EXHIBIT 9

U.S. Pat. No. 11,082,055 Claim 1	Evidence of Use – Meta Ray-Ban Wayfarer Gen 1
[1.Pre] A non-transitory computer-readable storage medium storing program code for causing a data processing system to perform steps comprising:	The Meta Ray-Ban Wayfarer Gen 1 (the "Meta Ray-Ban") contains a non-transitory computer-readable storage medium (32 GB of onboard memory). This medium controls data capture from integrated microphones and cameras, processes the data locally or via the Meta AI mobile app and cloud, and outputs real-time audio through onboard speakers.[1] Hardware teardown confirms the memory and processor are mounted on the main board PCB in the temple arm, connected via flex PCBs to the device's audio, visual, and wireless system.[2] [3]

[1] META, *Ask Meta AI about what you see on AI glasses*, AI Glasses Help | Meta Store, https://www.meta.com/help/ai-glasses/718045509827730/ (last visited Aug. 12, 2025) (explaining that when Meta AI is asked about what it sees, the glasses capture and send image data for AI processing and return audio responses, evidencing execution of stored program code).

[2] Intretech Secrets of Scale, *Ray-Ban Meta Smart Glasses Teardown*, YOUTUBE (Nov. 18, 2023), at 2:56–3:43, https://www.youtube.com/watch?v=SbTc-a29dUQ (last visited Aug. 11, 2025) (showing the Snapdragon Gen 1 chip and 32 GB onboard memory mounted on the main PCB in the left arm, physically connected to microphones, speakers, and wireless modules via flex PCBs).

[3] *Id*. at 0:25 (front view of the Meta Ray-Ban Smart Glasses, showing the head-wearable eyewear frame that houses the embedded electronics—the non-transitory computer-readable storage medium is within the temple arms and frame structure).

	[4]

[4] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 0:27 (depicting the Meta Ray-Ban glasses prior to disassembly and showing the exterior frame and hinge area where internal electronics, including the main PCB and non-transitory memory, are housed within the temple arm).

	[5]

[5] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 3:42 (depicting the Smart Glasses' mainboard showing the Snapdragon Gen 1 smart glass processor and onboard 32 GB memory, which constitutes the non-transitory computer-readable storage medium for executing program code).

[1.1] outputting a first oversampled digital signal output from an analog-to-digital converter (ADC),	The Meta Ray-Ban includes embedded microphones that capture incoming audio and transmit (output) to onboard electronics where an analog-to-digital converter (ADC) oversamples the analog signal to produce a high-resolution digital representation for further processing (e.g., noise reduction and beamforming) before use by Meta AI.[6] [7]

[6] META, *Ray-Ban Meta*, https://www.meta.com/smart-glasses/ray-ban-meta/ (last visited Aug. 11, 2025) (describing a five-mic system that captures sound with precision and clarity, indicating use of oversampling to improve digital signal quality); *see also* META, *Ask Meta AI about what you see on AI glasses*, AI Glasses Help | Meta Store, https://www.meta.com/help/ai-glasses/718045509827730/ (last visited Aug. 11, 2025) (describing how captured audio is transmitted for processing with AI).

[7] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 10:06.

[1.1.1] wherein the first oversampled digital signal is responsive to an analog field	The Meta Ray-Ban comprises MEMS microphones generating a first oversampled digital signal in response to an analog acoustic field; specifically, sound pressure waves from an environment.[8] These microphones convert the analog field into an electrical signal, oversampled by built-in ADC circuitry to produce a high-resolution digital output for further processing (e.g., noise reduction and beamforming) before delivery to Meta AI.[9] [10]

[8] Harry Trietley, *Introduction to MEMS Microphone Technology—Analog vs Digital Microphones*, ALL ABOUT CIRCUITS (Nov. 25, 2022), https://www.allaboutcircuits.com/technical-articles/introduction-to-microelectromechanical-systems-microphone-technology/ (explaining that digital MEMS microphones use delta-sigma analog-to-digital conversion to produce pulse-density modulated (PDM) output, a single-bit stream that is inherently oversampled).
[9] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 10:10–10:11 (depicting multiple MEMS microphones integrated into the frame, each incorporating ADC circuitry that oversamples incoming analog audio to produce a high-resolution digital output for enhanced voice capture performance).
[10] *Id*. at 10:14.

[1.1.2] and the first oversampled digital signal is created at a sampling clock frequency;	The Meta Ray-Ban MEMS microphones generate the first oversampled digital signal at a fixed sampling clock frequency, as is standard for digital MEMS microphones utilizing delta-sigma analog-to-digital conversion.[11] [12]

[11] *See Introduction to MEMS Microphone Technology*, *supra* note 8 (explaining that most digital MEMS microphones use delta-sigma conversion to produce a PDM output, with data clocked in sync with an input sampling clock).
[12] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 5:32 (showing close-up removal of microphone module embedded in temple frame, consistent with MEMS microphone placement enabling integrated ADC output of a MHz-rate PDM bitstream).

