

## High Frequency Sound Source

The high frequency sound source provides near omni-directional radiation up to around 8 kHz. It was designed specifically for the measurement of road vehicle airborne transfer functions where it provides sufficient acoustic energy to enable P/Q functions to be reliably measured above around 200 Hz using both direct and reciprocal methods.

The high frequency sound source consists of a horn driver unit, which is connected to a radiating orifice via a 3 metre long flexible tube. This allows the source to be positioned in relatively confined locations. The source should produce a consistent calibrated output level which is largely unaffected by the routing of the tube.

The orifice contains a small microphone that is connected to a preamplifier in the base of the driver unit. The output from this is available on a BNC socket on the base of the sound source. The microphone system produces an approximation to the sources free field 1 m sound pressure level. This provides a reliable integrity check of the complete sound source system as well as allowing real time acoustic transfer functions to be measured. Although originally developed for automotive applications, this versatile high frequency source is increasingly being used in far wider fields such as marine and general machinery noise control. An outline specification of the source is given in Table 1.



$\frac{1}{3}$ Oct band SPL @ 1m	:	55 dB @ 200 Hz
		85 dB @ 3150 Hz
Omni directionality	:	$\pm 1$ dB < 2000 Hz
		$\pm 2$ dB 2000 – 10,000 Hz

**Table 1 – Outline Specification for the High Frequency Sound Source**



Frequency range	$\approx$	30 – 300 Hz
$\frac{1}{3}$ Octave band SPL @ 1m	=	70 dB at 30 Hz
	=	90 dB at 200 Hz
Overall diameter	=	240 mm
Overall height	=	430 mm
Radiating orifice diameter	=	80 mm

**Table 2 – Outline Specification for the Low Frequency Sound Source**

## Low Frequency Sound Source

The low frequency sound source provides near omni-directional radiation from 30 to 300 Hz. It was designed specifically for the measurement of road vehicle structure borne transfer functions where it provides sufficient acoustic energy to enable P/F functions to be reliably determined using reciprocal methods.

The device consists of a 200 mm driver unit connected via a composite reverse cone to an 80 mm diameter-radiating orifice.

A small probe microphone is mounted centrally in the radiating orifice, allowing an estimation of volume velocity to be monitored in real time. The signal for the probe is conditioned by electronics mounted in the base of the device. An outline specification of the source is given in Table 2.

## Signal Generator and Amplifier Unit

Each of the high frequency and low frequency units are powered by the same design of signal generator and amplifier unit. Coded cable connections ensure the correct filters in the electronics are selected for the two different sources.

The power unit incorporates both a white and pink noise generator as well as an external signal input. The power amplifier is a nominal 150 watt VFET device with a 60 dB gain range in 6 dB steps.

## Delivery

The sources are made to order and an estimated delivery date will be given on request. Typically delivery is between 6 and 8 weeks from receipt of order.

## Contact

For further information regarding facilities and capabilities please contact the Unit Manager

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**Omni-Directional  
Sound Sources**

