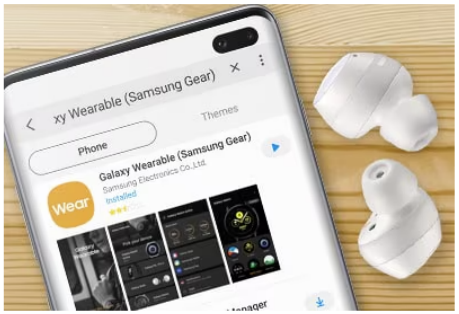
Claim Chart for U.S Patent 11,710,473
"Acoustic Dampening Compensation System," Steven Wayne Goldstein, John Usher, Marc Andre Boillot
Filed February 3, 2022 and Issued July 25, 2023

Claim	Claim Language	Accused Products
[1P]	A device that can control ambient passthrough in an earpiece comprising:	To the extent the preamble is limiting, each Samsung Smartphone/Tablet and Samsung Watch is "[a] device that can control ambient passthrough in an earpiece comprising:." The Galaxy Wearable app is available on Samsung Smartphone/Tablets such as the Galaxy S23 and Galaxy Tab S8.

Samsung v. Techiya
IPR2024-01003
Exhibit 1056

Install the Galaxy Wearable app to manage your Galaxy Buds

Last Update date : Jun 03. 2021



Get the Galaxy Wearable ↗ app on your phone to not only pair and control your Galaxy Buds, Galaxy Buds+, Galaxy Buds Live, or Galaxy Buds Pro, but to also check for software updates for your earbuds. That way, you can ensure they stay current and you always get to enjoy all of your favorite music seamlessly. In addition, getting the most out of your earbuds is easy when you install Galaxy Buds Manager on your computer.

Note: *Available screens and settings may vary by provider, phone, or earbuds.*

Find Galaxy Wearable app from the Galaxy store ^

The good news is the Galaxy Wearable ↗ app comes preinstalled on most new Samsung phones. But if you don't see it, you can easily install it from the Galaxy Store or the Google Play Store ↗.

https://www.samsung.com/ca/support/mobile-devices/galaxy-buds-install-galaxy-wearable/

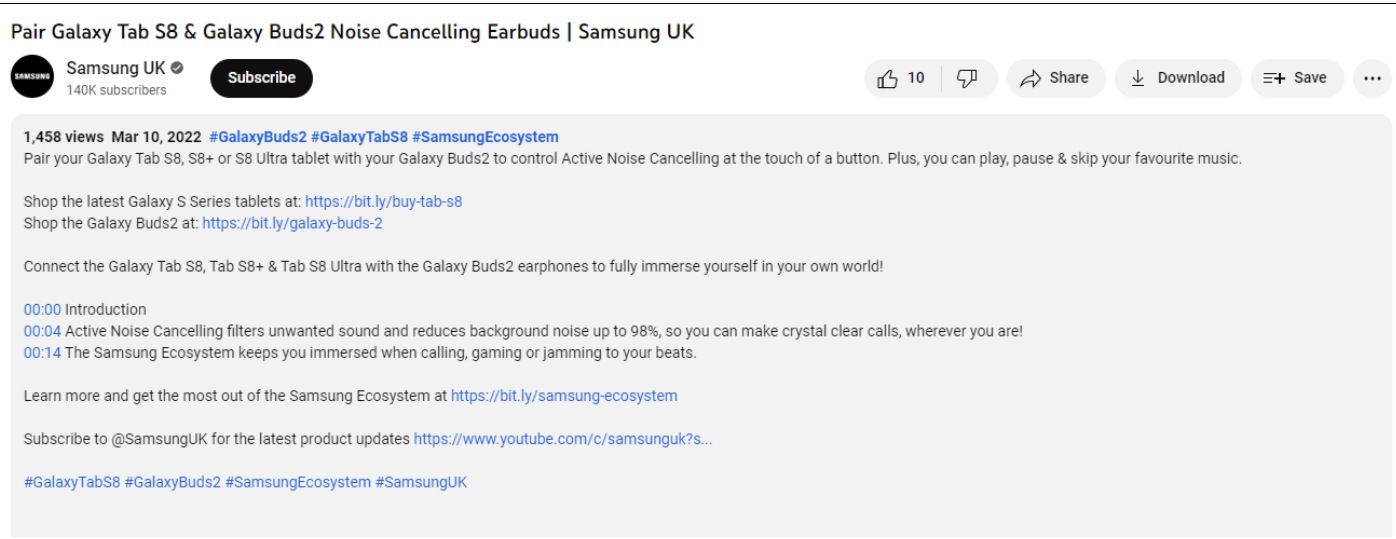
Pairing the Galaxy Buds/Buds+ with phone, tablet, watch, and other devices

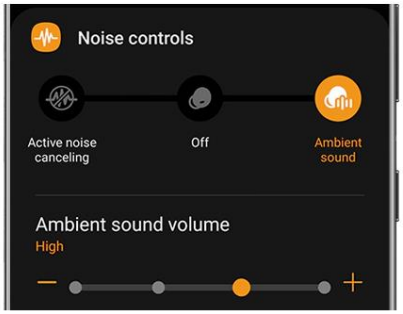
Last Update date : 2023-01-04

Galaxy Buds / Buds + pairing information is synced through your Samsung account, allowing Galaxy Buds / Buds + to be connected to other Galaxy devices without further pairing. If you are logged in to Samsung Cloud, your Galaxy Buds / Buds + will be automatically paired with any of your Galaxy phones, Galaxy tablets, and Galaxy Watch with the same account. To pair with a computer, TV, phone, or tablet that does not have a Samsung account.



https://www.samsung.com/ae/support/mobile-devices/pairing-the-galaxy-budsbuds-with-phone-tablet-watch-and-other-devices/

		 https://www.youtube.com/watch?v=-evLSNo5V5A The Galaxy Wearable app controls the “Ambient sound” settings of a connected earpiece.

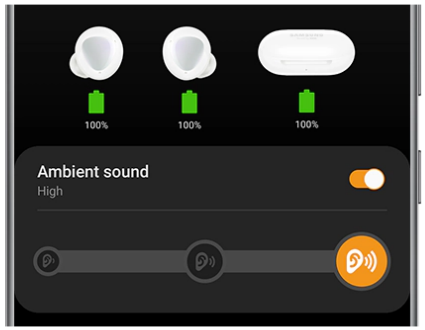
		Galaxy Buds Pro Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

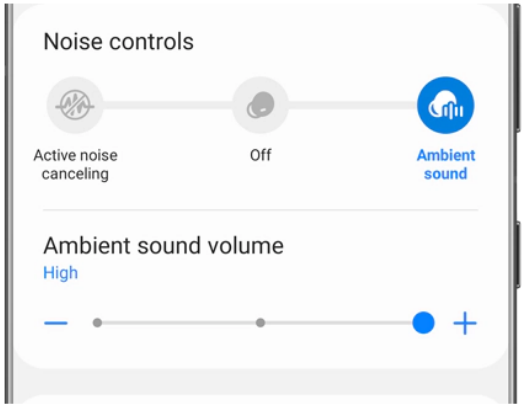


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

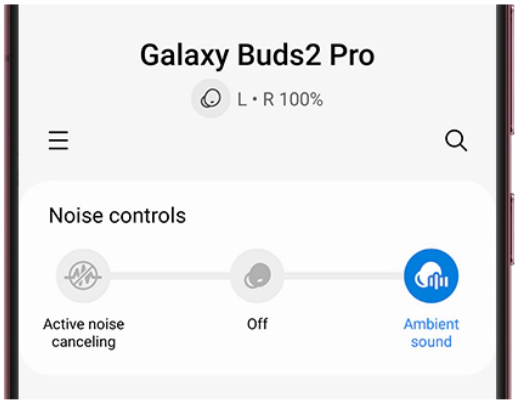
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

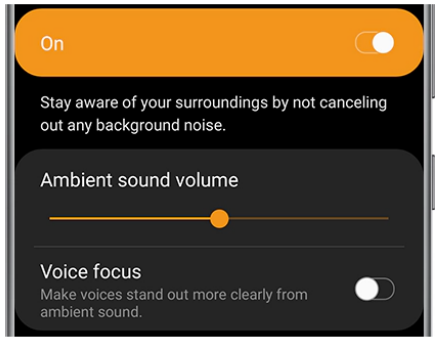


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.

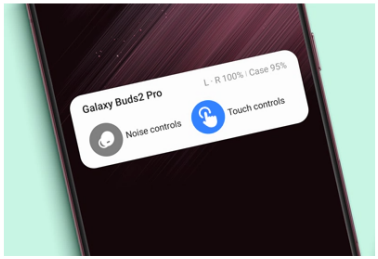


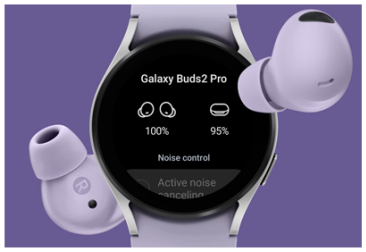
2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

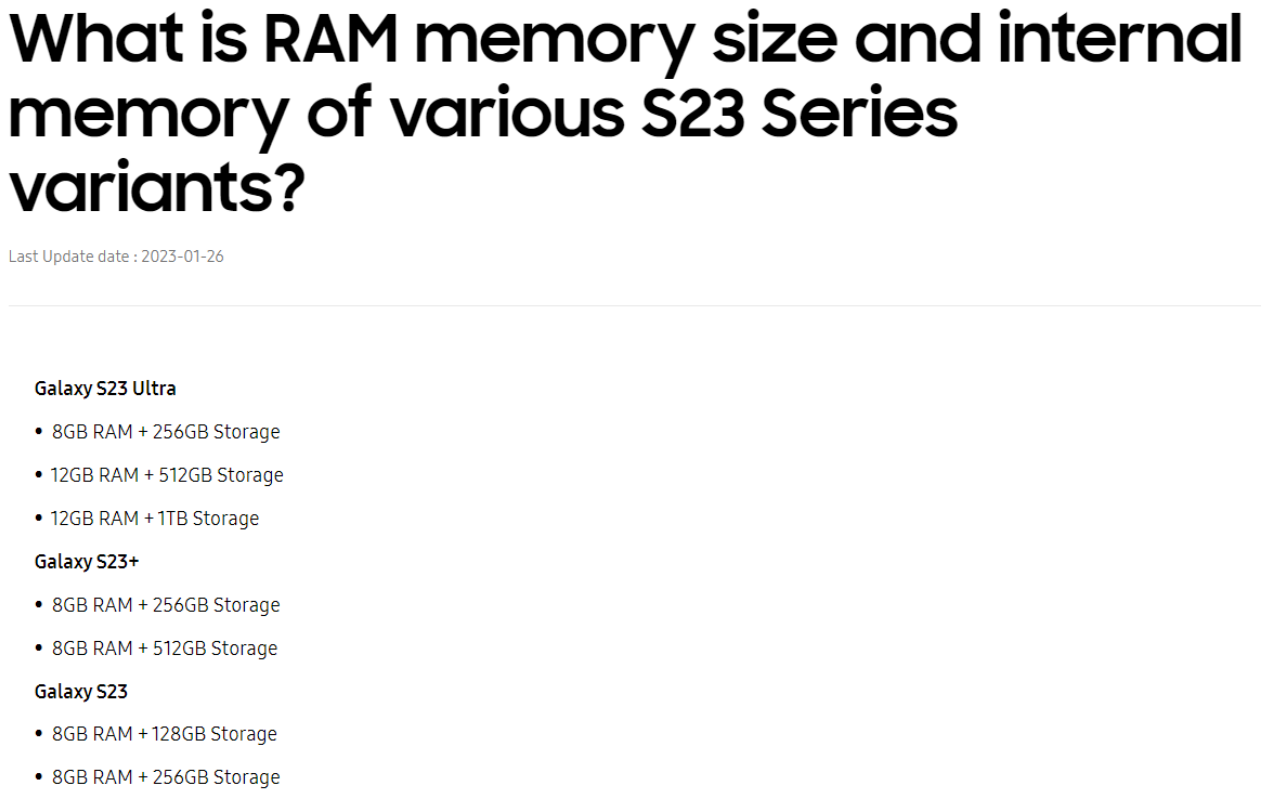
https://www.samsung.com/us/support/answer/ANS00078084/

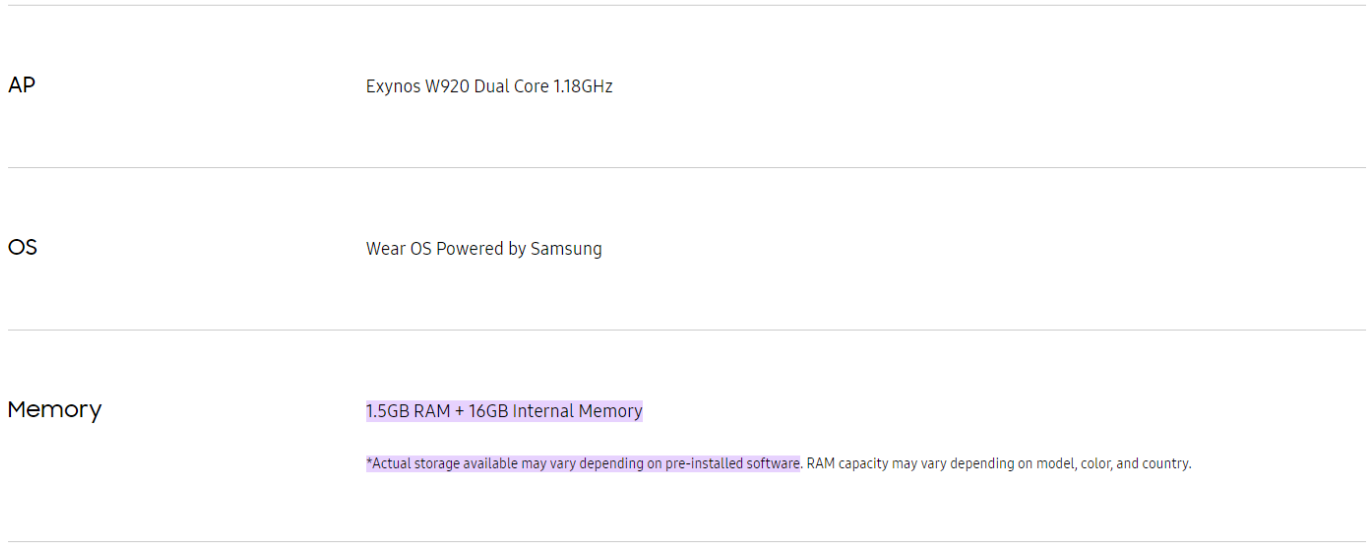
Additionally, it is possible to control Ambient sound through the Galaxy phone.

