CRYSOUND
Measure Better Sound

Create Sustainable Value For Acoustics
Focus On Acoustic Measurement For 22 Years

Acoustic Measurement Solutions
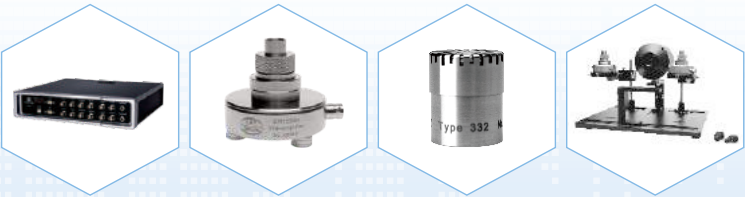
Introduction

CRYSOUND established in 1997, is a leading provider of acoustic testing solutions in the world. The products are sold to 26 countries and 4 continents. The customers include SAMSUNG, Huawei, OPPO, VIVO, Xiaomi, HARMAN, SONY, Beats, Sennheiser and other well−known brands. Products are widely applied to fields of electroacoustic tester for consumer electronic like mobile phones, headphones, speakers, laptops, as well as environmental noise detection, auto parts defect detection, household appliances noise detection, mudflow early warning and other fields.
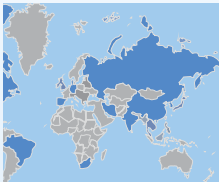
After more than 24 years of continuous efforts, CRYSOUND equipped with high performance anechoic chamber (ground noise 1dBA, cut−off frequency 80Hz), environmental lab and a large number of high precision instruments from all around the world. And it is a world−wide numbered high−tech enterprise that develops acoustic sensors and test instruments at the same time.

Hangzhou Headquarters has 10,000 square meters of industrial park, and has invested tens of millions of RMB to build advanced R&D, production base and perfect living facilities, which has become a solid foundation for the company's long−term development. It also has a branch in Dongguan, Guangdong Province, which has provided sales, after−sales and technical services for customers in the Pearl River Delta for more than 10 years. The company also has several agency partners in the United States and South Korea.

CRYSOUND helps customers obtain the best acoustic quality by providing first−class acoustic testing solutions. Committed to become the preferred brand in the global acoustics testing industry and it is the preferred brand recognized by customers all their lives.
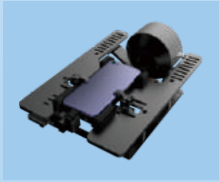
Contents

Company History

2017: Invested laboratory-level anechoic chambers; Launched the fifth generation of electroacoustic tester CRY6151B; Multichannel Noise Spectrum Analyzer CRY2300 was launched.

2015: Mobile phone audio tester was batched for mobile phone audio testing.

2013: Successfully developed Noise Sensor. Noise and Vibration Spectrum Analyzer; New generation of measurement microphone was introduced in high stability and anti-corrosion.

2009: The fourth generation of electroacoustic tester CRY6151 improved its speed and precision.

2006: The third generation of electroacoustic tester CRY6136 was launched.

2003: Company name changed to Hangzhou CRY Sound Co., Ltd.

2001: CRY6135, the second generation of electroacoustic device tester, was launched.

1997: Hangzhou Zhejiang University Telecommunication Equipment Co., Ltd established. The first generation of electroacoustic testing instruments CRY6125 were introduced.

2018

2018: Provided one-station solution for Dual Bluetooth headset, ANC headset, TWS headset, and smart speaker test.

2017

2016

2016: Become an official designated partner of a well-known American mobile phone company; Recognized as national high-tech enterprises.

2015

2014

2014: Acquired Shenzhen Jingsheng Industrial Co., Ltd; The mechanical processing department was established.

2013

2012

2012: Invested 25 million yuan to build a new park of more than 10,000 square meters.

2009

2007

2007: CRY332/CRY331/CRY772 measurement microphone was successfully developed and marketed.

2006

2005

2005: CRY5520 Audio Sweep Generator was marketed.

2003

2002

2002: Begins to design high quality measurement microphones.

2001

2000

2000: The first buzzer tester of China was marketed.

1997

Global Customers And Agents
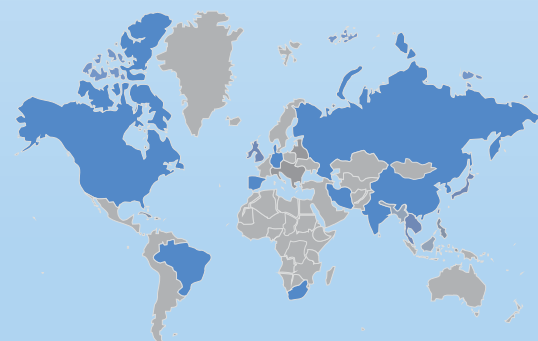
Asia: H.K., Macao, Taiwan, Japan, South Korea, Thailand, Singapore, Vietnam, India, Iran, Malaysia.

America: America, Canada, Chile, Brazil, Nicaragua.

Europe: Germany, Finland, Denmark, Russia, Spain, Portugal, Britain.

Africa: South Africa.

SEAJAY
Pacific Audio Consulting
U.S. Agent

ICS
South Korea Agent

Typical Customers

|			
Audio-Technica	Sennheiser	Bower&Wilkins	Harman
HUAWEI	SAMSUNG	Beats	1MORE
SONY	LG	MI	PHILIPS
OPPO	VIVO	Microsoft	Google
SHURE	HIKVISION	Panasonic	EDIFIER
KNOWLES	Goertek	FOSTER	Foxlink

Application

Speaker
Professional Speaker
Micro Speaker
Receiver
Loudspeaker Box
Bluetooth Speaker Box

Headphone
Headphone
Earphone
Headset
USB headset
Bluetooth headset
Type-C headset
Noise-Cancellation headphone
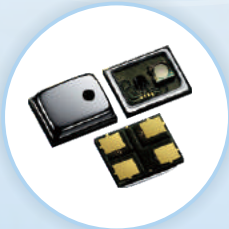
Microphone
ECM
MEMS (analog/digital)
Condenser Microphone
Dynamic Microphone

Intelligent Device
Intelligent Speaker
Webcam
Tablets
Laptop

Phone
Common Phone
VoIP
Mobile phone
Two-way radio

Typical Test Parameters
Frequency-Response
Sensitivity
THD
THD+N
Harmonics（2nd~50th Orders）
Rub & Buzz
Impedance
Polarity
Crosstalk

Left/Right Earphone Balance
Loudness (RLR, SLR, STMR)
Thiele-Small Parameters
Phase
Microphone Current
SNR
Ground Noise
Directivity

Smart Product Test Solution

Smartphone/Tablets
Features:
· Support IQC and finished product testing.
· Microphones and speaker can test synchronously without sequence or software switching.
· Automatic wake up, test, and friendly software interface.
· Automatic data cable plugging, test box realize synchronous control and transmission.
· USB data port control and transmission make it high reliability.
· Text fixture customization.

