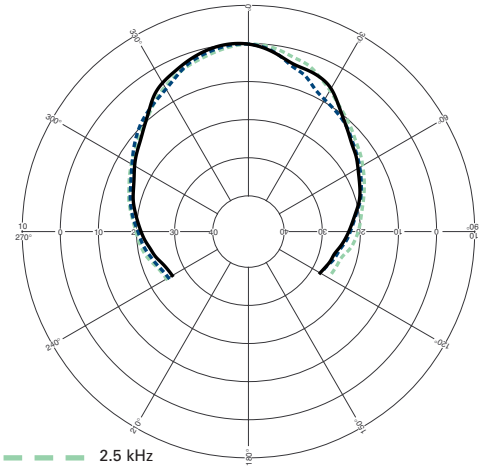
Frequency response The frequency response shown was obtained by feeding a swept sine wave through the system in a half space environment. The position of the microphone was vertically on-axis at a distance of 2 metres, then scaled to represent 1 metre. **2nd & 3rd Harmonic Distortion** Distortion measurements 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.

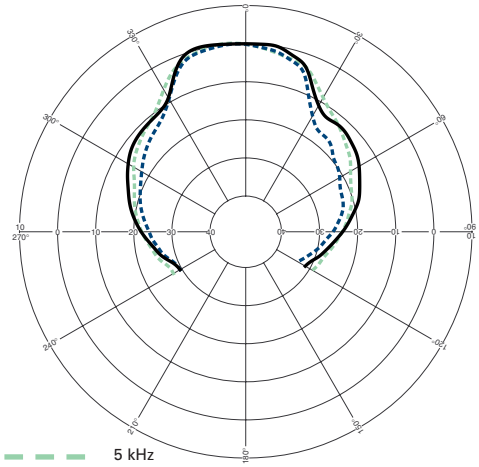
HORIZONTAL THIRD OCTAVE POLARS

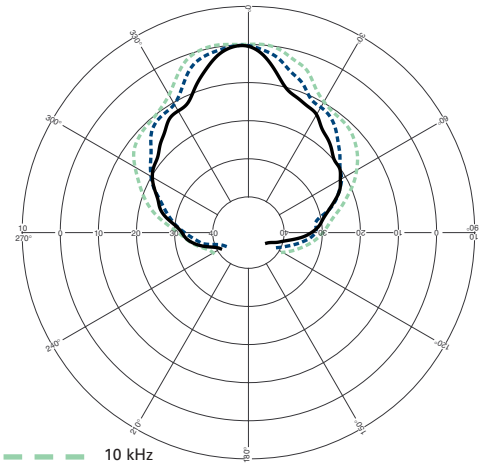




