

# ERO•SCAN™

## OAE Test System



The versatile, portable, diagnostic ERO•SCAN Otoacoustic Emissions Test Systems measure OAEs in 10 to 30 seconds. Testing can be performed by nurses or trained volunteers and no interpretation is needed nor is any response necessary from the patient.

Contact us to  
receive your  
**FREE** guide  
to OAEs

- Diagnostic Otoacoustic Emissions Test Systems
- Test takes less than a minute
- Non-invasive
- Test infants, children and adults
- No patient response necessary

**TRUSTED TECHNOLOGY** SINCE 1937

MAICO DIAGNOSTICS

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# ERO•SCAN™

## OAE Test System

## Head Start & School Screening



The MAICO ERO•SCAN is ideal for school screening because it can quickly identify a possible hearing loss and signal referral for more comprehensive audiometric testing.

### Head Start & School Uses:

- No response is required from the child. Pure tone audiometry requires a response e.g., raising a hand or dropping a block. Teaching a child to respond is often time consuming and difficult
- Testing can be performed on special-needs children
- School personnel can easily be trained to do OAE testing
- Easy to screen children who speak English as a second language
- Screening can be done in less than half the time when compared to using traditional methods

### What OAEs Can Tell Us:

- A **PASS** indicates normal OAEs and this correlates with normal hearing and normal cochlear function
- A **REFER** means OAEs were not present and is suggestive of a possible hearing loss greater than 30 dB HL or an outer or middle ear disorder (e.g., otitis media)

### Advantages of OAEs:

- OAEs give information about hearing and middle ear status with only one test
- OAEs are objective
- No need to instruct or condition the patient
- Effective with difficult-to-test patients
- OAEs can be performed by office personnel

## ENT & Audiology

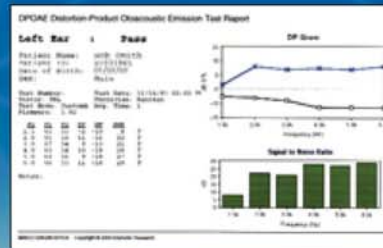
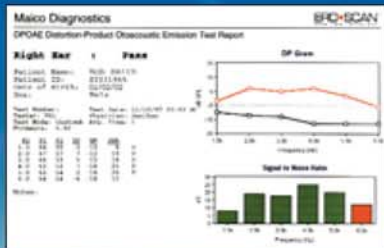


Otoacoustic Emissions have emerged as an essential part of the hearing assessment process in ENT and Audiology Offices.

### ENT & Audiology Uses:

- CPT Code 92588 (\$73 average national reimbursement)
- Diagnostic information out to 12 kHz
- Monitor middle ear pathology post PE tube insertion
- Rule out retrocochlear pathology
- Differentiate peripheral from central auditory disorders
- Monitor effects of ototoxic medications and occupational noise exposure
- Use in conjunction with high frequency audiometry

- Screen both ears of infants and toddlers
- Evaluate difficult-to-test and developmentally disabled patients
- Identify suspected non-organic hearing loss
- Community hearing screenings



Print out from optional database software for full page customized reporting capabilities and data transfer to patient management software.

## Pediatrics

### Remote Probe

- Preferred method for testing newborns and young children
- Allows head movement
- Provides better comfort and less disturbance
- Reduces noisy recordings
- Can be used for all subjects

Simply plug the Remote Probe into the top of the ERO•SCAN and it is immediately detected. No adjustments are needed, no new technique is required.



ERO SCAN's advanced noise rejection algorithm allows for reliable testing in up to 70 dB of background noise (i.e., classroom and newborn nursery settings.)



**Due to late onset hearing loss or genetics, hearing loss develops in children from 0 - 3. Pediatricians are usually the first professionals parents approach with concerns about their child's hearing.**

### Pediatric Uses:

- CPT Code 92587 (\$53 average national reimbursement)
- Follow-up infants from nursery screening and well baby checks
- Identify and monitor middle ear pathology (e.g., otitis media)
- Monitor ototoxic medication
- Identify educationally significant hearing loss
- Obtain objective cochlear function results from both ears of toddlers
- Together with an otoscopic exam or tympanometry, OAEs will rule out middle ear pathology
- Repeat OAEs can be used to monitor middle ear problem resolution and ensure normal cochlear function

## Newborn Screening



**Otoacoustic Emissions (OAEs) testing is preferred over Auditory Brainstem Response (ABR) testing as a quick, cost-effective measurement tool in the newborn nursery.**

### Newborn Screening Uses:

- OAEs can easily be measured in 10-30 seconds
- OAE testing can be performed by nurses or trained volunteers
- No interpretation needed: A simple *Pass/Refer* is displayed
- OAE equipment is thousands of dollars less than ABR equipment
- OAEs have very low disposable costs