		Add earbud widgets to your Galaxy phone  With the earbud widgets on your phone for your Galaxy Buds and newer models like the Galaxy Buds2 Pro, you can add widgets to help you check up on your earbuds. For example, you can see your earbuds' battery status and even turn off the earbuds' touchpads if you need to. You can also use the widgets to enable Active noise canceling and Ambient sound. **Note:** The earbuds must be connected to the phone via Bluetooth in order to use the widget. https://www.samsung.com/us/support/answer/ANS00087242/ The Buds Controller app is available on Samsung Watches such as Galaxy Watches running Wear OS.

		Control your Buds2 or Buds2 Pro from your Galaxy Watch  Connecting your **Galaxy Buds2** or **Galaxy Buds2 Pro** to your watch is perfect for when you want to control your music but don't want your phone clunking around in your pocket, such as when you're doing a workout or going for a jog. With **Galaxy Watches** running Wear OS, the Buds Controller app makes it even easier to control the sound settings from the watch itself, such as Active noise canceling. You can also turn on the earbuds' touchpads and Touch controls from the watch, which is handy if you accidentally disabled them. https://www.samsung.com/us/support/answer/ANS00089302/ The Buds Controller app controls the "Ambient sound" settings of a connected earpiece.

		Use the controls in the Buds Controller app Having trouble listening to music on your Galaxy Buds2 or Galaxy Buds2 Pro because the other people at the gym are being too loud? Just use the Buds Controller app on your Galaxy Watch to turn on Active noise canceling or adjust other settings so you can work out in peace. **Note**: This is only applicable to watch models running Wear OS. Swipe up from the bottom of the screen to access the Apps screen. Swipe to and open the **Buds Controller** app. From here, you can adjust the following settings: • View the battery percentage for the buds and case • Turn on Active noise canceling • Turn on Ambient sound • Turn off all sound modes • Turn Touch controls on or off  https://www.samsung.com/us/support/answer/ANS00089302/
[1A]	a first memory that stores instructions; and	The Samsung Smartphone/Tablets and Samsung Watches all comprise a memory that stores instructions. For example, the Samsung Galaxy S23 phone contains 8GB of RAM and either 128GB or 256GB of Storage.

		 https://www.samsung.com/ae/support/mobile-devices/what-is-ram-memory-size-and-internal-memory-of-various-s23-series-variants/ For example, the Galaxy Watch 4 contains 1.5GB of RAM and 16GB Internal Memory.

		 https://www.samsung.com/global/galaxy/galaxy-watch4/specs/#:~:text=1.5GB%20RAM%20%2B%2016GB%20Internal,depending%20on%20pre%2Dinstalled%20software. For example, the Galaxy Tab S8 contains 8GB of RAM and either 128GB or 256GB of Storage.

NEW

Galaxy Tab S8



Colors
Graphite
Silver
Pink Gold

Connectivity
Wi-Fi 6, Bluetooth v5.0

Battery
8,000mAh

RAM + Storage
8GB (RAM) + 128GB
8GB (RAM) + 256GB

Micro SD Card
Up to 1TB

Processor
Qualcomm Snapdragon 8 Gen 1

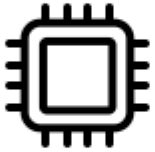
Display
11.0" LTPS LCD

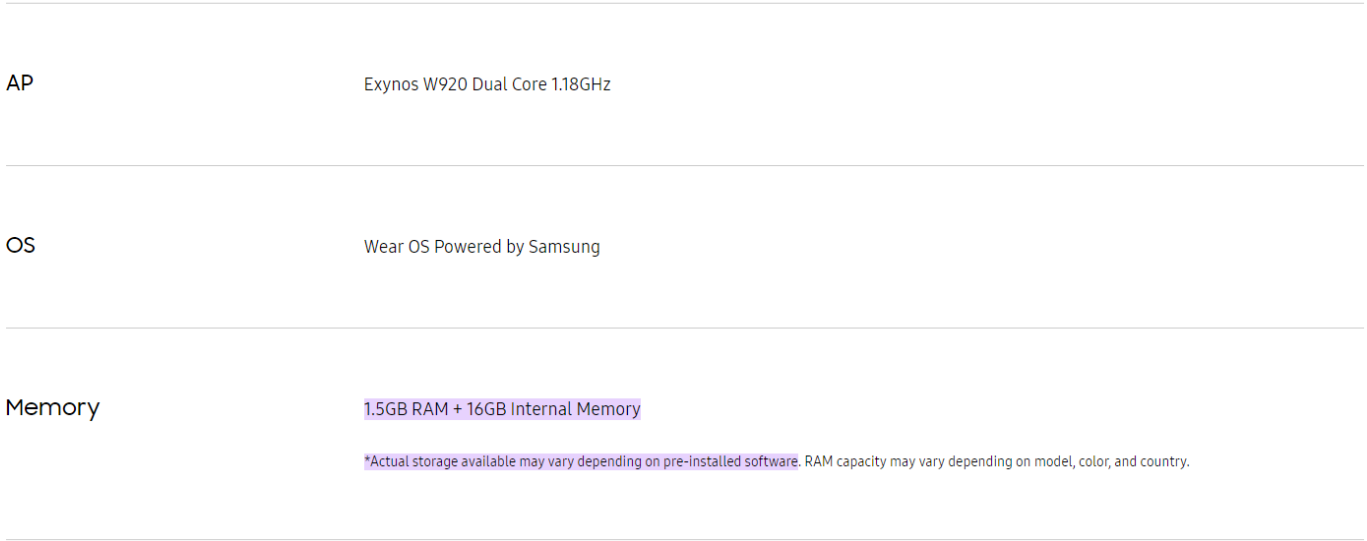
Dimension
9.99" x 6.51" x 0.25"

Weight
1.10 lb

Model Number
SM-X700

		https://www.samsung.com/us/tablets/galaxy-tab-s8/buy/
[1B]	a processor that executes the instructions to perform operations, the operations comprising:	The Samsung Smartphone/Tablets and Samsung Watches all comprise a processor that executes the instructions to perform operations. For example, the Samsung Galaxy S23 phone contains a Snapdragon 8 Gen 2.

		Galaxy S23  Super fast processing Snapdragon® 8 Gen 2 Octa-Core https://www.samsung.com/us/smartphones/galaxy-s23/specs/

		For example, the Galaxy Watch 4 contains an Exynos W920 Dual Core 1.18GHz.  https://www.samsung.com/global/galaxy/galaxy-watch4/specs/#:~:text=1.5GB%20RAM%20%2B%2016GB%20Internal,depending%20on%20pre%2Dinstalled%20software. For example, the Galaxy Tab S8 contains a Qualcomm Snapdragon 8 Gen 1.

NEW

Galaxy Tab S8



Colors
Graphite
Silver
Pink Gold

Connectivity
Wi-Fi 6, Bluetooth v5.0

Battery
8,000mAh

RAM + Storage
8GB (RAM) + 128GB
8GB (RAM) + 256GB

Micro SD Card
Up to 1TB

Processor
Qualcomm Snapdragon 8 Gen 1

Display
11.0" LTPS LCD

Dimension
9.99" x 6.51" x 0.25"

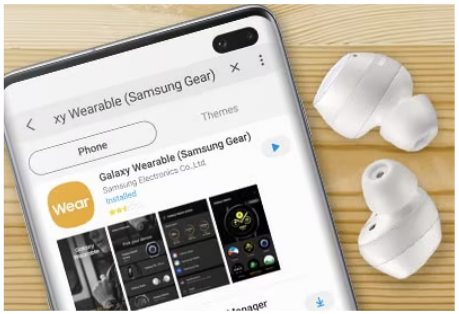
Weight
1.10 lb

Model Number
SM-X700

		https://www.samsung.com/us/tablets/galaxy-tab-s8/buy/
[1C]	communicatively connecting to an earpiece,;	The Samsung Smartphone/Tablets and Samsung Watches all communicatively connect to an earpiece. The Galaxy Wearable app is available on Samsung Smartphone/Tablets such as the Galaxy S23 and Galaxy Tab S8 to connect to Samsung earbuds.

Install the Galaxy Wearable app to manage your Galaxy Buds

Last Update date : Jun 03. 2021



Get the Galaxy Wearable ↗ app on your phone to not only pair and control your Galaxy Buds, Galaxy Buds+, Galaxy Buds Live, or Galaxy Buds Pro, but to also check for software updates for your earbuds. That way, you can ensure they stay current and you always get to enjoy all of your favorite music seamlessly. In addition, getting the most out of your earbuds is easy when you install Galaxy Buds Manager on your computer.

Note: *Available screens and settings may vary by provider, phone, or earbuds.*

Find Galaxy Wearable app from the Galaxy store ^

The good news is the Galaxy Wearable ↗ app comes preinstalled on most new Samsung phones. But if you don't see it, you can easily install it from the Galaxy Store or the Google Play Store ↗.

https://www.samsung.com/ca/support/mobile-devices/galaxy-buds-install-galaxy-wearable/

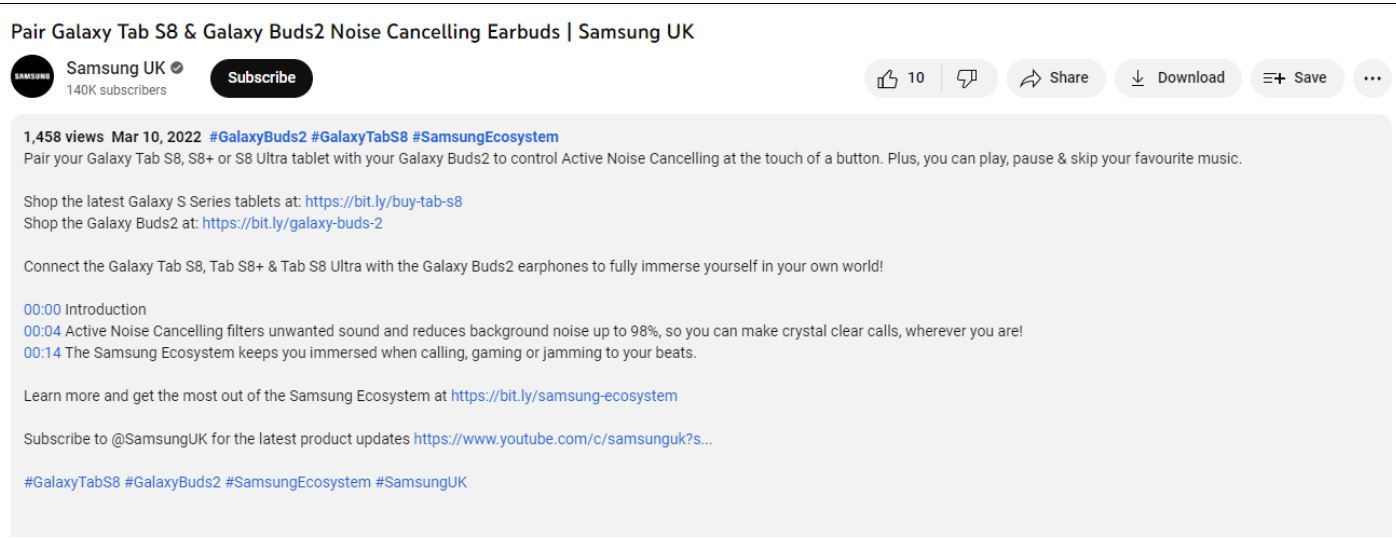
Pairing the Galaxy Buds/Buds+ with phone, tablet, watch, and other devices

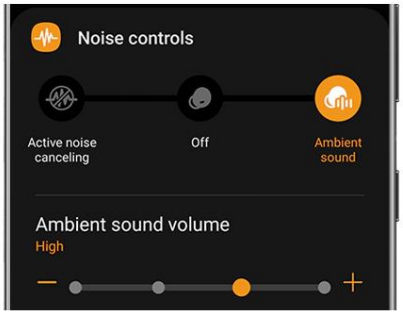
Last Update date : 2023-01-04

Galaxy Buds / Buds + pairing information is synced through your Samsung account, allowing Galaxy Buds / Buds + to be connected to other Galaxy devices without further pairing. If you are logged in to Samsung Cloud, your Galaxy Buds / Buds + will be automatically paired with any of your Galaxy phones, Galaxy tablets, and Galaxy Watch with the same account. To pair with a computer, TV, phone, or tablet that does not have a Samsung account.



https://www.samsung.com/ae/support/mobile-devices/pairing-the-galaxy-budsbuds-with-phone-tablet-watch-and-other-devices/

		 https://www.youtube.com/watch?v=-evLSNo5V5A The Galaxy Wearable app controls the “Ambient sound” settings of a connected earpiece.