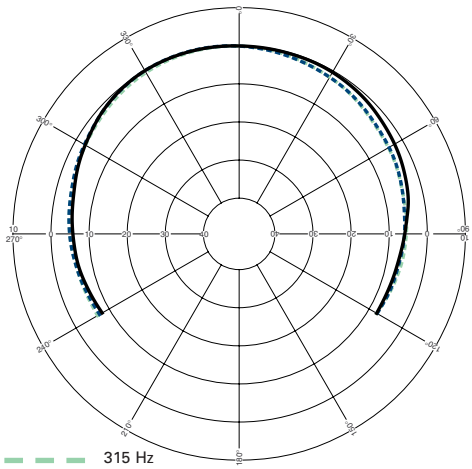




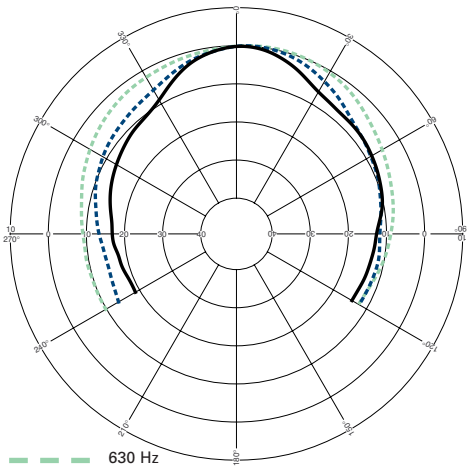




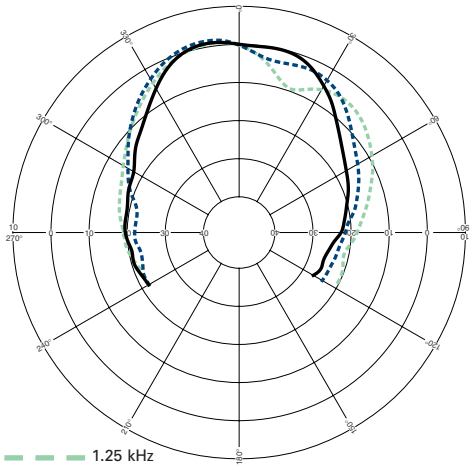
VERTICAL THIRD OCTAVE POLARS



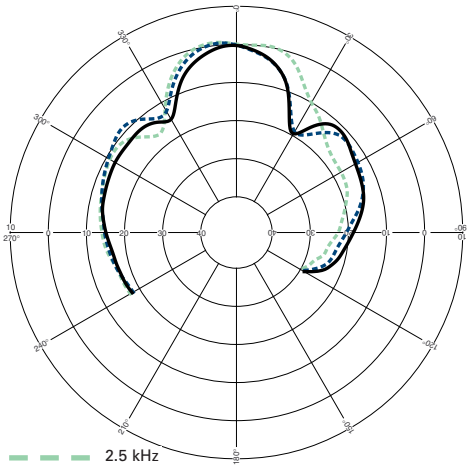
315 Hz
400 Hz
500 Hz



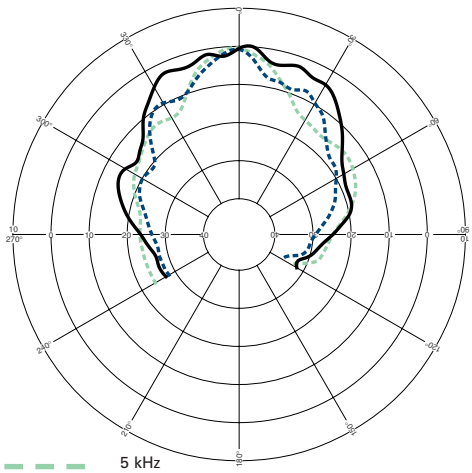
630 Hz
800 Hz
1 kHz



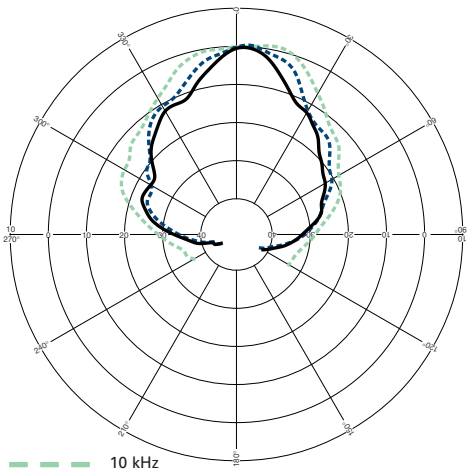
1.25 kHz
1.6 kHz
2 kHz



2.5 kHz
3.15 kHz
4 kHz

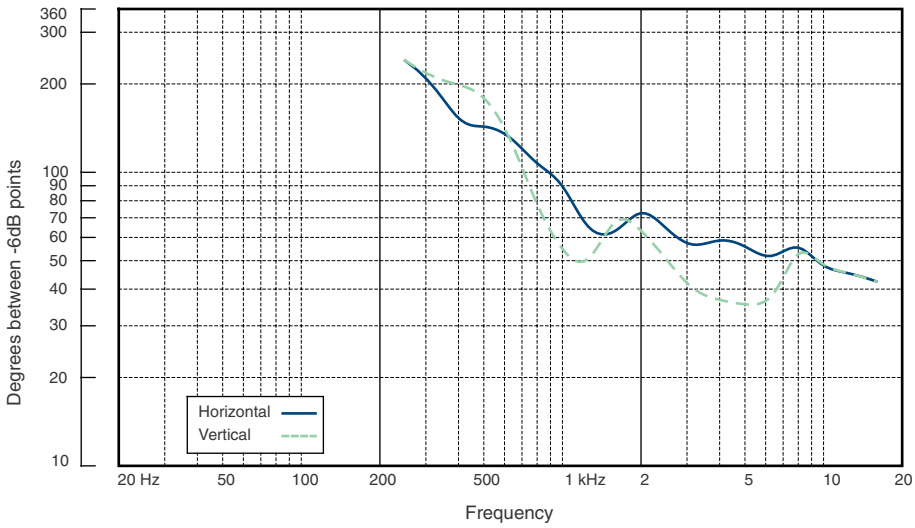


5 kHz
6.3 kHz
8 kHz

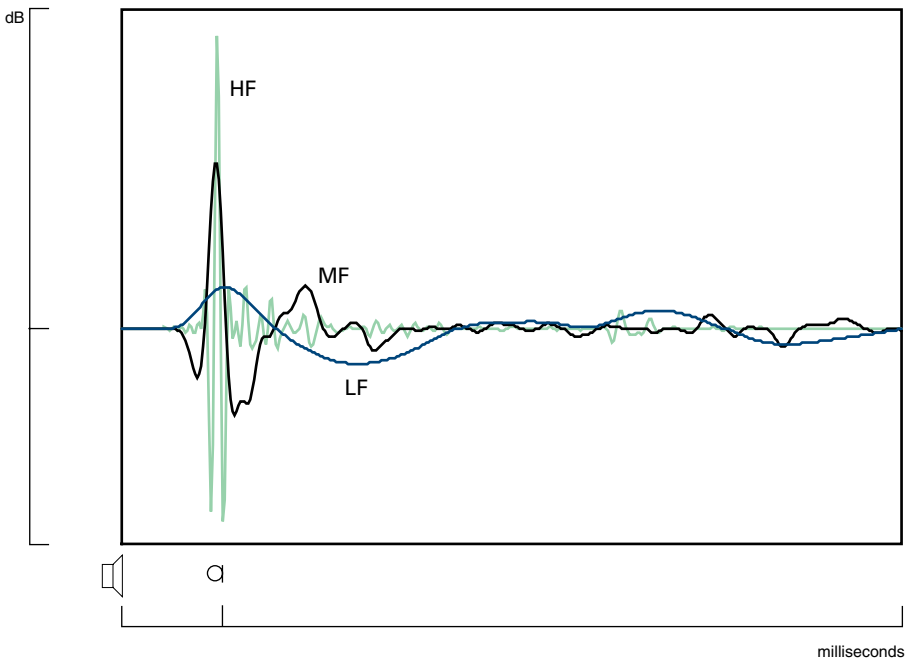


10 kHz
12.5 kHz
16 kHz

BEAMWIDTH

