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TQ-445

QLIGHT™ SERIES ENGINEERING INFORMATION

The TQ-445 is a three-way bi-amped full range enclosure that offers unprecedented levels of audio clarity and definition.

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 ranges up to 8kHz are reproduced with significantly lower 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 on a specially developed waveguide which is designed to provide even high frequency dispersion to match that of the mid and high frequency components are physically aligned within the enclosure, ensuring perfect time arrival at the listener's ear. When compared to conventional two-way designs the TQ-445 is able to offer higher SPL, significantly lower distortion, and unsurpassed vocal projection capabilities in an equivalently sized physical package.

The TQ-445 is designed for use with Turbosound digital loudspeaker management systems, which provide model-specific crossover, delay and limiting functions.

The birch plywood enclosure is supplied with integral rigging points and a standard 35mm pole mount socket, enabling use with many different types of flying hardware in a variety of corporate, theatre and audio visual applications. 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. Two Speakon NL4MP connectors provide input and loop out connections.

FEATURES

- Three-way, bi-amp design
- Exceptional audio clarity
- 60° x 40° dispersion
- Very high power
- Compact enclosure

APPLICATIONS

- Corporate / Industrial
- Theatre
- Concert touring
- Broadcast / TV
- Audio Visual

Turbosound®

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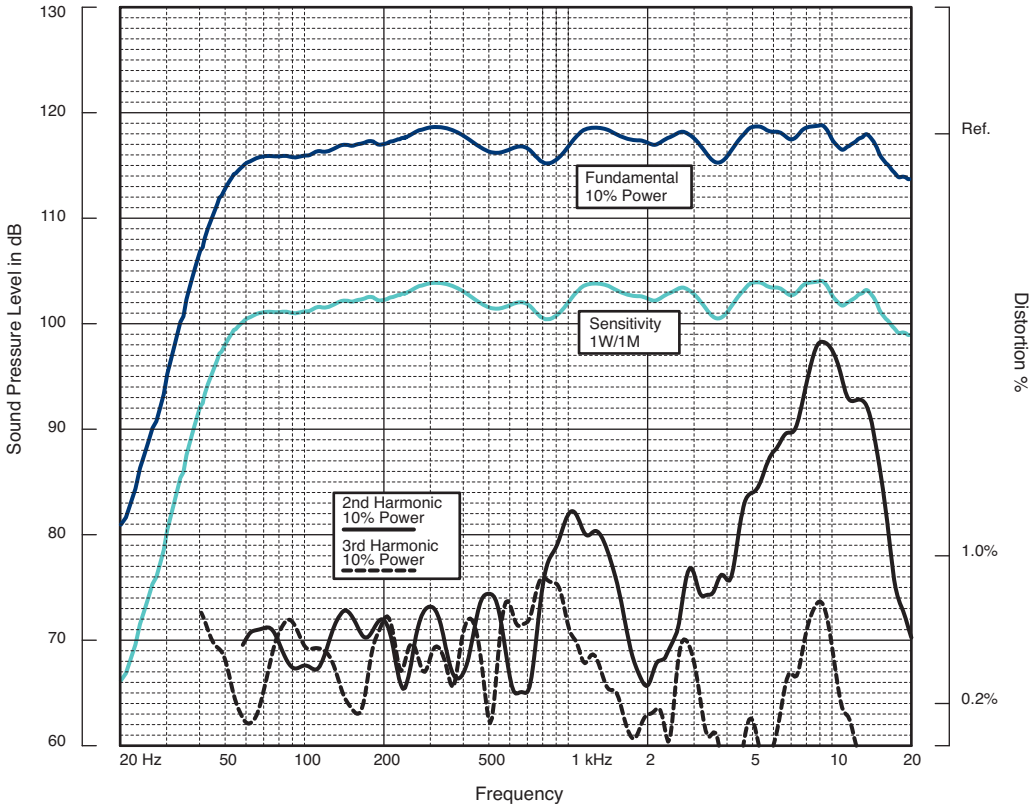
DIMENSIONS (HxWxD)	588mm x 409mm x 363mm (23.1" x 16.1" x 14.3")
NET WEIGHT	30kgs (66 lbs)
COMPONENTS	1 x co-axial 12" / 1" driver, 1 x 6.5" MF driver on a TurboMid™ device
FREQUENCY RESPONSE[1]	75Hz - 20kHz±4dB (with LMS-D6)
NOMINAL DISPERSION[2]	60˚H x 40˚V@-6db points
POWER HANDLING	LF: 300 watts r.m.s., 600 watts program MF/HF: 150 watts r.m.s., 300 watts program Recommended amplifier power: LF: 600 watts @ 8 ohms; MF/HF: 300 watts @ 12 ohms
SENSITIVITY[3]	LF: 103dB, 1 watt @ 1 metre; MF/HF: 104dB, 1 watt @ 1 metre
MAXIMUM SPL	131dB continuous[4], 137dB peak[5]
CROSSOVER	Active LF/MF: 1k3Hz, 24dB octave slope, Butterworth Internal passive crossover at 8kHz, third order high pass
NOMINAL IMPEDANCE	LF: 8 ohms, MF/HF: 12 ohms
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	(2) Neutrik Speakon NL4MP
OPTIONS	TurboBlue™ semi-matt textured paint

