



Code 6487

MSA I

8-Channel Microphone Surround Array, Asymmetrical, for 3PASS System Equalization and Recordings

OVERVIEW

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8-Channel Microphone Surround Array,
Asymmetrical, for 3PASS System Equalization and
Recordings

MSA I is a microphone array for recording three-dimensional sound scenarios. The array of the microphones is asymmetrical. It fits on every artificial head of the HMS II Series and applicable stands. Recordings executed via MSA I are applicable for playback with background noise simulation systems: 3PASS *lab* and 3PASS *flex*. An appropriate background noise simulation with files recorded via MSA I requires an equalization. This equalization procedure includes MSA I for recording impulse responses and test signals. The recording of impulse responses and test signals are considered in the equalization calculation.

KEY FEATURES

Microphone array according to ETSI TS 103 224

Asymmetrical array with majority of microphone positions at the right side in respect of the microphone positions of the device under test

Recordings of background noise scenarios

Control via 3PASS *lab* or 3PASS *flex*

Automated digital equalization with 3PASS *lab*/3PASS *flex* of specified loudspeaker configuration according to ETSI TS 103 224

Eight microphones at defined sweet spots for optimal reproduction of recorded signals

Fine tuning position (clockwise rotation of 10°) for optimization and verification of the equalization

APPLICATIONS

Recording and equalization of background noise scenarios at application depended positions

- › Handheld
- › Handheld hands-free
- › Desktop hands-free

DETAILS

DESCRIPTION

General

MSA I is a microphone array with eight microphones. The housing of MSA I has a disk shape with fixtures for eight microphone arms. The fixtures are arranged asymmetrical around the disk and positioned closer together at one side. Further, the microphone arms have different lengths. The housing is mountable on various devices (artificial head, tripod, or stand base) by means of a thumbscrew, a 3/8" thread, or an M6 thread.

Recording with MSA I

Background noises can be recorded with MSA I with several devices. The most common way is executing recordings by connecting MSA I via the *labBGN* hardware platform to a computer running 3PASS *lab*/3PASS *flex*. Other possibilities for making recordings are connecting MSA I to either *labCORE* or *SQuadriga III*.

Equalization with MSA I

For the equalization, MSA I has to be mounted on the same device that has been used for the recording. This device is positioned in one of the loudspeaker arrangements according to ETSI TS 103 224. The equalization is executed and controlled via 3PASS *lab*/3PASS *flex*. Many ACQUA standards include measurements with background noise which require an appropriate 3PASS equalization with MSA I.

TECHNICAL DATA

General	
Operation	Control via 3PASS <i>lab</i> /3PASS <i>flex</i>
Power supply	24 V via HEADlink
Interfaces and Connectors	
HEADlink	For power supply and audio signal transmission
BNC	8 × BNC connector to connect microphone arms
Dimensions and Weight	
Overall dimensions	› Widest part 215 mm › Height with connected microphones 176 mm
Weight	0.5 kg
Environmental Conditions	
Operating temperature range	0 °C – 50 °C (32 °F – 122 °F)
Storage temperature range	-20 °C – 70 °C (-4 °F – 158 °F)
Humidity	20% – 80% relative humidity (non-condensing environment)

OPTIONS

MA MSA (6488)

- › MSA Mounting Adapter for Brüel & Kjær HATS

SCOPE OF DELIVERY

MSA I (Code 6487)

- › 8-channel Microphone Surround Array, asymmetrical, for 3PASS system equalization and recordings

CLL X.10 (Code 3780-10)

- › Connection cable between input module and controller, 10 m

HCC-MSA I (1642)

- › Carrying Case for MSA I
- › Included accessories
 - » Standard mounting adapter
 - » Allen key
 - » Thumbscrew
 - » Calibration adapter
 - » Adapter (M6 <> 3/8")
 - » Lock washer (M6)
 - » Lock washer (3/8")

GENERAL REQUIREMENTS

Hardware Platform

For Application with 3PASS and for Recording

labBGN (Code 6486)

- › ACQUA*lab* (8+2)-channel background noise hardware platform

For Recording Only

One of the following hardware devices:

labCORE (Code 7700)

- › Modular multi-channel hardware platform

SQuadriga III

- › SQuadriga III (3324)
 - » Handheld 8-channel front end
- › SQ3 TP 05 (Code 3324-05)
 - » SQuadriga III tool pack controller mode

Holding Device for Recording and Equalization

Handset Position

One of the following Head Measurement Systems:

HMS II.3 (Code 1703)

- › Head Measurement System, basic version with right ear simulator, 3.3 pinna, and artificial mouth

HMS II.3 LN (Code 1703.1)

- › Head Measurement System, low-noise version with right ear simulator, 3.3 pinna, and artificial mouth

HMS II.3 LN HEC (Code 1703.2)

- › Head Measurement System, low-noise version with right human-like ear canal simulator and artificial mouth

HMS II.3 ViBRIDGE (Code 1703.3)