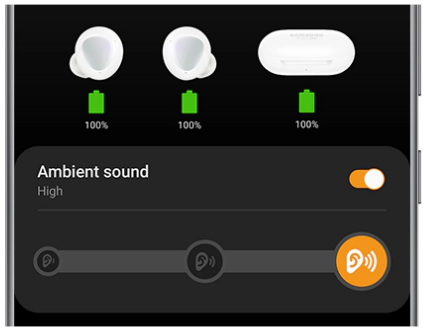
		Galaxy Buds Pro Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

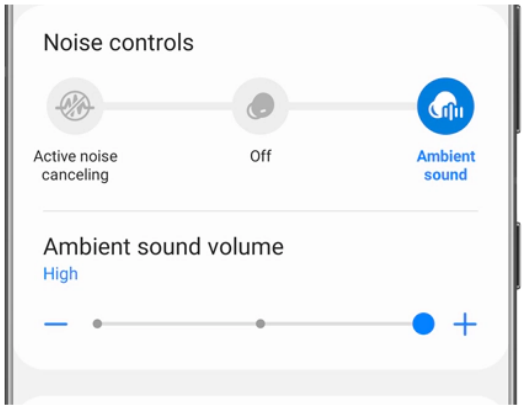


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

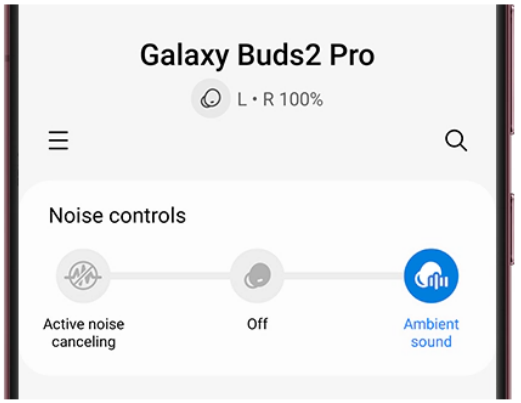
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

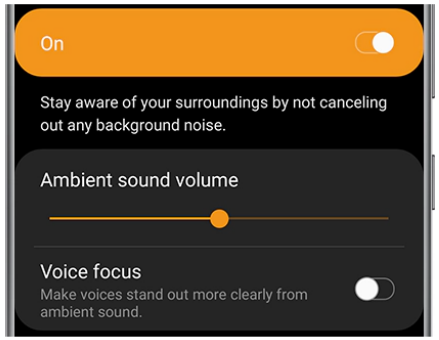


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.

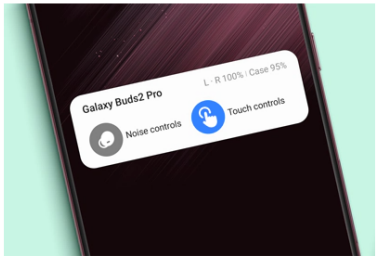


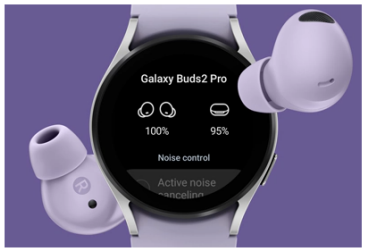
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3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

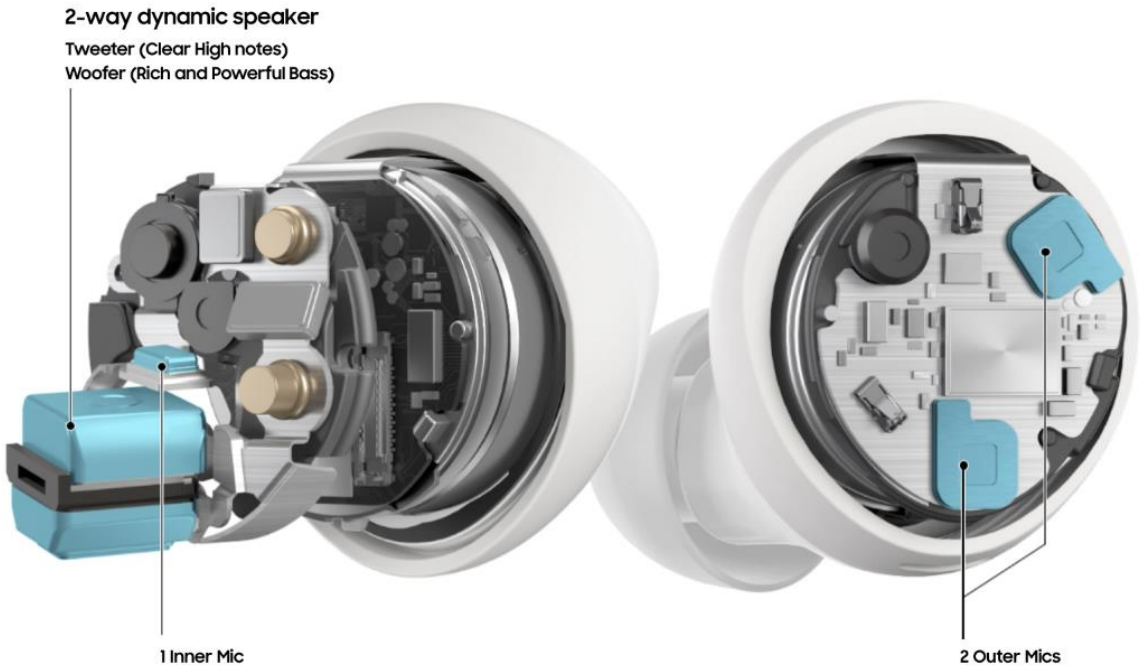
https://www.samsung.com/us/support/answer/ANS00078084/

Additionally, it is possible to control Ambient sound through the Galaxy phone.

		Add earbud widgets to your Galaxy phone  With the earbud widgets on your phone for your Galaxy Buds and newer models like the Galaxy Buds2 Pro, you can add widgets to help you check up on your earbuds. For example, you can see your earbuds' battery status and even turn off the earbuds' touchpads if you need to. You can also use the widgets to enable Active noise canceling and Ambient sound. **Note:** The earbuds must be connected to the phone via Bluetooth in order to use the widget. https://www.samsung.com/us/support/answer/ANS00087242/ The Buds Controller app is available on Samsung Watches such as Galaxy Watches running Wear OS.

		Control your Buds2 or Buds2 Pro from your Galaxy Watch  Connecting your **Galaxy Buds2** or **Galaxy Buds2 Pro** to your watch is perfect for when you want to control your music but don't want your phone clunking around in your pocket, such as when you're doing a workout or going for a jog. With **Galaxy Watches** running Wear OS, the Buds Controller app makes it even easier to control the sound settings from the watch itself, such as Active noise canceling. You can also turn on the earbuds' touchpads and Touch controls from the watch, which is handy if you accidentally disabled them. https://www.samsung.com/us/support/answer/ANS00089302/ The Buds Controller app controls the "Ambient sound" settings of a connected earpiece.

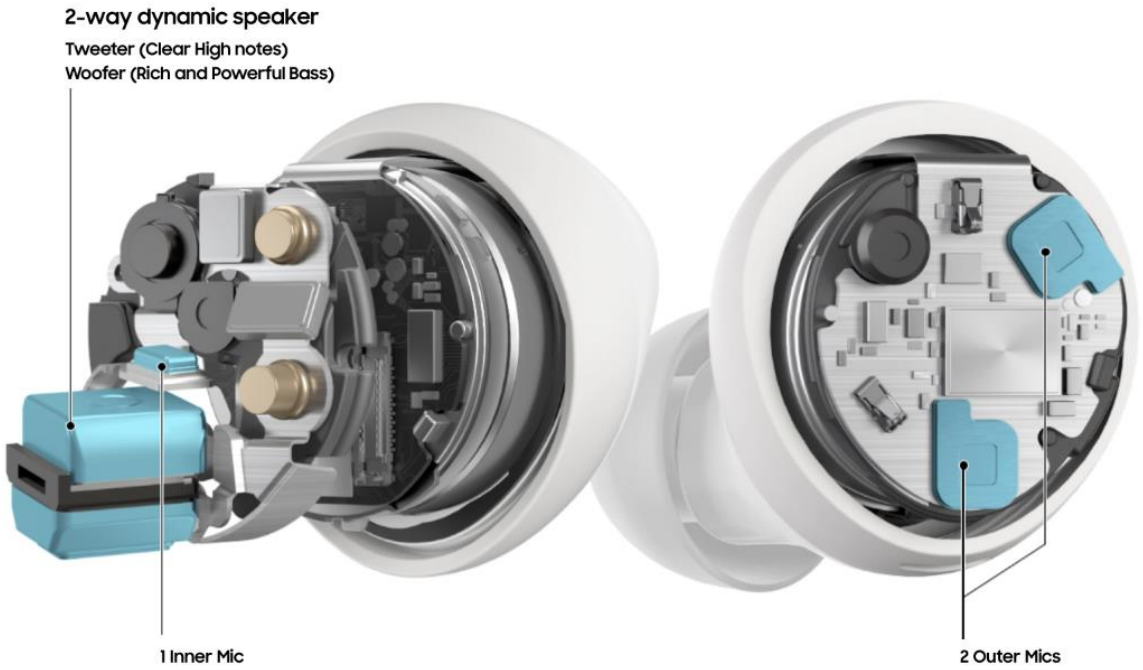
		Use the controls in the Buds Controller app Having trouble listening to music on your Galaxy Buds2 or Galaxy Buds2 Pro because the other people at the gym are being too loud? Just use the Buds Controller app on your Galaxy Watch to turn on Active noise canceling or adjust other settings so you can work out in peace. **Note**: This is only applicable to watch models running Wear OS. Swipe up from the bottom of the screen to access the Apps screen. Swipe to and open the **Buds Controller** app. From here, you can adjust the following settings: • View the battery percentage for the buds and case • Turn on Active noise canceling • Turn on Ambient sound • Turn off all sound modes • Turn Touch controls on or off  https://www.samsung.com/us/support/answer/ANS00089302/
[1D]	wherein the earpiece includes a first microphone, a second microphone, a speaker, a second memory	The Samsung Earbud Products to which the Samsung Smartphone/Tablets and Samsung Watches can connect all include a first microphone, a second microphone, a speaker, a second memory, and an earpiece processor. For example, Samsung Galaxy Buds+ includes an ear canal (inner) microphone and two outer microphones.

	and an earpiece processor	 https://web.archive.org/web/20201212191031/https://www.samsung.com/us/mobile/audio/galaxy-buds-plus/ Samsung Galaxy Buds2, Buds2 Pro, and Buds Live have three microphones: 2 outer microphones and 1 inner microphone. They are used to track and eliminate outside sounds.

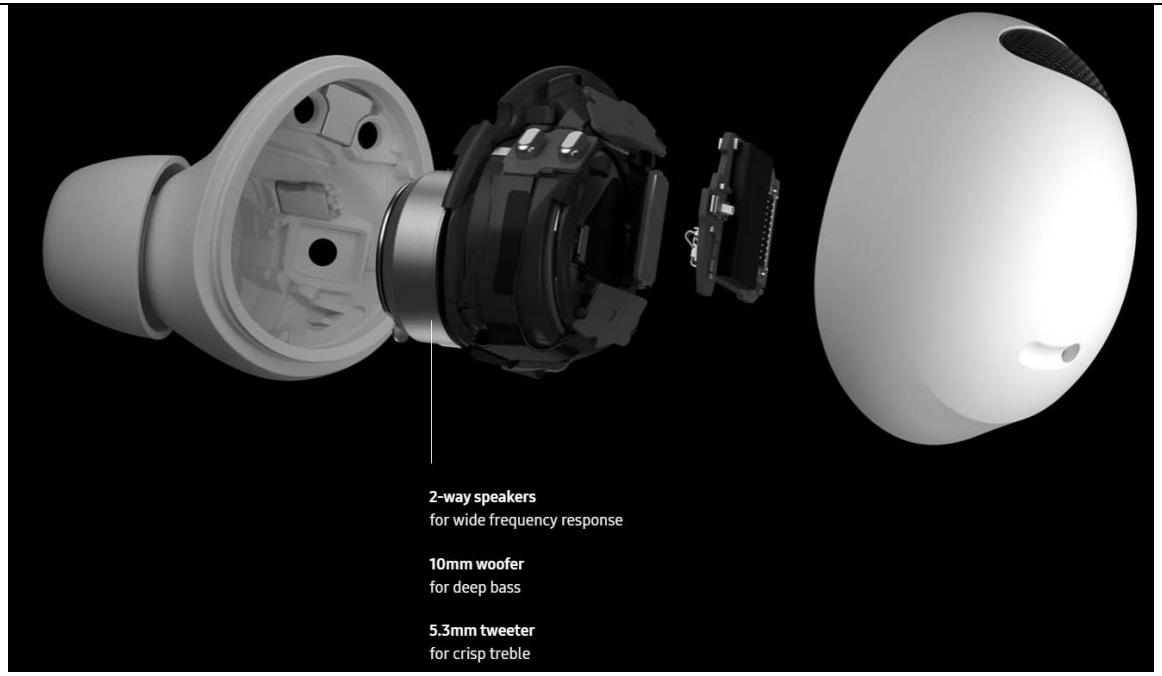
		Galaxy Buds2 Pro  Bora Purple[22] **Features** Enhanced 360 audio 24-bit Hi-Fi Intelligent ANC **Battery** Up to 29hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** ○ **Voice Detect** ○ **Galaxy Buds2**  Olive[22] **Features** 360 audio 16-bit Hi-Fi ANC **Battery** Up to 20hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** ○ **Voice Detect** - **Galaxy Buds Live**  Mystic Bronze[22] **Features** 360 audio 16-bit Hi-Fi ANC **Battery** Up to 28hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** - **Voice Detect** - https://www.samsung.com/us/mobile-audio/galaxy-buds2-pro/#design

		 https://www.samsung.com/global/galaxy/galaxy-buds2-pro/ For example, Galaxy Buds Live has 2 outer microphones and 1 inner microphone.

