IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

ADIONA IP, LLC,	)
	)
Plaintiff,	)
	) Civil Action No. 1:18-cv-716-LPS-CJB
	)
	) **JURY TRIAL DEMANDED**
BANG & OLUFSEN AMERICA, INC.,	)
	)
Defendant.	)
	)

FIRST AMENDED COMPLAINT

For its Complaint, Adiona IP, LLC ("Adiona"), by and through the undersigned counsel, alleges as follows:

THE PARTIES

1. Adiona is a Texas limited liability company with a place of business located at 5068 West Plano Parkway, Suite 300, Plano, Texas 75093.

2. Defendant Bang & Olufsen America, Inc. is a Delaware company with, upon information and belief, a place of business located at 780 West Dundee Road, Arlington Heights, Illinois 60004.

3. By registering to conduct business in Delaware, Defendant has a permanent and continuous presence in Delaware.

JURISDICTION AND VENUE

4. This action arises under the Patent Act, 35 U.S.C. § 1 *et seq.*

5. Subject matter jurisdiction is proper in this Court under 28 U.S.C. §§ 1331 and 1338.

6. Upon information and belief, Defendant conducts substantial business in this forum, directly or through intermediaries, including: (i) at least a portion of the infringements

alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct and/or deriving substantial revenue from goods and services provided to individuals in this district.

7. Venue is proper in this district pursuant to § 1400(b).

THE PATENT-IN-SUIT

8. On March 20, 2007, U.S. Patent No. 7,194,520 (the "'520 patent"), entitled "Content Player for Broadcasting to Information Appliances," was duly and lawfully issued by the U.S. Patent and Trademark Office. A true and correct copy of the '520 patent is attached hereto as Exhibit A.

9. Adiona is the assignee and owner of the right, title and interest in and to the '520 patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 7,194,520