Test Parameters:
· Speaker/Microphone: FR, THD, SNR, etc.
· Finished product : FR, THD, SNR, etc.

VoIP
Features：
· Support IQC and finished product testing.
· Any SIP Server can be applied for communication and testing.
· Complete test solution for electrical and acoustic signal test.
· Speaker and microphone test in one time.
· Test fixture customization.

Test Parameters:
Speaker and receiver testing: FR, THD, SNR, etc.
Product electrical/sound signal testing: FR, THD, SNR, etc.

Smart Speaker
Features:
· Support MIC, SPK PCB semi-finished products and smart speaker products test.
· Support 8 MEMS Mics testing, support analog/PDM/I2S interface.
· Simultaneously test 4 speaker units (using 4 measurement microphone).
· Support Ethernet/USB/WIFI/Bluetooth audio signal transmission to test the finished smart speaker.
· Provide API interface, support secondary development, and upload data to MES system
· Support I2C and GPIO to control PCB.
· Test fixture customization.

Test Parameters:
· PCB semi-finished horn/microphone : FR, THD, SNR, Rub & Buzz, FineBuz, etc.
· Finished product : FR, THD, SNR, extensible voice function test.

IP Camera
Webcams with recording or broadcasting function, and measuring microphones and speakers inside.
Extended Test: test the accuracy and wake rate of voice control and recognition functions

Features:
· Support testing of IQC, PCBA and finished products.
· Control work state of camera through network program or instructions, and selectable connetion mode of WIFI or RJ45.
· Control start recording and broadcasting automatically.
· Expand to voice function test, conduct open-loop test.
· Test fixture customization.

Test Parameters:
· IQC speaker/microphone : FR, THD, SNR, etc.
· PCBA : FR, THD, SNR, etc.
· Product : FR, THD, SNR, extensible voice function test

Laptop
Features:
· Support IQC, semi-finished product, finished product testing.
· Through ethernet interface to control microphone and speaker.
· Support multiple groups of microphone test.
· Software implement control to finish the entire test process in one-time, compatible with all types of laptop theoretically,
· Cooperate with the customization of a full set of test fixtures and solutions to achieve a high degree of automation test.
· Semi-finished product testing includes assembled screen part microphone test, assembled body part speaker test, etc.
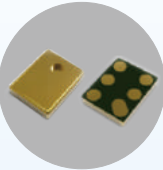
Test Parameters:
· IQC speaker/microphone : FR, THD, SNR, etc.
· Semi-finished microphone/speaker : FR, THD,SNR, etc.
· Product : FR, THD, SNR, etc.
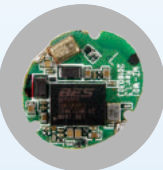
![CRY SOUND Measure Better Sound]

One-Station Solution for Headphone Test

IQC Test

Unit SPK Test:
Double speakers testing method, double efficiency
Single MIC Test:
ECM microphone, MEMS (analog/digital)

PCBA Test

Test fixture customization
Current and voltage test
Electrical signal test: FR, THD, SNR, Isolation

Sub-assembly Test

Test fixture customization
Acoustic test: seal test, FR, THD
Loudness test: SLR, RLR, Echoe, CVC/ENC

Finished Product Test

Bluetooth Test
Acoustic Test：FR, distortion, Rub & Buzz
Loudness test: SLR, RLR, Echoe, CVC/ENC

Lightning Headphone Test

Features:
· Support cable, PCBA, and finish
  product test
· First electroacoustic tester that
  support Lightning headphone test
  in the industry
· Transmit audio data by Wi-Fi through an iPhone/iPod
  that connected to a Lightning headphone
· Free to download the Lightning headphone test app
  from AppStore
· Automatically adjust the volume of headphone, prevent
  accidentally press volume button
· Support to test Lightning headphones while
  iPhone/iPod charging.

Test Parameters:
· Headphone: FR, THD, polarity, phase, SNR,
  balance, Rub & Buzz, FineBuzz.
· Microphone: FR, THD, SNR.

USB Type-C Headphone Test

Features:
· Support PCBA, wire rod, finished product test.
· Support FR, THD+N and SNR test of PCBA and wire rod.
· Speaker frequency response, phase, THD, Rub&Buzz, L/R
  position, polarity test.
· Microphone sensitivity, FR, phase, THD test.
· Support SN and CB read-write functions of BES, Synaptics,
  Conexant and other solutions.
· Support automatic microphone gain test and record.

Test Parameters:
· Headphone: FR, THD, phase, SNR, balance,
  Rub & Buzz, FineBuzz
· Microphone: FR, THD, SNR.

Bluetooth Headphone Test Solution

"Parallel" Dual Bluetooth Headphone Audio Test Solution

Product Highlights:
· Left and right parallel testing, and independent of each other.
· Bluetooth pairing in 3s, test in 15s, thus improving production efficiency.
· Start test by closing chamber, simple and intuitive operation.
· Compatible to MES system, improve product information management.
· Rub & Buzz test, replace inefficient and low-accuracy human ear recognition.
· Software switches A2DP, HFP and other test modes automatically.
· Support Bluetooth headphone function button test.
· Read and display Bluetooth device name, battery level, MAC address,
  RSSI power, volume and other information.
· Super compatibility: CSR, MTK, VIMICRO, Rockchip, ISSC, Jieli, Broadcom and so on.
· Bluetooth 4.1, support A2DP, HFP (wideband, Mic frequency adjustable to 8kHz), AVRCP, SPP protocol.
· Support apt-X protocol.
· Software automatically controls searching, pairing, disconnection and all other functions.
· Support reading NFC and burning MAC addresses.
· Digital signal transmission without signal distortion caused by traditional dongle digital converter.

