

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

PERCEPT TECHNOLOGIES INC.,

Plaintiff,

v.

MAGIC LEAP, INC.,

Defendant.

No. 1:22-cv-0025-RGA

PLAINTIFF'S INITIAL CLAIM CHART

Defendant Magic Leap infringes at least claims 1 and 12 of U.S. Patent No. 8,696,113 and claims 7 and 10 of U.S. Patent No. 9,010,929 with its Magic Leap 1 product directly, either literally or under the doctrine of equivalents, and indirectly, by contributing to or inducing infringement by others. In addition, Plaintiff also expects that Defendant's Magic Leap 2 (presently unreleased) will likewise infringe. Plaintiff anticipates obtaining a Magic Leap 2 either through discovery or purchase upon its planned release on September 30, 2022, and will supplement this claim chart if appropriate and upon confirming infringement. Plaintiff also reserves the right to supplement these disclosures, as they are preliminary and based on limited technical information.

Dated: August 24, 2022

Respectfully submitted,

Percept Technologies, Inc.



William W. Flachsbart (*pro hac vice*)

wflachsbart@dbllawyers.com

Robert P. Greenspoon (*pro hac vice*)

rgreenspoon@dbllawyers.com

Mark Magas (*pro hac vice*)

mmagas@dbllawyers.com

DUNLAP BENNETT & LUDWIG PLLC

333 N. Michigan Ave.

Suite 2700

Chicago, IL 60601

Tel: (312) 551-9500

Rolando Diaz (DE Bar #5845)

rdiaz@dbllawyers.com

Tracy L. Pearson (DE Bar #5652)

