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IN THE UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA – SOUTHERN DIVISION

HARMAN INTERNATIONAL INDUSTRIES, INC., Plaintiff, vs. QSC, LLC, Defendants.	Case No. **COMPLAINT FOR PATENT INFRINGEMENT** **Jury Trial Demanded**

Plaintiff Harman International Industries, Inc. ("Harman" or "Plaintiff") files this Complaint against Defendant QSC, LLC ("QSC" or "Defendant") for willful infringement

of US Patent No. 8,170,223 (the "'223 patent") based upon QSC's unauthorized manufacture, use, offer for sale, sale and/or importation of QSC's infringing products accused herein.

THE PARTIES

1. Plaintiff Harman is a Delaware corporation, having a principal place of business at 400 Atlantic Street, Stamford, CT 06901.

2. On information and belief, Defendant QSC, LLC is a California limited liability company having a principal place of business at 1675 MacArthur Blvd., Costa Mesa, CA 92626.

JURISDICTION AND VENUE

3. This action arises under the patent laws of the United States, *i.e.*, 35 U.S.C. § 1 *et seq.*, including 35 U.S.C. § 271.

4. This Court has subject matter jurisdiction over patent infringement claims under 28 U.S.C. § 1331 (federal question jurisdiction) and 28 U.S.C. § 1338 (jurisdiction over patent actions).

5. This Court has personal jurisdiction over QSC because QSC is incorporated in California, has its headquarters located in Costa Mesa, California, has engaged in systematic and continuous business activities in this District, and has committed acts of patent infringement giving rise to this action within this District.

6. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) because QSC is incorporated in California and has a principle place of business located within this District.

HARMAN AND THE '223 PATENT

7. Harman is a global leader in connected car technology, lifestyle audio innovations, professional audio and lighting solutions, and digital transformation.

8. In the audio segment, Harman designs, makes and sells products under iconic brands such as JBL®, JBL Professional®, JBL Synthesis®, Infinity®, harman/kardon®, Lexicon, Revel®, Arcam®, Mark Levinson®, BSS®, dbx®, Soundcraft® and AMX®.

9. Harman owns a large portfolio of patents in the audio segment.

10. Among such patents, Harman is the assignee of and owns all substantial right, title, and interest in and to United States Patent No. 8,170,223 (the "'223 patent"), which is titled "Constant-Beamwidth Loudspeaker Array."

11. The '223 patent was duly and legally issued by the United States Patent and Trademark Office on May 1, 2012, naming D. Broadus Keele, Jr. ("Mr. Keele") as the sole inventor. A true and correct copy of the '223 patent is attached as **Exhibit 1**.

12. The '223 patent is directed to an improved loudspeaker for transmitting a directional sound field having a substantially constant beamwidth across an operational frequency range.

13. The '223 patent describes a technology ubiquitously known now in the audio industry as Constant Beam Transducer ("CBT") technology.

14. Mr. Keele is a renowned audio engineer and inventor who pioneered the use of CBT arrays in loudspeakers.

15. Mr. Keele has won numerous awards for his work in audio technology, including the Academy Award for Technical Achievement.

16. Harman has sold and/or sells loudspeakers under the JBL Professional brand name that practice one or more claims of the '223 patent, including for example the JBL Professional CBT 50LA-1, JBL Professional CBT 50LA-LS, JBL Professional CBT 100LA-1, JBL Professional CBT 100LA-LS, and JBL Professional CBT 200LA-1 loudspeakers.

QSC'S INFRINGING ACTIVITIES AND KNOWLEDGE OF THE '223 PATENT

17. QSC makes, uses, imports, distributes supplies, markets, offers for sale, and/or sells QSC branded products that use so-called Progressive Taper Topology ("PPT"), such as QSC's AcousticDesign™ Series column surface mount loudspeaker products, which infringe at least one claim of the '223 patent (collectively, the "Accused Products").