10. Adiona repeats and realleges the allegations of paragraphs 1 through 9 as if fully set forth herein.

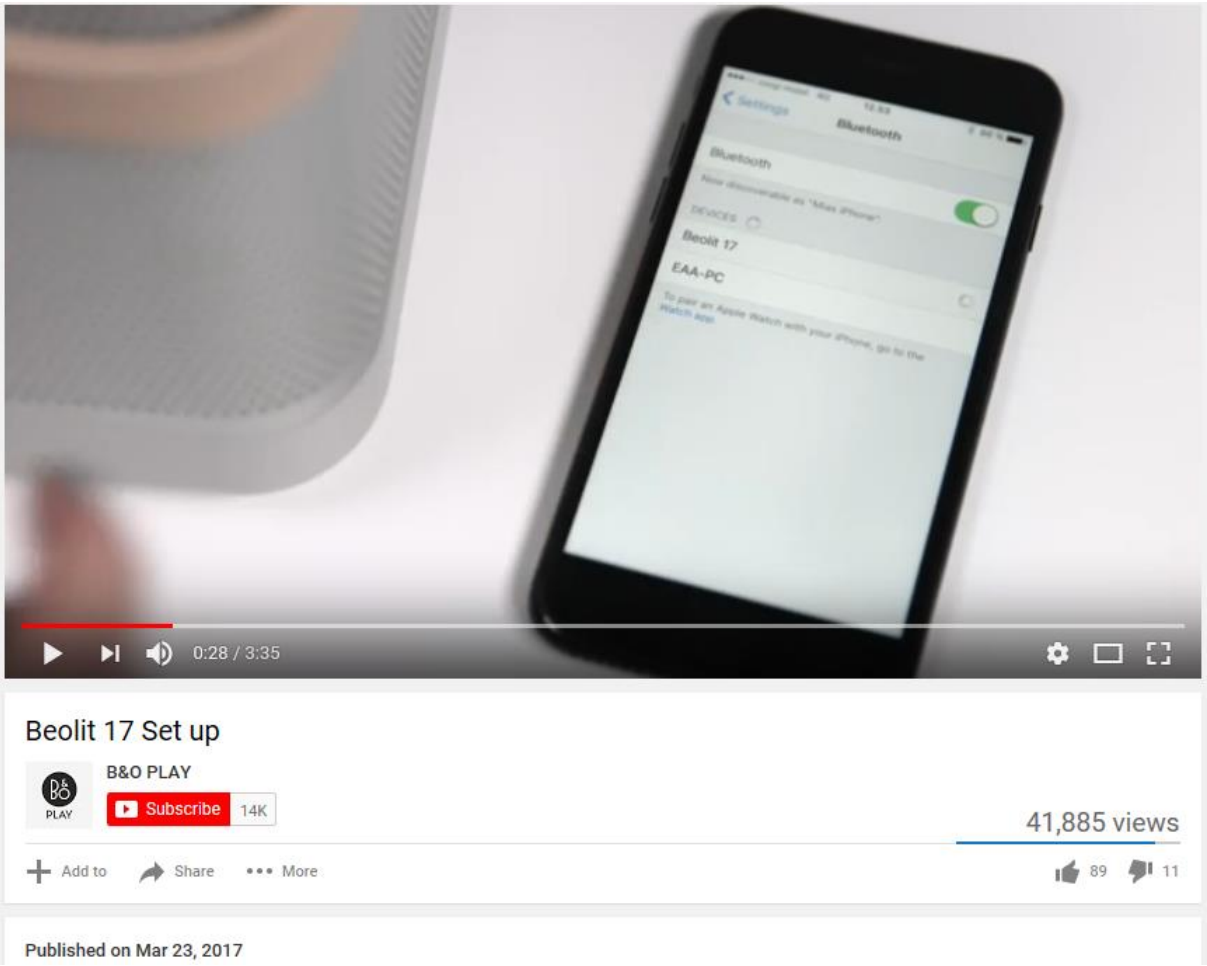
11. Without license or authorization and in violation of 35 U.S.C. § 271(a), Defendant has infringed and continues to infringe at least claim 8 of the '520 patent by making, using, importing, offering for sale, and/or selling, methods of broadcasting media content to an information appliance from a personal computer that is linked to a network, including, but not limited to, Beolit 17, because each and every element is met either literally or equivalently.

12. Upon information and belief, Defendant used the Beolit 17 via its internal use and testing in the United States, directly infringing one or more claims of the '520 patent.

13. For example, to create its Quick Start Guide, User Guide, and instructional video for the Beolit 17, Defendant used the Beolit 17.

14. More specifically, the Beolit 17 is a speaker system (i.e., an information appliance) with Bluetooth connectivity which allows a user to connect with the speaker wirelessly using the Bluetooth-connectivity of a smartphone or tablet running iOS or Android (e.g., "computing device"). *See* Beolit 17 Set Up ("Beolit 17 Set Up") (available at https://www.youtube.com/watch?v=G2PuRE7B-7E (last accessed May 4, 2018)).

15. Below is an image from a video created by Defendant showing Defendant connecting the computing device to the Beolit 17 via Bluetooth:



Id.

16. The computing device can access the Internet using Wi-Fi.

17. Once connected to the Beolit 17, the computing device can stream music to the Beolit 17 speaker. *See id.*; *see also* BeoLit 17 Wireless 360 Speaker Features & Review (available at https://www.youtube.com/watch?v=NpZ5rZ2ZcTI (last accessed May 4, 2018)).

18. To stream/play music on the Beolit 17 speaker, the computing device is connected to the speaker over Bluetooth (i.e., a bi-directional communication link). *See* Beolit 17 Setup; Quick Start Guide ("Quick Start") at p. 4 (available at https://www.beoplay.com/~/media/manualspdf/beolit-17/3511479_1610_beolit_17_a_quick-start-guide_web.pdf?la=en (last accessed May 4, 2018)); User Guide ("User Guide") at pp. 6-10 (available at https://www.beoplay.com/~/media/manualspdf/beolit-17/3511479_1610_beolit_17_a_user-guide_web.pdf?la=en (last accessed May 4, 2018)).