tpearson@dbllawyers.com

DUNLAP BENNETT & LUDWIG PLLC

1509 Gilpin Avenue, Ste.2

Wilmington, DE 19806

Tel: (302) 273-4249

Fax: (855) 223-8791

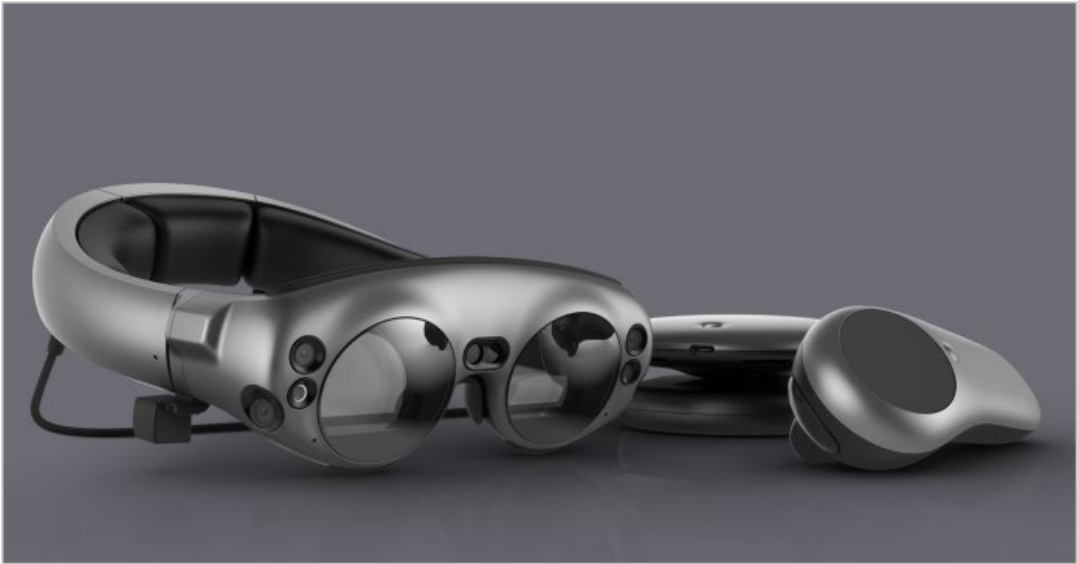
tpearson@dbllawyers.com

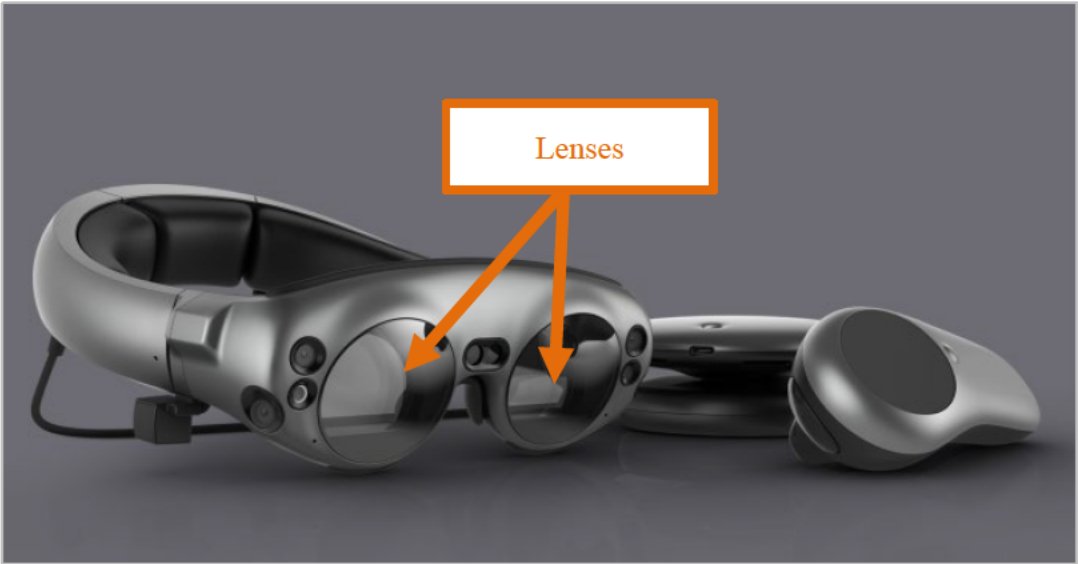
rdiaz@dbllawyers.com

Attorneys for Plaintiff

Percept Technologies, Inc.

U.S. Patent No. 8,696,113 – Claim 1

U.S. Patent No. 8,696,113 – Claim 1	Magic Leap 1
1. A wearable optics device comprising:	<i>Note: The preamble of a claim is not necessarily a limitation that needs to be satisfied to show infringement.</i> Magic Leap’s Magic Leap 1 is a wearable optics device. A photograph of the Magic Leap 1 mixed reality headset and a hand controller. The headset is a sleek, dark-colored device with large, curved lenses and a strap for the head. It is shown from a side profile. Next to it is a small, dark, ergonomic hand controller with a circular touchpad on the back. Both devices are set against a dark, reflective background. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview

U.S. Patent No. 8,696,113 – Claim 1	Magic Leap 1
a lens; and	The Magic Leap 1 has lenses over each eye.  Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview Covers: Accessories must not cover the <u>front or rear lenses</u>, cameras, sensors, microphones (4 total), LED lighting, or impact thermal performance. Refer to product drawing and surface files for specific location. Source: MLI_0000002

U.S. Patent No. 8,696,113 – Claim 1 a dynamic eye tracking mechanism in communication with the lens;	Magic Leap 1 The Magic Leap 1 has a dynamic eye tracking mechanism with multiple eye sensors, including two eye-tracking IR cameras paired with an IR emitter for eye tracking. The eye sensors are in communication with the lens, enabling users to interact with digital content by looking at it. Tech specs for Magic Leap 1 Headset: • Six-layer waveguide “photonic lightfield chip” display • <u>Eye tracking infrared sensors</u> • IR dot projector for measuring room • 40×30 degree field of vision • Spatial audio • Voice input Source: https://www.techrepublic.com/article/magic-leap-1-augmented-reality-headset-a-cheat-sheet/ Next Generation Interface We live and think in a 3D world, not on a flat screen. Our spatial interface includes multiple input modes, including voice, control rays, gesture, headpose, and <u>eye tracking</u>. This collective input system provides the tools to break free from the outdated conventions of point and click interfaces, delivering a more natural and intuitive way to interact with technology. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview
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- Popping off one of the two IR emitter rings, we find the elusive eye-tracking IR camera hiding behind a dark filter.
- These appear to be **OmniVision CameraCubeChip** cameras with externally-mounted **dichroic filters**.
- ① Eye tracking in VR and AR allows for some pretty cool new **interface options**, as well as **improvements** in realism and rendering efficiency.

