

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

DESIGN 408 LLC, a Delaware Limited Liability Corporation,

Plaintiff,

v.

SENNHEISER ELECTRONIC CORPORATION, a Delaware corporation,

Defendant.

Case No. _____

Patent Case

Jury Trial Demanded

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Design 408 LLC (“Design”), through its attorney, complains of Sennheiser Electronic Corporation (“Sennheiser”), and alleges the following:

PARTIES

1. Plaintiff, Design 408 LLC is a domestic limited liability corporation organized and existing under the laws of Delaware.
2. Defendant Sennheiser Electronic Corporation is a corporation organized and existing under the laws of Delaware that maintains its principal place of business at One Enterprise Drive, Old Lyme, CT 06371.

JURISDICTION

3. This is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.
4. This Court has exclusive subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

5. This Court has personal jurisdiction over Sennheiser because it has engaged in systematic and continuous business activities in this District. Specifically, Sennheiser provides its full range of services to residents in this District. As described below, Sennheiser has committed acts of patent infringement giving rise to this action within this District.

VENUE

6. Venue is proper in this District under 28 U.S.C. § 1400(b) because Sennheiser has committed acts of patent infringement in this District and has a regular and established place of business in this District. Specifically, Sennheiser provides its full range of services to residents in this District. In addition, Design has suffered harm in this district.

PATENT-IN-SUIT

7. Design is the assignee of assignee of all right, title and interest in United States Patent No. 8,055,004 (the "'004 Patent" or the "Patent-in-Suit"), including all rights to enforce and prosecute actions for infringement and to collect damages for all relevant times against infringers of the Patent-in-Suit. Accordingly, Design possesses the exclusive right and standing to prosecute the present action for infringement of the Patent-in-Suit by Sennheiser.

The '004 Patent

8. On November 8, 2011, the United States Patent and Trademark Office issued the '004 Patent. The '004 Patent is titled "Fiber Optic Earpiece to Reduce Radiation Transmitted to a Cell Phone User." The application leading to the '004 Patent was filed on June 10, 2008. A true and correct copy of the '004 Patent is attached hereto as Exhibit A and incorporated herein by reference.
9. The '004 Patent is valid and enforceable.

10. The invention in the '004 Patent relates to a protective, radiation free earpiece that protects the user from RF energy emanating from a phone apparatus and to provide an enhanced, high-quality communication signal between the cell phone and an earpiece. Ex. A at 1:17-22.
11. The inventors recognized that there were previous attempts to protect cell phone users from RF radiation, which did not satisfactorily solve the problem. *Id.* at 1:24-26. For example, while previous inventions reduced the level of radiation that users were exposed to, the user's head was still exposed to radiation. *Id.* at 1:34-35. The inventors solved this problem by providing a radiation blocking apparatus, such as an optical fiber ear piece. *Id.* at 2:47-49, 51-52. The invention also solves the problem by enhancing the signal quality between the phone and the ear piece. *Id.* at 45-46.

COUNT I: INFRINGEMENT OF THE '004 PATENT

12. Design incorporates the above paragraphs herein by reference.
13. **Direct Infringement.** Sennheiser has been and continues to directly infringe at least claim 2 of the '004 Patent in this District and elsewhere in the United States by providing products, for example, Sennheiser's IAS MO 2000 that performs the step of constructing a communication method within an earpiece.
14. Sennheiser's IAS MO 2000 performs the step of using a microphone to receive an analog signal. For example, Sennheiser's IAS MO 2000 receives the analog signal of the microphone first.
15. Sennheiser's IAS MO 2000 performs the step of using the amplifier to amplify the analog signal. For example, Sennheiser's IAS MO 2000 has a solid-state amplifier that harmonizes and delivers an acoustic performance when paired with the IAS MO 2000. *See* Figure 1; <https://en-us.sennheiser.com/headphone-audio-amplification-hdvd-800-acoustic>.

Overview

With Sennheiser's HDVD 800, sound is perfect. The HDVD 800 is able to connect with digital sources and is equipped with a high-quality Burr-Brown digital/analog converter (DAC) that converts digital audio data into analog signals with a resolution of 24 bits and a sampling rate of up to 192 kHz. This enables the HDVD 800 to transmit the entire frequency spectrum of high-end audio sources without any loss of frequencies.

In addition to the symmetrical inputs, the HDVD 800 also has an asymmetrical input socket; incoming signals are symmetrized before further processing takes place. Digital sources can be connected to the rear of the unit via an XLR (AES/EBU) input, optical and coaxial (S/PDIF) digital inputs or USB. All digital inputs accept signals up to 24 bit at 192 KHz*. Designed and manufactured in Germany, this high-end, solid-state amplifier harmonize perfectly and deliver an ultimate acoustic performance when paired with any of Sennheiser's audiophile headphones.

Figure 1. Sennheiser's IAS MO 2000 has a solid-state amplifier that harmonizes and delivers an acoustic performance when paired with the IAS MO 2000.