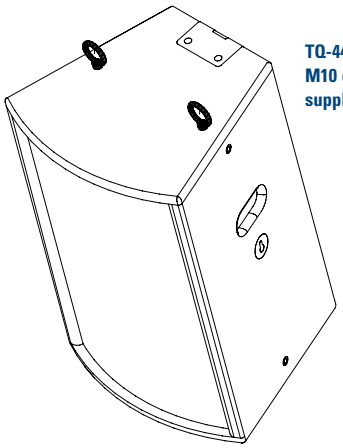


IMPULSE RESPONSE

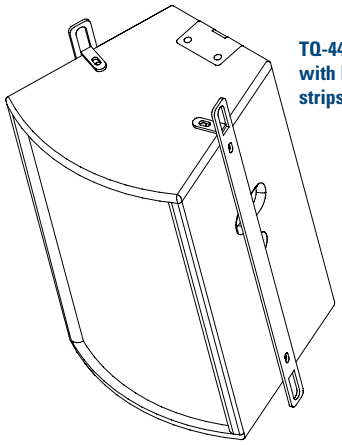


INSTALLATION HARDWARE

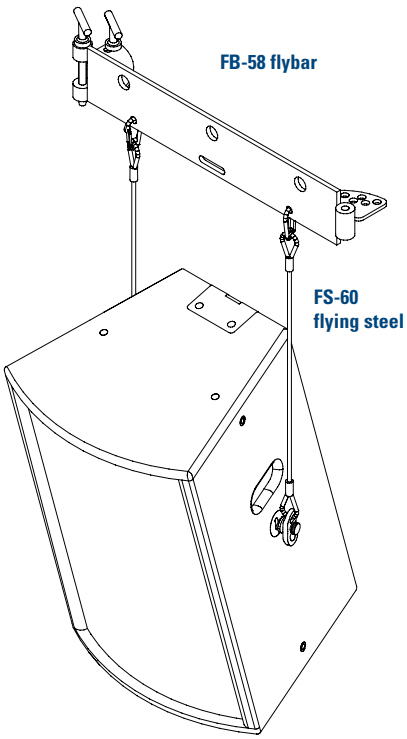
The diagrams below illustrate several different methods of rigging a single TQ-440SP enclosure. In each case the lower kelping bracket is used to set the desired downward inclination of the cabinet. When using the T Bar, the enclosure may be rigged either using two points or only a single pick up point.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



