## **Bekesy Audiometry**



### TTS test

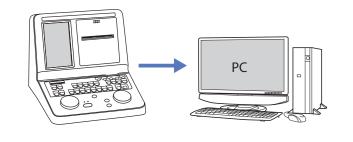
- Test can be performed in 3 minutes or 6 minutes per frequency.
- ■Up to 4 frequencies can be recorded.



## **Fixed-frequency Bekesy**

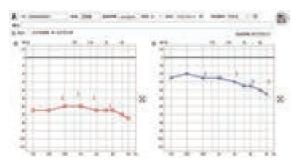
Test results of right and left ear for six frequencies of 250 – 8000 Hz can be recorded separately.

# **Connection with computer**



Audiogram can be transferred to RION fitting software.

By linking with PC software (option), the test results can be stored and printed out anytime.



## Audiometer AA-M1C1

#### Specifications

#### et functions ——

Test item: Pure-tone audiometry Air conduction: Stand

Bone conduction: Mastoid (open), Forehead (occluded)

Screening test Air conduction
Above threshold test SISI Test ARI R Test

Bekesy audiometry TTS test, Fixed-frequency Bekesy

Speech test External input

## Pure-tone Audiometry Pure tone frequency

Air conduction: 125, 250, 500, 750, 1000, 1500, 2000, 3000, 4000, 6000, 8000 Hz Bone conduction: 250, 500, 750, 1000, 1500, 2000, 3000, 4000, 6000, 8000 Hz

Pure tone level range

Air conduction: -10 to 110 dB HL (maximum)

Bone conduction: -10 to 70 dB HL (mastoid open / no correction, maximum)

, ....,

Reference equivalent threshold sound pressure levels of air condition earphone conform to JIST 1201-1:2011.
 Reference equivalence threshold force levels of bone vibrator conform to JIST 120-1:2011

Output of bone conduction can be output with the following combination depending on the placing site and compensation for the effect of the ear canal occlusion:

placing site and compensation for the effect of the ear canal occlusion;

Mastoid open / no compensation, forehead occluded / no compensation, forehead occluded / with

compensation.

Output level error: Air conduction: 125~4000 Hz ±3 dB 6000, 8000 Hz ±5 dB

Bone conduction: 250~4000 Hz ±4 dB 6000, 8000 Hz ±5 dB ale: 5 dB step

Hearing level scale: 5 dB step
Total harmonic distortion: Air conduction: 2.5% or less

Bone conduction: 5.5% or less

Interrupter: Intermittent frequency: 2.2Hz Fixed, Operation reversible

Rise and fall time: 40 ms

Masking noise (common to tests other than the speech test)

Band noise for masking:

According to JIST 1201-1:2011 Narrow band noises (1/2.5 octave band width)

Band noise Center frequency

125,250,500,750,1000,1500,2000,3000,4000,6000,8000 Hz
Masking noise level range: Band noise: 0 to 105 dB HL (maximum)

Masking noise level scale: 5-dB step

Automatic display and printing (3-frequency, 4-frequency and 6-frequency average)

Automatic threshold test

Masking method: Automatic Plateau and Fixed masking

#### Screening test

Test frequency and test tone level

Frequency	Test tone level		
1000 Hz	30 dB fixed		
4000 Hz	30 dB or 40 dB		

#### Above threshold test

ISI test

SISI test tone incremental level: 1 dB (Training and Checking: 5 dB)

Tone incremental period: 5 seconds

Display and record the response patterns up to 4 frequencies for left and right ear.
 The response pattern and SISI score are printed.

ABLB test
Test frequency and level range: Same to the pure tone output range (Air conduction only).

However, the minimum output level in the masking noise level dial is 0 dBHL.

Displays and records test results up to 4 frequencies

• Interchangeable the right and left ear on the screen display (impaired ear / good ear)

est frequency

Fixed frequency self-check (air conduction only): Select from 6 frequencies of 250, 500, 1000, 2000, 4000, 8000 Hz

TTS test (air conduction only): Select from 11 frequencies from 125 to 8000 H Frequency direction sweep rate: 0.5, 1, 2 octave / min (Fixed Bekesy)

1 scale / minute, Fixed (TTS)

TTS test time: 3.6 minutes / frequency
TTS Test results: Up to 4 patterns can be recorded

eech hearing test

Test sound source: External input

Hearing level measurement range: -10 to 100 dB (air conduction only)

Masking noise

Speech noise: According to JIST 1201-2: 2000, Weighted random noise Level range: 0 to 100 dB HL

#### Digital section ——

Interface RS - 232 - C: Data output

LAN: Data output and input

Display unit: 7 inch wide color LCD, 800 x 480 dot, resistance film touch panel
Built-in printer: 4-inch thermal printer, 832 dots / line, 8 dots / mm

thers ——

lk over: Can be used by connecting an optional microphone

Talkback: Can be used by connecting an optional microphone

(Output to the right channel of monitor earphone)

Built-in alarm: Ringing in the completion of the test, confirmation and the abnormality, ON / OFF switchable