	Traditional 1 Station Test	Traditional Bluetooth Test（2 station）	Dual Bluetooth Test（1 station）
Electroacoustic Testing Instrument	1	1	1
Operator	1	2	1
Testing Time	15s+15s	15s	15s
UPH	120	240	240
Rub & Buzz	unsupported	unsupported	Supported
Continuous logarithmic sweep algorithm	unsupported	unsupported	Supported

Automatic Dual RF & Bluetooth Headset Test System

Features:
· Parallel test station automatic determines PASS or FAIL,
  increasing efficiency by 70%.
· Complete all RF tests based on standard Bluetooth tester MT8852.
· Cycle time is 13s-15s/pcs (recommended setting).
· Compatible to MES system, real-time test results
  and data storage, real-time analysis of yield and other data.

Test Parameters:
· Output power
· Power control
· Modulation characteristic
· ICFT
· Carrier frequency drift

· Single time slot sensitivity
· Multi-slot sensitivity
· Maximum input voltage
· Bluetooth name, version, module
· Battery volume

ANC Headphone Test Solution

· ANC auto adjust mic gain solution for R&D and
  production line.
· Transfer function (amplitude, phase) test of ANC
  feedforward and feedback filte.
· Speaker transfer function (amplitude, phase) test.
· Microphone transfer function
  (amplitude, phase) test.
· Active noise reduction performance test.
· Passive noise reduction performance test.

CRY710 Shielding Box

Mouth Output

CRY801

MIC 1 Input

CRY6151B Electro-acoustic Analysis System   MIC 2 Input

Trim Box(optional)   3.5mm Audio Cable

Configuration List:
CRY6151B Electroacoustic Analyzer
Trim Box (optional)
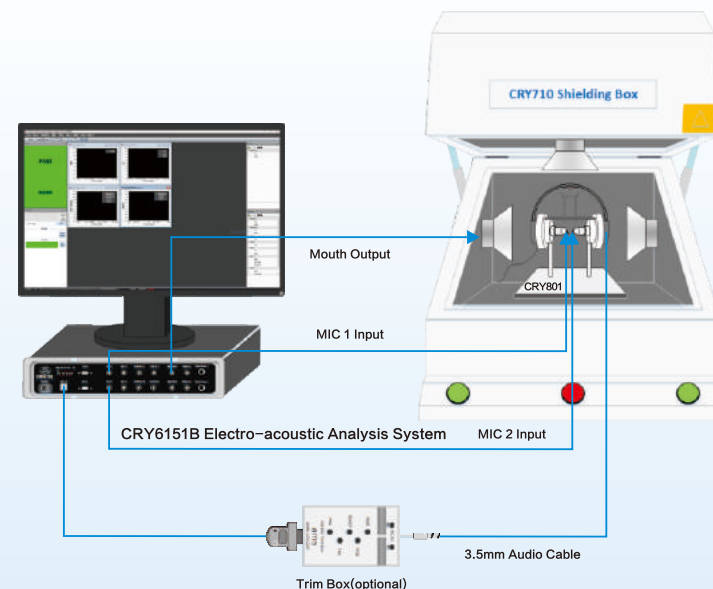
Headphone

CRY801 Headset Test Stand
CRY318 Artificial Ear
CRY506 ICP Preamplifier
CRY372 Measurement Mic
CRY721 Shielding & Anechoic box
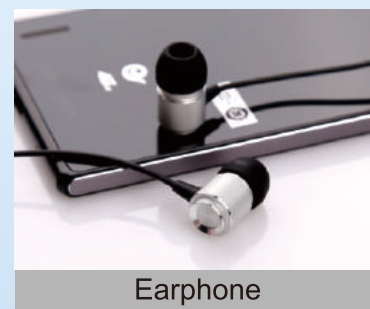
Earphone

CRY711 Artificial Ear
CRY508 ICP Preamplifier
CRY720 Shielding & Anechoic box

CRY6151B Electroacoustic Analyzer

Introduction:
CRY6151B is a newly launched, fully functional electroacoustic analyzer with powerful function
and strong stability. Besides traditional test parameters for electroacoustic device, it also provides
various solutions for Bluetooth headsets, smart speakers, ANC headsets, lightning headsets, and
Type-c headsets, etc.

Hardware Features:
· 8 channels input and 4 channels output.
· Hardware box includes sound card, power amplifier, signal processing module and
  USB communication module.
· Compact case design, simple USB data communication.

Chip Solution Supported

AKM

AMS

BES

SONY

络达科技股份有限公司
AIROHA

CIRRUS LOGIC
CIRRUS

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Software Features:

· Compatible to Windows XP/7/10, friendly software interface, powerful function.
· Support multiple sweep modes: RMS, fast step sine sweep, precise stepped sine sweep, Multitone, White Noise and Pink Noise, etc.
· Singles sweep measures frequency response, sensitivity (SPL), distortion degree, impedance, F0, phase, balance degree, polarity and other parameters.
· One of the earliest instruments to test Bluetooth audio, support automatic pairing without manual click.
· Equipped with virtual signal generator, multimeter, and perfect data storage function, suits for laboratory and production line application.
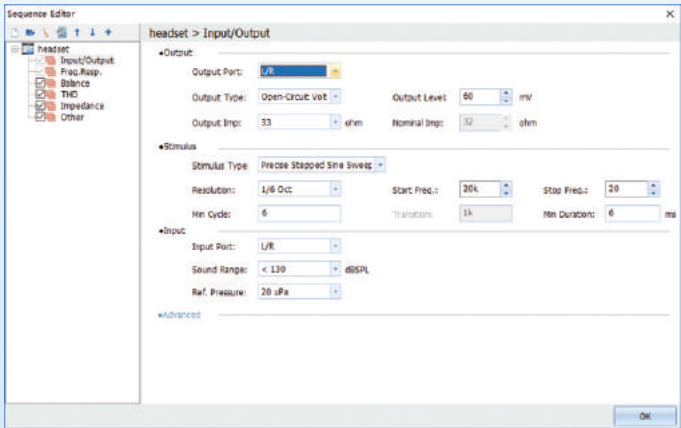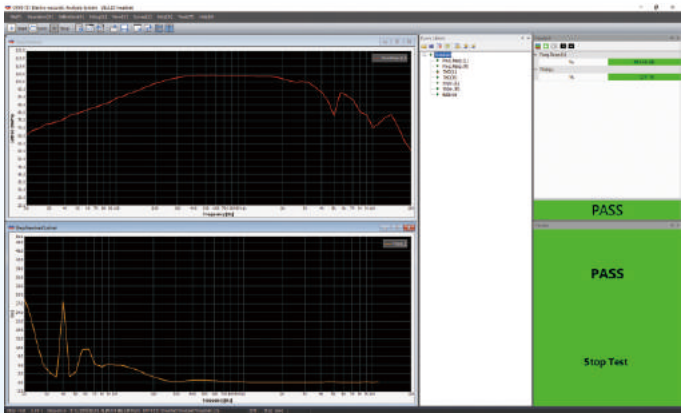
CRY6151 Electroacoustic Tester

CRY6151 electroacoustic device tester is a full-function electroacoustic tester launched by our company, with powerful functions and strong stability.

Features:

· Use digital signal acquisition and processing technology.
· One box includes PC, data acquisition card, power amplifier and microphone power supply.
· With fast frequency sweep algorithm, it can test the frequency response, THD and impedance of two speakers at the same time, the fastest test speed reaches to 0.6s.
· Two speakers and 1 mic can be tested with no switch.
· Simple operation interface and flexible sequence editing function make this tester very suitable for production line test.
· Support USB and Bluetooth devices test.
· Output classified I/O code to match varies automatic equipment.
· Each item can be added and judged freely, powerful data saving function.

Comparison of CRY6151 and CRY6151B

		CRY6151B		CRY6151	
Application	Normal	**Headset test:** · Bluetooth Headset (single) · ANC Headset (Auto-trim) · USB Type-C Headset · Wired Headset	**Speaker test:** · Micro speaker · Receiver, tweeter · Woofer	**Microphone test:** · MEMS mic (Analog\Digital) · ECM Mic · Dynamic Mic	**Loudspeaker box test:** · Intelligent speaker · Bluetooh speaker · WIFI speaker · Passive speaker · Active speaker
	Advanced	BT headset test(Dual), Cellphone audio test, Laptop audio test, PCBA audio test, 4-channels mic synchronous test (with automatic equipment)		unsupported	
Parameters	Normal	· FR · sensitivity · THD · THD+N · harmonic(2nd-50th orders)	· impedance · phase · reverberation · balance · ground noise	· loudness Rating: · -SLR · -RLR · -STMR · -Return Loss	· microphone current · SNR · directivity
	Advanced	Rub&Buzz, linearity, open-loop test(intelligent speaker, mobile phone), TIA810/920(extra charge), EN50332(extra charge)		Extra charge	
Algorithm	Normal	RMS, fast step sweep, high precision sweep, multi-tone signal, white noise, pink noise			
	Advanced	Continuous logarithmic sweep(20-20kHz up to 0.25s), amplitude logarithmic sweep, customized signal		unsupported	
Software Customization		Supported			
Secondary Development UG Of API		Supported			
Channel Interface	Input Channel	Measurement Mic input × 4(ICP 24V/4mA) Electret mic input × 2(software sets the voltage and impedance) Electrical signal line input × 2		Measurement Mic input × 2(DB9 dual power supply) Electret mic input × 2(software sets the voltage and impedance) Electrical signal line input × 2	
	Input Character	Voltage range: 0-3Vrms, FR: 10-80kHz Ground noise: -105dBV, Mic supply voltage: 0-6.4V Mic output impedance: 0-10kOhm		Voltage range: 0-3Vrms, FR: 10-40kHz Ground noise: -100dBV, Mic supply voltage: 0-6.4V Mic output impedance: 0-10kOhm	
	Output Channel	Artificial mouth output × 2(built-in 20W amplifier) Stereo phone output × 2(built-in 1W stereo amplifier) Electrical signal line input × 2(single track)		Artificial mouth output × 1(built-in 20W amplifier) Stereo phone output × 1(built-in 20W for left and 1W for right) Electrical signal line input × 1(single track)	
	Output Character	Voltage range:0-5Vrms, FR:10-80kHz		Voltage: 0-3Vrms, FR: 10-40kHz	
Sound Card Built-in		Channel: 8input/4output, Dynamic Range: 115dB Sampling Rate:192kHz/24bit, Amplitude Accuracy: 0.01dB THD: <0.001%		Channel: 4input/4output, Dynamic Range: 108dB Sampling Rate: 192kHz/24bit, Amplitude Rate: 0.01dB THD: <0.01%	
PC		External (USB2.0)		Internal	
IO Port		1channel output(foot switch), 14 channels output, 3.3V.		1channel output(to foot switch), 8 channels output, 3.3V.	
Operating System		Windows 10 32/64bit, Windows 7 32/64bit, macOS 10.10 and above		Windows 7 32/64bit, Windows XP and above	
Data Storage		Excel table, TXT, Access database, Word test report, JPG			
Working Voltage		100-230V		220V	
Instrument Net Weight		3.60kg		8.3kg	
Packed Weight		4.25kg		9.15kg	
Dimension		330 x273 x65mm		360 x316 x161mm	

