



## CALIBRATION CERTIFICATE

Customer name : \*\*\*\*\*CO., LTD.  
Customer address : \*\*, \*\*, \*\*, \*\*, Japan  
Product : SOUND CALIBRATOR ( Pistonphone )  
Type : NC-72A  
Serial number : 00000000  
Manufacturer : RION CO., LTD.  
Calibration item : Sound pressure level (with reference standard microphone)  
Sound pressure level (with reference load volume)  
Calibration method : Measured by specified secondary standard microphone  
according to JCSS calibration procedure specified by RION.  
Ambient conditions : Temperature 23.0 , Relative humidity 50 %,  
Static pressure 100.00 kPa  
Calibration date : \*\*/\*\*/\*\*\*\* (DD/MM/YYYY)

We hereby certify that the results of this calibration were as follows.

In charge of calibration  
(Signature)

Issue date : \*\*/\*\*/\*\*\*\* (DD/MM/YYYY)



Manager  
Quality & Environmental Management System Section,  
Quality & Environmental Management System Center,  
RION CO., LTD.  
3-20-41 Higashimotomachi, Kokubunji,  
Tokyo 185-8533, Japan

This certificate is based on article 144 of the Measurement Law and indicates the result of calibration in accordance with measurement standards traceable to Primary Measurement Standards (National Standards) which realizes the physical units of measurement according to the International System of Units (SI).

The accreditation symbol is attestation of which the result of calibration is traceable to Primary Measurement Standards (National Standards).

The certificate shall not be reproduced except in full, without the written approval of the issuing laboratory.

The calibration laboratory who issued this calibration certificate conforms to ISO/IEC 17025:2005.

This calibration certificate was issued by the calibration laboratory accredited by IA Japan who is a signatory to the Mutual Recognition Arrangement (MRA) of International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Laboratory Accreditation Cooperation (APLAC). This (These) calibration result(s) may be accepted internationally through ILAC/APLAC MRA.

## CALIBRATION RESULT

### 1. Sound pressure level (with reference standard microphone)

Measured Value *1	Expanded Uncertainty *2
114.12 dB	0.09 dB

Specified secondary standard microphone:

Type : 0000

Serial number : 0000000

Reference Sound pressure :  $2 \times 10^{-5}$  Pa

### 2. Sound pressure level (with reference load volume\*3)

For calibration, the referred measured value (Sound pressure level (with reference load volume)) should be used. (See "INSTRUCTION MANUAL" of NC-72, NC-72A)

Measured Value *1	Expanded Uncertainty *2
114.00 dB	0.09 dB

Reference load volume \*3: 960 mm<sup>3</sup>

Reference Sound pressure :  $2 \times 10^{-5}$  Pa

\*1 Converted value at reference static pressure 101.325 kPa

\*2 Defines an interval estimated to have a level of confidence of approximately 95 %.  
Coverage factor  $k=2$

\*3 Effective load volume of microphone at reference condition of NC-72, NC-72A

Calibration result is the calibration value in ambient conditions (except static pressure) during calibration.

#### Important:

The sound pressure level of the sound generated by NC-72, NC-72A depends on the effective load volume of the microphone and static pressure at the time of use.  
(See "INSTRUCTION MANUAL" of NC-72, NC-72A)

## BE OUT OF JCSS CALIBRATION

### 1. Frequency

Measured value	Measurement uncertainty ( $k=2$ )
250.0 Hz	$2.2 \times 10^{-4}$ Hz

Working measurement standard universal counter:

Type : 000000

Serial number : 0000000000

(JCSS Calibration Certificate No. 0000000000000000)

### 2. Total distortion

Measured value
1.0 %

Working measurement standard distortion meter:

Type : 000000

Serial number : 0000000000

(A2LA Calibration Certificate No. 0000000000)

- closing -

## NOTES

For different types of the microphones, actual sound pressure level of the sound  $L_a$  (dB) shall be calculated as the following equation.

$$L_a = L_{rlv} + C + 20 \times \log_{10} \frac{P_a}{P_o}$$

Where  $L_{rlv}$  : Sound pressure level with reference load volume indicated in clause 2 (dB)

$C$  : Compensation value for microphone type indicated in Table 1 (dB)

$P_a$  : Static pressure at the time of use

$P_o$  : Reference static pressure 101.325 kPa ( reference conditions )

Table 1 Compensation value of sound pressure level  
for different types of microphone (typical value)

Type		Compensation value (dB)
1-inch microphones		
	UC-27 ( with protective grid )	-0.03
RION	UC-25 ( with protective grid )	-0.08
	UC-34 ( with protective grid )	-0.10
Brüel & Kjær	4160(without protective grid)	+0.12
TOKYO	MR-103(with protective grid)	+0.24
RIKO	MR-103(without protective grid)	+0.12
1/2-inch microphones using with 1/2-inch adapter NC-72-S16		
	UC-26 ( with protective grid )	-0.13
	UC-28 ( with protective grid )	-0.09
	UC-30 ( with protective grid )	-0.09
	UC-31 ( with protective grid )	-0.06
RION	UC-33P ( with protective grid )	-0.07
	UC-52 ( with protective grid )	-0.03
	UC-53A ( with protective grid )	-0.09
	UC-57 ( with protective grid )	-0.06
	UC-59 ( with protective grid )	-0.07
	MS-10 ( with protective grid )	-0.09
Brüel & Kjær	4180 ( without protective grid )	0.00
1/4-inch microphones using with 1/4-inch adapter NC-72-S06		
RION	UC-29 ( with protective grid )	+0.01