SPARES AND ACCESSORIES

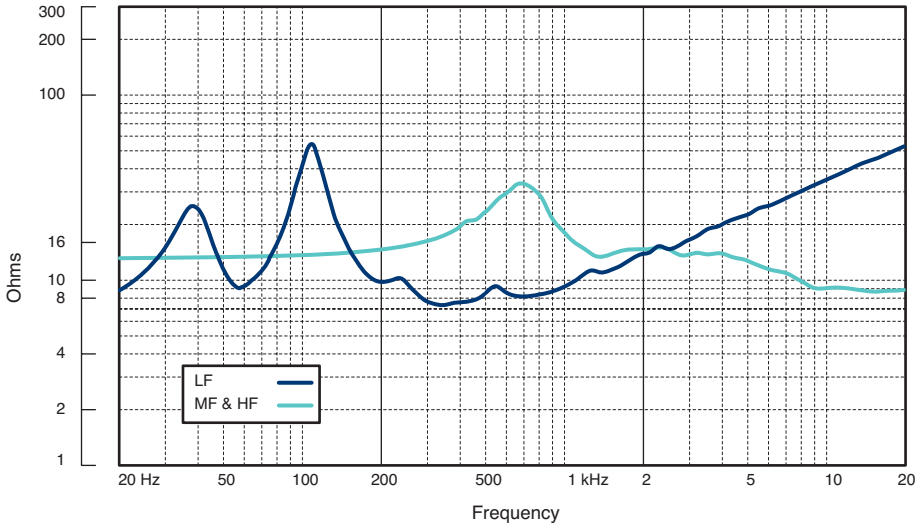
LS-1214	12" (305mm) LF loudspeaker
RC-1214	Recone kit for LS-1214
LS-6505	6.5" (165mm) MF loudspeaker
RC-6505	Recone kit for LS-6505
CD-103	1" HF compression driver
RD-103	Replacement diaphragm for CD-103
PX-440BI	Internal passive crossover network
MG-440	Replacement foam / metal grille
PB-55	Wall bracket, pole mount fixing