		Weighing just 5.6g, each earbud has a 12mm speaker with 2 outer and 1 inner microphone. There's also a dedicated Voice Pickup Unit to further improve the call quality. There's a 60mAh battery in the earbuds while the case has a 472mAh battery.  https://www.sammobile.com/samsung/galaxy-buds-live/ Further, Samsung Galaxy Buds+ includes a 2-way dynamic speaker.

		 https://web.archive.org/web/20201212191031/https://www.samsung.com/us/mobile/audio/galaxy-buds-plus/ Samsung Galaxy Buds2, Bud2 Pro, and Buds Live all include a dynamic 2-way speaker for wide frequency response.

		Galaxy Buds2 Pro  Bora Purple[22] **Features** Enhanced 360 audio 24-bit Hi-Fi Intelligent ANC **Battery** Up to 29hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** ○ **Voice Detect** ○ **Galaxy Buds2**  Olive[22] **Features** 360 audio 16-bit Hi-Fi ANC **Battery** Up to 20hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** ○ **Voice Detect** - **Galaxy Buds Live**  Mystic Bronze[22] **Features** 360 audio 16-bit Hi-Fi ANC **Battery** Up to 28hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** - **Voice Detect** - https://www.samsung.com/us/mobile-audio/galaxy-buds2-pro/#design

		 https://www.samsung.com/us/mobile-audio/galaxy-buds2-pro/#design Further, Samsung Galaxy Buds, Buds+, and Buds2 Pro use Broadcom's chipsets BCM43014 and BCM43015 that include a memory (e.g., RAM/ROM) for storing instructions.

Broadcom Wireless Audio Chip Powers Samsung Galaxy Buds

Broadcom BCM43014 delivers premium Bluetooth sound and unmatched battery life in ultra-compact footprint

SAN JOSE, Calif., Feb. 28, 2019 (GLOBE NEWSWIRE) -- Broadcom Inc. (NASDAQ: AVGO) today unveiled the BCM43014 chip enabling the Samsung Galaxy Buds to deliver a premium audio experience. The BCM43014 is a highly-integrated low power SoC that brings together unique innovations in Bluetooth, audio DSP and sensor hub technology to render rich audio while delivering up to six hours of Bluetooth streaming or five hours of voice calls.

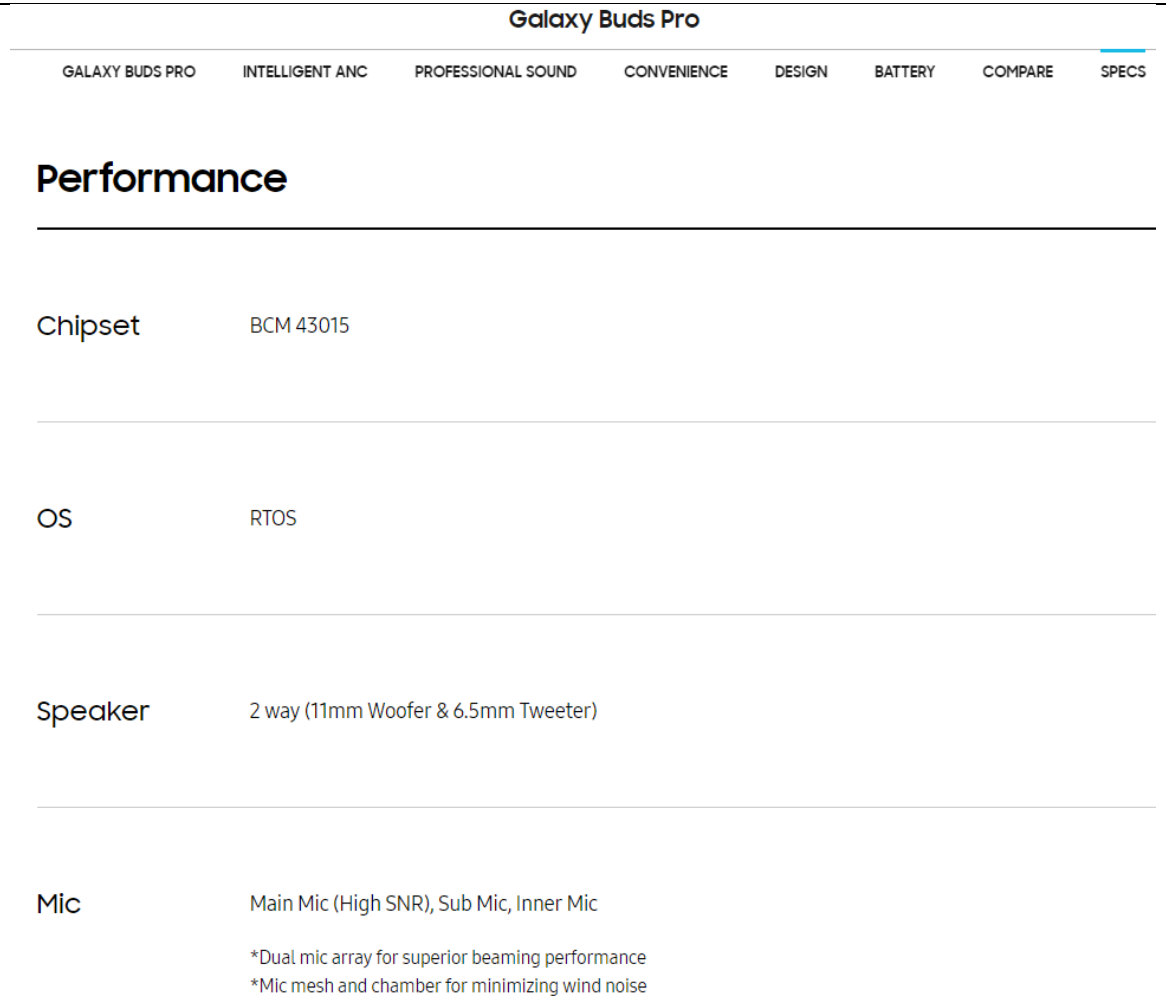
A superior in-ear audio experience requires the sound to be high-quality, robust and synchronized across the listener's ears. Wireless earbuds like the Galaxy Buds also must have long battery life, low latency, uncompromising audio quality and user mobility. For a seamless wireless experience, it is equally important that wireless earbuds instantly connect or switch across devices just like a wired pair of earbuds would when plugged into the phone.

Built on Broadcom's unique combination of deep semiconductor expertise and wireless audio engineering, the BCM43014 is engineered to meet the design requirements for in-ear wireless devices. In addition to Bluetooth 5, the chip is packed with innovative features and capabilities that:

- Allows for seamless integration of advanced acoustic algorithms that reduce background noise to deliver rich sound.
- Delivers synchronized audio to both the earbuds for various daily user scenarios using Broadcom's InConcert® technology to create a truly wireless experience.
- Innovates with a holistic low power system-level design that spans radio design, protocol optimization and software techniques.
- Seamlessly connects both Buds with phone and quickly switches between devices with Broadcom's advanced Bluetooth pairing technology to deliver continuity of content for the consumer.
- Enables the integration of the multi-dimensional sensors behind the convenient and intuitive user interface on the Buds.
- Facilitates slim earbud design by integrating multiple audio components into a single chip and reducing the c of materials.

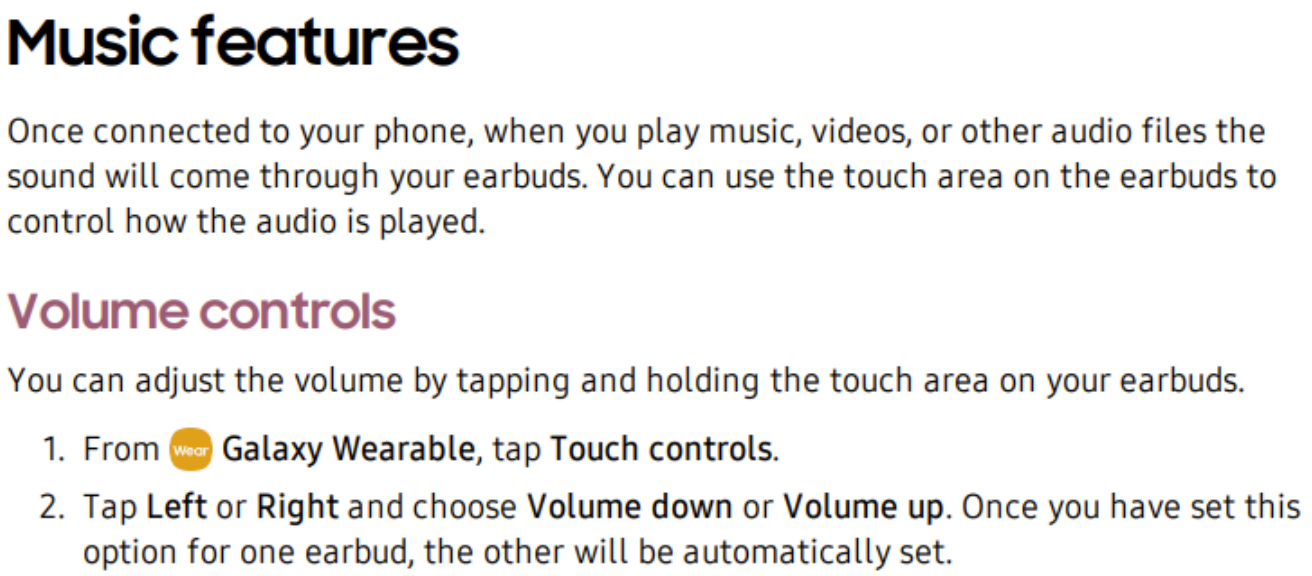
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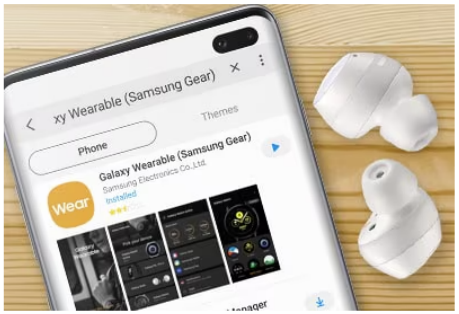
https://www.samsung.com/global/galaxy/galaxy-buds-pro/specs/

		Performance **AP** BCM43015 **OS** RTOS **Connectivity** Bluetooth 5.0 Profile: A2DP, AVRCP, HFP Codec: Scalable (Samsung proprietary), AAC, SBC *Scalable Codec is Samsung's proprietary codec which offers users a stable Bluetooth Connection, even over ambient Wi-Fi Interference. Scalable Codec also supports UHQ(24bit&96kHz) Audio streaming over Bluetooth on Samsung Mobiles supporting Android 7.0 and above in stable wireless connection condition. https://web.archive.org/web/20210227010522/https://www.samsung.com/global/galaxy/galaxy-buds-plus/specs/ **Processors** **Model Number(s)** SM-R510 **Clock Speed** @ 0.00 GHz **Memory** **RAM/ROM sizes** RAM with ROM https://www.sammobile.com/samsung/galaxy-buds-2-pro/specs/
[1E]	sending an audio content	The Samsung Smartphone/Tablets and Samsung Watches all send an audio content gain value and an ambient sound gain value to the earpiece.

	gain value and an ambient sound gain value to the earpiece; and	For example, Samsung Smartphone/Tablets and Samsung Watches that are paired to Samsung earbuds send an audio content gain value to determine the volume of the content. Samsung phones and tablets can connect to Samsung earbuds with or without the use of the Galaxy Wearable app. *See* claim [1P]. For example, through the use of the Galaxy Wearable app, Samsung phones and tablets allow users to adjust the volume of their earbuds.  https://www.bhphotovideo.com/lit_files/621703.pdf For example, through the use of the Galaxy Wearable app, Samsung phones and tablets allow users to enjoy all of their favorite music seamlessly.

Install the Galaxy Wearable app to manage your Galaxy Buds

Last Update date : Jun 03. 2021



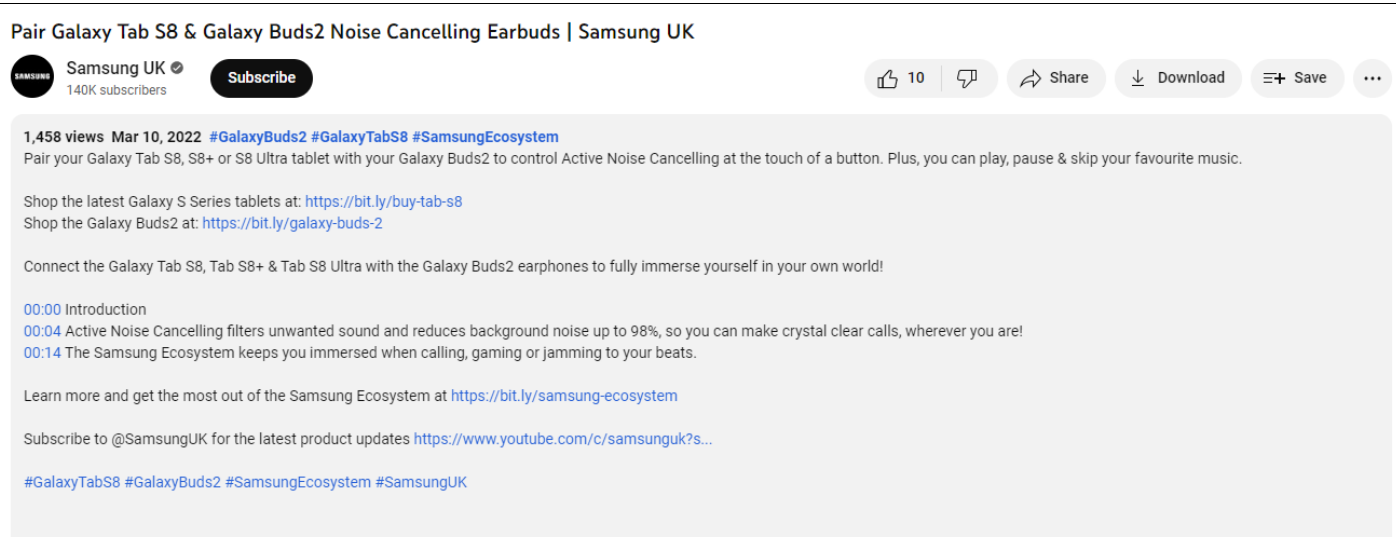
Get the Galaxy Wearable ↗ app on your phone to not only pair and control your Galaxy Buds, Galaxy Buds+, Galaxy Buds Live, or Galaxy Buds Pro, but to also check for software updates for your earbuds. That way, you can ensure they stay current and you always get to enjoy all of your favorite music seamlessly. In addition, getting the most out of your earbuds is easy when you install Galaxy Buds Manager on your computer.