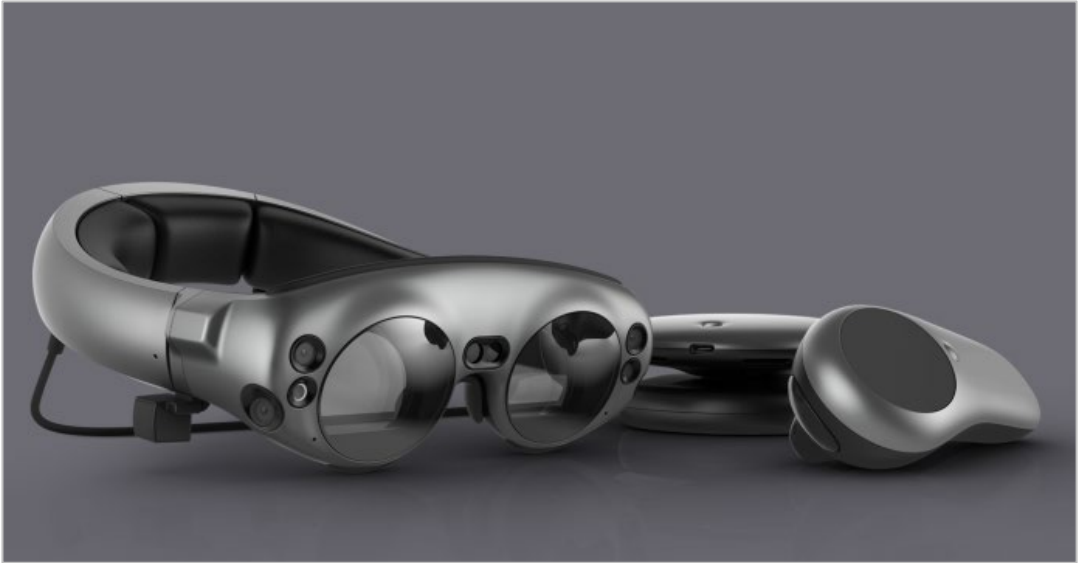
Source: <https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245>

U.S. Patent No. 8,696,113 – Claim 1	Magic Leap 1
	Eye Tracking - Unity Written for Unity (v0.23.0) Last updated: December 18, 2019 The <u>Eye Tracking</u> feature lets Magic Leap 1 detect the points where the user's eyes are focused. Users can interact with digital content by looking at it. Eye Tracking lets you take advantage of capabilities like <u>targeting</u> and <u>focusing</u> on digital objects. The fixation point is available through the MLEyes API, and it allows developers to access the 3D position of where the user is looking, in world space. Source: https://developer.magicleap.com/en-us/learn/guides/eye-tracking-tutorial-unity Eye Gaze Written for C API, Lumin Web, Unity, Unreal Engine, Lumin Runtime (v0.0.0) Last updated: June 29, 2018 <u>Eye gaze allows the user to interact with the content just by looking at it.</u> See <u>Targeted</u>. Once your user has successfully calibrated their gaze, the system returns a gaze vector to your app along with a measure of confidence. Source: https://developer.magicleap.com/en-us/learn/guides/design-eye-gaze

U.S. Patent No. 8,696,113 – Claim 1	Magic Leap 1
wherein the dynamic eye tracking mechanism utilizes optical parameter measurements; wherein the optical parameter measurements include any of ciliary measurements, pupil measurements, corneal measurements, eye lens measurements, iris measurements, eyelid measurements, retina measurements;	The eye sensors of the Magic Leap 1 utilize at least pupil and corneal optical parameter measurements. • Eye Tracking Data: Eye tracking data may include eye <u>measurements and information</u> about where your eyes are looking when you use your Magic Leap 1 device, such as <u>pupil measurements and pupil positions, cornea measurements and cornea positions</u>, glint measurements, gaze, target, and vergence measurements. Magic Leap 1 device eye tracking data will not contain any images of your eyes or measurements of your eyes that we know could uniquely identify you. Source: https://www.magicleap.com/ml1-devices

U.S. Patent No. 8,696,113 – Claim 1 wherein an optical/perceptual parameter based operating system is utilized, wherein the wearable optics device is controlled by the optical/perceptual based operating system.	Magic Leap 1 The Magic Leap 1 utilizes an optical/perceptual parameter based operating system to control the device, such as by allowing users to interact with digital content by looking at it. Eye Tracking - Unity Written for Unity (v0.23.0) Last updated: December 18, 2019 The <u>Eye Tracking</u> feature lets Magic Leap 1 detect the points where the user's eyes are focused. Users can interact with digital content by looking at it. Eye Tracking lets you take advantage of capabilities like <u>targeting</u> and <u>focusing</u> on digital objects. The fixation point is available through the MLEyes API, and it allows developers to access the 3D position of where the user is looking, in world space. Source: https://developer.magicleap.com/en-us/learn/guides/eye-tracking-tutorial-unity Eye Gaze Written for C API, Lumin Web, Unity, Unreal Engine, Lumin Runtime (v0.0.0) Last updated: June 29, 2018 <u>Eye gaze allows the user to interact with the content just by looking at it.</u> See <u>Targeted</u>. Once your user has successfully calibrated their gaze, the system returns a gaze vector to your app along with a measure of confidence. Source: https://developer.magicleap.com/en-us/learn/guides/design-eye-gaze
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US. Patent No. 8,696,113 – Claim 12

U.S. Patent No. 8,696,113 – Claim 12	Magic Leap 1
1. A wearable optics device comprising:	<i>Note: The preamble of a claim is not necessarily a limitation that needs to be satisfied to show infringement.</i> Magic Leap’s Magic Leap 1 is a wearable optics device.  Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview

U.S. Patent No. 8,696,113 – Claim 12	Magic Leap 1
a lens; and	The Magic Leap 1 has lenses over each eye. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview Covers: Accessories must not cover the front or rear lenses, cameras, sensors, microphones (4 total), LED lighting, or impact thermal performance. Refer to product drawing and surface files for specific location. Source: MLI_0000002

U.S. Patent No. 8,696,113 – Claim 12 a dynamic eye tracking mechanism in communication with the lens;	Magic Leap 1 The Magic Leap 1 has a dynamic eye tracking mechanism with multiple eye sensors, including two eye-tracking IR cameras paired with an IR emitter for eye tracking. The eye sensors are in communication with the lens, enabling users to interact with digital content by looking at it. Tech specs for Magic Leap 1 Headset: • Six-layer waveguide “photonic lightfield chip” display • <u>Eye tracking infrared sensors</u> • IR dot projector for measuring room • 40×30 degree field of vision • Spatial audio • Voice input Source: https://www.techrepublic.com/article/magic-leap-1-augmented-reality-headset-a-cheat-sheet/ Next Generation Interface We live and think in a 3D world, not on a flat screen. Our spatial interface includes multiple input modes, including voice, control rays, gesture, headpose, and <u>eye tracking</u>. This collective input system provides the tools to break free from the outdated conventions of point and click interfaces, delivering a more natural and intuitive way to interact with technology. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview
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- These appear to be **OmniVision CameraCubeChip** cameras with externally-mounted **dichroic filters**.
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Source: <https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245>

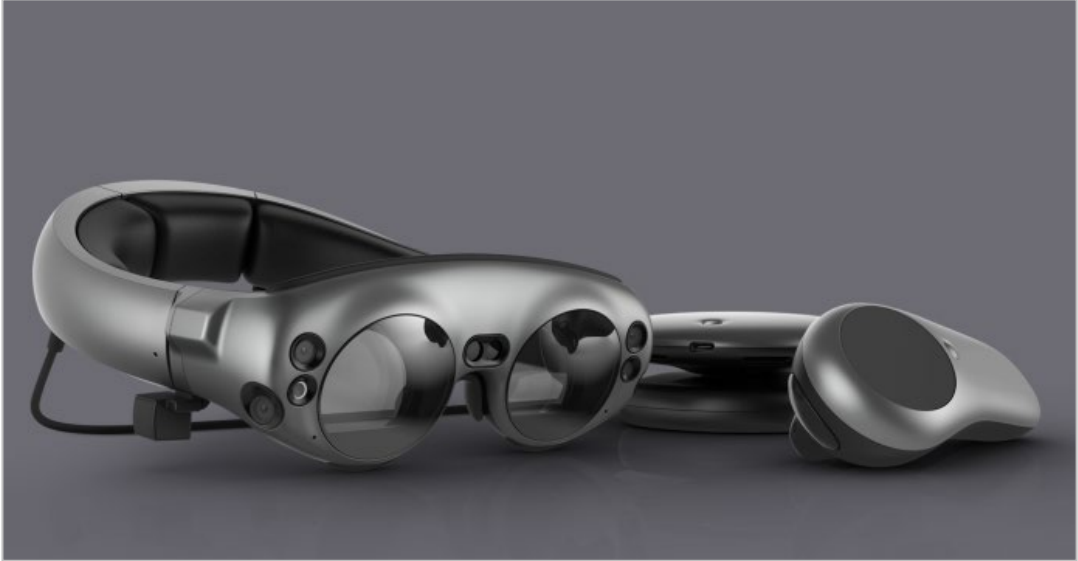
U.S. Patent No. 8,696,113 – Claim 12	Magic Leap 1
	Eye Tracking - Unity Written for Unity (v0.23.0) Last updated: December 18, 2019 The <u>Eye Tracking</u> feature lets Magic Leap 1 detect the points where the user's eyes are focused. Users can interact with digital content by looking at it. Eye Tracking lets you take advantage of capabilities like <u>targeting</u> and <u>focusing</u> on digital objects. The fixation point is available through the MLEyes API, and it allows developers to access the 3D position of where the user is looking, in world space. Source: https://developer.magicleap.com/en-us/learn/guides/eye-tracking-tutorial-unity Eye Gaze Written for C API, Lumin Web, Unity, Unreal Engine, Lumin Runtime (v0.0.0) Last updated: June 29, 2018 <u>Eye gaze allows the user to interact with the content just by looking at it.</u> See <u>Targeted</u>. Once your user has successfully calibrated their gaze, the system returns a gaze vector to your app along with a measure of confidence. Source: https://developer.magicleap.com/en-us/learn/guides/design-eye-gaze