[1.2] delaying the first oversampled digital signal by a time delay	The Meta Ray-Ban incorporates MEMS microphones whose oversampled digital audio output is delayed in the signal chain—e.g., for buffering, beamforming, or synchronization with video frames—before further processing by the Snapdragon AR1 Gen 1 and Meta AI.[13] This delay occurs because the microphone's integrated ADC outputs a high-frequency PDM bitstream[14] that must be temporarily stored or passed through DSP stages, which inherently impose a controlled time delay. [15]

[13] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 5:32 (depicting microphone components and routing consistent with digital MEMS audio capture).
[14] *See Introduction to MEMS Microphone Technology*, *supra* note 8 (explaining that digital MEMS microphones use delta-sigma analog-to-digital conversion to produce oversampled pulse-density modulated output).
[15] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 5:32.

[1.2.1] wherein the time delay is equal to an integer number of sampling clock cycles	The Meta Ray-Ban includes a first MEMS microphone embedded into the right-hand side of the nose piece of the head-wearable device, positioned to receive a voice signal when the device is worn.[16] [17] "[T]he microphone embedded into the right hand side of the nose piece" is connected into the digital audio chain as a pulse-density modulated (PDM) source clocked at a fixed sampling frequency, such that any delay applied—e.g., for synchronization, beamforming alignment, or buffering—occurs in discrete steps equal to an integer number of those sampling clock cycles.[18]

[16] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2 at 5:32 (showing removal of microphone module embedded in right-hand side of frame, consistent with MEMS microphone placement enabling integrated ADC output of a MHz-rate PDM bitstream).
[17] *Id*.
[18] STMICROELECTRONICS, *Interfacing PDM Digital Microphones Using STM32 MCUs and MPUs*, AN5027 Rev. 2, at § 2.4.1 (2022) (describing digital microphone nominal operating clock rates of 1–4.8 MHz and noting multi-millisecond wake-up delay when exiting low-power mode) & § 3.2 (explaining that PDM decimation filters operate with integer decimation ratio R and delay elements M, thereby imposing delays equal to an integer number of sampling clock cycles).

[1.2.2] to produce a time delayed first oversampled digital signal; and	The Meta Ray-Ban's first MEMS microphone, embedded in the right-hand side of the nose piece, necessarily outputs a MHz-rate pulse-density modulated (PDM) bitstream.[19] In the digital audio chain, this first oversampled digital signal passes through decimation filters, FIFO buffers, and/or alignment logic that introduce a time delay in discrete steps equal to an integer number of sampling clock cycles, producing a time-delayed first oversampled digital signal before handoff to the Snapdragon AR1 platform.[20]

[19] *See Ray-Ban Meta Smart Glasses Teardown*, supra note 2, at 5:29–5:34 (showing removal of microphone module embedded in right-hand side of frame, consistent with MEMS microphone producing MHz-rate PDM output).

[20] *See Interfacing PDM Digital Microphones Using STM32 MCUs and MPUs*, *supra* note 18 at § 3.2 (explaining that digital MEMS microphones output 1-bit oversampled PDM streams that are passed through decimation and filtering stages with fixed, clock-cycle–quantized delays).

[1.3] combining the time delayed first oversampled digital signal with a second oversampled digital signal	Teardown further shows the presence of additional microphones in the device and the onboard Snapdragon AR1 processor, which supports multi-microphone digital signal processing.[21] These architectures perform beamforming, noise suppression, or stereo capture by combining the time-aligned first oversampled signal with at least a second oversampled digital signal.[22] [23] [24]

[21] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2, at 3:36–3:43 (showing Snapdragon AR1 Gen 1 on the mainboard); *id*. at 4:01–4:15 (showing additional microphone hardware in other frame locations).

