

PULSE Sound Power Determination for Earth-moving Machinery Type 7883

PULSE™ Sound Power Determination for Earth-moving Machinery Type 7883 is a software application that supports the main earth-moving machinery noise emission standards of the International Organization for Standardization (ISO). The software is configured with the requirements for ISO 6393, 6394, 6395 and 6396 to guide you through measurement set-up, measurement runs and report generation.

Complete sound power determination systems are designed around Type 7883 and include the hardware and software components necessary for ISO standard testing. Custom systems are designed and ordered via Project Sales.



Uses, Benefits, Features

Uses

- For the determination and declaration of:
 - Sound power levels under stationary and dynamic test conditions according to ISO 6393 and 6395
 - Emission sound pressure level at operator's position under stationary and dynamic test conditions according to ISO 6394 and 6396
 - Noise emissions according to EN 12053:2001 + A1:2008, Safety of industrial trucks – Test methods for measuring noise emissions

Benefits

- Supports ISO 6393, 6394, 6395 and 6396, and EN 12053:2008
- Supports measurement systems that range from basic to comprehensive
- Efficient measurement procedures
- Easy to use, minimal training required

Features

- Single-person operation
- Remote control of test via mobile device such as tablet, computer or phone
- Full documentation and statistics for all measured machines
- Automatic generation of test reports
- Wireless connection between ground and in-vehicle stations
- Charge injection calibration (CIC)
- Supports:
 - LAN-XI data acquisition hardware (ground station)
 - Weather monitoring systems (ground station)
 - Sound level meter (in-vehicle station)
 - Mobile device (in-vehicle station)
 - Photocells for travel-mode triggering
 - Operating-vehicle data such as RPM

Description

Fig. 1
Noise labels on a backhoe loader

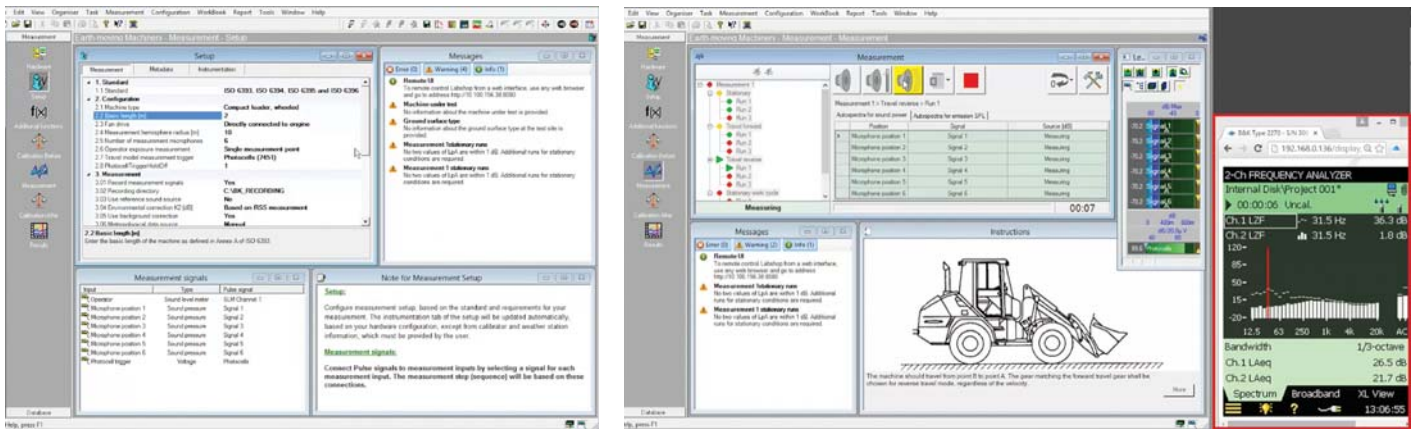


PULSE Sound Power Determination for Earth-moving Machinery Type 7883 is the key software component to your sound power determination system. Type 7883 supports all equipment necessary to fulfil each standard, from basic to comprehensive systems.

Type 7883 is a PULSE LabShop application. The template (see Fig. 2) is designed to guide you through set-up, calibration,

measurement and reporting of noise emission quantities of earth-moving machinery according to ISO 6393, 6394, 6395 and 6396. The software is configured with the requirements of each standard and displays warnings if information is missing or does not follow the requirements.