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Artificial Ear

The artificial ear is a device that simulates the physical properties of the human ear, including a measurement microphone and a sound network that is similar to the acoustic characteristics of a human external ear. It is used to make aquantitative and qualitative conclusion of the performance of the headphone equipment. The artificial ear is defined in many national standard documents.
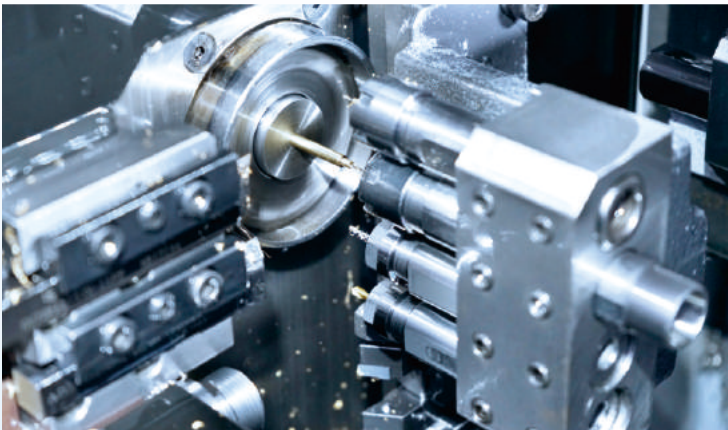
CRY318 Artificial Ear	
Standards	ITU-T P.57 sec.5.1 Type 1 Recommendation & IEC60318-1
Frequency Range	100Hz~4kHz ± 1dB (simulated human ear impedance)
Frequency Range	20Hz~16kHz (coupling cavity use)
Equivalent Volume	4.2cc
Height	32mm (include connection adapter)
Diameter	60mm
Weight	145g

CRY711 Artificial Ear	
Standards	ITU-T P.57 sec.5.1 Type 2 Recommendation & IEC60318-4
Frequency Range	100Hz~10kHz ± 1dB (simulated human ear impedance)
Frequency Range	20Hz~16kHz (coupling cavity use)
Equivalent Volume	1.26 ± 0.03cc@500Hz
Height	23mm (without microphone)
Diameter	23.77mm
Weight	52g (without sound cavity)

CRY886 High Frequency Coupling Cavity	
Standards	IEC TS 62886:2016 Electroacoustic – Hearing aids – Method for measuring electroacoustic performance up to 16kHz
Frequency Range	100Hz~16kHz (coupling cavity use)
Equivalent Volume	0.4cc
Height	16mm (without sound cavity)
Diameter	25mm
Weight	58g (without microphone)

Artificial Mouth

CRY600 series artificial mouth is a sound source used to simulate the sound field near the human mouth. Artificial mouth often used to test acoustic parameters of the telephone transmitters and the microphones used in voice communication.

CRY602 Artificial Mouth			
Minimum Continuous Output SPL	200Hz~10kHz: 110dB(25mmMRP) 100Hz~10kHz: 100dB(25mmMRP)		
Distortion	200Hz~10kHz: ＜1.5%(94dBSPL, 25mmMRP)		
Frequency Response Curve	Output SPL after equalization: 94dB ± 1dB(100Hz~10kHz)		
Mouth Diameter	Φ20mm	Net Weight	1.05kg
Diameter	Φ100mm	Port	BNC
Height	88mm	Resistance	4Ω
Continuous Maximum Power	10W		
Instantaneous Maximum Power	50W (1 second)		

CRY605 Artificial Mouth (Built-in power amplifier)			
Minimum Continuous Output SPL	200Hz~10kHz:110dB (25mmMRP) 100Hz~10kHz: 100dB (25mmMRP)		
Distortion	200Hz~10kHz: <1.5% (94dBSPL, 25mmMRP)		
Frequency Response Curve	Output SPL after equalization: 94dB ± 1dB(100Hz~10kHz)		
Mouth Diameter	Φ20mm	Net Weight	1.05kg
Diameter	Φ100mm	Port	BNC
Height	88mm	Maximum input voltage	1 Vrms
Power Supply With Built-in Power Amplifier	19VDC		
Built-in Power Amplifier Gain	20dB		
Built-in Power Amplifier Power	20W		

CRY606 High Frequency Artificial Mouth			
Minimum Continuous Output SPL	500Hz~40kHz: 110dB (25mmMRP) 200Hz~50kHz: 94dB (25mmMRP)		
Distortion	1kHz~40kHz: ＜1.5% (94dBSPL, 25mmMRP)		
Frequency Response Curve	Output SPL after equalization: 94dB ± 1dB(100Hz~10kHz)		
Mouth Diameter	Φ20mm	Net Weight	1.45kg
Diameter	Φ100mm	Port	BNC
Height	88mm	Resistance	4Ω
Continuous Maximum Power	100W		
Instantaneous Maximum Power	250W (1 second)		

CRY609 Ultra-Low Distortion Artificial Mouth			
Minimum Continuous Output SPL	200Hz~10kHz：110dB (25mmMRP) 100Hz~10kHz: 100dB (25mmMRP)		
Distortion	200Hz~10kHz: model＜0.5% (94dBSPL, 25mmMRP)		
Frequency Response Curve	Output SPL after equalization: 94dB ± 1dB(100Hz~10kHz)		
Mouth Diameter	Φ20mm	Net Weight	1.30kg
Diameter	Φ104mm	Port	BNC
Height	94mm	Resistance	4Ω
Continuous Maximum Power	20W		
Instantaneous Maximum Power	100W (1 second)		

Preamplifier

CRY500 series preamplifier combines with measurement microphones to transform the impedance and amplifier the signal. This preamplifier has the characteristic of high input impedance, low output impedance, low noise, wide frequency response range, etc.