19. Defendant has asserted the Beolit 17 supports Bluetooth version 4.2. (*See* D.I. 12 at 4 ("Beolit 17 is a high-end portable Bluetooth speaker that supports Bluetooth version 4.2.")).

20. Defendant has admitted "Bluetooth audio is transmitted over the Advanced Audio Distribution Profile (A2DP), which uses asynchronous connectionless (ACL) links." (*Id.* at 5.)

21. The Bluetooth version 4.2 core specification is available online at https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=441541&_ga=2.66840238.1041686570.1534427563-1882977137.1534427563 ("Bluetooth 4.2") (last accessed Aug. 16, 2018).

22. A true and correct copy of excerpts from the Bluetooth version 4.2 core specification are attached hereto to Exhibit B.

23. As detailed in Table 3.1 of the Bluetooth version 4.2 core specification, a true and correct reproduction of which is below, ACL is used for bi-directional communication between devices.

Table 3.1 lists all of the logical transport types, the supported logical link types, which type of physical links and physical channels can support them, and a brief description of the purpose of the logical transport.

Logical transport	Links supported	Supported by	Bearer	Overview
Asynchronous Connection-Oriented (ACL)	Control (LMP) ACL-C or (PAL) AMP-C User (L2CAP) ACL-U or AMP-U	BR/EDR active physical link, BR/EDR basic or adapted piconet physical channel, AMP physical link, AMP physical channel	BR/EDR, AMP	Reliable or time-bounded, bi-directional, point-to-point
Synchronous Connection-Oriented (SCO)	Stream (unframed) SCO-S	BR/EDR active physical link, BR/EDR basic or adapted piconet physical channel	BR/EDR	Bi-directional, symmetric, point-to-point, AV channels. Used for 64Kb/s constant rate data.
Extended Synchronous Connection-Oriented (eSCO)	Stream (unframed) eSCO-S	BR/EDR active physical link, BR/EDR basic or adapted piconet physical channel	BR/EDR	Bi-directional, symmetric or asymmetric, point-to-point, general regular data, limited retransmission. Used for constant rate data synchronized to the master Bluetooth clock.

Table 3.1: Logical transport types

Logical transport	Links supported	Supported by	Bearer	Overview
Active Slave Broadcast (ASB)	User (L2CAP) ASB-U	BR/EDR active physical link, basic or adapted physical channel	BR/EDR	Unreliable, uni-directional broadcast to any devices synchronized with the physical channel. Used for broadcast L2CAP groups.
Parked Slave Broadcast (PSB)	Control (LMP) PSB-C, User (L2CAP) PSB-U	BR/EDR parked physical link, basic or adapted piconet physical channel	BR/EDR	Unreliable, uni-directional broadcast to all piconet devices. Used for LMP and L2CAP traffic to parked devices, and for access requests from parked devices.
Connectionless Slave Broadcast (CSB)	Profile Broadcast Data (PBD)	Connectionless Slave Broadcast physical link, BR/EDR adapted piconet physical channel	BR/EDR	Unreliable, unidirectional, point-to-multipoint, periodic transmissions to zero or more devices.
LE asynchronous connection (LE ACL	Control (LL) LE-C, User (L2CAP) LE-U	LE active physical link, LE piconet physical channel	LE	Reliable or time-bounded, bi-directional, point-to-point.
LE Advertising Broadcast (ADVB)	Control (LL) ADVB-C, User (LL) ADVB-U	LE advertising physical link, LE piconet physical channel	LE	LE advertising physical link, LE piconet physical channel.

Table 3.1: Logical transport types

Bluetooth 4.2 [Vol 1, Part A] at pp. 60-61.