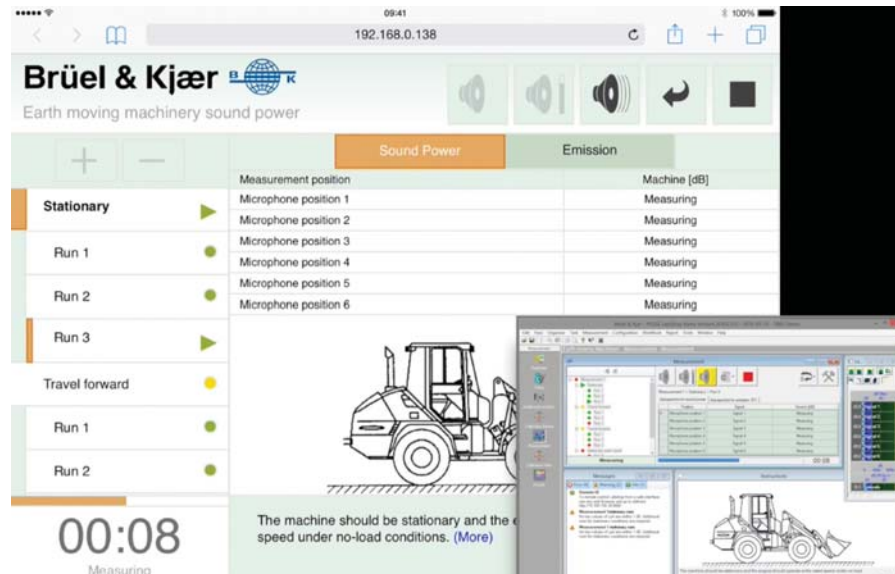
Fig. 2 Screenshots of Type 7883 measurement set-up (left) and measurement run (right), which includes a sound level meter (far right)



Remote Control

Type 7883 uses a representational state transfer (REST) architecture. This allows a remote control interface that can be accessed using any device that has a web browser, such as a computer, tablet or smartphone. Remote control of Type 7883 enables one person, the vehicle operator, to perform the test.

Fig. 3
Remote control user interface of Type 7883



Typical System for PULSE Sound Power Determination for Earth-moving Machinery Type 7883

A typical system for the determination of sound power under dynamic conditions and emission sound pressure level at the operator's level under dynamic conditions (ISO 6395 and ISO 6396, respectively) consists of a ground station and an in-vehicle station, see Fig. 4.

Six microphones and two photocells are positioned on a standard-defined hemisphere and cabled to a LAN-XI front end. Microphone signals from the operator's position in the vehicle cabin are recorded using a wireless access point. The recommended wireless access point has a minimum range of 35 m from inside the vehicle cabin to the PC ground station, even when the vehicle has metallic tinted windows. All signals, including weather data, are collected by Type 7883, which is used to control the measurement process and produce a report.