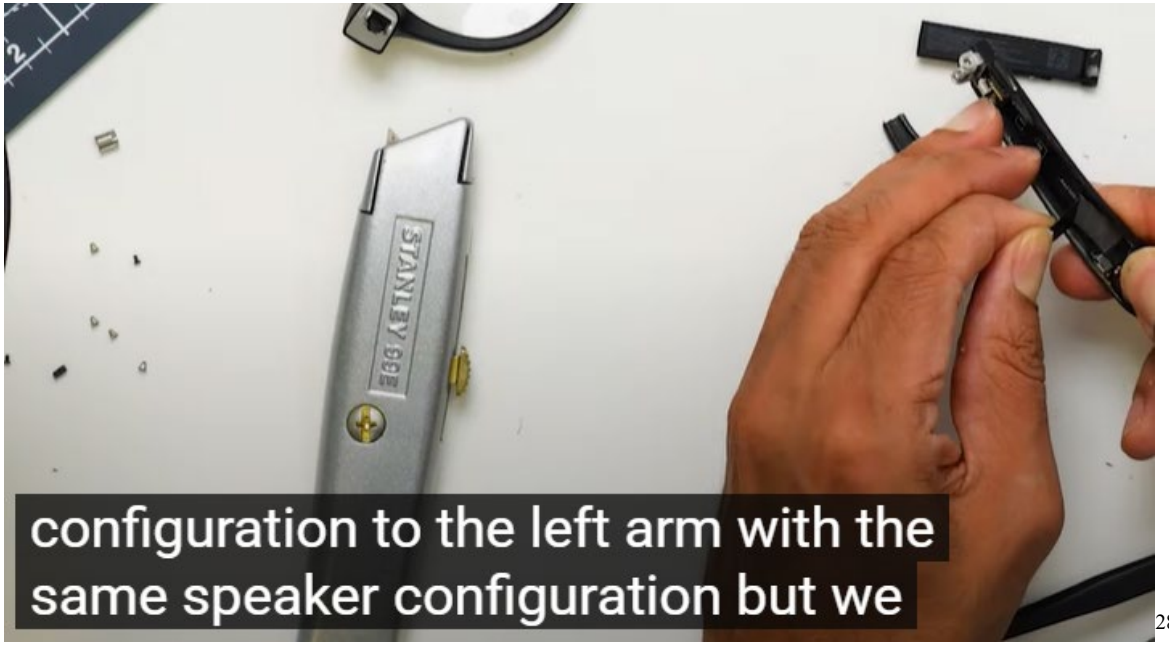
[22] QUALCOMM TECHNOLOGIES, INC., *Snapdragon AR1 Gen 1 Platform*, at Specifications & Feature, Product Brief (2025) (platform lists support for "up to eight microphones" and "low-power audio capabilities," and describes AI-powered targeted audio capture; these multi-microphone features suggest beamforming or other spatial-audio processing that combines multiple microphone signals using time- or phase-aligned weighting).

[23] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2, at 3:41 (showing Qualcomm Snapdragon AR1 Gen 1 "smart glass" chip on the main PCB, which per Qualcomm's documentation, supports multi-microphone audio input and beamforming).

[24] *Id*. at 4:09 (demonstrating mirrored audio hardware in left and right arms, consistent with the presence of multiple microphone or audio channels feeding the AR1 platform for spatial audio).

[1.3.1] to obtain the beamformed digital signal,	The integrated Snapdragon AR1 Gen 1 within the Ray-Ban Meta, in conjunction with multiple MEMS microphones, performs beamforming by combining time-delayed, oversampled digital signals from each microphone to obtain a beamformed digital signal for improved audio capture.[25] [26]

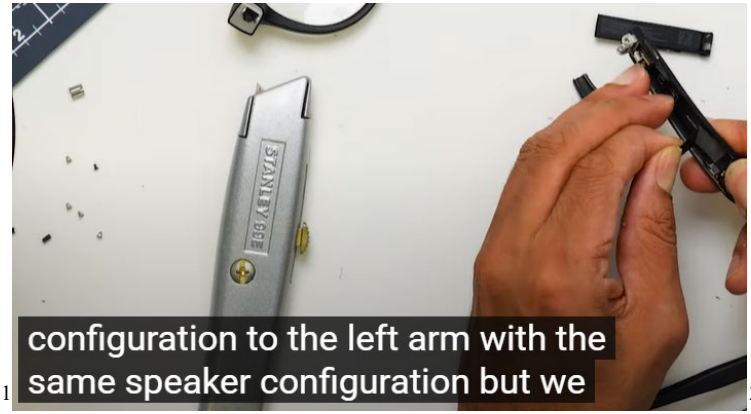
[25] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2, at 5:31–5:35 (showing disassembly revealing multiple MEMS microphones connected to the Snapdragon AR1 Gen 1 SoC); *id*. at 3:36–3:39 (showing Snapdragon AR1 Gen 1 SoC on mainboard); *see also Snapdragon AR1 Gen 1 Platform*, *supra* note 22 (describing eight microphones and AI-powered for enhanced audio capture, which is consistent with multi-microphone beamforming and spatial audio processing).
[26] *Id*. at 3:41.