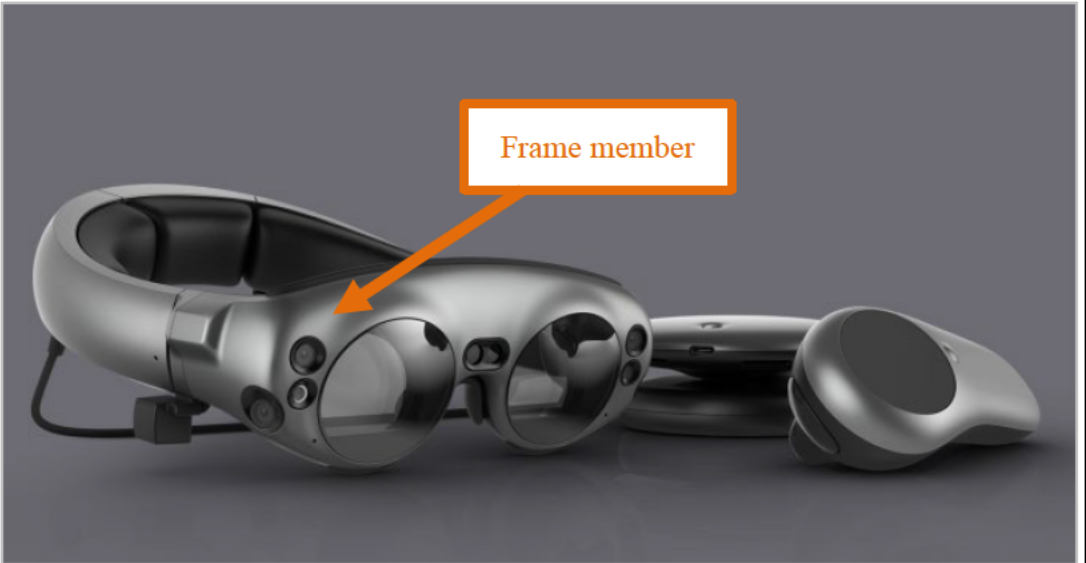
U.S. Patent No. 8,696,113 – Claim 12	Magic Leap 1
wherein the dynamic eye tracking mechanism utilizes optical parameter measurements; wherein the optical parameter measurements include any of ciliary measurements, pupil measurements, corneal measurements, eye lens measurements, iris measurements, eye lid measurements, retina measurements;	The eye sensors of the Magic Leap 1 utilize at least pupil and corneal optical parameter measurements. • Eye Tracking Data: Eye tracking data may include eye <u>measurements and information</u> about where your eyes are looking when you use your Magic Leap 1 device, such as <u>pupil measurements and pupil positions, cornea measurements and cornea positions</u>, glint measurements, gaze, target, and vergence measurements. Magic Leap 1 device eye tracking data will not contain any images of your eyes or measurements of your eyes that we know could uniquely identify you. Source: https://www.magicleap.com/ml1-devices

U.S. Patent No. 8,696,113 – Claim 12 wherein an optical/perceptual parameter based operating system is utilized,	Magic Leap 1 The Magic Leap 1 utilizes an optical/perceptual parameter based operating system to control the device, such as by allowing users to interact with digital content by looking at it. Eye Tracking - Unity Written for Unity (v0.23.0) Last updated: December 18, 2019 The <u>Eye Tracking</u> feature lets Magic Leap 1 detect the points where the user's eyes are <u>focused</u>. Users can interact with digital content by looking at it. Eye Tracking lets you take advantage of capabilities like <u>targeting</u> and <u>focusing</u> on digital objects. The fixation point is available through the MLEyes API, and it allows developers to access the 3D position of where the user is looking, in world space. Source: https://developer.magicleap.com/en-us/learn/guides/eye-tracking-tutorial-unity Eye Gaze Written for C API, Lumin Web, Unity, Unreal Engine, Lumin Runtime (v0.0.0) Last updated: June 29, 2018 <u>Eye gaze allows the user to interact with the content just by looking at it.</u> See <u>Targeted</u>. Once your user has successfully calibrated their gaze, the system returns a gaze vector to your app along with a measure of confidence. Source: https://developer.magicleap.com/en-us/learn/guides/design-eye-gaze
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U.S. Patent No. 8,696,113 – Claim 12 wherein the lens includes a plurality of layers.	Magic Leap 1 The Magic Leap 1 lens includes a waveguide with a plurality of layers.  ● Waveguide display - Essentially a transparent screen that's lit invisibly from the side. The <u>waveguide</u> (what Magic Leap calls a "<u>photonic lightfield chip</u>") <u>guides light</u>—in this case, an image—across a thin layer of glass, magnifying it and angling it into your eye. ● <u>The waveguide consists of six not-so-pretty laminated layers</u>, each with a small air gap. ● The edges look to be hand-painted black, likely to minimize internal reflections and interference. Source: https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245
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U.S. Patent No. 9,010,929 – Claim 7

