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## TOA SPEAKER SYSTEM

# LOW FREQUENCY LOUDSPEAKER

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## HLS46UL-8



### DESCRIPTION

The HLS46UL-8 is an 18" low-frequency loudspeaker designed for professional applications in high level sound reinforcement environments where high efficiency, super-low-frequency range, and faithful reproduction are required, such as studios, theaters, concert halls, auditoriums, discos, and in live sound reinforcement applications. The 46UL offers exceptionally high power handling capacity, ultra-linearity in the super-low-frequency range, and a uniform frequency response from 20 Hz to 500 Hz. A crossover frequency of 500 Hz or lower is recommended to obtain smoothest overall system response. The loudspeaker employs a low-mass 4" (100 mm) diameter voice coil of edge-wound copper ribbon on an aluminum coil form, which operates in a flux density of 13,600 gauss. The voice coil is driven by powerful double ferrite magnets, which are supported by a rugged diecast aluminum frame. The cone suspension is made of exceptionally high compliance cloth surround, damped.

### FEATURES

1. Smooth, extended super-low-frequency response.
2. High power handling capacity: 240 watts continuous pink noise; 720 watts continuous program input.
3. High efficiency and ultra-linearity in super-low range.
4. Low distortion.
5. Voice coil of edge-wound copper ribbon, with an aluminum coil form.
6. Powerful double ferrite magnet structure.
7. Rigid diecast aluminum construction.

# SPECIFICATIONS

Nominal Diameter	18 inches (460 mm)
Nominal Impedance	8 ohms
Power Capacity	240 watts RMS of band-limited pink noise
Continuous Pink Noise* 1	(40 Hz to 1 kHz)
Continuous Program	720 watts
Sensitivity* 2	95 dB (1W /1m)
Frequency Range	20 Hz to 500 Hz
Highest Recommended Crossover Frequency	500 Hz
Effective Piston Diameter	16 inches (400 mm)
Effective Moving Mass	0.21 kg
Flux Density	13,600 gauss
Voice Coil Diameter	4 inches (100 mm)
Voice Coil Material	Edgewound copper ribbon
Coil Form	Aluminum

# THIELE-SMALL PARAMETERS

fs (Resonance Frequency)	28 Hz
Re (D.C. Resistance)	5.0 ohms
Qts (Total Q)	0.28
Qms (Mechanical Q)	3.3
Qes (Electrical Q)	0.31
Vas (Equivalent Volume Compliance)	12 ft <sup>3</sup> (0.34 m <sup>3</sup> )
Vld (Loudspeaker Volume)	0.32 ft <sup>3</sup> (0.009 m <sup>3</sup> )
ηo (Reference Efficiency)	2.3%

# MOUNTING DATA

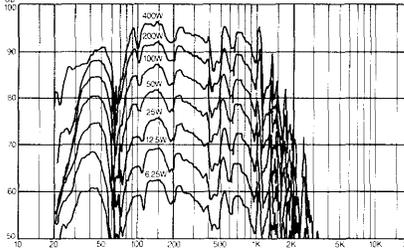
Overall Diameter	18.3 inches (464 mm)
Bolt Pattern Diameter	17.3 inches (440 mm)
Baffle Cutout Diameter	
Front Mount	16.6 inches (422 mm)
Rear Mount	16.5 inches (420 mm)
Depth	8.86 inches (225 mm)
Weight	46 lbs (20.8 kg)
Standard Accessories	Mounting Screws and Nuts.....each 8

# Notes

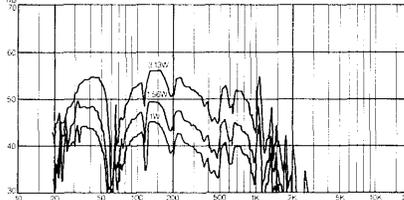
- \*Duration of power capacity test is 24 hours. Speaker unit is mounted in a 160-liter vented box.
  - \*Measured at 1 watt and 1 meter using band-limited pink noise (50 Hz to 500 Hz) under the condition that speaker unit is mounted in 180-liter vented box.
  3. Positive voltage on plus (RED) terminal gives forward diaphragm motion.
- \*Specifications are subject to change without notice.

# 2nd Harmonic Distortion

(1m, 6.25W to 400W, 180-liter vented box, sine wave)

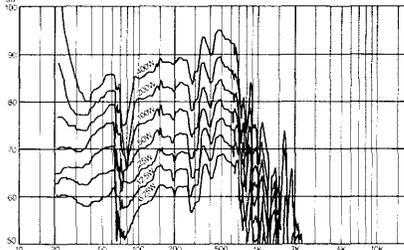


(1m, 1W to 3.13W, 180-liter vented box, sine wave)

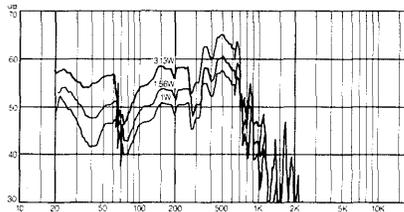


# 3rd Harmonic Distortion

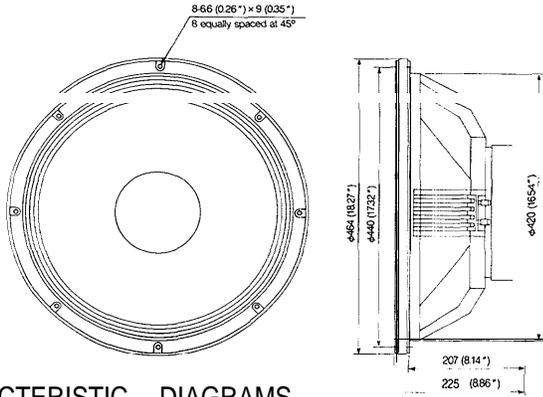
(1m, 6.25W to 400W, 180-liter vented box, sine wave)



(1m, 1W to 3.13W, 180-liter vented box, sine wave)

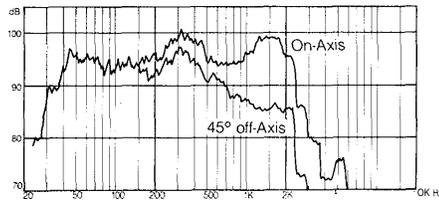


# DIMENSIONAL DIAGRAM



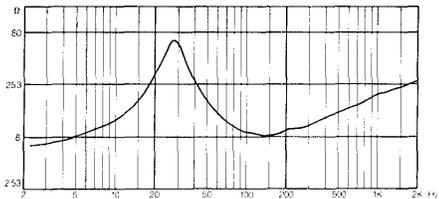
# CHARACTERISTIC DIAGRAMS

## Frequency Response



Measured at 1 watt and 1 meter using swept 1/3 octave pink noise under the condition that speaker unit is mounted in 180-liter vented box.

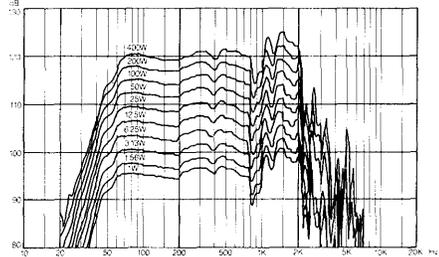
## Impedance



Measured under the condition that speaker unit is suspended, with cone in the vertical plane, in the "free-air".

## Power Linearity

(1m, 1W to 400W, 180-liter vented box, sine wave)



TOA Corporation