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

FREQUENCY RESPONSE



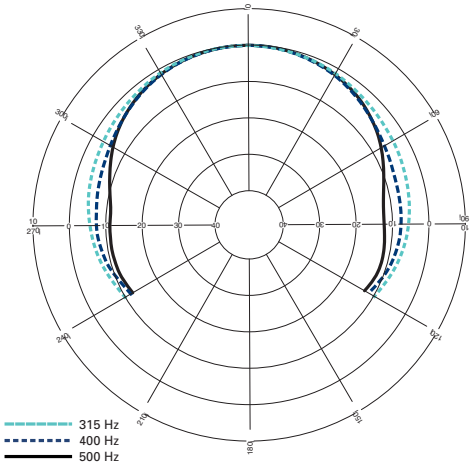
IMPEDANCE

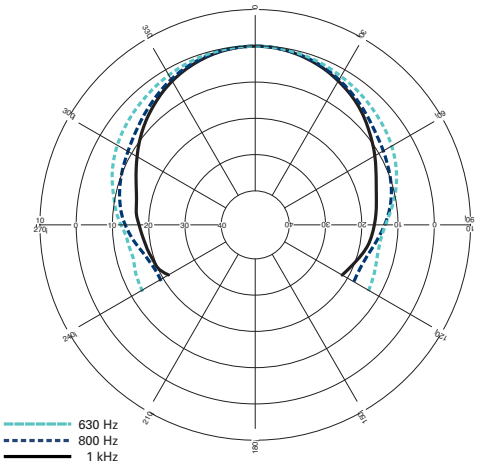


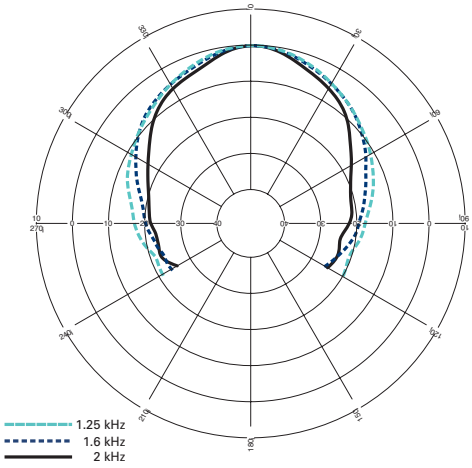
NOTES ON MEASUREMENT CONDITIONS

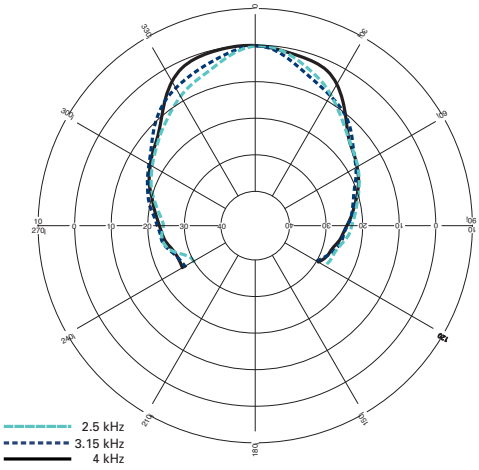
Impedance A constant current circuit was used to measure the impedance. **Frequency response** The frequency response shown was obtained by feeding a swept sine wave through the system in a half space environment. The position of the microphone was vertically on-axis at a distance of 2 metres, then scaled 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.

