

AppNote

There are no calibration adjustments within the RM500. Measurement accuracy depends on calibration of the HAT coupler and the REM reference microphones. All Audioscan microphones are factory calibrated and must be replaced if found to be out of calibration.

Each time you calibrate your RM500, the measurement microphone (probe or coupler) is compared to its respective reference microphone. Any change in the calibration curve indicates that one of the microphones has changed. While this is an adequate check for many applications, you are encouraged to have your microphones independently checked at least once a year.

The coupler microphone measurement accuracy is specified as ± 1 dB at 1000 Hz. The response at frequencies between 200 and 5000 Hz is uniform within 1 dB. When verifying that the RM500 meets these specifications, you must increase the 1 dB tolerances by the tolerance of the calibrator. For example, you must allow a ± 1.3 dB tolerance on the SPL indication if using a calibrator with ± 0.3 dB accuracy.

*If your RM500 is used to certify hearing instruments for FDA compliance, it should be checked daily. In this case, note that ANSI S3.22-1996 requires a 1kHz accuracy (and 200 – 5000 Hz response uniformity) of 1 dB, **decreased** by the tolerance of the calibrator. For example, you may allow only a ± 0.7 dB tolerance on the SPL indication if using a calibrator with ± 0.3 dB accuracy.*

See your RM500 User's Guide for procedures to evaluate the calibration of the REM reference (probe) microphone.

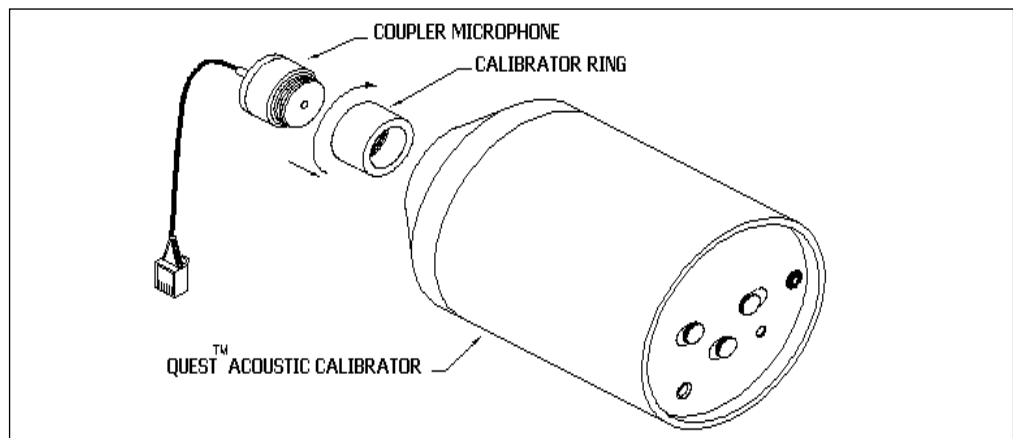
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USING THE RE780 AND RE781 CALIBRATOR RING TO VERIFY RM500 HAT CALIBRATION

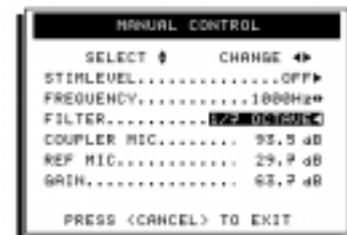
The Audioscan® RM500 series real-ear/hearing aid analyzer may be used, with an acoustic calibrator such as the Quest™ CA-22, QC-10 or QC-20, to check the calibration sensitivity of the coupler microphone. To obtain valid and reliable results, a calibrator ring should be used to seal the coupler microphone to the acoustic calibrator. The RE780 and RE781 calibrator rings have been designed by Audioscan® for use with the Quest™ CA-22 and QC10/20 respectively.

To check the calibration of the RM500's coupler microphone, follow the steps listed below:

1. Calibrate the test box of the RM500 as outlined in the RM500 User's Guide.
2. Screw the calibrator ring onto the coupler microphone.
3. Insert the coupler microphone with the attached calibrator ring into the calibrator opening as shown in the figure below.



4. Plug the coupler microphone with the attached calibrator ring into the microphone jack inside the hearing aid test (HAT) box.
5. Turn the calibrator on and adjust it to present one of the available frequencies and intensities (e.g., 94 dB SPL at 1000 Hz.).
6. Press the <ADVANCED FEATURES> key on the keyboard.
7. Using the arrow keys (←) on the keyboard, highlight the menu item TOOLKIT and MANUAL CONTROL. Press <CONTINUE>.
8. Using the arrow keys (↑), highlight STIMLEVEL. Turn the stimulus OFF.
9. Adjust (↑) (←) the menu item FREQUENCY to the frequency that is being generated by the calibrator (e.g., 1000 Hz).
10. Adjust (↑) (←) FILTER to 1/7th OCTAVE.
11. The COUPLER MIC. reading should agree with the calibrator setting (e.g., 94 dB) within the accuracy specification of the RM500 (± 1 dB) plus the tolerance of the calibrator.



Example: Calibrator with a ± 0.3 dB tolerance adjusted to present a 94 dB signal at 1000 Hz. The RM500 should display a SPL of 94 dB ± 1.3 dB. At 250 Hz, the RM500 should display a SPL within 1.3 dB of the 1000 Hz value.