24. Accordingly, the Beolit 17 speaker and the computing device are connected through a bi-directional communication link.

25. The computing device can play music of various audio formats ("media content"), and it can be in one room while wirelessly connected through Bluetooth to the Beolit 17 speaker located in another room.

26. Yet, Defendant has stated:

> All Bluetooth products sold by B&O are designed and operate as Radio Power Class 2 or 3 of Bluetooth devices, which means that the products have a wireless range of 5 meters (approximately 16 feet) and 10 meters (approximately 33 feet), respectively. It is widely known in the wireless communication industry that Class 2 and 3 devices are not suitable for multi-room purposes because their transmitters have very limited power output and that they are practically incapable of penetrating through walls or other obstructions.

(D.I. 12 at 4.)

27. Defendant also stated: "[I]t is widely known in the wireless communication industry that the Bluetooth range decreases exponentially upon encountering a physical barrier and that cross-room transmission is virtually impossible using Bluetooth connectivity." (*Id.* at 11.)

28. The following text is reproduced from the article by Shawn McClain entitled "What Are the Limitations of Bluetooth" (available at https://www.techwalla.com/articles/what-are-the-limitations-of-bluetooth (last accessed Aug. 16, 2018)), attached hereto as Exhibit C:

Distance Limitations

Most Bluetooth devices, especially those that run on battery power, are Class 2 Bluetooth devices. Class 2 devices have a range of about 10 meters, or around 30 feet. The range limitations are meant to avoid the quick depletion of the battery. While the Bluetooth signal will work through walls, the more objects that are in between the devices, the less overall range the devices will have. Class 1 Bluetooth devices have a range of about 100 meters, but the size and power consumption needed to create a Class 1 signal means that small wireless devices could not use it and are confined to the 10 meters of the Class 2 protocol.

29. Not only does Mr. McClain's article confirm that a Bluetooth signal penetrates through walls, but also a representative of Adiona tested the Beolit 17 by placing it in a location several rooms – and walls – away from the computing device, and the Beolit 17 played music

broadcast from the computing device without an issue. In other words, the signal broadcast from the computing device successfully reached the Beolit 17.

30. Accordingly, Defendant's assertions that the "cross-room transmission is virtually impossible using Bluetooth connectivity" and "[i]t is widely known in the wireless communication industry that Class 2 and 3 devices are not suitable for multi-room purpose" are false.

31. The computing device can download audio files (e.g., programs) using the Internet and store them in its internal storage.

32. For example, the computing device Defendant used in the Beolit 17 Set Up is an iPhone and an iPhone can download audio files (e.g., programs) using the Internet and store them in its internal storage.

33. The Beolit 17 speaker can control playback from the computing device, which means the Beolit 17 speaker transmits control signals to the computing device. *See* Beolit 17 Set Up.

34. For example, if the connect button on the Beolit 17 speaker is pressed, a control signal will be generated and transmitted to the computing device via Bluetooth and the computing device will broadcast the music to the Beolit 17 speaker, which will receive and playback the song; if the connect button on the Beolit 17 is pressed twice, a control signal will be generated and transmitted to the computing device via Bluetooth and the computing device will broadcast the next song to the Beolit 17 speaker.

35. By selecting whether to play the current song or next song, the Beolit 17 must send a control signal to the computing device. Otherwise, the computing device would not alter playback of a song currently playing to the next song.

36. The Bluetooth version 4.2 core specification states:

1.1 OVERVIEW OF BR/EDR OPERATION

The Basic Rate / Enhanced Data Rate (BR/EDR) radio (physical layer or PHY) operates in the unlicensed ISM band at 2.4 GHz. The system employs a frequency hopping transceiver to combat interference and fading and provides many FHSS carriers. Basic Rate radio operation uses a shaped, binary frequency modulation to minimize transceiver complexity. The symbol rate is 1 megasymbol per second (Ms/s) supporting the bit rate of 1 megabit per second (Mb/s) or, with Enhanced Data Rate, a gross air bit rate of 2 or 3Mb/s. These modes are known as Basic Rate and Enhanced Data Rate respectively.