U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
7. Eyewear comprising:	<i>Note: The preamble of a claim is not necessarily a limitation that needs to be satisfied to show infringement.</i> Magic Leap’s Magic Leap 1 is augmented reality eyewear.  Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview

U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
a frame member;	The Magic Leap 1 has a frame member in which the lenses, waveguides, and other circuitry are worn in the form of a modern-styled set of eyeglasses.  Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview

U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
a lens;	The Magic Leap 1 has lenses over each eye. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview Covers: Accessories must not cover the <u>front or rear lenses</u>, cameras, sensors, microphones (4 total), LED lighting, or impact thermal performance. Refer to product drawing and surface files for specific location. Source: MLI_0000002

U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
circuitry within the frame member for enhancing the use of the eyewear; and	The Magic Leap 1 contains circuitry within the frame member for enhancing the use of the eyewear. This circuitry includes, among other things, and critically, series wired eye-tracking IR sensors and their support circuitry, waveguides, and an LCOS display device, along with a six-degrees-of-freedom tracking module, flex cables, and a variety of vision and image processing circuitry. Tech specs for Magic Leap 1 Headset: • Six-layer waveguide “photonic lightfield chip” display • Eye tracking infrared sensors • IR dot projector for measuring room • 40×30 degree field of vision • Spatial audio • Voice input Source: https://www.techrepublic.com/article/magic-leap-1-augmented-reality-headset-a-cheat-sheet/

U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
	 ● Waveguide display - Essentially a transparent screen that's lit invisibly from the side. The <u>waveguide</u> (what Magic Leap calls a "photonic lightfield chip") <u>guides light</u>—in this case, an image—across a thin layer of glass, magnifying it and angling it into your eye. Source: https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245



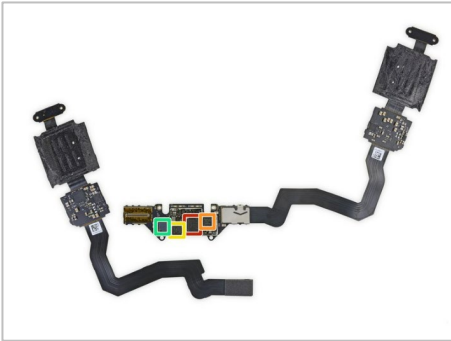
- Survey says: a six-degrees-of-freedom magnetic sensor coil for tracking the position of the controller.
- ① The intensity of the three perpendicular magnetic fields is measured to determine the position and orientation of the controller relative to the headset.

Source: <https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245>



- Popping off one of the two IR emitter rings, we find the elusive eye-tracking IR camera hiding behind a dark filter.
- These appear to be [OmniVision CameraCubeChip](#) cameras with externally-mounted [dichroic filters](#).
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Source: <https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245>

U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
	 ● Connecting all that sensory equipment to the headband, we have pricey, layered <u>flex cables</u> hosting: ● Movidius MA2450 Myriad 2 vision processing unit ● SlimPort ANX7530 4K DisplayPort receiver ● OmniVision OV680 sensor bridge for processing simultaneous image streams from multiple cameras (like we found in the Amazon Fire Phone) ● Altera/Intel 10M08V81G - 8000 logic cell FPGA, possibly for glue logic, or managing MV part or camera bridge data ● Parade Technologies PS8713A bidirectional USB 3.0 redriver ● NXP Semiconductors TFA9891 audio amplifier ● Texas Instruments TPS65912 PMIC Source: https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245

U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
an eye sensor coupled to the frame member, the eye sensor activating the circuitry responsive to eye motion of a user	The Magic Leap 1 has multiple eye sensors coupled to the ` member that activate circuitry responsive to the eye motion of a user, including two eye-tracking IR cameras paired with IR emitters for eye tracking. Tech specs for Magic Leap 1 Headset: • Six-layer waveguide “photonic lightfield chip” display • <u>Eye tracking infrared sensors</u> • IR dot projector for measuring room • 40×30 degree field of vision • Spatial audio • Voice input Source: https://www.techrepublic.com/article/magic-leap-1-augmented-reality-headset-a-cheat-sheet/ Next Generation Interface We live and think in a 3D world, not on a flat screen. Our spatial interface includes multiple input modes, including voice, control rays, gesture, headpose, and <u>eye tracking</u>. This collective input system provides the tools to break free from the outdated conventions of point and click interfaces, delivering a more natural and intuitive way to interact with technology. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview

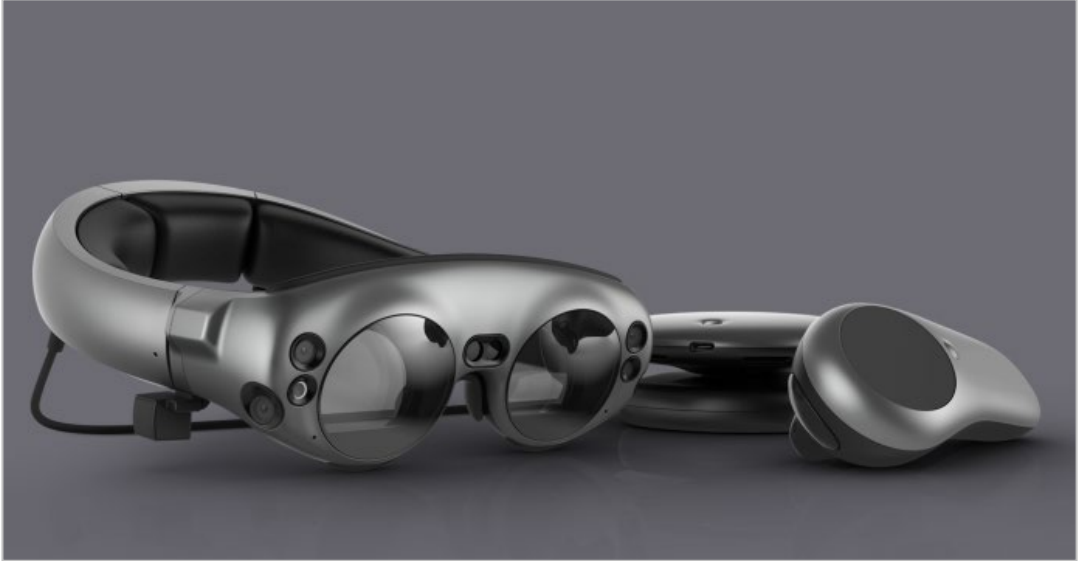


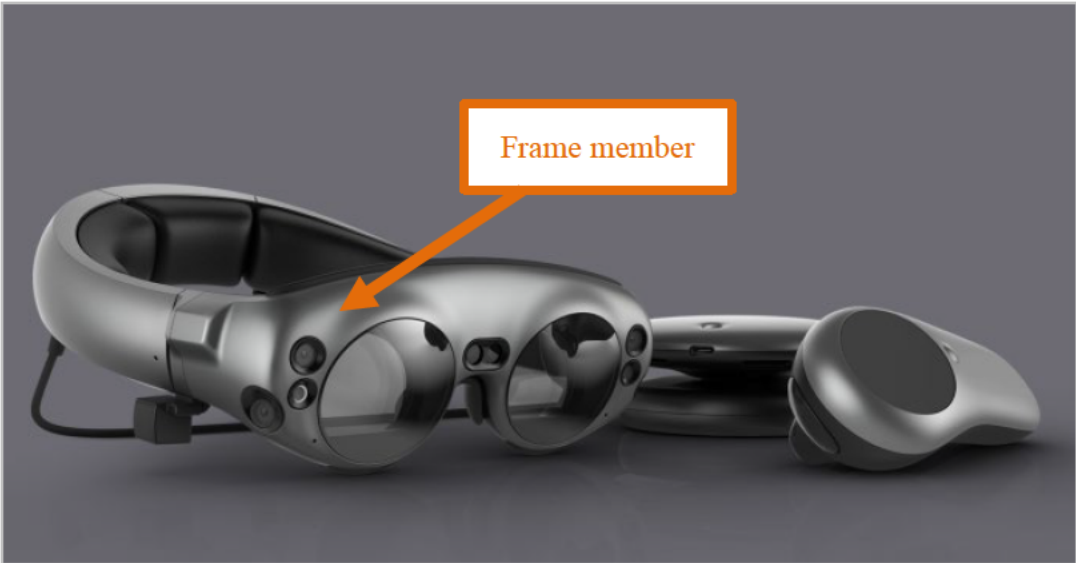
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U.S. Patent No. 9,010,929 – Claim 7	Magic Leap 1
wherein the circuitry provides any of a cell phone, media focals, and an MP3 player.	The Magic Leap 1 provides media focals and also permits the playing of MP3 files through the circuitry of the Magic Leap 1. The Magic Leap developer kit, for example, specifically describes using MLDB to “play .wav, .mp3, and .ogg files that are saved in the C1 folder in the user documents directory[,]” and how to spatially locate the mp3 playback. Play audio <pre>mldb audioplayer [options/args] <file></pre> Play audio files on your device. File paths are relative to the user's documents/C1. Use --help for details. Details: • -s - Enable audio spatialization • -x - X coordinate (if spatial) • -y - Y coordinate (if spatial) • -z - Z coordinate (if spatial) Accepts .wav, .mp3, and .ogg. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-device-bridge-reference

