

Diagnosis Test Room & Equipment Setup Recommendations



This note summarizes important setup recommendations. Consult your Diagnosis User Guide and IFU for more detailed setup and troubleshooting recommendations. These recommendations are applicable for conducting tests on any Diagnosis system (clinical and pre-clinical systems).

Electrical Setup Recommendations

1. Electrical
 - a. **Required:** plug the line cord of the Diagnosis system (and its computer, if powered separately, as is the case for Celeris) directly into a grounded wall outlet. Do NOT plug the system into a power strip.
 - b. If possible, have the room on a separate circuit. Make sure the circuit is properly grounded. At a minimum there should be no large electrical equipment on the same circuit as your electrophysiology equipment.
2. Room placement. If possible, locate the room and Diagnosis system away from large electrical systems such as HVAC, refrigerators, elevators, etc. There should be at least one room between your testing room and those large devices.
3. System placement:
 - a. Diagnosis cart systems. Locate anywhere in the room where convenient for its use.
 - b. Diagnosis tabletop systems. If possible, locate it on a non-metallic tabletop. If it is required for the system to be located on a metal tabletop, more troubleshooting may be required to achieve low line noise in the system (see User Guide).
4. If possible, avoid rooms with dimmer switches (they can create 100 or 120 Hz line noise). Room lights should be either fully on or fully off.
5. **Required:** System cables. Keep all cables as neatly organized as possible. Do not allow other equipment cables to touch Diagnosis system cables. **Ensure** that the amplifier cable does not overlap or touch any other cables.

Test you should do to verify the setup: with the system powered on and no electrodes plugged into the system, open a protocol and enter Preview mode. There should be very little to no line noise (ie, any sinusoidal waves should have an amplitude of <10 uV). **Consult your Diagnosis User Guide and IFU** for additional recommendations to eliminate line noise. In nearly all cases it should be possible to avoid all line noise (ie, no sinusoidal waves in Preview mode).

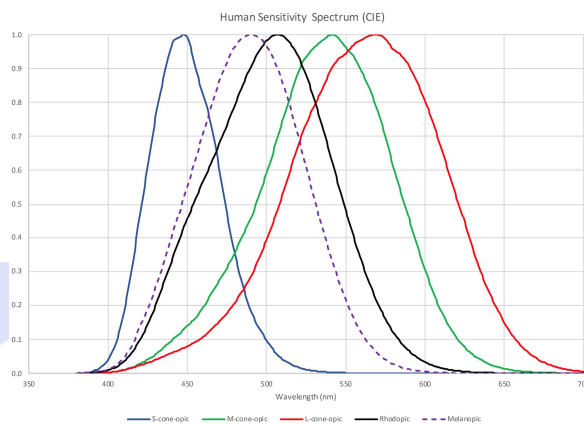
Room Lighting Recommendations

1. Scotopic test conditions
 - a. Room. No windows. The gaps under and around the door are covered, so as to block all light. Cover all light sources in the room.
 - b. Light. Room must be completely dark when room lights are turned off, except the **minimal** amount of red light needed for the technician. If possible, red light should be 670 nm wavelength. Note: most commercially available red lights are 630 nm (with a typical spectrum from 600-650 nm). Figure 1 shows why 670 nm red light is best for our application. Human and mouse rods can detect 630 nm red light and this negatively affects their dark adaptation. Human and mouse rods will not detect 670 nm red. Human cones detect 670 nm, so the technician can see during the test.
 - c. **The subject being tested must be isolated from the red light during the test!**
 - d. Example options of red light sources available in the USA (similar options should be available in your country):
 - i. Pen light: https://www.weltool.com/page137?product_id=174
 - ii. Headlamp: https://www.blackdiamondequipment.com/en_US/product/flare-headlamp/
 - iii. Bulb:
 1. https://www.lightbulbs.com/product/westinghouse-03469/?source=GooglePPC-ProductAds&qclid=Cj0KCQjw3JanBhCPARIsAJpXTx4EOs37L6EVbQoILdkIP43SQV_t3t8dcG_sBtPH-X7DUFKRpm8CS-AQaAIMFEALw_wcB

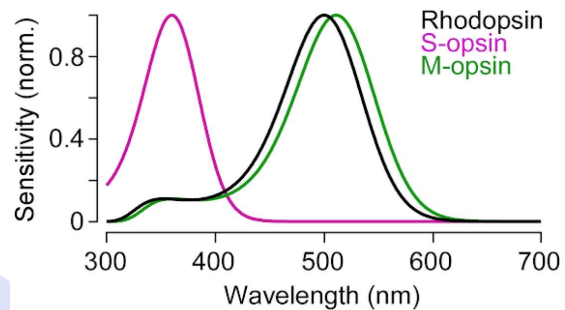
- iv. Check with Diagnosys for further options that we have available.
 - e. Wall Paint. Black matte color, if possible, or other similar dark color.
2. Photopic test conditions
- a. Typical office room lighting brightness; white light. 30-40 cd/m² white light.
 - b. If possible, avoid direct sunlight coming in through a window.

Test you should do to ensure scotopic conditions: Prepare the room for a scotopic test (room lights off, door closed, etc). First, also have the Diagnosys system and any red lights turned off. Sit in the dark room with your eyes closed and hands (or eye patches) covering your eyes. Do this for 20 minutes. Open your eyes and the room should be as dark as when your eyes were closed. Find any sources of light that are present and cover or eliminate them. Then, turn on the Diagnosys system and any other red-light source that will be used. Ensure that you have absolutely minimized the red-light source needed for the technician and attempt to position the red light so that it doesn't directly shine on the test subject. Ensure that the red filter fits tightly over the computer monitor on all edges so that no white light comes out.

Figure 1. Photoreceptor sensitivity spectrums



a) Human



b) Mouse

Room Recommendations

1. A room sized at least 90 square feet (about 10 square meters) should give you adequate testing space for the equipment, patient and test technician.
2. Recommended table top size for tabletop-based systems:
 - a. Celeris and its computer: approximately 6 square feet (about 0.6 square meters)
 - b. E3 system with either ColorDome or LCD monitor: approximately 10 square feet (about 1 square meter)
 - c. E3 system with both ColorDome and LCD monitor: approximately 15 square feet (about 1.5 square meters)
3. Room acoustics. As isolated from external sounds as possible (other than the technician conducting the test and the ERG system itself) is important for patient comfort and concentration.
4. If possible, a sink with warm running water for efficiently cleaning multi-use electrodes.
5. Room Temperature - Patient (and technician!) should be comfortable for testing. Uncomfortable patients will be less cooperative.

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