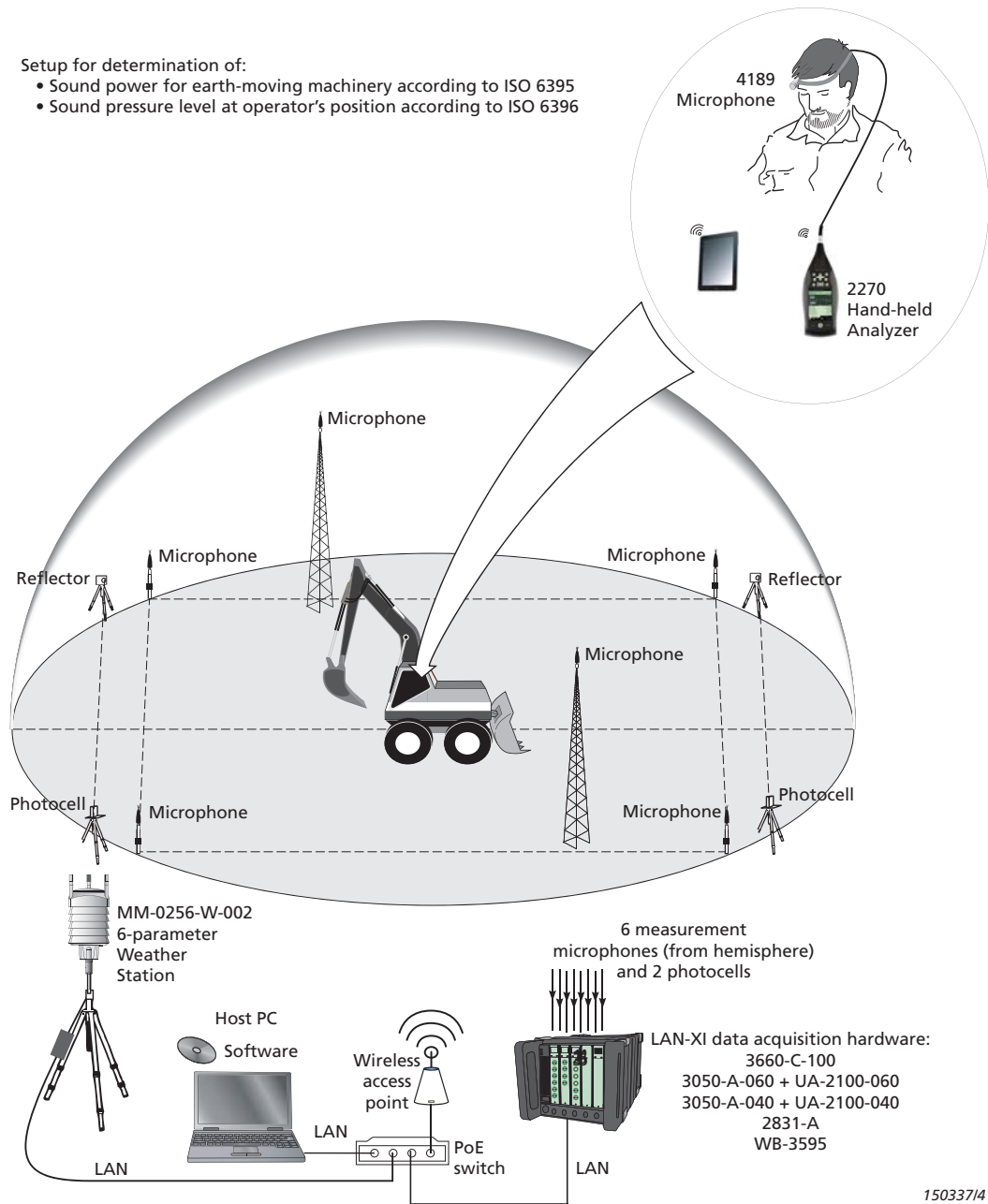
Remote control of Type 7883 and hands-free use of Hand-held Analyzer Type 2270 enable the vehicle operator to perform the entire test.

Fig. 4

Typical system to test earth-moving machinery under dynamic conditions for single-person operation

Setup for determination of:

- Sound power for earth-moving machinery according to ISO 6395
- Sound pressure level at operator's position according to ISO 6396



Configuration Options

The in-vehicle station components, weather station and photocells can be omitted for a simpler configuration to test earth-moving machinery under static conditions (ISO 6393 and 6394).

For measurements according to EN 12053, similar instrumentation can be used. However, only four of the six standardized microphone positions are employed.

Brüel & Kjær also supports European Union (EU) Directive 2000/14/EC (Outdoor Equipment) with PULSE Noise Emission Outdoor Machinery Directive 2000 Type 7885. See product data [BP 2539](#) for details.

Further Information

For more information regarding components of the system described above, please refer to:

- Product data: LAN-XI Data Acquisition Hardware ([BP 2215](#))
- Product data: LAN-XI Front Panels ([BP 2421](#))
- Product data: Hand-held Analyzer Types 2250 and 2270 ([BP 2025](#))
- Product data: ½" Prepolarized Free-field Microphone Type 4189 ([BP 2210](#))

Specifications – PULSE Sound Power Determination for Earth-moving Machinery Type 7883

A Windows®-based application for use with PULSE LabShop. The software is delivered via DVD or USB

System

SYSTEM REQUIREMENTS

- Microsoft® Windows® 10 Pro or Enterprise (x64) with either Current Branch (CB) or Current Branch for Business (CBB) servicing model; or Windows® 7 Pro, Enterprise or Ultimate (SP1) (x64) operating systems
- Microsoft® Office 2016 (x32 or x64) or Office 2013 (x32 or x64)
- Microsoft® SQL Server® 2014 Express (SP2) (included in installation), SQL Server® 2014 (SP2), SQL Server® 2012 R2, SQL Server® 2008 or 2008 R2 Express Edition SP1

Minimum Licence Requirements:

- BK Connect™ Data Viewer Type 8400
- BK Connect™ Hardware Setup Type 8401
- BK Connect™ Data Processing Type 8403

