

Tuesday, July 3, 2012

Sennheiser S1 Passive

Digital features and BMW design set a new standard in passive headsets

By Marc C. Lee

I love passive headsets. Before our readers start scratching their heads wondering if I know about all the benefits of ANR (active noise reduction), I will assure you that I do. But as I have posited in various articles about headsets in this magazine, ANR isn't for everybody or ideal for all cockpits. What I love about passive headsets is their sound—or perhaps I should say, their lack of coloring sound—and how simple they are. In aviation, there's plenty enough to do without adding some finicky headset. With the new passive S1, Sennheiser has created a next generation of headsets for the aviation market.



For \$369, the Sennheiser S1 is a high-performance headset that works great in a typical, enclosed GA cockpit.

Sennhesier, of course, released their groundbreaking S1 Digital ANR headset last year to great success. They wisely took the best features of that headset and packaged them into a passive version, adding some interesting things, and releasing it as the S1 passive headset. I took the S1 for a spin in a properly loud Cessna 140 to evaluate the set's performance in an environment typical for this kind of headset.

Most readers know that ANR headsets combat harmful noise by sampling it through miniature microphones inside the ear cup and blocking it by generating an "anti-noise" (that explanation will suffice for now) through the ear-cup speakers. The two sounds cancel each other out, creating a sense of quiet. Passive headsets block harmful noise by mechanical means; the shape of the ear cup, the clamping pressure, the ear seals and more. There are no electronics involved. The S1 surprised me by having an in-line control unit that takes two AA batteries. It's used for auxiliary devices like cell

phones or MP3 player, but more on that later.

Just opening the box, you can tell this is a Sennheiser. Those of us who have spent countless hours in a recording studio know Sennheiser well, and know the quality and care that the German manufacturer puts into their products. The packaging is typical Sennheiser; with a quality look and feel (I love that they use matte finish on their graphics instead of a glossy sheen that imparts cheapness in my eye). The headset comes in an elegant-though-minimalist black case. The passive S1 comes with a cable clip, windscreen, belt clip for the control unit, and two accessory cables for connecting external devices: a standard 3.5mm cable and a 3.5mm male-to-female adapter.

Similarities to the Digital ANR S1 are obvious. The large ear cups and overall look of the S1 passive mimic its big ANR brother. Sennheiser engaged BMW DesignworksUSA to help design the ergonomics of the S1, and it shows. The matte-finish, buttery-soft ear-cup covers, modern headband and clean mic boom all scream German design. The headset has a nice heft to it, feeling substantial but not heavy, and I applaud Sennheiser for giving us a headset cord that's heavy-duty but designed so it doesn't tangle. I like the attention to detail and well-engineered niceties, like the extra-long cable flexer that integrates into each ¼-inch plug. This keeps the cord from breaking at the stress point—something few manufacturers address.

A feature unique to the S1 is an adjustable clamping pressure mechanism. There's a little slider near the temple of each ear cup. Each can be adjusted to regulate the pressure against the wearer's head, which is another point of discomfort. The headband also adjusts over a wide range to accommodate different head sizes through a series of detents available when you tug on each ear cup.

The real test of any headset is the cockpit, so I fired up the 140 and taxied out. All headsets attenuate noise over a curve of some sort, with the best attenuation occurring over a narrow frequency range. Since studies have shown that the noise from your propeller, exhaust and engine combine around the 100 Hz range, most headsets target this low-frequency area.

Unfortunately, most manufacturers won't provide this curve in their documentation, which is a real shame since it's really the only true way to compare headsets. Though Sennheiser was unable to provide me their attenuation curve (they're retesting after some clamping adjustments), they told me the passive S1 attenuates 22 dB. Unfortunately, I have no idea what frequency that's based on. One change I'd like to see from all headset manufacturers is a noise-attenuation curve provided with each headset.

The S1 sounded good in the sense that it did make a dramatic difference in noise attenuation. One feature I appreciate as a musician is that the S1 will automatically cut off any volume peak above 110 dB, safeguarding your hearing from sudden bursts of noise. The attached control unit provides this feature, along with volume control over external devices and an attachment mechanism for cell phones and music players. Though these features work off the unit's batteries, the headset will function fine without batteries.