TQ-440SP flown with M10 eyebolts (not supplied)

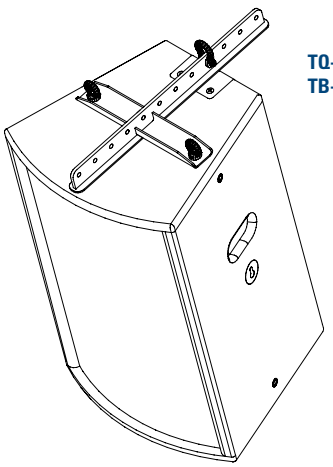


TQ-440SP flown with FF-56 flying strips



FB-58 flybar

FS-60 flying steel



TQ-440SP flown with TB-12 T-bar

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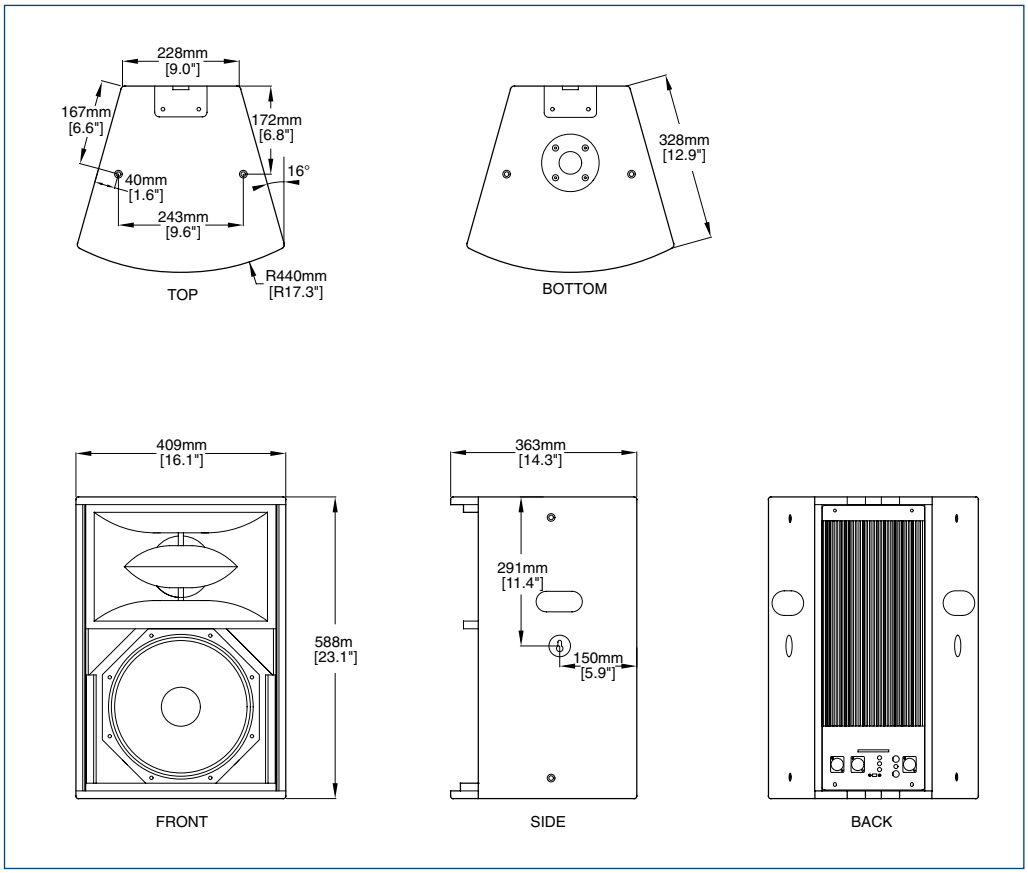
TQ-440SP

QLIGHT SERIES ENGINEERING INFORMATION

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 ±4dB from 75Hz to 17kHz (music setting) and 90Hz to 17kHz (speech setting). Nominal dispersion, at -6dB points, shall average 60°H x 40°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



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