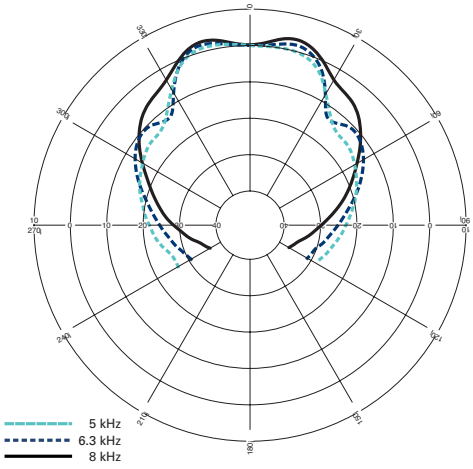
HORIZONTAL THIRD OCTAVE POLARS

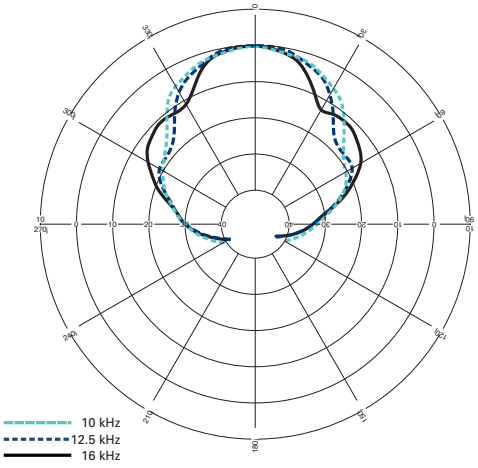




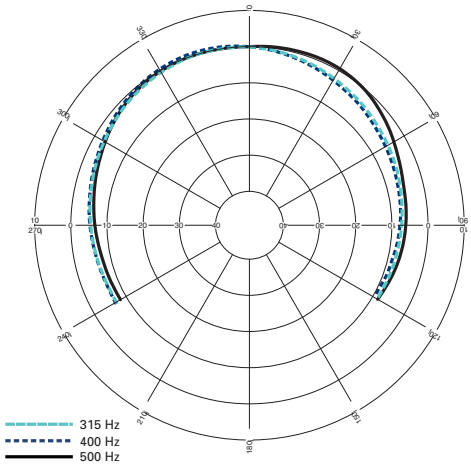


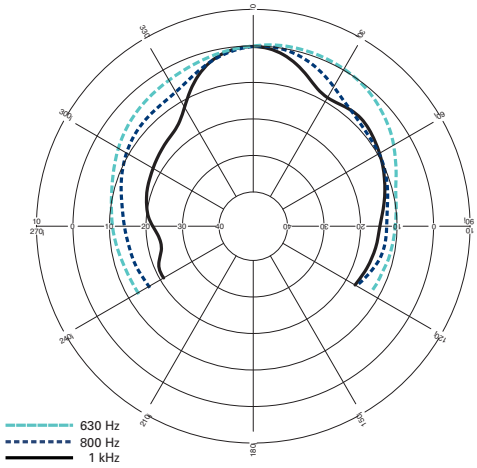


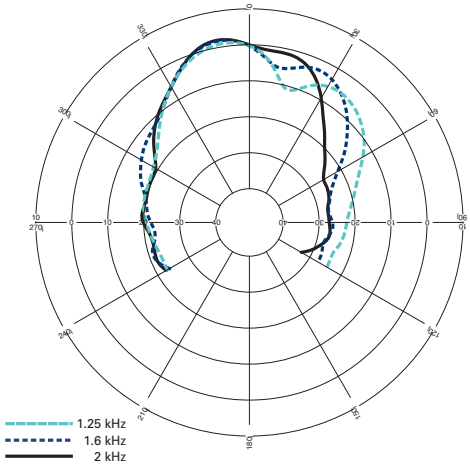


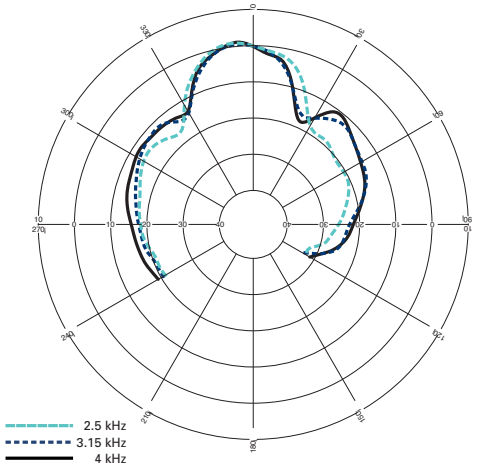


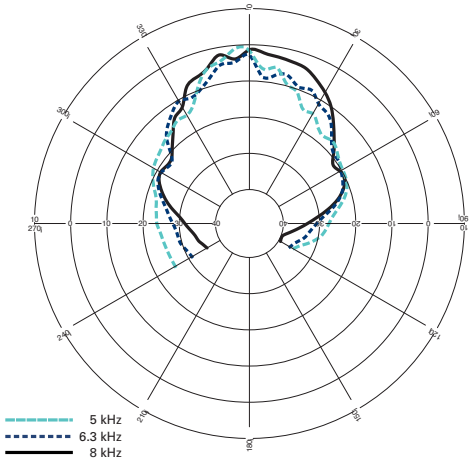
VERTICAL THIRD OCTAVE POLARS

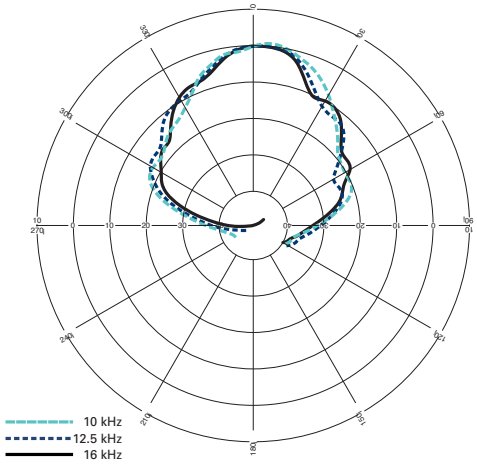




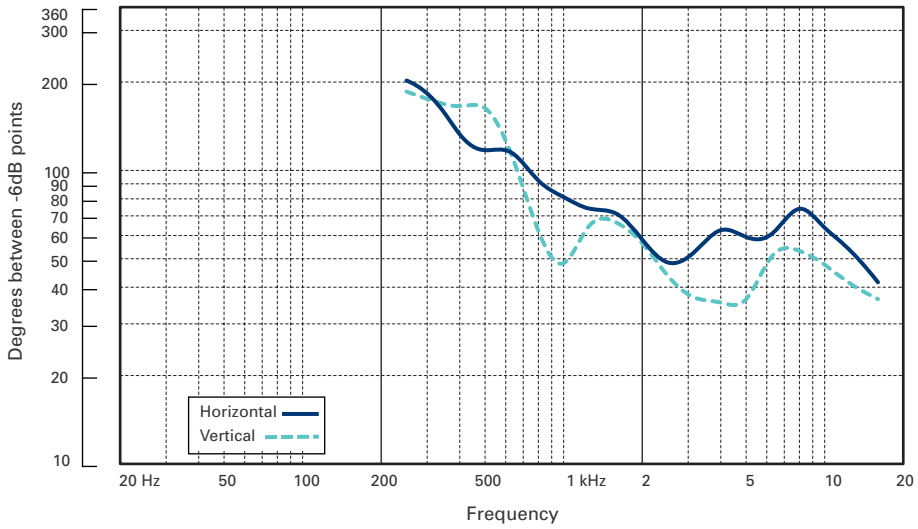