Model	CRY502	CRY506B	CRY507	CRY508	CRY509
Photos					
Diameter (inch)	1/2	1/2	1/2	1/2	1/2
Frequency Response(Hz)	10~80k ± 0.2dB	20~50k ± 0.2dB 10~100k ± 0.5dB	20~50k ± 0.2dB 10~100k ± 0.5dB	20~50k ± 0.2dB 10~100k ± 0.5dB	10~80k ± 0.2dB
Input Impedance	>10GΩ, 0.5pF	>10GΩ, 0.5pF	>10GΩ, 0.5pF	>2GΩ, 2pF	>2GΩ, 2pF
Output Impedance(Ω)	<20	<20	<20	<20	<20
Total Harmonic Distortion(THD)	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Maximum Output Voltage(VRMS)	>5	>5	>5	>5	>5
Power Supply	Dual ±5V~±10V Single ±10V~±20V	ICP	ICP	ICP	Dual ±5V~±10V Single ±10V~±20V
Working Current (mA)	<1	1~10	1~10	1~10	<1
Noise (A–weighted)	<3μVRMS	<3μVRMS	<3μVRMS	<3μVRMS	<3μVRMS
Noise, linearity	<10μVRMS	<10μVRMS	<10μVRMS	<10μVRMS	<10μVRMS
Gain (dB)	−0.3	−0.3	−0.3	−1	−1
Port	DB9	BNC	BNC	BNC	YC9–4
Working Temperature(℃)	−30 ~ +70	−30 ~ +70	−30 ~ +70	−30 ~ +70	−30 ~ +70
Threaded Fitting Port(mm)	11.7–60 UNS–2	11.7–60 UNS–2	11.7–60 UNS–2	11.7–60 UNS–2	11.7–60 UNS–2
Size (mm)	Φ12.7×38	Φ12.7×38	Φ12.7×62	Φ61×25	Φ61×25

Model	CRY510	CRY512	CRY543	CRY547	CRY548
Photos					
Diameter (inch)	1/2	1/2	1/4	1/4	1/4
Frequency Response(Hz)	20~50k ±0.2dB 10~100k ±0.5dB	20~50k ±0.2dB 10~100k ±0.5dB	10~80k ±0.2dB	10~100k ±0.2dB	10~100k ±0.2dB
Input Impedance	>10GΩ, 0.5pF	>2GΩ, 2pF	>10GΩ, 0.5pF	>10GΩ, 0.5pF	>10GΩ, 0.5pF
Output Impedance(Ω)	<20	<20	<20	<20	<20
Total Harmonic Distortion(THD)	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Maximum Output Voltage(VRMS)	>5	>5	>5	>5	>5
Power Supply	ICP	ICP	Dual ±5V~±10V Single ±10V~±20V	ICP	ICP
Working Current (mA)	1~10	1~10	<1	1~10	1~10
Noise (A–weighted)	<3μVRMS	<3μVRMS	<3μVRMS	<3μVRMS	<3μVRMS
Noise, linearity	<10μVRMS	<10μVRMS	<10μVRMS	<10μVRMS	<10μVRMS
Gain (dB)	−0.3	−1	−0.3	−0.3	−0.3
Port	SMB	SMB / L5	DB9	SMB / L5	SMB / L5
Working Temperature(℃)	−30 ~ +70	−30 ~ +70	−30 ~ +70	−30 ~ +70	−30 ~ +70
Threaded Fitting Port(mm)	11.7–60 UNS–2	11.7–60 UNS–2	5.7–60 UNS–2	5.7–60 UNS–2	5.7–60 UNS–2
Size (mm)	Φ12.7×31	Φ6.35×24.6 Φ13.2×11.5	Φ6.35×60	Φ6.35×60	Φ6.35×40

Measurement Microphones

CRY300 series measurement microphones, manufactured by CRYSOUND, use Titanium membrane to achieve high stability and accuracy in harsh environment. All CRY measurement microphones, 1/4 inch and 1/2 inch, free filed and pressure field, are produced in clean room and stored more than 6 months to ensure stability before delivery.

1/2 inch, Measurement Mic

Model	CRY331	CRY332	CRY333	CRY371	CRY372
Sound Field	Free–field	Pressure–field	Free–field	Free–field	Pressure–field
Sensitivity (mV/Pa, dBV/Pa)	40mV(−28dB) ±2dB	31.6mV(−30dB) ±2dB	50mV(−26dB) ±2dB	50mV(−26dB) ±2dB	12.5mV(−38dB) ±2dB
Frequency Response (Hz ± 2dB)	3.15–16kHz	3.15–10kHz	3.15–20kHz	3.15–40kHz	3.15–20kHz
Polarized Voltage (V)	0	0	0	0	0
Dynamic Range	16–140dBA	16–140dBA	15–146dBA	20–160dBA	20–160dBA
Temperature Coefficient	−0.012dB/℃	−0.012dB/℃	−0.012dB/℃	−0.005dB/℃	−0.005dB/℃
IEC 61094–4 Type	WS2F	WS2P	WS2F	WS2F	WS2P
Pressure Equalization Vent	Rear	Rear	Rear	Rear	Rear

1/4 inch, Measurement Mic

Model	CRY341	CRY342	CRY343	CRY351	CRY352
Sound Field Type	Free–field	Pressure–field	Free–field	Free–field	Pressure–field
Sensitivity (mV/Pa (dBV/Pa)	4mV(−48dB) ± 3dB	1.6mV(−56dB) ± 3dB	4mV(−48dB) ± 3dB	15.8mV(−36dB) ± 2dB	12.5mV(−38dB) ± 2dB
Frequency Response(Hz ± 2dB)	4–40kHz	4–70kHz	4–90kHz	4–40kHz	4–20kHz
Polarized Voltage (V)	0	0	0	0	0
Dynamic Range	30–160dBA	30–170dBA	30–165dBA	20–140dBA	20–140dBA
Temperature Coefficient	−0.015dB/℃	−0.015dB/℃	−0.01dB/℃	−0.005dB/℃	−0.005dB/℃
IEC 61094–4 Type	WS3F	WS3P	WS3F	WS3F	WS3P
Pressure Equalization Vent	Side	Side	Side	Side	Side

· Working Temperature: −30℃~+80℃
· Relative Humidity Range: 10~90% (no condensation)
· Long–term Stability: <0.03dB/a (15℃~25℃@250Hz)
· Short–term Stability: <0.03dB (15℃~25℃@250Hz)
· Relative Humidity Coefficient (10%~90% no condensation): <0.1dB
· Static Pressure Coefficient (dB/kPa): −0.01dB

CRY574Pro Bluetooth Dongle

The CRY574Pro Bluetooth dongle is a Bluetooth adapter specifically designed for acoustic testing and is suitable for R&D and production lines. The adapter has a universal USB2.0 interface and can be recognized as a USB Bluetooth sound card. The company provides software support for CRY574Pro, which enables the adapter to run multiple operations on Windows 7 and its higher system or MAC OS. Assisted with CRY6151 series electro−acoustic analysis system, we have a perfect solution to Bluetooth product development and production by one−stop test solution.

