Mid High Frequency Volume Source (Q-MHF)
LMS Qsources Excitation Hardware

Application
- Airborne Source Quantification [ASQ]
- Transfer Path Analysis [TPA]
- ( Vibro)-acoustic modal analysis [EMA]
- Statistical Energy Analysis [SEA]
- Vehicle/Body airborne isolation
- Body panel and trim transmissibility

Supplied accessories
- User manual
- Flight case
- Sensitivity sheet reference sensor

Key benefits
- Fast reciprocal FRF acquisition
- Accurate internal volume acceleration sensor
- High sound pressure level
- Lightweight compact design

Physical specifications
- Diameter nozzle: Ø30 mm
- Tube length: 4 meter
- Mass: 6 kg

Product requirements
- LMS Qsources Measurement Amplifier
- Test.Lab Spectral Acquisition or similar.

Key features
- Volume acceleration sound source for mid and high frequency FRF measurements
- Omni directional and negligible diffraction
- Real-time accurate volume acceleration signal
- Built-in protection electronics
- Frequency range: 200 to 10000 Hz
- Special wide frequency high noise level source optimized for high frequency excitation and pass-by-noise engineering

Performance
- Sound power level (ISO3740): 101dB
- Frequency response sensor (±2dB): 200-10000Hz
- Internal sensor type: Voltage

Options
- Measurement Amplifier [Q-AMP]
- ICP type reference sensor [Q-MHF-ICP]
- Wide frequency version [Q-MHF-WIDE]
- Sensitivity measurement [Q-SR-SENS]
- Excitation hardware application training

www.lmsintl.com

A Siemens Business
Applications

The LMS Qsources Mid High Frequency source is a general use monopole volume acceleration source with internal reference sensor. It is in use by many R&D centers in all industry segments.

Automotive OEM’s use these acoustic monopole sources for dedicated investigations like Transfer Path Analysis, Airborne Source Quantification and other NVH related measurements and analyses.

These sources are also in use by full vehicle NVH departments for validation of the high frequency sound package of a prototype. To follow-up the status of the sound package during a new vehicle development, engineers appreciate the accuracy and the speed with which the reciprocal transfer functions can be measured.

Component suppliers in the industry use these sources to investigate (vibro) acoustic behavior of components like engines, transmissions, airco units or other auxiliaries. The sound source level in combination with the frequency range makes this source a versatile measurement device designed to meet the needs of NVH R&D departments. To support Pass-By–Noise engineering, a high frequency source has been optimized which allows to measure acoustic FRFs from 150-10000 Hz.

That same source (Q-MHF-WIDE) also offers significant higher noise levels at frequencies over 5 kHz making it suitable for vibro-acoustic FRF measurements from interior to body interfaces and acoustic FRF measurements to other vehicle cavities. The negligible diffraction makes it an accurate omni-directional sound source. The reference sensor is integrated at the aperture of the nozzle and measures the volume acceleration accurately. The sensor is practically independent from the acoustic environment where the source is used.

Sophisticated electronics are integrated in the source to protect the acoustic driver against excessive power making the source a reliable and durable device.

To complete the service, a yearly sensitivity determination of the internal reference sensor is available via your local office. A one- or multiple-day training is possible to provide the engineer with the necessary knowledge.

Sound power output

The sound power determined based on ISO standard 3740: 101dB

Directivity for different 1/3 octave bands, determined at 0.5m distance.

Other LMS Qsources structural and acoustic exciters:

| Low Mid Frequency Volume Source | Q-LMF |
| Miniature Volume Source | Q-1ND |
| Miniature Shaker | Q-MSH |
| Integral Shaker | Q-ISH |
| Thumper Shaker | Q-TMP |

Next to a standard segment, LMS has the knowledge and experience to provide custom made solutions for specific excitation challenges.

Covering a wide range of advanced excitation hardware, LMS Qsources seamlessly matches hardware with the LMS software. This unique combination highly exceeds current market standards with regards to productivity and data accuracy, and hence customer’s expectations.

LMS Qsources are developed with input from all partners: customers, LMS Engineering Services and suppliers ensuring high product functionality, quality and reliability. Ask your local office contact for more information about excitation devices LMS provides.

www.lmsintl.com/Structural-and-Acoustic-exciters

Contact: Qsources@lmsintl.com