REMOTE CONTROL REQUIREMENT

Mobile device with Web browser

RECOMMENDED SYSTEM CONFIGURATION

- Intel® Core™ i7, 3 GHz processor or better
- 32 GB RAM
- 480 GB Solid State Drive (SSD) with 20 GB free space, or better
- 1 Gbit Ethernet network*
- Microsoft® Windows® 10 Pro or Enterprise (x64), CB
- Microsoft® Office 2016 (x32)
- Microsoft® SQL Server® 2014 (SP2)
- Screen resolution of 1920 × 1080 pixels (full HD)

FRONT END

The software automatically detects the front-end hardware connected and configures the system. If IEEE 1451.4 capable transducers (with standardized TEDS) are being used, these are also detected and attached automatically to the correct channel of the input module

For information about LAN-XI data acquisition modules, see product data [BP 2215](#)

- * A dedicated data acquisition network (LAN or WAN) is recommended; a network that only handles data from the front end improves the stability of the data

Ordering Information – Typical System for the Determination of Sound Power According to ISO 6395 and 6396†

Due to the variety of options, order via Project Sales

Ground Station

REQUIRED SOFTWARE

Type 7883-X	PULSE Sound Power Determination for Earth-moving Machinery (includes remote control)
Type 3099-E-X	PULSE Generic Auxiliary Digital Interface (GADI)
Type 8400-X	BK Connect Data Viewer
Type 8401-X	BK Connect Hardware Setup
Type 8403-X	BK Connect Data Processing
Type 8405-C-X	BK Connect CPB Option
WT-9876	GADI Interface Driver for Weather Station

SOFTWARE MAINTENANCE AND SUPPORT AGREEMENTS

M1-7883-X	Agreement for Type 7883
M1-3099-E-X	Agreement for Type 3099-E
M1-8400-X	Agreement for Type 8400
M1-8401-X	Agreement for Type 8401
M1-8403-X	Agreement for Type 8403
M1-8405-C-X	Agreement for Type 8405-C
M1-9876	Agreement for WT-9876

DATA ACQUISITION HARDWARE

Type 3660-C-100	LAN-XI 5-module Front-end Frame with GPS
Type 3050-A-060	LAN-XI 6-ch. Input Module 51.2 kHz, 6 × BNC (F)
Type 3050-A-040	LAN-XI 4-ch. Input Module 51.2 kHz, 4 × BNC (F)
Type 2831-A	LAN-XI Battery Module
WB-3595	Pass-by Connection Module (to power photocells)

MICROPHONES

6 × Type 4966-H-041	½" Prepolarized Free-field Microphone, incl. High-temperature Preamp. Type 1706 with TEDS
6 × AO-0426-w-xxx‡	Low-noise, double-screened cable, BNC (M)

UA-0254	Windscreen for ½" microphone, Ø 90 mm, set of 6
6 × WL-1194-D-500	Cable Roller, 50 m

DIGITAL WEATHER STATION

MM-0256-W-002	6-parameter Weather Station Kit with PoE Supply Box WB-3587
UA-0801	Lightweight Tripod
ZH-0698	Weather Station USB Adapter (weather station must be <10 m away)

PHOTOCELLS

2 × WU-0584-W-004	Laser Distance Sensor (photocell) with 2 m cable
2 × SB-1537	Light Reflector
4 × UA-0801	Lightweight Tripod
2 × WL-3612-D-600	Cable Roller for Photocell, circular-1B 6-pin, 60 m
2 × AO-0087-w-xxx†	General purpose, single-screen coaxial cable, BNC (M) connectors, 85 °C (185 °F)

WIRELESS ACCESS POINT

UL-0265	PULSE Measurement System Switch
UL-0275	Ubiquiti UniFi AC Outdoor Access Point
Type 7201-E-US2	Dell High-end Notebook with Microsoft Office Pro
2 × AO-1450-w-xxx	LAN Cable Cat. 6, RJ45, 2 m

In-vehicle Station

SOUND LEVEL METER

Type 2270	2-ch. Hand-held Analyzer
Type 4189	½" Prepolarized Free-field Microphone
BZ-7229	2-channel Option for Type 2270
2 × AO-0697-w-xxx†	Microphone Extension Cable
UL-9004	Tablet PC with Windows® 10
UA-0692	Universal Microphone Headrest for ½" and ¼" Microphones

† X is licence type, either X = N, where the licence is node-locked to PC host ID or dongle; or X = F, where the licence is floating, i.e., shared via a licence server
‡ Please specify cable length when ordering: w = D (decimetres) or M (metres); xxx = length in decimetres or metres

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