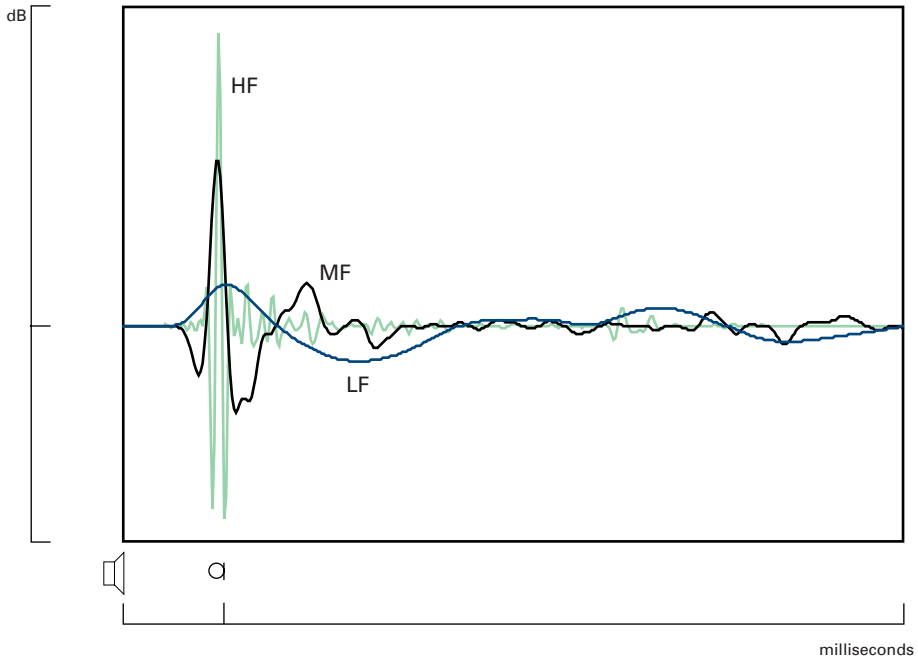




BEAMWIDTH



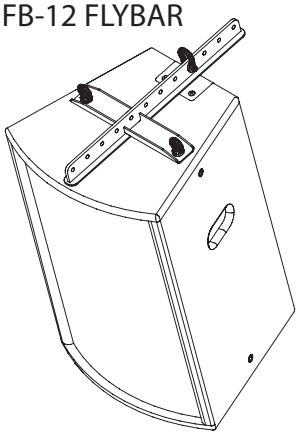
IMPULSE RESPONSE



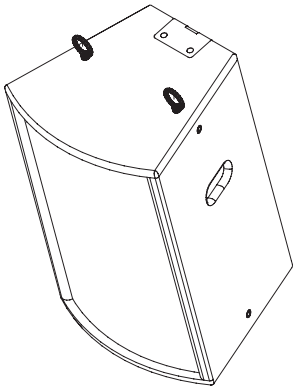
INSTALLATION HARDWARE

The diagrams below illustrate several different methods of rigging TQ-445 enclosures. In most cases the lower kelping bracket is used to set the desired downward inclination of the cabinet. When using the FB-12 flybar, 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 on the crossbow.