Other functions: External alarm, internal clock

#### ower supply —

Power supply: AC220V 50Hz, 60VA Electrical shock protection: Class 1, Type B

#### mbient conditions —

 $Ambient conditions for use: 15 to 35^{\circ}C, 30 to 90 \% R.H. (without condensation) \\ Ambient conditions for transportation and storage: -10 to 50^{\circ}C, 10 to 90 \% R.H. (without condensation) \\ Ambient conditions for transportation and storage: -10 to 50^{\circ}C, 10 to 90 \% R.H. (without condensation) \\ Ambient conditions for transportation and storage: -10 to 50^{\circ}C, 10 to 90 \% R.H. (without condensation) \\ Ambient conditions for transportation and storage: -10 to 50^{\circ}C, 10 to 90 \% R.H. (without condensation) \\ Ambient conditions for transportation and storage: -10 to 50^{\circ}C, 10 to 90 \% R.H. (without condensation) \\ Ambient conditions for transportation and storage: -10 to 50^{\circ}C, 10 to 90 \% R.H. (without condensation) \\ Ambient conditions for transportation and storage: -10 to 50^{\circ}C, 10 to 90^{\circ}C, 10 to 90^{\circ}C, 10^{\circ}C, 10^{\circ}C,$ 

#### nensions and Weight —

350 (W) x 395 (D) x 290 (H) mm, 5.8 kg

#### ccessories –

Earphone with cord for air conduction audiometry AD-0	40.00054	1	Patient response switch	PO-02F	1
	AD-02BF1		Monitoring earphone	4FHD2440	
Bone vibrator	BR-41	1	(stereo type)	ILI IDZ 110	
Cord for Bone vibrator	FB-53BF	1	Power cord		1
Headband for air conduction audiometry EB-30		-	Thermal recording paper	TP-42	2
	1	Recording paper axis	AA-M1-025	1	
Headband for Bone vibrator BR-41	EB-02	1	Fuse	0218002.MXP	2

Made in Japan



# Audiometer AA-M1C1



Ideal for clinical practice in otolaryngology clinic



RION CO., LTD.

Specifications subject to be changed without notice

URL: http://www.rion.co.jp/english

3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan Telephone: +81-42-359-7862 Fax: +81-42-359-7457

Distributed by:

is achieved with a width of about 350 mm

Space saving

Easy operation with touch panel

Audiogram can be printed by built-in printer

# Features

- AA-M1C1 has necessary inspection functions at clinical site such as pure-tone audiometry, above-threshold test and Bekesy audiometry.
- Pure-tone audiometry (manually and automatically) can be used for diagnosis as well as medical checkup.
- Bone conduction test can be performed at forehead or mastoid.
- Talk over and talk back functions are available. (Microphone is separately necessary.)

# Size down to save space

The width is 15.7% smaller than that of our previous audiometer (AA-79).



# Easy operation with touch panel

The settings and ID input can be operated by touch panel.



# Warning display function



Warning display

The background of the output display turns yellow in the level of 80 dB or more and turns red in the level of 100 dB or more

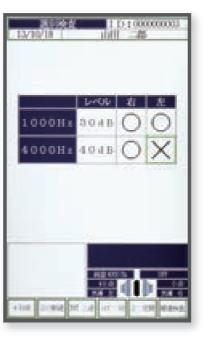


Indication lamp

The indication lamp lights in orange at a level of 80 dB or more, and red at a level of 100 dB or more.

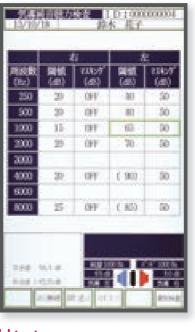
# Hearing tests for health examination

For the health checkup at schools, companies and others, hearing tests with this audiometer can be performed.



## Screening test

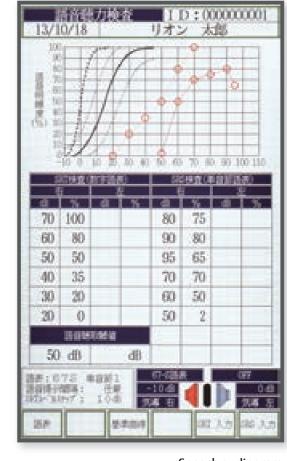
The test can be performed manually or automatically.



## Threshold test

- The test can be performed manually or automatically.
- The test results are displayed numerically in the threshold table

## Speech Audiometry



- ■The level for the SRT (speech-reception threshold) test can be set to decrease 5 or 10-dB step automatically.
- With the talkback function, operator can listen to the subject's voice and presentation words with the monitoring earphones.

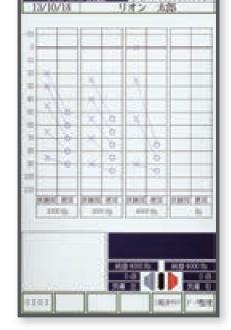
Speech audiogram

# Threshold upper hearing test



## SISI test

Short Increment Sensitivity Index test
The test progress can be checked on the screen.



## **ABLB** test

Alternate Binaural Loudness Balance test

Operator can interchange the impaired ear
and the good ear on the condition setting screen.