CRY574Pro Bluetooth Parameter	
Core Protocol	Bluetooth5.0
Bluetooth Protocol	A2DP, AVRCP v1.5, HFP v1.6, HSP v1.2, SPP
A2DP Protocol	apt−X, SBC
A2DP Sample Rate	48kHz, 44.1kHz, 32kHz, 16kHz
A2DP Volume	0~100, absolute volume control
HFP Protocol	mSBC (wide band speech), CVSD
HFP Sample Rate	16kHz, 8kHz
HFP Volume	0~15 (speaker and microphone)
Pairing Mode	SSP, password authentication
Aerial Type	U.FL
Aerial Power	−18~6dBm adjustable
Functional Test	battery, button, RSSI
Size	125mm × 66mm × 16mm (without aerial)

CRY573 MEMS MIC Adapter Box

The CRY573 MEMS MIC Adapter Box supports working mode of PDM signal mode and I2S signal mode (only work in one mode), supports adjustable 8kHz~48kHZ sampling rate, and supports analog output with left and right channel gain adjustable. The CRY573 is connected to the computer via USB and mapped to a virtual serial port on the PC side, through which the configuration can be modified.

Performance Index	PDM Pattern	I2S Pattern
Ground Noise (Analog Channel)	A−weighting: 103dBV, Z−weighting: 99dBV, (10~22.4kHz)	A−weighting: 103dBV, Z−weighting: 99dBV, (10~22.4kHz)
Dynamic Range	>90dB (1kHz, A−weighting)	>90dB (1kHz, A−weighting)
Frequency Response	< ±0.15dB (20~20kHz)	< ±0.15dB (20~18kHz)
Total Harmonic Distortion	< 0.03%	< 0.03%
Supported Sampling Rrequency	8kHz, 12kHz, 16 kHz, 24 kHz, 32 kHz, 37.5 kHz, 48 kHz	48 kHz
Supported Electrical Level	3.3V, 3.0V, 2.8V, 2.0V, 1.8V	3.3V, 3.0V, 2.8V, 2.0V, 1.8V

GV7116C Audio Sweeper

GVS7116C automatic audio sweeper is specially designed for testing various electroacoustic device (Rub & Buzz) and its dynamic property. Its sine wave with low distortion is perfectly suitable for testing noise of speakers and easily controlled. Power amplifier and output protection circuit are built in to allow long−time short circuit of output port to avoid damaging the machine.

Technical Parameters	
Frequency Range	20Hz～20 kHz
Amplitude− Frequency Flatness	≤ ±0.25dB
Sweep Mode	Manual and automatically logarithmic frequency sweep
Sine Wave THD	≤ 0.15% (20Hz~20kHz)
Sweep Time	0.3~40s adjustable
Frequency Meter	4 digital display (resolution 1Hz, error ±1Hz)
Load Impedance	≥ 3Ω
Voltmeter	Digits, automatic range
Low Range	0.000V~3.300V (resolution 0.001V)
High Range	3.300V~40.00V (resolution 0.01V)
Output Electrical Signal Range (8Ω load)	20W: 0~13.5V
	60W: 0~22.5V
	100W: 0~29.5V

GVS139B Polarity Tester

The GVS139B polarity tester adopts impulse testing and is free from impact of environmental noise. It can rapidly and automatically determine positive and negative polarity of speakers, headphones, audio speakers, receiver, and is applicable for production line.

Technical Parameters	
Impulse Width	about 0.4ms
Impulse Amplitude	≤ 10Vp−p
Test Speed	about 0.2s
Weight	2.3kg

CRY5620 Microphone Tester

CRY5620 Microphone tester can test the Electret, MEMS and other types of microphones. The instrument adopts SCM control, combined with digital analog processing technology, sets signal generating, signal processing and data display in one. Microphone's sensitivity and current of three frequency points including low frequency, intermediate frequency and high frequency can display freely.

Technical Parameters	
Frequency Measurement Range	50Hz~199Hz adjustable, 70Hz typically, step of 1Hz 0.5kHz~1.9kHz adjustable, 1kHz typically, step of 100Hz 2kHz~16kHz adjustable, 5kHz typically, step of 100Hz
Signal Amplitude Range	−80.00dB~0dB (resolution 0.01dB, refer to 1V)
Signal Dynamic Range	30dB, error≤ ±0.5dB
Signal Current Range	1~999μA (resolution 1μA)
Analog Microphone	Work Voltage: 1.8V, 2V, 2.5V, 3V, 3.3V, 4V, 4.5V, 5V, Error ≤ ±3% Current Limiting Resistance: 680Ω, 1kΩ, 1.5kΩ, 2kΩ, 2.2kΩ, 2.7kΩ, 3kΩ, 4.7kΩ
Digital Microphone	Work Voltage: 1.8V, 2V, 2.5V, 3V, 3.3V, 4V, error ≤ ±3% Work Frequency: 0.6MHz~4MHz adjustable, step of 0.1MHz, error ≤ ±2%
Display Part Refresh Speed	0.3s

CRY5520 Audio Signal Generator

CRY5520 type audio signal generator uses a SCM to control the sweep frequency, digital simulation combined. Sine wave output, small distortion, good stability, frequency range covering the entire audio frequency domain, especially suitable for listening to the Speaker pure sound.

Specifications	
Output Waveform	Sine wave
Frequency Range	20~20000Hz
Frequency Response	≤ ±0.2dB (100~10kHz) ≤ ±0.5dB (20~20kHz)
THD	≤0.5%
Frequency Error	≤0.01%
Sweep Mode	Manual and automatically logarithmic frequency sweep
Sweep Speed	1.0~20s adjustable
Amplitude Range	0~12.8V (8Ω load)
Amplitude Error	≤2%
Power	20W (8Ω load)

CRY584C Multichannel Amplifier

CRY584C multiple−channel amplifier is designed for production line. Which has 2 channels differential inputs and outputs with 30W x4 power amplifiers, 3 channels ICP (IEPE, CCP) constant current source power supply. The 2 channels differential amplifier and ICP power supply adopted floating inputs and outputs to achieve connect multiple DUTs without interference.