- › Head Measurement System, low-noise, with human-like ViBRIDGE (bone conduction simulation) ear simulators (left and right) and artificial mouth

HMS II.4 (Code 1704)

- › Head Measurement System, with right ear simulator, 3.3 pinna (w/o artificial mouth)

HMS II.5 (Code 1705)

- › Head Measurement System, with 3.3 pinna and artificial mouth (w/o ear simulator)

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MSA I mounted on HMS II.3 LN HEC in the handset position



MSA I mounted on HMT III in the handheld hands-free position



MSA I mounted on SB MSA in the desktop hands-free position

GENERAL REQUIREMENTS

HMS II.6 (Code 1706)

- › Head Measurement System, with artificial mouth and free-field microphones (left and right)

HMS II.7 (Code 1707)

- › Head Measurement System, with artificial mouth and free-field ICP microphones (left and right)

Handheld Hands-Free Position

HMT III (Code 1961)

- › Height-adjustable tripod

Desktop Hands-Free Position

SB MSA (Code 6489)

- › MSA stand base

Software

One of the following software applications:

3PASS *lab* (Code 6990)

- › Advanced background noise simulation system with automated equalization – lab version

3PASS *flex* (Code 6995)

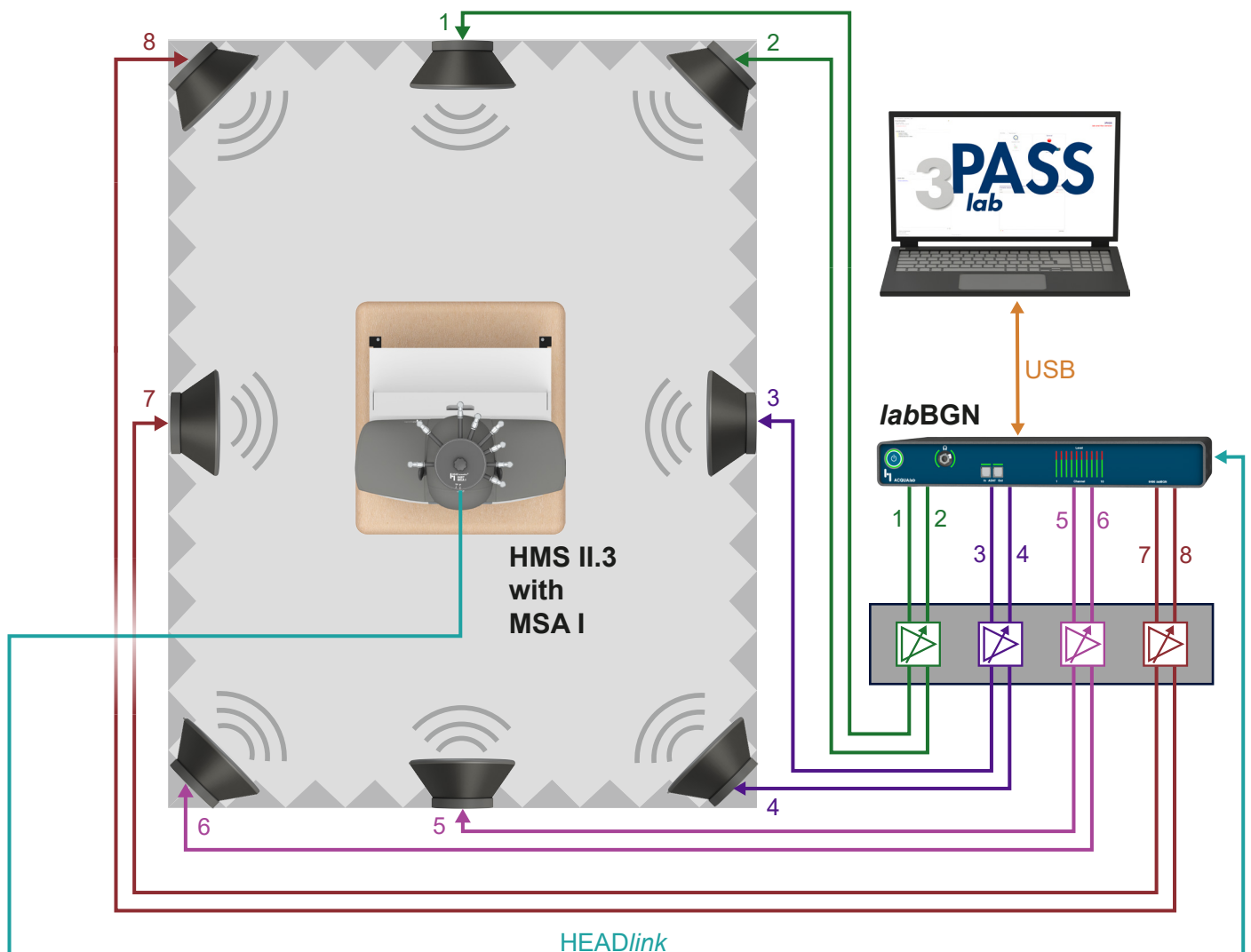
- › Advanced background noise simulation system with automated equalization – flex version