U.S. Patent No. 9,010,929 – Claim 10

U.S. Patent No. 9,010,929 – Claim 10	Magic Leap 1
10. Eyewear comprising:	<i>Note: The preamble of a claim is not necessarily a limitation that needs to be satisfied to show infringement.</i> Magic Leap’s Magic Leap 1 is augmented reality eyewear.  Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview

U.S. Patent No. 9,010,929 – Claim 10	Magic Leap 1
a frame member;	The Magic Leap 1 has a frame member in which the lenses, waveguides, and other circuitry are worn in the form of a modern-styled set of eyeglasses.  Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview

U.S. Patent No. 9,010,929 – Claim 10	Magic Leap 1
a lens;	The Magic Leap 1 has lenses over each eye. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview Covers: Accessories must not cover the front or rear lenses, cameras, sensors, microphones (4 total), LED lighting, or impact thermal performance. Refer to product drawing and surface files for specific location. Source: MLI_0000002

U.S. Patent No. 9,010,929 – Claim 10	Magic Leap 1
circuitry within the frame member for enhancing the use of the eyewear; and	The Magic Leap 1 contains circuitry within the frame member for enhancing the use of the eyewear. This circuitry includes, among other things, and critically, series wired eye-tracking IR sensors and their support circuitry, waveguides, and an LCOS display device, along with a six-degrees-of-freedom tracking module, flex cables, and a variety of vision and image processing circuitry. Tech specs for Magic Leap 1 Headset: • Six-layer waveguide “photonic lightfield chip” display • Eye tracking infrared sensors • IR dot projector for measuring room • 40×30 degree field of vision • Spatial audio • Voice input Source: https://www.techrepublic.com/article/magic-leap-1-augmented-reality-headset-a-cheat-sheet/

U.S. Patent No. 9,010,929 – Claim 10	Magic Leap 1
	 Waveguide display - Essentially a transparent screen that's lit invisibly from the side. The <u>waveguide</u> (what Magic Leap calls a "photonic lightfield chip") <u>guides light</u>—in this case, an image—across a thin layer of glass, magnifying it and angling it into your eye. Source: https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245



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U.S. Patent No. 9,010,929 – Claim 10	Magic Leap 1
	● Connecting all that sensory equipment to the headband, we have pricey, layered <u>flex cables</u> hosting: ● Movidius MA2450 Myriad 2 vision processing unit ● SlimPort ANX7530 4K DisplayPort receiver ● OmniVision OV680 sensor bridge for processing simultaneous image streams from multiple cameras (like we found in the Amazon Fire Phone) ● Altera/Intel 10M08V81G - 8000 logic cell FPGA, possibly for glue logic, or managing MV part or camera bridge data ● Parade Technologies PS8713A bidirectional USB 3.0 redriver ● NXP Semiconductors TFA9891 audio amplifier ● Texas Instruments TPS65912 PMIC Source: https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245

U.S. Patent No. 9,010,929 – Claim 10	Magic Leap 1
an eye sensor coupled to the frame member, the eye sensor activating the circuitry responsive to eye motion of a user;	The Magic Leap 1 has multiple eye sensors coupled to the frame member that activate circuitry responsive to the eye motion of a user, including two eye-tracking IR cameras paired with IR emitters for eye tracking. Tech specs for Magic Leap 1 Headset: • Six-layer waveguide “photonic lightfield chip” display • <u>Eye tracking infrared sensors</u> • IR dot projector for measuring room • 40×30 degree field of vision • Spatial audio • Voice input Source: https://www.techrepublic.com/article/magic-leap-1-augmented-reality-headset-a-cheat-sheet/ Next Generation Interface We live and think in a 3D world, not on a flat screen. Our spatial interface includes multiple input modes, including voice, control rays, gesture, headpose, and <u>eye tracking</u>. This collective input system provides the tools to break free from the outdated conventions of point and click interfaces, delivering a more natural and intuitive way to interact with technology. Source: https://developer.magicleap.com/en-us/learn/guides/magic-leap-one-overview



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Source: <https://www.ifixit.com/Teardown/Magic+Leap+One+Teardown/112245>

U.S. Patent No. 9,010,929 – Claim 10 wherein the circuitry can provide any of texts, email; multimedia information; caller id.	Magic Leap 1 The Magic Leap 1 provides multimedia information, including through use of its native multimedia playback application. MediaPlayer API Written for C API (v0.23.0) Last updated: January 7, 2020 MLMedia Player APIs, defined in <code>ml_media_player.h</code>, support audio and video playback and control. These APIs let users start, pause, resume, seek, and stop media playback, and enable any available timed text, closed captions, and subtitles. For multiple audio tracks, users can choose from the available tracks. Source: https://developer.magicleap.com/en-us/learn/guides/mediaplayer-api-overview  Source: https://www.youtube.com/watch?v=gxkWMtLh7aY (at 3:48/5:22 of video)
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