# ERO•SCAN™

## OAE Test System

### Probe Specifications

Measurement Type	Otoacoustic Emissions
Frequency Range	1.5 to 6 kHz (DPOAE) 0.7 to 4 kHz (TEOAE)
Stimulus Intensity	40 to 65 dB SPL (DPOAE) 83 dB SPL (TEOAE)
Maximum Output (protection)	90 dB SPL
Microphone System Noise	-20 dB SPL @ 2 kHz (1 Hz bandwidth) -13 dB SPL @ 1 kHz (1 Hz bandwidth)
Stimulus Sampling Rate	31,250 Hz

### Instrument Specifications

Power Supply	(4) AA/UM-3/R6 cells - Alkaline (6 V total)
Battery Life	Approximately 300 tests
Instrument Weight	10.6 oz. (300 g) including batteries

### Printer Specifications

Type	Thermal dot matrix line printer
Speed	>10 lines per second
Operating Noise	<50 dB SPL
Weight	1 kg (2.2 lbs) including power supply
Power Source	Medical grade power supply (EN 60601-1)
Input	120-240 V
Output	7 V, 5.0 A
Paper	Calculator-type thermal roll – 2.25" wide (57 mm)

### Processor Specifications

Digital Signal Processor	Motorola 56303 24-bit 66 MHz 3.3 V
Storage	2 Mbit EEPROM (non-volatile)
Battery Backup	0.1F 5.0 V (approx. 24 hours)
CODEC	18 bit D/A, 18 bit A/D 96 dB SNR typical
Display	4 line x 10 character STN liquid crystal
Switches	Membrane keypad 1 million + actuation

### Remote Probe Specifications

Length	6 ft. (1.8 m)
Weight	3.6 oz. (102 g)
Connector	8-pin MiniDIN

### Maximum SPL

The maximum sound pressure level output of this instrument remains well below 90 dB SPL throughout the audible frequency range of 20 Hz to 20 kHz. This level is well within OSHA permissible limits of 90 dBA for 8 hours.

The ERO•SCAN OAE System is available in 3 configurations:  
**Screener, Standard and Combo System**

Product Feature	ERO•SCAN Screener	ERO•SCAN Standard	ERO•SCAN Combo System
DPOAE/TEOAE	DP or TE	DP or TE	DP and TE
Diagnostic (CPT) <sup>1</sup> 92588	N	Y	Y
Portable	Y	Y	Y
Printer Included	Y	Y	Y
Internal Probe	Y	Y	Y
External Probe	Y	Y	Y
Maximum # of Test Frequencies or Bands Reported	4 DP 6 TE	6 DP 6 TE	6 DP 6 TE
Frequency Range	2-5 DP 1.5-4 TE	1.5-12 DP .7-4 TE	1.5-12 DP .7-4 TE
High Frequency DPs to 12 kHz	N	Y	Y
Default Pass/Refer	Y	Y	Y
# of Test Protocols	1	2	4
Memory (# tests)/Maximum	50	50	50
Tests All Ages	Y	Y	Y
Tests Patients with PE Tubes	Y	Y	Y
Automatic Self-Calibration in the Ear	Y	Y	Y
Requires Yearly Calibration	N	N	N
Customizable Test Protocols	N	Y	Y
Customizable Pass Criteria	N	Y	Y
Database Software (Cost Option)	Opt	Opt	Opt
Printer Included	Y	Y	Y
Prints Numeric Data	Y	Y	Y
Prints Graphic Data	Y	Y	Y
Customizable Averaging Time	Y	Y	Y
Date/Time on Print-Out	Y	Y	Y
Monitoring Headset	Y	Y	Y
OZ Compatible	Y	Y	Y
HI*TRACK Compatible	Y	Y	Y
Completely Isolated Printer "optional" (does not require external line source)	Y	Y	Y
Customizable Parameters (test characteristics)	N	Y	Y
Freq. Range (DPs and TEs)	N	Y	Y
Average Time (DPs and TEs)	N	Y	Y
# Freq. Tested (DPs)	N	Y	Y
All test protocol changes can be made through OAE unit alone (Additional software and computer NOT required to change protocols)	Not Customizable	Y	Y
Cost of Disposable Plastic Eartips	\$0.15	\$0.15	\$0.15
Cost of Disposable Foam Eartips	\$1.00	\$1.00	\$1.00

Opt – Optional Y – Yes N – No <sup>1</sup> can bill for diagnostic DPOAE testing with this unit

**TRUSTED TECHNOLOGY** SINCE 1937

Conforms to IEC 601-1.

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U.S. Patent #5,954,669; 6,056,698; 6,299,584; 6,331,164 Other Patents Pending

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