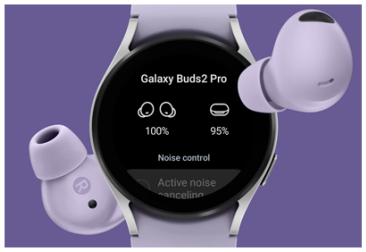
Note: *Available screens and settings may vary by provider, phone, or earbuds.*

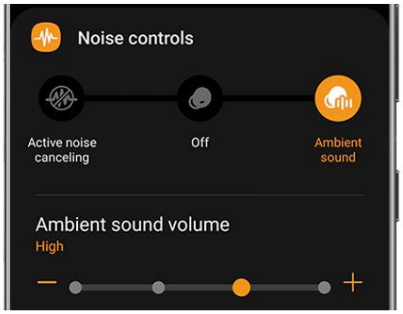
Find Galaxy Wearable app from the Galaxy store ^

The good news is the Galaxy Wearable ↗ app comes preinstalled on most new Samsung phones. But if you don't see it, you can easily install it from the Galaxy Store or the Google Play Store ↗.

https://www.samsung.com/ca/support/mobile-devices/galaxy-buds-install-galaxy-wearable/

		 https://www.youtube.com/watch?v=-evLSNo5V5A For example, Galaxy watches can control music streaming volume to the earbuds, without the use of a phone.

		Control your Buds2 or Buds2 Pro from your Galaxy Watch  Connecting your **Galaxy Buds2** or **Galaxy Buds2 Pro** to your watch is perfect for when you want to control your music but don't want your phone clunking around in your pocket, such as when you're doing a workout or going for a jog. With **Galaxy Watches** running Wear OS, the Buds Controller app makes it even easier to control the sound settings from the watch itself, such as Active noise canceling. You can also turn on the earbuds' touchpads and Touch controls from the watch, which is handy if you accidentally disabled them. https://www.samsung.com/us/support/answer/ANS00089302/ Additionally, Samsung Smartphone/Tablets and Samsung Watches that are paired to Samsung earbuds send an ambient sound gain value to the earpiece. For example, the Galaxy Wearable app allows users to adjust the Ambient sound level and volume.

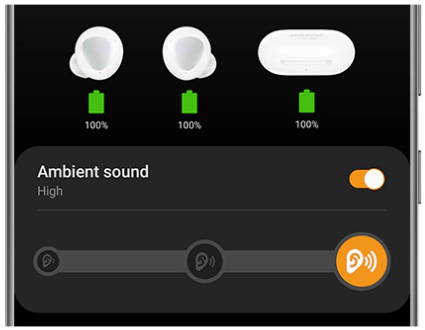
		Galaxy Buds Pro Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

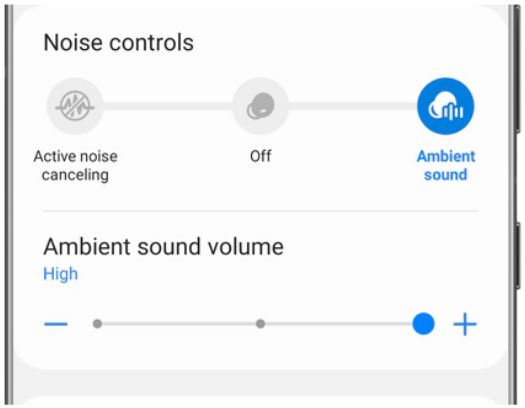


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

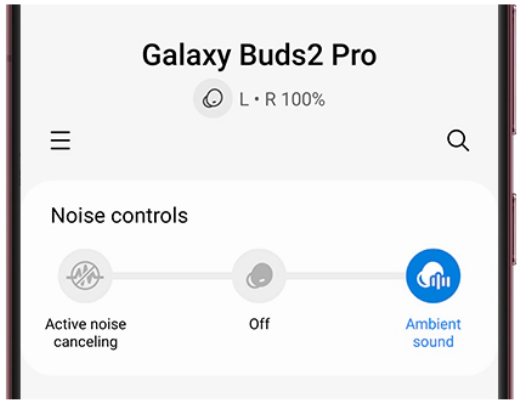
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

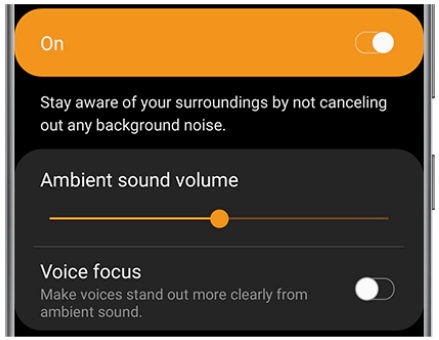


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

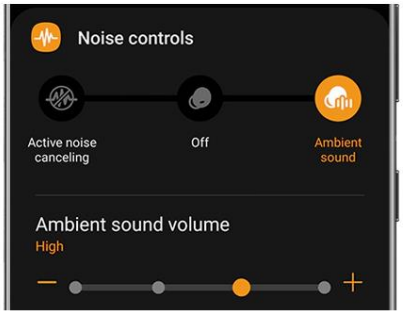
1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.



2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

https://www.samsung.com/us/support/answer/ANS00078084/

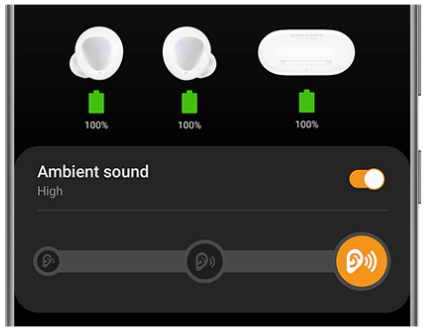
		Galaxy Buds Pro Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

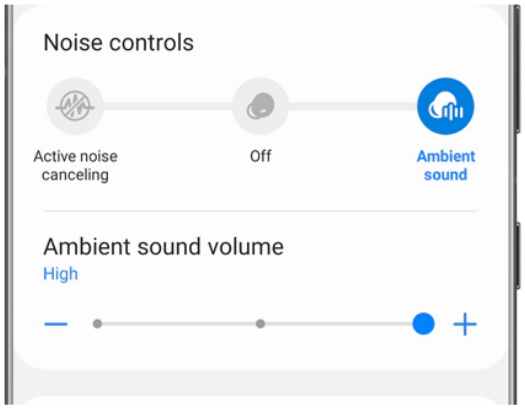


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

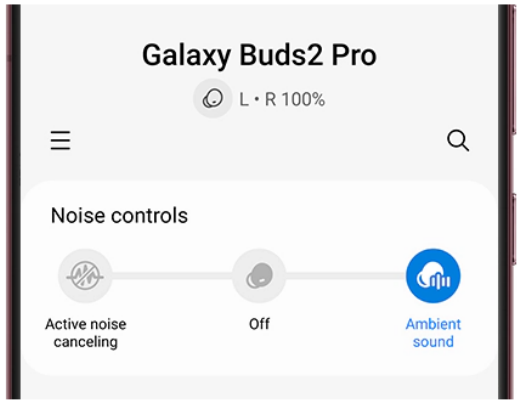
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

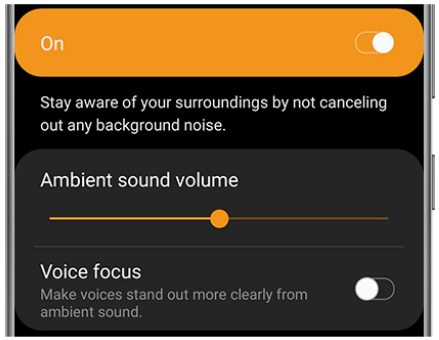


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.



2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

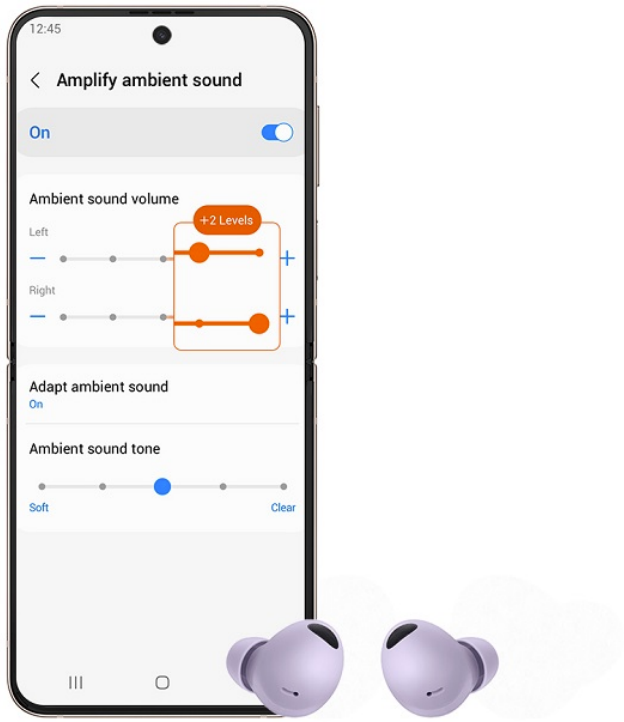
Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

https://www.samsung.com/us/support/answer/ANS00078084/

Bringing New Levels to Audio Customization

With this improved feature, Galaxy Buds2 Pro users can also fine tune their Ambient Sound settings across a variety of needs. Users can adjust the volumes on the left and the right respectively, as well as customize their Ambient Sound tone range from soft to clear across five different stages. Additionally, Ambient Sound can tune to users' ears through the Adapt Ambient Sound feature, allowing for even more clarity in helping users hear the world around them better.

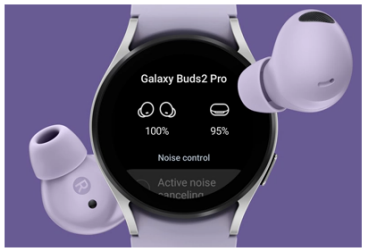
"We are excited to be introducing the new enhanced accessibility feature of the Galaxy Buds2 Pro to users on Global Accessibility Awareness Day," said Han-gil Moon, Master and Head of Advanced Audio Lab, MX Business at Samsung Electronics. "Samsung will continue to work to help each and every user experience the best possible audio anytime, anywhere with their Galaxy Buds2 Pro."

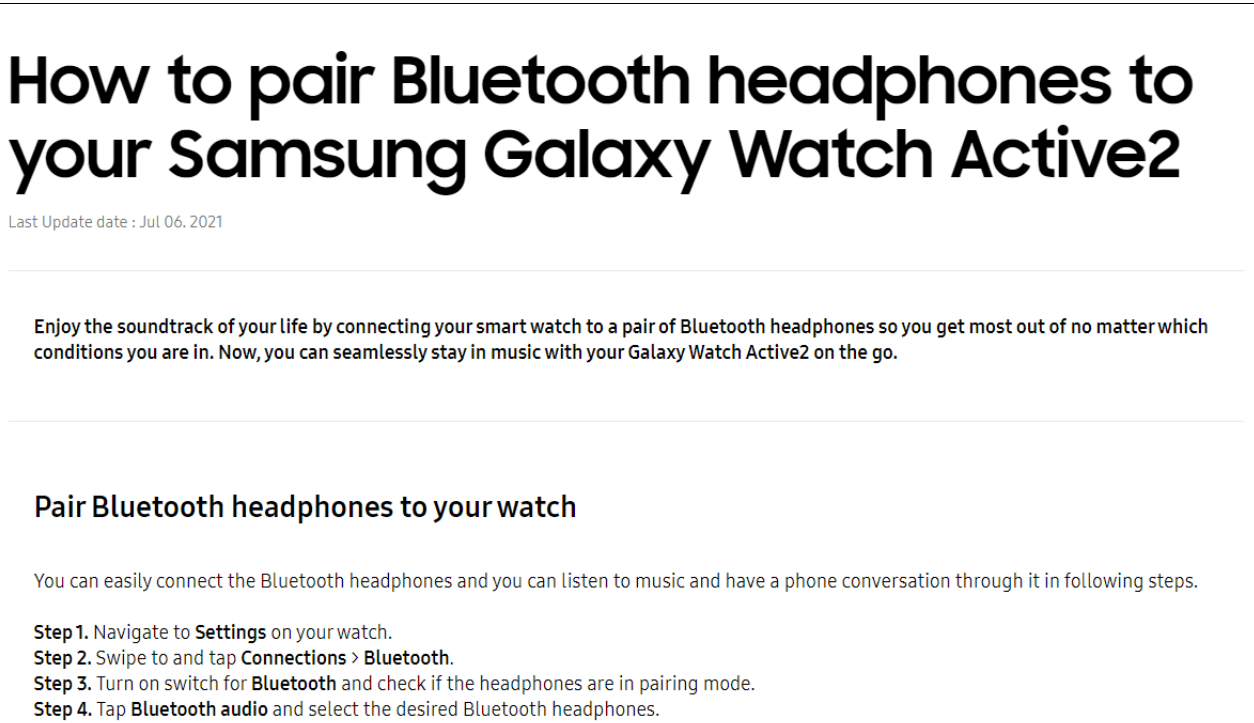


		https://news.samsung.com/global/global-accessibility-awareness-day-galaxy-buds2-pro-brings-enhanced-ambient-sound-for-people-who-are-hard-of-hearing Additionally, Galaxy watches are able to adjust the settings such as Ambient sound on connected earbuds. **Use the controls in the Buds Controller app** Having trouble listening to music on your Galaxy Buds2 or Galaxy Buds2 Pro because the other people at the gym are being too loud? Just use the Buds Controller app on your Galaxy Watch to turn on Active noise canceling or adjust other settings so you can work out in peace. **Note**: This is only applicable to watch models running Wear OS. Swipe up from the bottom of the screen to access the Apps screen. Swipe to and open the **Buds Controller** app. From here, you can adjust the following settings: • View the battery percentage for the buds and case • Turn on Active noise canceling • Turn on Ambient sound • Turn off all sound modes • Turn Touch controls on or off  https://www.samsung.com/us/support/answer/ANS00089302/ Source code is required to fully understand the functionality of these elements of the accused products.
[1F]	sending an audio content signal to the earpiece, wherein	The Samsung Smartphone/Tablets and Samsung Watches all send an audio content signal to the earpiece. For example, Samsung phones, tablets, and watches can all stream music directly to the connected earbud device.