16. Sennheiser's IAS MO 2000 performs the step of using an ADC block to convert the analog signal to a digital signal. For example, Sennheiser's IAS MO 2000 has a compact digital module that screws onto the microphone head and can turn audio signals into digital signals.
17. Sennheiser's IAS MO 2000 performs the step of using a memory chip to store the digital signal. For example, Sennheiser's IAS MO 2000 has a memory chip inside the headphone.
18. Sennheiser's IAS MO 2000 performs the step of using a parallel to serial converter to convert the contents of the memory chip to a serial format. For example, Sennheiser's IAS MO 2000 has a pitch shifter allowing the microphone to undergo parallel to serial conversion.
19. Sennheiser's IAS MO 2000 performs the step of using optical modulation to modulate the contents of the digital signal in serial format. For example, Sennheiser's IAS MO 2000 has a transducer that processes acoustic signals on the variation of light intensity. *See Figure 2.*

HOW IT WORKS

An optical principle is the only microphone principle in which the microphone head and electronics can be located far away from each other. The optical microphone relies on light from an LED, which is directed onto a reflective diaphragm via a fiber-optic cable (optical transmitter waveguide). The membrane then reflects part of the light into an optical receiver waveguide. If the diaphragm is moved by sound signals, the reflected light beam is displaced, allowing more or less light into the receiver waveguide. At the end of the receiver waveguide, a photodiode converts the light intensity variations into electric signals.

Figure 2. Sennheiser's IAS MO 2000 has a transducer that processes acoustic signals on the variation of light intensity.

20. Sennheiser's IAS MO 2000 performs the step of using a fiber optic medium to carry the digital signal. For example, Sennheiser's IAS MO 2000 includes a fiber-optic cable to reflect light from an LED. *See Figure 2.*
21. Sennheiser's IAS MO 2000 performs the step of using demodulation upon the digital signal. For example, Sennheiser's IAS MO 2000 has a photodiode that converts the light intensity waves directly into electric signals. *See Figure 2.*
22. Sennheiser's IAS MO 2000 performs the step of using a series to parallel converter upon the digital signal. For example, Sennheiser's IAS MO 2000 has a signal processing unit that is used again to convert series data to parallel. *See Figure 9.*
23. Sennheiser's IAS MO 2000 performs the step of using a second memory chip to store the digital signal in a parallel format. For example, Sennheiser's IAS MO 2000 has a second memory chip inside the headphone that stores digital signals in a parallel format. *See Figure 10.*
24. Sennheiser's IAS MO 2000 performs the step of using a DAC block to convert the contents of the second memory chip into an analog format. For example, Sennheiser's IAS MO 2000

is able to connect with the HDVD 800 and Burr-Brown digital/analog converter in order to convert digital signals into analog. *See* Figure 3.

| | |
|--------------------------------|---------------------------|
| <i>Digital SPDIF (TosLink)</i> | |
| Max. sampling frequency: | 192 kHz (AES3-compatible) |
| Max. resolution: | 24 bit |
| <i>Digital AES/EBU (XLR-3)</i> | |
| Max. sampling frequency: | 192 kHz (AES3-compatible) |
| Max. resolution: | 24 bit |

Figure 3. Sennheiser's IAS MO 2000 is able to connect with the HDVD 800 and Burr-Brown digital/analog converter in order to convert digital signals into analog.

25. **Induced Infringement.** Sennheiser has also actively induced, and continues to induce, the infringement of at least claim 1 of the '004 Patent by actively inducing its customers, including merchants and end-users to use Design's products in an infringing manner as described above. Upon information and belief, Sennheiser has specifically intended that its customers use its products that infringe at least claim 1 of the '004 Patent by, at a minimum, providing access to support for, training and instructions for, its system to its customers to enable them to infringe at least claim 1 of the '004 Patent, as described above. Even where performance of the steps required to infringe at least claim 1 of the '004 Patent is accomplished by Sennheiser and Sennheiser's customer jointly, Sennheiser's actions have solely caused all of the steps to be performed.
26. Design is entitled to recover damages adequate to compensate it for such infringement in an amount no less than a reasonable royalty under 35 U.S.C. § 284.
27. Design will continue to be injured, and thereby caused irreparable harm, unless and until this Court enters an injunction prohibiting further infringement.

JURY DEMAND

28. Under Rule 38(b) of the Federal Rules of Civil Procedure, Design respectfully requests a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Design asks this Court to enter judgment against Sennheiser, granting the following relief:

- A. A declaration that Sennheiser has infringed the Patent-in-Suit;
- B. An award of damages to compensate Design for Sennheiser's direct infringement of the Patent-in-Suit;
- C. An order that Sennheiser and its officers, directors, agents, servants, employees, successors, assigns, and all persons in active concert or participation with them, be preliminarily and permanently enjoined from infringing the Patent-in-Suit under 35 U.S.C. § 283;
- D. An award of damages, including trebling of all damages, sufficient to remedy Sennheiser's willful infringement of the Patent-in-Suit under 35 U.S.C. § 284;
- E. A declaration that this case is exceptional, and an award to Design of reasonable attorneys' fees, expenses and costs under 35 U.S.C. § 285;
- F. An award of prejudgment and post-judgment interest; and
- G. Such other relief as this Court or jury may deem proper and just.

Respectfully submitted,
/s/ Stamatios Stamoulis
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