Power Supply Specifications	
Input Port	BNC × 3
Output Port	BNC × 3
Constant Current Source Power Supply	24V, 2.4mA
Input Impedance	1MΩ
Output Impedance	100Ω
Frequency Response	10~20kHz (±0.2dB)
THD+N	20~20kHz (<0.005%)
Ground Noise (Broadband 22kHz)	<−100dBV
Dynamic Range	110dBV
Gain	0dB, +20dB, +40dB (or −40dB)

Power Amplifier Specifications	
Input Port	6.35 × 2
Output Port	6.35 × 2, Canon ohm holder × 2
Output Power	30W × 4 (1.5Ω)
THD+N	20~20kHz (<0.01%)
Ground Noise	<−85dBV
Gain	20dB, difference 26dB
Impedance Sampling Resistance	0.1Ω (gain 20dB)

CRY575 Microphone Power Supply

The CRY575 microphone power supply is a three−channel microphone power supply, each channel provides constant current source for ICP/IEPE preamplifiers. Moreover, this equipment provides positive and negative power for preamplifier. When compares with similar products, it has the characters of high input impedance, low output impedance, low ground noise and wide frequency response.

Power Amplifier Specifications	
Frequency Response Range	10Hz~60kHz (±0.5dB)
Input Impedance	1MΩ
Output Impedance	100Ω
Ground Noise	−100dBV
ICP Constant Current Source	24V/4mA
Gain	0dB(×1)+20dB(×10)+40dB(×100)
Port Type	BNC, DB9
Work Voltage	4V~8V
Size (mm)	69 × 154 × 120
Applicable Temperature	−30℃ ~ +70℃

Shielding & Anechoic Box

CRY710, CRY720, CRY721 shielding & anechoic box is made of sheet metal material. It provides RF shielding and anechoic environment to avoid interference each other while testing Bluetooth, WIFI and other products. Pneumatic opening and closing which can be controlled by serial port. The CRY720 has a built−in speaker and the CRY721 has three built−in speakers that designed for ANC headsets test.

CRY710 Specifications	
RF Shielding Performance	0.8GHz~3GHz ≥60dB
Noise Shielding Performance	External noise: 80dB, internal noise≤40dB
Internal Size	W360 × D400 × H300mm
External Size	W390 × D430 × H340mm

CRY720 Specifications	
RF Shielding Performance	0.8GHz~3GHz ≥60dB
Noise Shielding Performance	External noise: 80dB, internal noise≤40dB
Built−in Speaker (1pc)	JBL BM8008 6Ω 120W max SPL=100dB
Work Size	L330 × W310 × H280mm
Box Size	L470 × W460 × H420mm
External Size	L590 × W600 × H513mm

| CRY721 Specifications	
RF Shielding Performance	0.8GHz~3GHz ≥60dB
Noise Shielding Performance	External noise: 80dB, internal noise≤40dB
Built−in Speakers (3pcs)	JBL BM8008 6Ω 120W max SPL=100dB
Internal Size	L760 × W550 × H550mm
External Size	L600 × W390 × H390mm

Headphone Test Fixture

CRY801 Headset Test Fixture

CRY801 headset test fixture is a universal test fixture designed for headphone/headset test. The main part using aluminum alloy with all surfaces black oxide to improve its abrasion resistance. All parts in contact with DUT are using POM materials to provide a smooth surface and prevent scratch the DUT.

The well-crafted CRY801 headset test stand has a good stability and simply to assemble which can prevent most possible shaking or deformation. The stand can combine with different adaptors to fit different artificial ears and preamplifiers to create a perfect acoustic test solution.

Product Parameters	
Horizontal Adjustable Length	130~170mm
Vertical Adjustable Distance	110~150mm
Main Material	Aluminum alloy, surface black oxide
Contact Parts Material	POM
Base Size	220 × 150mm
Weight	1.8kg
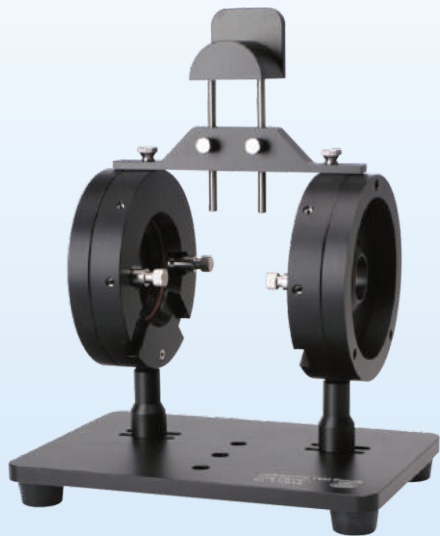
CRY802 Acoustic Test Fixture Hearing Protection Headphone Test Fixture

The CRY802 ATF hearing protection headphone test stand is a test fixture specially designed for headphones and various protective covers. The main part using aluminum alloy with all surfaces black oxide to improve its abrasion resistance. The test holder is fixed on . the elastic base to reduce the ground noise during the test to the minimum in a typical test environment, and the builti-in foam plug effectively prevents audio leaks on the transmission line.

The CRY802 headphone test stand can combine with the CRY711 and CRY318 artificial ear with a 1/2-inch series microphone to provide a nice environment for headphone test. Test stand is easy to install and has a wide applicability, is an ideal tool for testing parameters of headphones and protective covers.

Product Parameters	
Weight	11.6kg
Main Material	Aluminium alloy, surface black oxide
Horizontal Length	155.6mm
Vertical Distance	477.3mm

Test Fixture Customization

Semi-finished headphone test fixture

Dedicated to semi-finished headphones test speakers and MIC. The fixture production technology is excellent and convenient to operate with good test consistency. And its copying part selects the plastic material to prevent scratches effectively

Silicon Microphone Test Fixture

The smallest silicon microphone can be effectively fixed to ensure the consistency and accuracy of the test

Mobile Phone Test Fixture

Suitable for a variety of models, can achieve USB, Audio interface automatic plug-in, fast and accurate positioning, easy to operate one-click Testing