

Article

Measuring Battery Drain

Why is it important?

OK, you've got a dead hearing aid and you want to know what's wrong. You take it to Charlie the tech who plugs it into his drain meter and immediately says, "looks like a broken receiver wire". Amazing! How did he know this so quickly without even cutting the hearing aid open? First of all, Charlie has probably been doing this awhile and has some experience, but more importantly he knew how to interpret the battery drain of the hearing aid.

What is Battery Drain anyway?

Battery Drain is actually a non-scary name for the amount of electronic current being used by the hearing aid circuit. Everything electronic uses a certain amount of electrical current, no matter if it plugs in, or runs from a battery. We normally think of electrical current in larger terms, such as an appliance you plug into the wall. For instance your refrigerator probably uses 10 amperes (amps) of electricity at times, and your clothes dryer may use 20 amps. It is no different for hearing aids, except we are talking about maybe .5 milliamps, or .0005 amps.

How is Battery Drain measured?

Typically, to measure battery drain you need a device that can supply power to the hearing aid, and at the same time the device needs to be able to measure how much electronic current the hearing aid is drawing. Many acoustic testing units are capable of measuring battery drain, and some stand alone units such as the BDM-1 and BDM-2 Batter Drain Meters also do this.

You also need a coupling device commonly referred to as a battery pill. The battery pill plugs into the drain measuring unit and has a contact that will plug into the hearing aid battery compartment, simulating a battery.

What will Battery Drain tell me?

The battery drain of the hearing aid can tell you a lot about how the hearing aid is working. It is always a good idea to include it in your pretest before fitting to ensure proper operation. Sometimes, a hearing aid can acoustically test just fine, but have a circuit problem where it is drawing excessive electronic current. Remember, battery drain represents how much electronic current is being used from the battery. The higher the drain, the shorter the battery life.

Drain Meters are a great time saver

Now, if you repair hearing aids and you don't have a dedicated drain meter for your workstation, you are really missing out. This can be a real time saver because you can power the hearing aid and even listen to it while measuring the drain. And some drain meters, such as BDM-2, have a voltage probe to measure DC voltage. This is a handy feature as you only need the positive probe. The negative is supplied through the negative battery contact. This also holds true for using other test equipment, such as an oscilloscope. Because the negative contact is connected to earth ground through the electrical plug, only the measuring probe is needed – very convenient.

How do I know if the Battery Drain is normal?

That is really going to depend on the type of circuit inside the hearing aid. The best way to find what a normal battery drain is for any particular circuit is to check with the hearing aid manufacturer. But, a typical battery drain for your average circuit could be anywhere between .3 ma to .8 ma. Push Pull and high powered circuits can be as much as 2 ma.

Don't I have enough to do without testing battery drain?

Probably. But if you have a dedicated Battery Drain meter, you can use it to power the hearing aid while performing your listening test. Multitasking saves time, and if you can catch just one problem hearing aid before it reaches your customer you win!

About the Author

Chris Perkins is the owner of Lightning Enterprises, and facilitates the Lightning Enterprises newsletter. He has worked in the hearing aid industry since 1991 in hearing aid manufacturing and product development, as well as equipment and process consulting.