During typical operation a physical radio channel is shared by a group of devices that are synchronized to a common clock and frequency hopping pattern. One device provides the synchronization reference and is known as the master. All other devices synchronized to a master's clock and frequency hopping pattern are known as slaves. A group of devices synchronized in this fashion form a piconet. This is the fundamental form of communication in the Bluetooth BR/EDR wireless technology.

Bluetooth 4.2 [Vol 1, Part A] at pp. 14-15.

37. "The Bluetooth system operates in the 2.4 GHz ISM band." Bluetooth 4.2 [Vol 2, Part A] at p. 36.

38. The 2.4 GHz ISM band is a radio frequency band.

39. The Beolit 17 is a device that supports Bluetooth version 4.2, which means it can communicate with a computing device via a radio frequency.

40. The transmission of audio files (e.g., programs) from the computing device over a radio frequency to the Beolit 17 is a broadcast from the computing device.

41. The Beolit 17 is Bluetooth speaker that includes a radio which transmits data using frequency hopping spread spectrum signal (FHSS) carrier.

1.1 OVERVIEW OF BR/EDR OPERATION

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During typical operation a physical radio channel is shared by a group of devices that are synchronized to a common clock and frequency hopping pattern. One device provides the synchronization reference and is known as the master. All other devices synchronized to a master's clock and frequency hopping pattern are known as slaves. A group of devices synchronized in this fashion form a piconet. This is the fundamental form of communication in the Bluetooth BR/EDR wireless technology.

Bluetooth 4.2 [Vol 1, Part A] at pp. 14-15.

42. Upon information and belief, the computing device includes a controller, a memory, a network connection device, a display system, and an input/output system, the controller configured to communicate with the memory, the network connection device, the display system, and the input/output system with a system bus.

43. Adiona's initial complaint was filed on May 11, 2018.

44. Defendant was served the initial complaint on May 14, 2018.

45. Thus, Defendant has been on notice of the '520 patent since, at the latest, the date it was served the Complaint.

46. Upon information and belief, Defendant has not altered its infringing conduct after receiving the initial complaint.

47. Upon information and belief, Defendant's continued infringement despite its knowledge of the '520 patent and the accusations of infringement has been objectively reckless and willful.

48. In particular, Defendant's customers' and end-users' use of Defendant's products that include methods of broadcasting media content to an information appliance from a personal computer that is linked to a network, including, but not limited to, the Accused Instrumentalities, is facilitated by the use of technology patented under the '520 patent. Thus, Defendant's customers and end-users are able to use and benefit from a method of broadcasting media content an information appliance from a personal computer that is linked to a network, the personal computer in communication with the information appliance by a bi-directional communication link between the personal computer and the information appliance.

49. On information and belief, in order to generate profits and revenues, Defendant markets and promotes, e.g., through its website, advertising and sales personnel, the use of its products that infringe the '520 patent when used as intended by Defendant's customers and end-users. Defendant's customers and end-users use such products (including, e.g., Beolit 17). Defendant further instructs its customers and end-users how to use such products in a manner that infringe the '520 patent (e.g., through on-line technical documentation, instructions, and technical support). Defendant further instructs its customers and end-users to infringe the '520 patent through the products themselves, e.g., through instructions.

50. In particular, Defendant instructs its customers and end-users through at least on-line support instructions, videos and documentation over the Internet how to use the accused products, including, but not limited to, Beolit 17.

51. Defendant still further makes such products accessible to its customers and end-users via the Internet, thus enabling and encouraging its customers and end-users to use such products to infringe the '520 patent.