[1.3.2] wherein the second oversampled digital signal is responsive to the analog field.	The Meta Ray-Ban includes a second microphone positioned to receive acoustic energy from the surrounding environment (the "analog field"), which, like the first microphone, is configured to output a pulse-density modulated (PDM) bitstream at a fixed sampling frequency. This second oversampled digital signal would therefore be responsive to the ambient analog sound field.[27]  [28]

[27] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 2, at 4:01–4:17 (showing mirrored audio hardware configuration in both arms consistent with dual microphone input); *see also Snapdragon AR1 Gen 1 Platform*, *supra* note 22 (describing support for multi-microphone beamforming and spatial audio processing).
[28] *Id*. at 4:10 (showing disassembly of the right arm revealing identical internal architecture to the left arm, including speaker configuration, wiring, and PCB layout).

U.S. Pat. No. 11,082,055 Claim 5	Evidence of Use – Meta Ray-Ban Wayfarer Gen 1
[5.] The non-transitory computer-readable storage medium of claim 1, wherein the first oversampled digital signal and the second oversampled digital signal are obtained from different sensors.	The Meta Ray-Ban Wayfarer Gen 1 (the "Meta Ray-Ban") contains a non-transitory computer-readable storage medium (e.g., 32 GB of onboard memory) storing program code executed by the Snapdragon Gen 1 Smart Glass chip. [29]

[29] Intretech Secrets of Scale, *Ray-Ban Meta Smart Glasses Teardown*, YOUTUBE (Nov. 18, 2023) at 3:41., https://www.youtube.com/watch?v=SbTc-a29dUQ (last visited Aug. 11, 2025).

	The Meta Ray-Ban includes at least two distinct microphone sensors. The first oversampled digital signal comes from a MEMS microphone embedded into the right-hand side of the nose piece, outputting a high-rate PDM bitstream of the local analog acoustic field. The second comes from a separate MEMS microphone elsewhere in the frame or arms, capturing the analog field from a different spatial position.[30] [31]  [32]

[30] *See Ray-Ban Meta Smart Glasses Teardown*, *supra* note 29 at 5:31–5:35 (showing disassembly revealing multiple MEMS microphones connected to the Snapdragon AR1 Gen 1 SoC); *id*. at 3:36–3:39 (showing Snapdragon AR1 Gen 1 SoC on mainboard).
[31] *Id.* at 5:32.
[32] *Id*. at 4:10 (showing disassembly of the right arm revealing identical internal architecture to the left arm, including speaker configuration, wiring, and PCB layout).

U.S. Pat. No. 11,082,055 Claim 7	Evidence of Use – Meta Ray-Ban Wayfarer Gen 1
[7.] The non-transitory computer-readable storage medium of claim 1, further comprising:	The Meta Ray-Ban glasses (the "Meta Ray-Ban") contain a non-transitory computer-readable storage medium (e.g., 32 GB of onboard memory) storing program code executed by the Snapdragon Gen 1 smart glass chip. [33]
[7.1] applying a low pass filter with decimation to the time delayed first oversampled digital signal to output a baseband digital signal that is delayed by the time delay.	Snapdragon AR1 Gen 1 applies a low-pass filter with decimation to the time-delayed first oversampled digital signal from the MEMS microphone, outputting a baseband digital signal that retains the original time delay, as required for downstream beamforming and audio processing.[34]

[33] Intretech Secrets of Scale, *Ray-Ban Meta Smart Glasses Teardown*, YOUTUBE (Nov. 18, 2023), at 3:41, https://www.youtube.com/watch?v=SbTc-a29dUQ.
[34] *Id*. at 3:36–3:39 (showing Snapdragon AR1 Gen 1 SoC on mainboard); *see also* QUALCOMM TECHNOLOGIES, INC., *Snapdragon AR1 Gen 1 Platform*, at Specifications & Feature, Product Brief (2025) (describing integrated audio DSP chain with microphone decimation filters and beamforming support).

U.S. Pat. No. 11,082,055 Claim 10	Evidence of Use – Meta Ray-Ban Wayfarer Gen 1
[10.] The non-transitory computer-readable storage medium of claim 7, wherein the first oversampled digital signal is digitized to create samples which are more than one bit deep.	The Snapdragon AR1 Gen 1 audio pipeline is digitized to produce samples more than one bit deep, as industry-standard MEMS microphone interfaces and audio DSP architecture for beamforming rely on multi-bit PCM representation after decimation filtering.[35] [36]

[35] Intretech Secrets of Scale, *Ray-Ban Meta Smart Glasses Teardown*, YOUTUBE (Nov. 18, 2023), at 3:36–3:39, https://www.youtube.com/watch?v=SbTc-a29dUQ (showing Snapdragon AR1 Gen 1 SoC on mainboard); *see also* QUALCOMM TECHNOLOGIES, INC., *Snapdragon AR1 Gen 1 Platform*, at Specifications & Feature, Product Brief (2025) (describing integrated audio DSP chain with microphone decimation filters and beamforming support).
[36] *See Ray-Ban Meta Smart Glasses Teardown* at 3:41.