	the earpiece processor	**Play music from your Galaxy Buds** **Note:** On iOS devices, you can connect your earbuds to the **Buds app** instead of the Galaxy Wearable app. The Galaxy Buds, Galaxy Buds2, Galaxy Buds2 Pro, and Galaxy Buds Pro are not compatible with the iOS Buds app and can only be connected directly through Bluetooth. Once your earbuds are **set up**, you can stream music directly from a connected device, such as a phone or tablet. Just make sure to keep the device, apps, and the earbuds' firmware up to date for the best listening experience. Simply open any music player or music app on your connected device and play a song. The track will play through your earbuds automatically. To improve sound quality, you can try using larger ear tips when wearing your earbuds. Make sure the earbuds are **worn properly** to avoid discomfort.  To learn how to control your earbuds using the touchpads, please see the next section. https://www.samsung.com/us/support/answer/ANS00078092/

		# Music features Once connected to your phone, when you play music, videos, or other audio files the sound will come through your earbuds. You can use the touch area on the earbuds to control how the audio is played. ## Volume controls You can adjust the volume by tapping and holding the touch area on your earbuds. 1. From Galaxy Wearable, tap **Touch controls**. 2. Tap **Left** or **Right** and choose **Volume down** or **Volume up**. Once you have set this option for one earbud, the other will be automatically set. https://www.bhphotovideo.com/lit_files/621703.pdf

		Control your Buds2 or Buds2 Pro from your Galaxy Watch  Connecting your **Galaxy Buds2** or **Galaxy Buds2 Pro** to your watch is perfect for when you want to control your music but don't want your phone clunking around in your pocket, such as when you're doing a workout or going for a jog. With **Galaxy Watches** running Wear OS, the Buds Controller app makes it even easier to control the sound settings from the watch itself, such as Active noise canceling. You can also turn on the earbuds' touchpads and Touch controls from the watch, which is handy if you accidentally disabled them. https://www.samsung.com/us/support/answer/ANS00089302/

		 https://www.samsung.com/latin_en/support/mobile-devices/how-to-pair-bluetooth-headphones-to-your-samsung-galaxy-watch-active2/
[1G]	applies the audio content gain value to the audio content signal to generate a modified	Samsung earbuds apply the audio content gain value to the audio content signal to generate a modified audio content signal. For example, users can adjust the volume on their earbud by choosing the volume down or volume up controls on the connected device.

	audio content signal, wherein the earpiece processor	**Music features** Once connected to your phone, when you play music, videos, or other audio files the sound will come through your earbuds. You can use the touch area on the earbuds to control how the audio is played. **Volume controls** You can adjust the volume by tapping and holding the touch area on your earbuds. 1. From Galaxy Wearable, tap **Touch controls**. 2. Tap **Left** or **Right** and choose **Volume down** or **Volume up**. Once you have set this option for one earbud, the other will be automatically set. https://www.bhphotovideo.com/lit_files/621703.pdf

Play music from your Galaxy Buds

Note: On iOS devices, you can connect your earbuds to the **Buds app** instead of the Galaxy Wearable app. The Galaxy Buds, Galaxy Buds2, Galaxy Buds2 Pro, and Galaxy Buds Pro are not compatible with the iOS Buds app and can only be connected directly through Bluetooth.

Once your earbuds are **set up**, you can stream music directly from a connected device, such as a phone or tablet. Just make sure to keep the device, apps, and the earbuds' firmware up to date for the best listening experience.



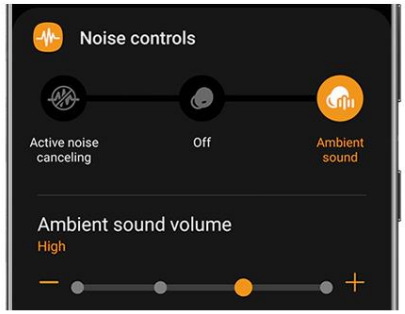
Simply open any music player or music app on your connected device and play a song. The track will play through your earbuds automatically. To improve sound quality, you can try using larger ear tips when wearing your earbuds. Make sure the earbuds are **worn properly** to avoid discomfort.

To learn how to control your earbuds using the touchpads, please see the next section.

https://www.samsung.com/us/support/answer/ANS00078092/

For example, the processor and memory contained in the earbuds provides “uncompromising audio quality” and “seamless integration of advanced acoustic algorithms.”

		Broadcom Wireless Audio Chip Powers Samsung Galaxy Buds **Broadcom BCM43014 delivers premium Bluetooth sound and unmatched battery life in ultra-compact footprint** SAN JOSE, Calif., Feb. 28, 2019 (GLOBE NEWSWIRE) -- Broadcom Inc. (NASDAQ: AVGO) today unveiled the BCM43014 chip enabling the Samsung Galaxy Buds to deliver a premium audio experience. The BCM43014 is a highly-integrated low power SoC that brings together unique innovations in Bluetooth, audio DSP and sensor hub technology to render rich audio while delivering up to six hours of Bluetooth streaming or five hours of voice calls. A superior in-ear audio experience requires the sound to be high-quality, robust and synchronized across the listener's ears. Wireless earbuds like the Galaxy Buds also must have long battery life, low latency, uncompromising audio quality and user mobility. For a seamless wireless experience, it is equally important that wireless earbuds instantly connect or switch across devices just like a wired pair of earbuds would when plugged into the phone. Built on Broadcom's unique combination of deep semiconductor expertise and wireless audio engineering, the BCM43014 is engineered to meet the design requirements for in-ear wireless devices. In addition to Bluetooth 5, the chip is packed with innovative features and capabilities that: • Allows for seamless integration of advanced acoustic algorithms that reduce background noise to deliver rich sound. • Delivers synchronized audio to both the earbuds for various daily user scenarios using Broadcom's InConcert® technology to create a truly wireless experience. • Innovates with a holistic low power system-level design that spans radio design, protocol optimization and software techniques. • Seamlessly connects both Buds with phone and quickly switches between devices with Broadcom's advanced Bluetooth pairing technology to deliver continuity of content for the consumer. • Enables the integration of the multi-dimensional sensors behind the convenient and intuitive user interface on the Buds. • Facilitates slim earbud design by integrating multiple audio components into a single chip and reducing the c of materials. Top https://www.broadcom.com/company/news/product-releases/52201 Source code is required to fully understand the functionality of these elements of the accused products.
[1H]	applies the ambient sound gain value to an ambient	Samsung earbuds apply the ambient sound gain value to the ambient sound signal to generate a modified ambient sound signal. For example, users can adjust the volume of ambient noise provided on the earbud.

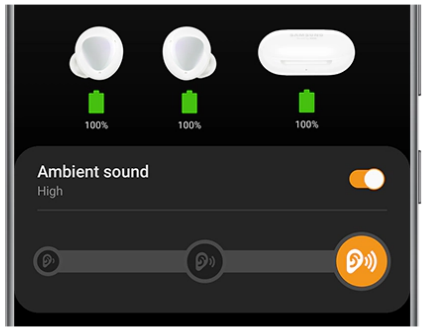
	sound signal to generate a modified ambient sound signal, and wherein the earpiece processor	**Galaxy Buds Pro** Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

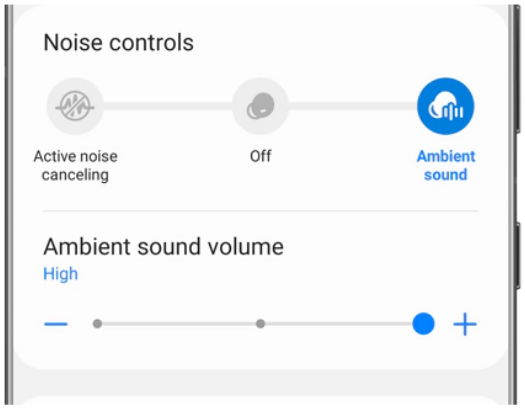


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

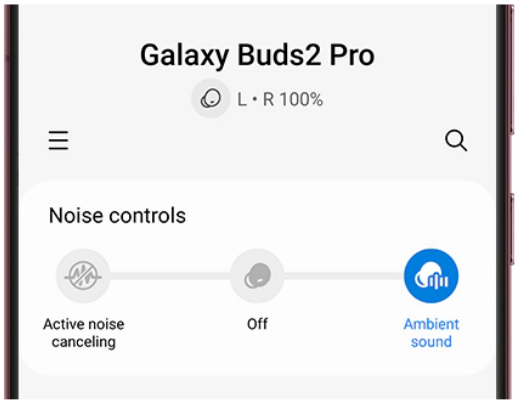
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.

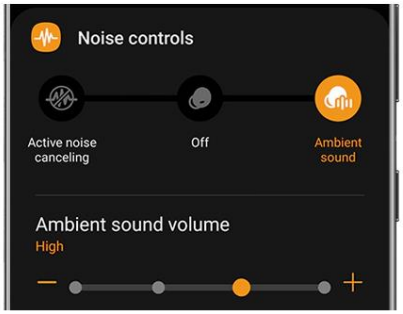


Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.



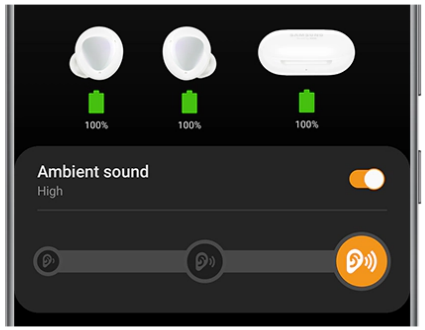
		Galaxy Buds Pro Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

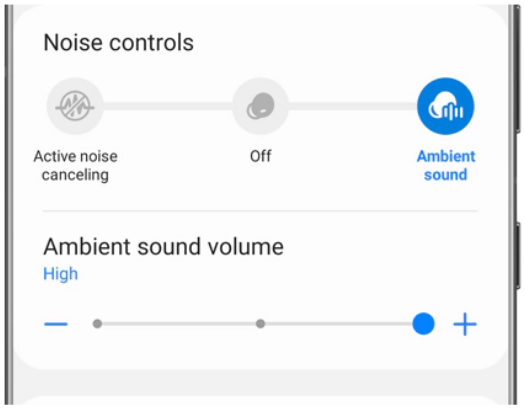


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

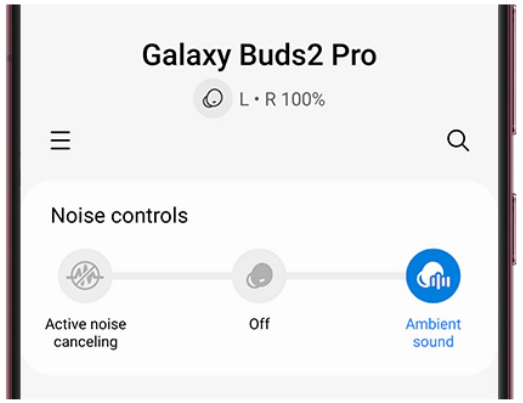
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

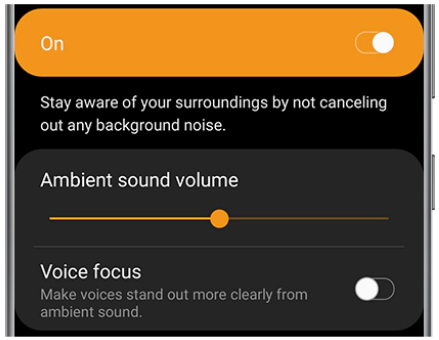


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.