18. One exemplary QSC AcousticDesign™ Series column surface mount loudspeaker product is QSC's AD-S162T, which is an Accused Product. *See, e.g.,* **Exhibits 2 and 3.**

19. QSC has had knowledge of the '223 patent since at least May 23, 2022, when Harman sent an email notifying QSC of the '223 patent and offered QSC a license to the '223 patent because it "likely relates to at least some of the QSC's current speaker technologies." *See* **Exhibit 4.**

20. On July 6, 2022, QSC's counsel responded, acknowledging that certain of QSC's speaker technologies "may be relevant to the '223 Patent" but denying infringement. *See* **Exhibit 5.** On November 28, 2022, Harman's counsel replied with a letter explaining why QSC products that use Progressive Taper Topology (PTT) infringe the claims of the '223 patent.

COUNT I

INFRINGEMENT OF U.S. PATENT NO. 8,170,223

21. Harman repeats and incorporates herein each of the preceding paragraphs as if set forth in their entirety.

22. In violation of at least 35 U.S.C. § 271(a), QSC infringes and/or has infringed, directly or indirectly, and literally or under the doctrine of equivalents, at least claim 1 of the '223 patent by importing, making, using, offering to sell and/or selling the Accused Products without a license or permission from Harman, including in this judicial district.

23. Claim 1 of the '223 patent recites as follows:

> 1. A loudspeaker system, the loudspeaker system comprising:
>
> a frame;
>
> an array of speaker drivers, where the array of speaker drivers is coupled to the frame and aligned in a frontal plane; and

> a circuit configured to apply a plurality of delay levels to an incoming signal to place the array of speaker drivers in a virtual arc in a plane perpendicular to the frontal plane, where the circuit is further configured to also apply a plurality of attenuation levels to the incoming signal, so that each speaker driver of the array of speaker drivers is configured to receive a driving electrical signal based on the incoming signal that causes a respective speaker driver of the array of speaker drivers to generate a respective acoustic output, where each respective acoustic output is combined to form a directional sound field having a substantially constant beamwidth across an operational frequency.

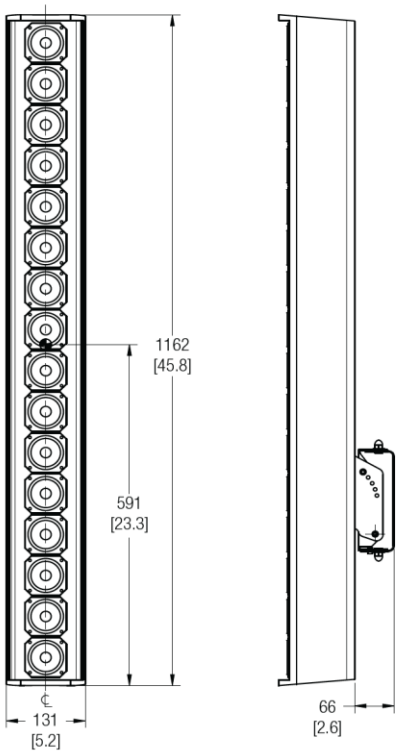
24. The Accused Products are loudspeakers. For example, the AD-S162T is described by QSC as a "16-driver column surface-mount loudspeaker." *See* **Exhibit 2.** An image of QSC's AD-S162T product is reproduced below from the AcousticDesign™ Series specification sheet. *Id.*

Exhibit 2.

25. The Accused Products include a frame. For example, the AD-S162-T has an "enclosure" made of "powder coated aluminum." *See* **Exhibit 3.**

26. The Accused Products include an array of speaker drivers. For example, the AD-S162-T has an array of 16 2.75 inch transducers. *See* **Exhibit 3.**

27. The array of speaker drivers in the Accused Products are coupled to the frame and aligned in a frontal plane. The image below is reproduced from the AD-SS162-T specification sheet and shows the 16 transducers coupled to the frame and aligned in a frontal plane:



See **Exhibit 3.**

The Accused Products include a circuit configured to apply a plurality of delay levels to an incoming signal to place the array of speaker drivers in a virtual arc in a plane perpendicular to the frontal plane. For example, the AD-SS162-T specification sheet indicates that the AD-SS162-T product has a "euroblock connector with parallel output." *See* **Exhibit 3.** Testing and evaluation of the ADSS162-T product by Harman, including acoustic measurements, shows delay levels applied to the incoming signal. Further, the specification sheet for the ADSS162-T product explains that the "PTT (Progressive Taper Topology™) network is utilized to create a passive curvature of the array line which greatly reduces side lobing, often problematic of straight array lines, resulting in precise and consistent directivity control" **(Exhibit 3)**, which describes placing the array of

speaker drivers in a virtual arc.