52. On information and belief, even though Defendant has been aware of the '520

patent and that its customers and end-users infringe the '520 patent since no later than the date it was served the Complaint, Defendant has neither made any changes to the functionality, operations, marketing, sales, technical support, etc. of such products to avoid infringing the '520 patent nor informed its customers or end-users how to avoid infringing the '520 patent. To date, Defendant has not identified a single action that it has taken to avoid infringement (e.g., by designing around or notifying its customers or end-users how to avoid infringement) by itself or its customers or end-users since it became aware of the '520 patent.

53. On information and belief, Defendant itself is unaware of any legal or factual basis that its actions solely, or in combination with the actions of its customers and end-users, do not constitute direct or indirect infringement of the '520 patent. To date, Defendant has not produced any opinion of counsel, request for opinion of counsel relating to the scope, interpretation, construction, enforceability, unenforceability, or the infringement or potential infringement of any claim of the '520 patent. In addition, Defendant has not produced any complete evaluation, analysis, or investigation relating to the validity of the '520 patent.

54. As such, on information and belief, despite the information Defendant obtained from the original complaint in this action, Defendant continues to specifically intend for and encourage its customers and end-users to use its products in a manner that infringe the claims of the '520 patent. In addition, since at least the filing of the original complaint in this action, Defendant has deliberately avoided taking any actions (e.g., designing around, or providing notice to its customers) to avoid confirming that its actions continue to specifically encourage their customers and end-users to use their products in a manner that infringe the claims of the '520 patent.

55. Defendant's actions of, *inter alia*, making, importing, using, offering for sale,

and/or selling such products constitute an objectively high likelihood of infringement of the '520 patent, which was duly issued by the United States Patent and Trademark Office and is presumed valid. Since at least the filing of the original complaint, Defendant is aware that there is an objectively high likelihood that their actions constituted, and continue to constitute, infringement of the '520 patent and that the '520 patent is valid. Despite Defendant's knowledge of that risk, on information and belief, Defendant has not made any changes to the relevant operation of its accused products and has not provided its users and/or customers with instructions on how to avoid infringement of the '520 patent. Instead, Defendant has continued to, and still is continuing to, among other things, make, use, offer for sale, and/or sell products patented under the '520 patent. As such, Defendant willfully, wantonly and deliberately infringed and is infringing the '520 patent in disregard of Adiona's rights under the '520 patent.

56. Adiona is entitled to recover from Defendant the damages sustained by Adiona as a result of Defendant's infringement of the '520 patent in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

JURY DEMAND

Adiona hereby demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Adiona requests that this Court enter judgment against Defendant as follows:

A. An adjudication that Defendant has infringed the '520 patent;

B. A judgment that Defendant induced infringement of the '520 patent;

C. An award of damages to be paid by Defendant adequate to compensate Adiona for Defendant's past infringement of the '520 patent and any continuing or future infringement through the date such judgment is entered, including interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

D. An award of enhanced damages pursuant to 35 U.S.C. § 284 for Defendant's willful infringement of the '520 patent subsequent to the date of its notice of the '520 patent;

E. A declaration that this case is exceptional under 35 U.S.C. § 285, and an award of Adiona's reasonable attorneys' fees; and

F. An award to Adiona of such further relief at law or in equity as the Court deems just and proper.

Dated: August 20, 2018

STAMOULIS & WEINBLATT LLC

/s/ Richard C. Weinblatt

Stamatios Stamoulis #4606
Richard C. Weinblatt #5080
Two Fox Point Centre
6 Denny Road, Suite 307
Wilmington, DE 19809
Telephone: (302) 999-1540
Facsimile: (302) 762-1688
stamoulis@swdelaw.com
weinblatt@swdelaw.com

Attorneys for Plaintiff
Adiona IP, LLC

CERTIFICATE OF SERVICE

I hereby certify that on August 20, 2018, I electronically filed the above document(s) with the Clerk of Court using CM/ECF which will send electronic notification of such filing(s) to all registered counsel.

/s/ Richard C. Weinblatt
Richard C. Weinblatt #5080