2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

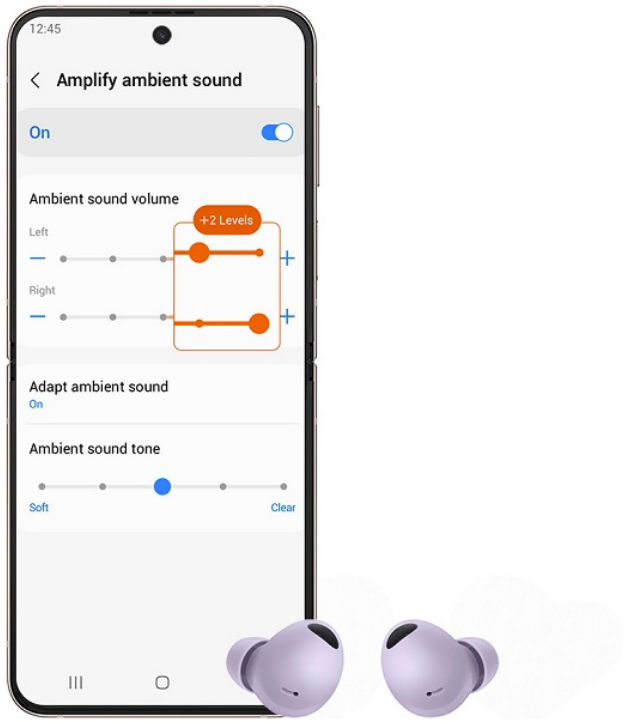
Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

https://www.samsung.com/us/support/answer/ANS00078084/

Bringing New Levels to Audio Customization

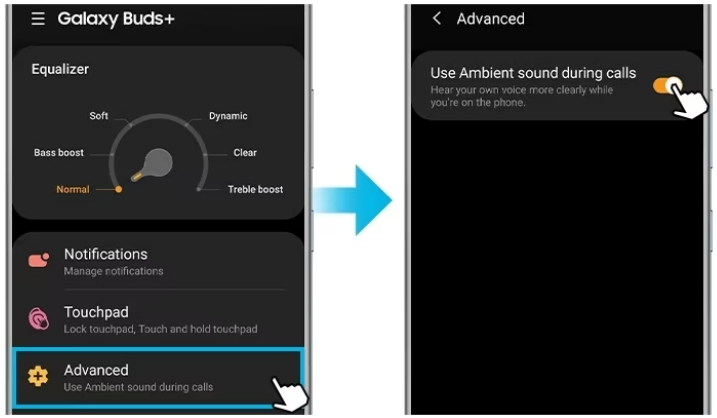
With this improved feature, Galaxy Buds2 Pro users can also fine tune their Ambient Sound settings across a variety of needs. Users can adjust the volumes on the left and the right respectively, as well as customize their Ambient Sound tone range from soft to clear across five different stages. Additionally, Ambient Sound can tune to users' ears through the Adapt Ambient Sound feature, allowing for even more clarity in helping users hear the world around them better.

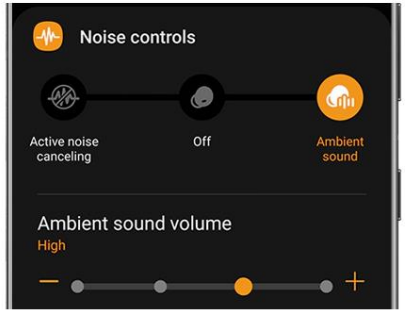
"We are excited to be introducing the new enhanced accessibility feature of the Galaxy Buds2 Pro to users on Global Accessibility Awareness Day," said Han-gil Moon, Master and Head of Advanced Audio Lab, MX Business at Samsung Electronics. "Samsung will continue to work to help each and every user experience the best possible audio anytime, anywhere with their Galaxy Buds2 Pro."



		https://news.samsung.com/global/global-accessibility-awareness-day-galaxy-buds2-pro-brings-enhanced-ambient-sound-for-people-who-are-hard-of-hearing


Adaptive Dual Microphone
Galaxy Bud's Adaptive Dual Microphone mixes audio from an inner and outer microphone to produce clear voice calls.
STEP 01
Outer microphone detects ambient noise
STEP 02
Galaxy Buds' processor and software algorithms categorize noise level into three levels
STEP 03
Depending on the noise level, Galaxy Buds select and combine audio from the inner or outer microphone
In low-level noise environment, Galaxy Buds use the outer microphone to pick up audio.
In mid-level noise environment, Galaxy Buds combine signals from both microphones and enable User Voice Pick Up to produce clear audio.
In high-level noise environment, Galaxy Buds switch to the inner microphone, which picks up sound vibration inside the body.
Low-level noise environment
Mid-level noise environment
High-level noise environment
OUTER MIC
INNER MIC

		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance **Check the sound settings on the Galaxy Wearable app to improve the sound quality for calls** To improve transmitted sound to the opposite side during calls, it is recommended to enable **Ambient sound during calls.** By using this feature, you are able to hear your own voice more clearly, allowing natural vocal effort with both earbuds on. **Step 1.** Launch the Galaxy Wearable app on the mobile device. **Step 2. Advanced > Use Ambient sound during calls.**  https://www.samsung.com/sa_en/support/mobile-devices/why-is-the-poor-sound-quality-on-galaxy-buds/ Source code is required to fully understand the functionality of these elements of the accused products.
[1I]	mixes the modified ambient sound	Samsung earbuds mix the modified ambient sound signal with the modified audio content signal to generate a mixed signal.

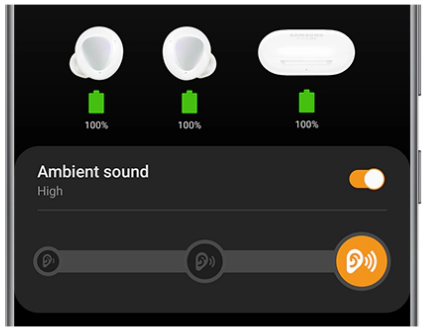
	signal with the modified audio content signal to generate a mixed signal.	For example, when Ambient sound is activated, the "earbuds' volume will automatically decrease if [] listening to music." **Galaxy Buds Pro** Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

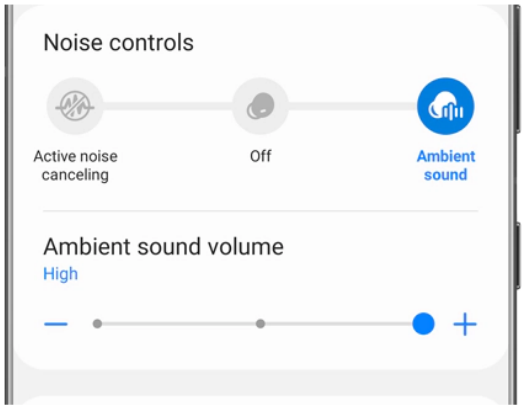


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

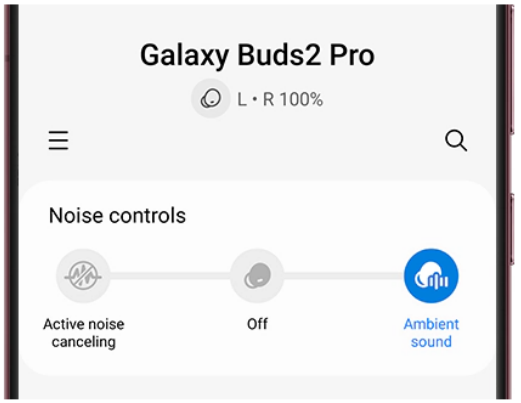
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

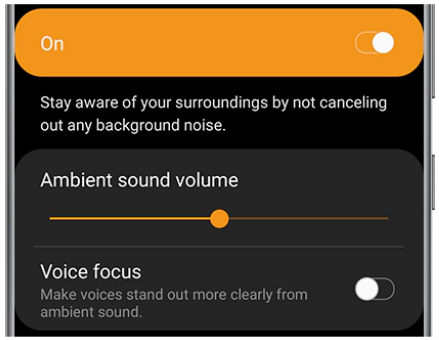


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.



2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

https://www.samsung.com/us/support/answer/ANS00078084/

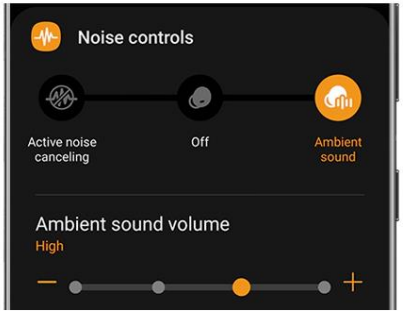
For another example, when Ambient sound is activated on Samsung earbuds, users can "hear outside noises, so [they] can still hear important sounds and keep alert of [their] surroundings – while still enjoying that song or podcast."

		Use Ambient sound on your Samsung earbuds  Do you ever get lost in a song while you're wearing your earbuds and can't hear what's going on? Well, you'll never be caught off guard when you use Ambient sound on these **Samsung earbuds**. Ambient sound uses the external microphones on your earbuds to let you hear outside noises, so you can still hear important sounds and keep alert of your surroundings - while still enjoying that song or podcast. **Note:** With Ambient sound enabled, feedback may occur when touching the microphone. Make sure the microphone isn't touching your ear when you wear the earbuds. https://www.samsung.com/us/support/answer/ANS00078084/ Source code is required to fully understand the functionality of these elements of the accused products.
[2]	The device according to claim 1, wherein the earpiece processor calculates a noise level based	Samsung earbuds calculate a noise level based on microphone signals and modifies the mixed signal based upon the calculated noise level. For example, the earbuds detect ambient noise using the outer microphone and use "software algorithms [to] categorize noise level into three levels."

	upon a first microphone signal from the first microphone, wherein the earpiece processor modifies the mixed signal based upon the noise level.		

		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance Source code is required to fully understand the functionality of these elements of the accused products.
[3]	The device according to claim 1, wherein the earpiece processor generates the ambient sound signal from a first microphone signal from the first microphone.	Samsung earbuds generate an ambient sound signal from the first microphone. For example, the earbuds detect ambient noise using outer microphones.


Adaptive Dual Microphone
Galaxy Bud's Adaptive Dual Microphone mixes audio from an inner and outer microphone to produce clear voice calls.
STEP 01
Outer microphone detects ambient noise
STEP 02
Galaxy Buds' processor and software algorithms categorize noise level into three levels
STEP 03
Depending on the noise level, Galaxy Buds select and combine audio from the inner or outer microphone
In low-level noise environment, Galaxy Buds use the outer microphone to pick up audio.
In mid-level noise environment, Galaxy Buds combine signals from both microphones and enable User Voice Pick Up to produce clear audio.
In high-level noise environment, Galaxy Buds switch to the inner microphone, which picks up sound vibration inside the body.
Low-level noise environment
Mid-level noise environment
High-level noise environment
OUTER MIC
INNER MIC

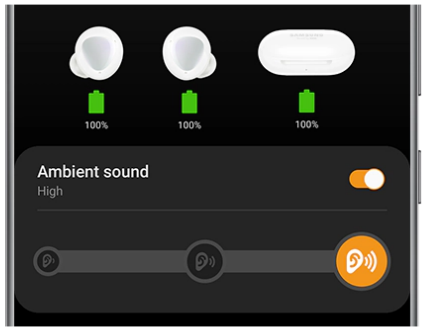
		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance Source code is required to fully understand the functionality of these elements of the accused products.
[4]	The device according to claim 1 further including a user interface.	The Samsung Smartphone/Tablets and Samsung Watches all include a user interface. For example, the Samsung phones and tablets include a user interface for the Galaxy Wearable app. **Galaxy Buds Pro** Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

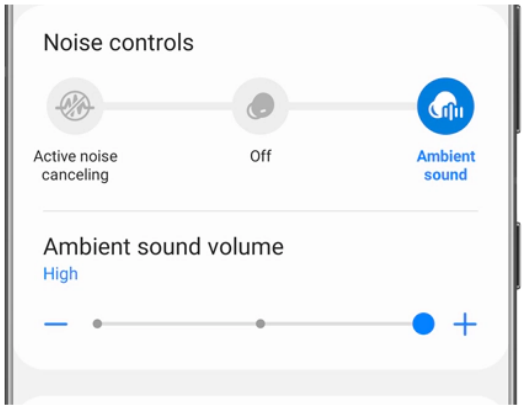


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

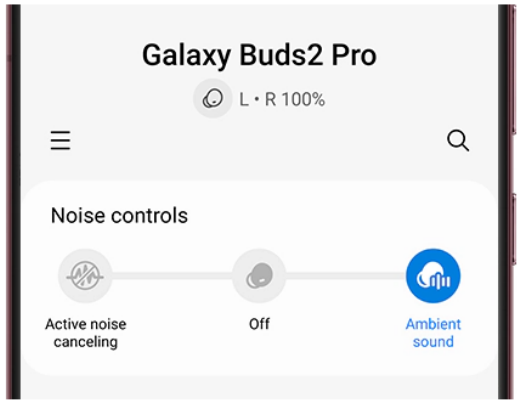
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

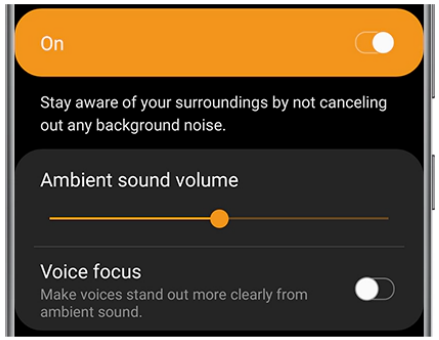


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.



2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

https://www.samsung.com/us/support/answer/ANS00078084/

For another example, the Samsun watches include a user interface for the Buds Controller.

		Use the controls in the Buds Controller app Having trouble listening to music on your Galaxy Buds2 or Galaxy Buds2 Pro because the other people at the gym are being too loud? Just use the Buds Controller app on your Galaxy Watch to turn on Active noise canceling or adjust other settings so you can work out in peace. **Note**: This is only applicable to watch models running Wear OS. Swipe up from the bottom of the screen to access the Apps screen. Swipe to and open the **Buds Controller** app. From here, you can adjust the following settings: • View the battery percentage for the buds and case • Turn on Active noise canceling • Turn on Ambient sound • Turn off all sound modes • Turn Touch controls on or off  https://www.samsung.com/us/support/answer/ANS00089302/
[5]	The device according to claim 1, wherein the earpiece processor applies an ambient gain to a first microphone signal	The Samsung earbuds all use a processor to apply an ambient gain to the first microphone signal to generate an ambient sound signal.