28. The circuit of the Accused Products is further configured to apply a plurality of attenuation levels to the incoming signal. Testing and evaluation by Harman of QSC's ADSS162-T product, for example, shows that a plurality of attention levels are applied to the incoming signal. Further, the specification sheet for the ADSS162-T product indicates that its PPT network "greatly reduces side lobing" **(Exhibit 3)**, which is accomplished by application of a plurality of attenuation levels to the incoming signal.

29. Each speaker driver of the array of speaker drivers in the Accused Products is configured to receive a driving electrical signal based on the incoming signal that causes a respective speaker driver of the array of speaker drivers to generate a respective acoustic output. Testing and evaluation by Harman of QSC's ADSS162-T product, for example, shows this element to be present. Further, the specification sheet for the ADSS162-T product indicates that the ADSS162-T product provides precise and consistent directivity control **(Exhibit 3)**, which results from each speaker driver receiving a respective driving electrical signal based on the incoming signal.

30. Each respective acoustic output is combined to form a directional sound field having a substantially constant beamwidth across an operational frequency. Testing and evaluation by Harman of QSC's ADSS162-T product, for example, shows this element to be present. Further, the specification sheet for the ADSS162-T product indicates that the ADSS162-T product provides predictable, even coverage for speech and music reinforcement **(Exhibit 3)**, which results from a sound field having a substantially constant beamwidth across an operational frequency.

31. QSC has had knowledge of the '223 patent since at least May 23, 2022, when Harman wrote to QSC. *See* **Exhibit 4**. Furthermore, QSC has had knowledge of its infringing conduct no later than November 28, 2022. Accordingly, QSC's infringement has been willful, intentional, deliberate and/or in conscious disregard of Harman's rights.

32. QSC's willful infringement entitles Harman to increased damages under 35 U.S.C. § 284, and the exceptional nature of this case entitles Harman to an award of its attorneys' fees and costs under 35 U.S.C. § 285.

33. QSC's infringement of Harman's '223 patent has caused, and will continue to cause, Harman to suffer substantial irreparable harm unless QSC is enjoined by this Court pursuant to 35 U.S.C. § 283.

PRAYER FOR RELIEF

WHEREFORE, Harman respectfully requests that this Court enter judgment in its favor and grant the following relief:

A. Judgment and order that QSC has infringed, and continues to infringe, Harman's '223 patent;

B. Judgment and order that QSC must compensate Harman for past and future damages under 35 U.S.C. §284, including supplemental damages arising from any continuing post-verdict infringement for the time between trial and entry of the final judgment, together with an accounting, as needed, as provided under 35 U.S.C. § 284;

C. Judgment and Order that QSC must pay Harman reasonable and ongoing royalties on a go-forward basis after Final Judgment;

D. Judgment and order that QSC's infringement has been willful;

E. Judgment and order that all damages awarded to Harman for QSC's infringement be trebled pursuant to 35 U.S.C. § 284;

F. Judgment and order that this case is exceptional under 35 U.S.C. § 285 and ordering QSC to pay Harman its attorneys' fees;

G. Permanent injunction prohibiting QSC from further infringement of the '223 patent;

H. Judgment and Order that QSC pay Harman's costs; and

I. Such other and further relief as the Court deems just and proper.

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DEMAND FOR A JURY TRIAL

Harman hereby demands a trial by jury in this action.

Respectfully Submitted,

Dated: May 5, 2023

HARRINGTON, FOXX, DUBROW & CANTER, LLP

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HARMAN INTERNATIONAL INDUSTRIES, INC.

Dated: May 5, 2023

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