IN PRACTICE

APPLICATION EXAMPLE

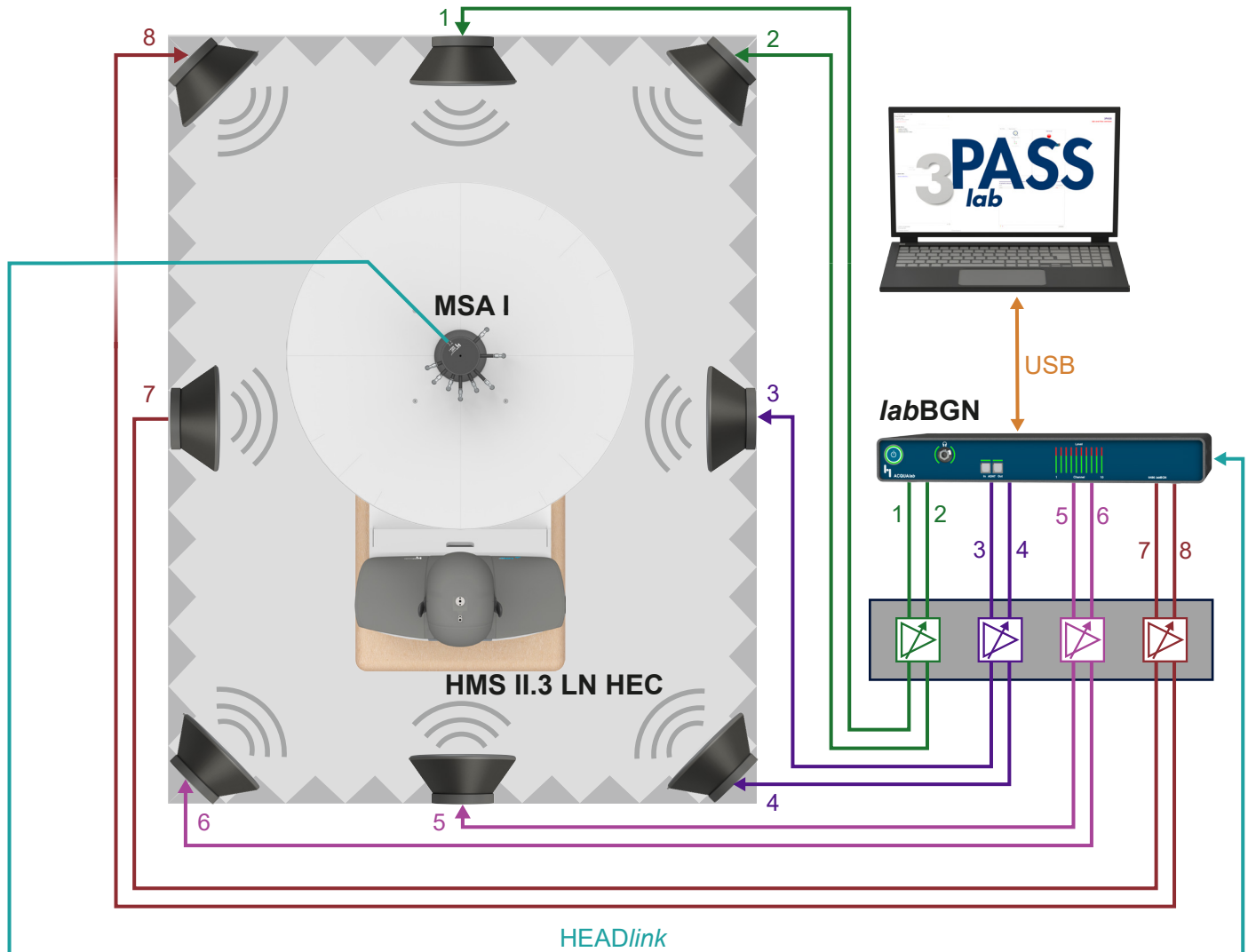
Equalization: Handset Setup

MSA I is mounted on HMS II.3 in the measurement cabin for recording. It connects to *labBGN* via *HEADlink*. *3PASS lab* runs on a computer which connects to *labBGN*. *labBGN* forwards signals via power amplifiers to eight loudspeakers in the measurement cabin. The equalization proceeds according to the procedure from ETSI TS 103 224.



Equalization: Desktop Hands-Free Setup

MSA I is mounted on a stand base positioned on a table in the measurement cabin for recording. It connects to *labBGN* via *HEADlink*. 3PASS *lab* runs on a computer which connects to *labBGN*. *labBGN* forwards signals via power amplifiers to eight loudspeakers in the measurement cabin. The equalization proceeds according to the procedure from ETSI TS 103 224.



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