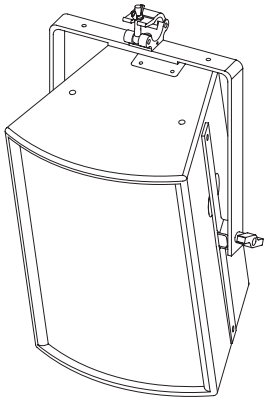
FB-12 FLYBAR



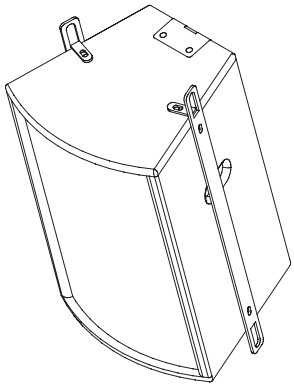
M10 EYEBOLTS



FY-445 FLYING YOKE



FF-445 FLYING STRIPS



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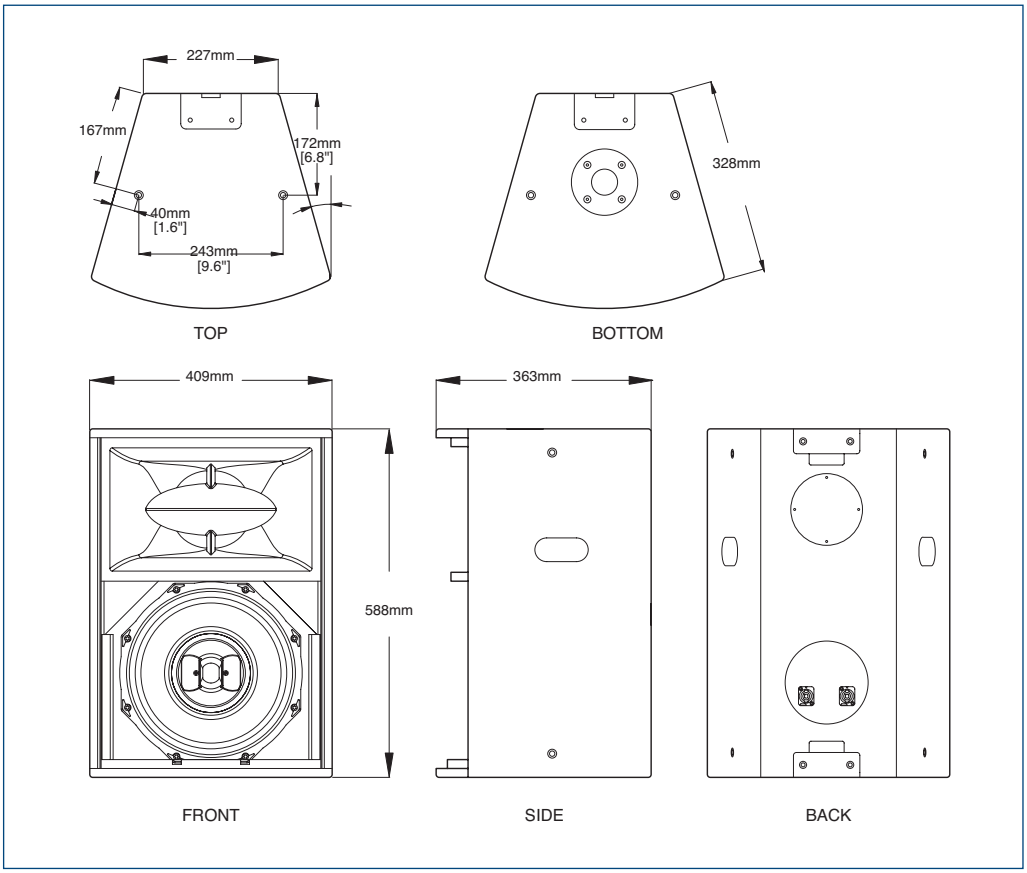
ARCHITECTURAL & ENGINEER'S SPECIFICATIONS

The loudspeaker shall be of the bi-amped, three way type, consisting of one reflex loaded 12" (305mm) low frequency loudspeaker, 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 loudspeaker shall be designed for use with a dedicated digital loudspeaker management system providing crossover, output limiting, and delay functions. Performance specifications of a typical production unit when used with the LMS-D6 loudspeaker management system shall be: frequency response, measured with swept sine wave input, shall be flat within ±4dB from 75Hz to 20kHz. Nominal dispersion, at -6dB points, shall average 60°H x 40°V. Nominal impedance shall be LF: 8 ohms; MF/HF: 12 ohms. Power handling shall be LF: 300 watts r.m.s., 600 watts program; MF/HF: 150 watts r.m.s., 300 watts program. Sensitivity, measured with 1 watt input at 1 metre distance on axis, mean averaged over stated bandwidth, shall be LF: 103dB, MF/HF: 104dB. Maximum SPL (peak) measured with music program at stated amplifier power shall be 137dB. Dimensions: 588mm x 409mm x 363mm (23.1" x 16.1" x 14.3"). Weight: 30kgs (66lbs). The loudspeaker shall be the Turbosound TQ-445. 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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