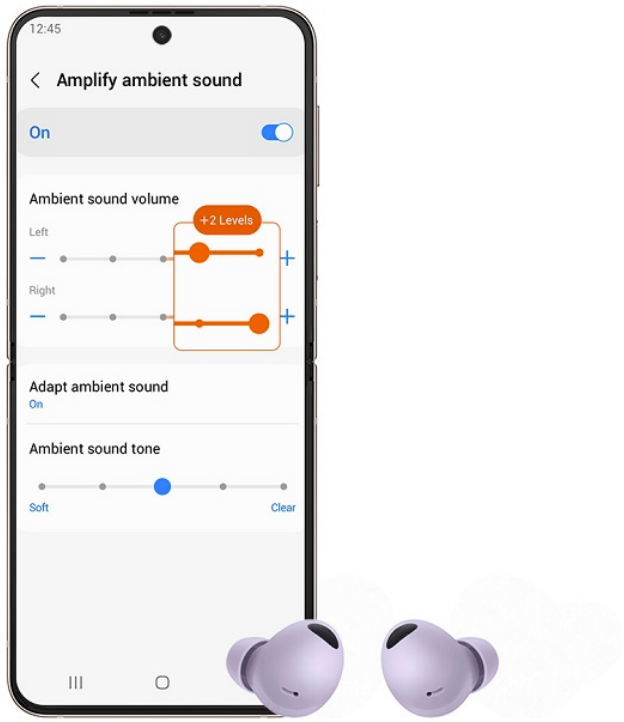
	from the first microphone to generate the ambient sound signal.		

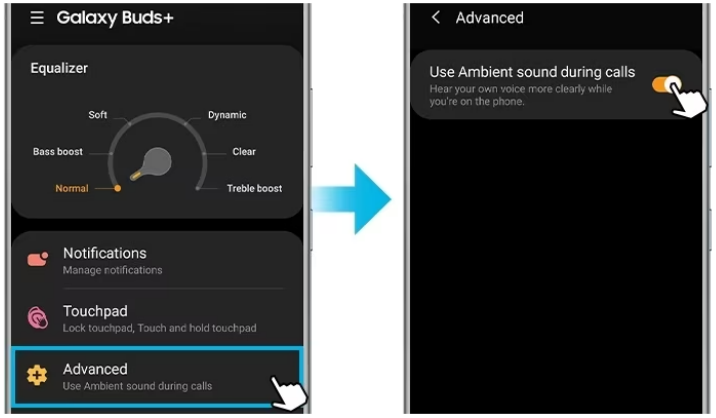
		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance

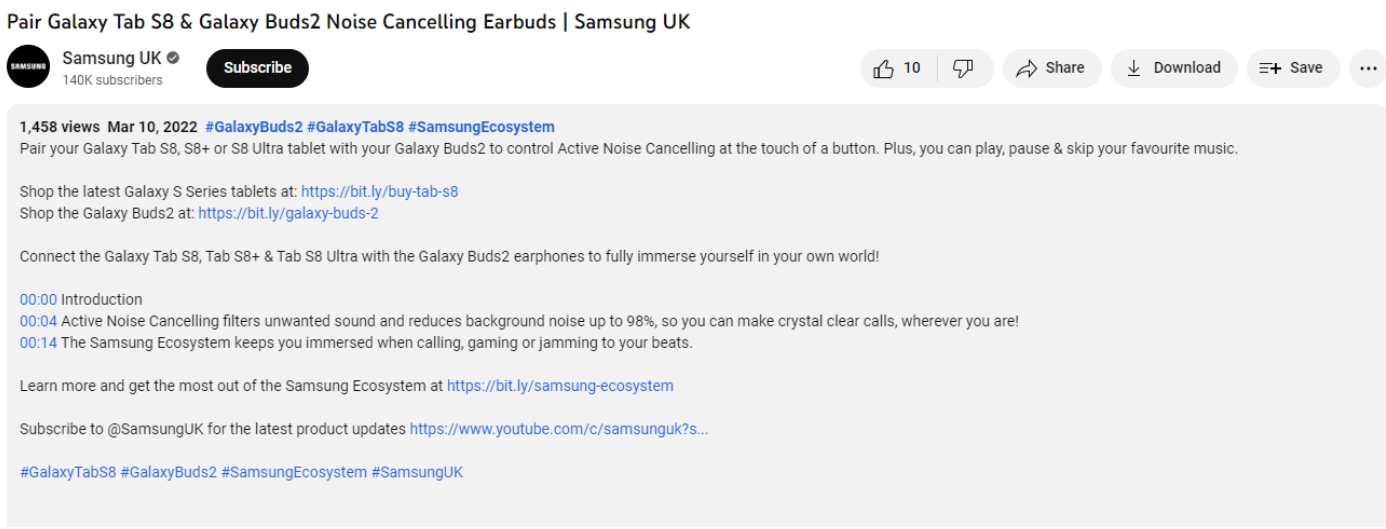
Bringing New Levels to Audio Customization

With this improved feature, Galaxy Buds2 Pro users can also fine tune their Ambient Sound settings across a variety of needs. Users can adjust the volumes on the left and the right respectively, as well as customize their Ambient Sound tone range from soft to clear across five different stages. Additionally, Ambient Sound can tune to users' ears through the Adapt Ambient Sound feature, allowing for even more clarity in helping users hear the world around them better.

"We are excited to be introducing the new enhanced accessibility feature of the Galaxy Buds2 Pro to users on Global Accessibility Awareness Day," said Han-gil Moon, Master and Head of Advanced Audio Lab, MX Business at Samsung Electronics. "Samsung will continue to work to help each and every user experience the best possible audio anytime, anywhere with their Galaxy Buds2 Pro."



		https://news.samsung.com/global/global-accessibility-awareness-day-galaxy-buds2-pro-brings-enhanced-ambient-sound-for-people-who-are-hard-of-hearing Source code is required to fully understand the functionality of these elements of the accused products.
[6]	The device according to claim 1, wherein the device is a portable communication device.	The Samsung Smartphone/Tablets and Samsung Watches are all portable communication devices. For example, the Samsung phones, watches, and tablets all allow users to make phone calls. **Check the sound settings on the Galaxy Wearable app to improve the sound quality for calls** To improve transmitted sound to the opposite side during calls, it is recommended to enable **Ambient sound during calls.** By using this feature, you are able to hear your own voice more clearly, allowing natural vocal effort with both earbuds on. **Step 1.** Launch the Galaxy Wearable app on the mobile device. **Step 2. Advanced > Use Ambient sound during calls.**  https://www.samsung.com/sa_en/support/mobile-devices/why-is-the-poor-sound-quality-on-galaxy-buds/

		 https://www.youtube.com/watch?v=-evLSNo5V5A

		Make and answer calls on your Samsung smart watch  Did you ever imagine that all those spy movies would come true? Well, they have. Depending on your smart watch, you can make and answer calls right from your wrist! You just need to make sure the watch is connected to your phone through Bluetooth or through a mobile network. With an LTE watch model, you can even handle calls remotely. **Note:** The screens and steps shown may vary by wireless service provider and your phone. https://www.samsung.com/us/support/answer/ANS00061408/
[7]	The device according to claim 6, where the device portable communication device is at least one of a phone, a watch, a	The Samsung Smartphone/Tablets and Samsung Watches are all at least one of a phone, watch, or tablet.

	tablet, earpiece, a laptop computer or a combination thereof.	**Pairing the Galaxy Buds/Buds+ with phone, tablet, watch, and other devices** Last Update date : 2023-01-04 Galaxy Buds / Buds + pairing information is synced through your Samsung account, allowing Galaxy Buds / Buds + to be connected to other Galaxy devices without further pairing. If you are logged in to Samsung Cloud, your Galaxy Buds / Buds + will be automatically paired with any of your Galaxy phones, Galaxy tablets, and Galaxy Watch with the same account. To pair with a computer, TV, phone, or tablet that does not have a Samsung account.  https://www.samsung.com/ae/support/mobile-devices/pairing-the-galaxy-budsbuds-with-phone-tablet-watch-and-other-devices/
[8P]	A device that can control ambient	The Samsung Earbud Products are all devices that can control ambient sound passthrough. For example, the Samsung Galaxy Buds+, Buds2, Buds2 Pro, and Buds Live are all devices that can control ambient sound passthrough.

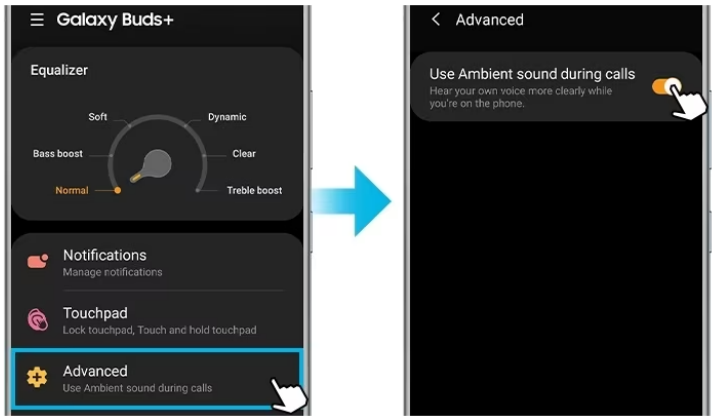
	sound passthrough comprising:	Samsung Galaxy earbuds (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies. On information and belief, the Samsung Galaxy earbuds generate a first signal from at least one of the first ASM signal, or the second ASM signal, or both to enable the devices to perform ANC. With ANC, earbuds block out noise in the nearby area, so you can fully enjoy your music. The feature actively seeks out and destroys ambient sound before it reaches your ears. It uses the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies. Both frequencies then cancel each other out. Samsung offers three levels of ambient sound control, so you have more options than just blocking out all ambient sound. https://www.xda-developers.com/samsung-galaxy-buds-2-anc/

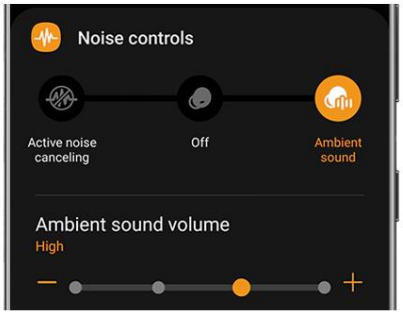


https://www.samsung.com/global/galaxy/galaxy-buds2-pro/

		 https://www.samsung.com/us/mobile-audio/galaxy-buds2-pro/#noise_cancellation

		# Using the noise controls mode ## Introduction There are two noise controls mode: active noise cancelling and ambient sound mode. Activate the active noise cancelling feature to block out the external sounds around you. Use it when you want to avoid distractions, such as when listening to music. Conversely, activate the ambient sound mode to hear your surroundings clearly, so you can quickly detect any potentially dangerous situations or hear another person's voice during a conversation. If the microphone (the outer microphone while wearing the earbuds) and its area are covered completely, feedback may occur when launching the active noise cancelling feature. You can only activate the noise controls mode when wearing both earbuds in your ears. https://www.sammobile.com/wp-content/uploads/2022/08/Samsung-Galaxy-Buds-2-Pro-User-Manual.pdf

		Check the sound settings on the Galaxy Wearable app to improve the sound quality for calls To improve transmitted sound to the opposite side during calls, it is recommended to enable **Ambient sound during calls.** By using this feature, you are able to hear your own voice more clearly, allowing natural vocal effort with both earbuds on. **Step 1.** Launch the Galaxy Wearable app on the mobile device. **Step 2. Advanced > Use Ambient sound during calls.**  https://www.samsung.com/sa_en/support/mobile-devices/why-is-the-poor-sound-quality-on-galaxy-buds/

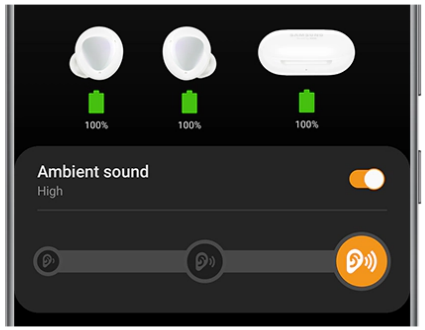
		Galaxy Buds Pro Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you. Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**. If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**. The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations. 

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

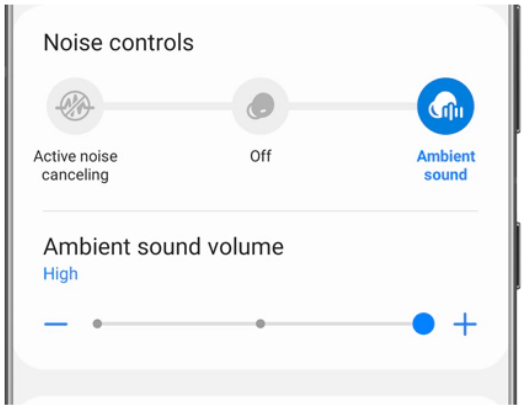


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

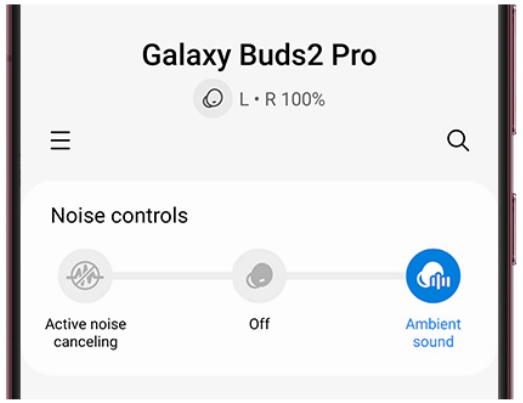
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

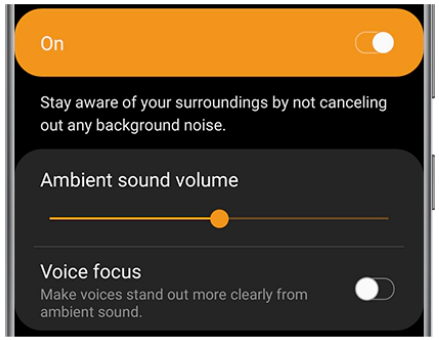


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.



2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

https://www.samsung.com/us/support/answer/ANS00078084/

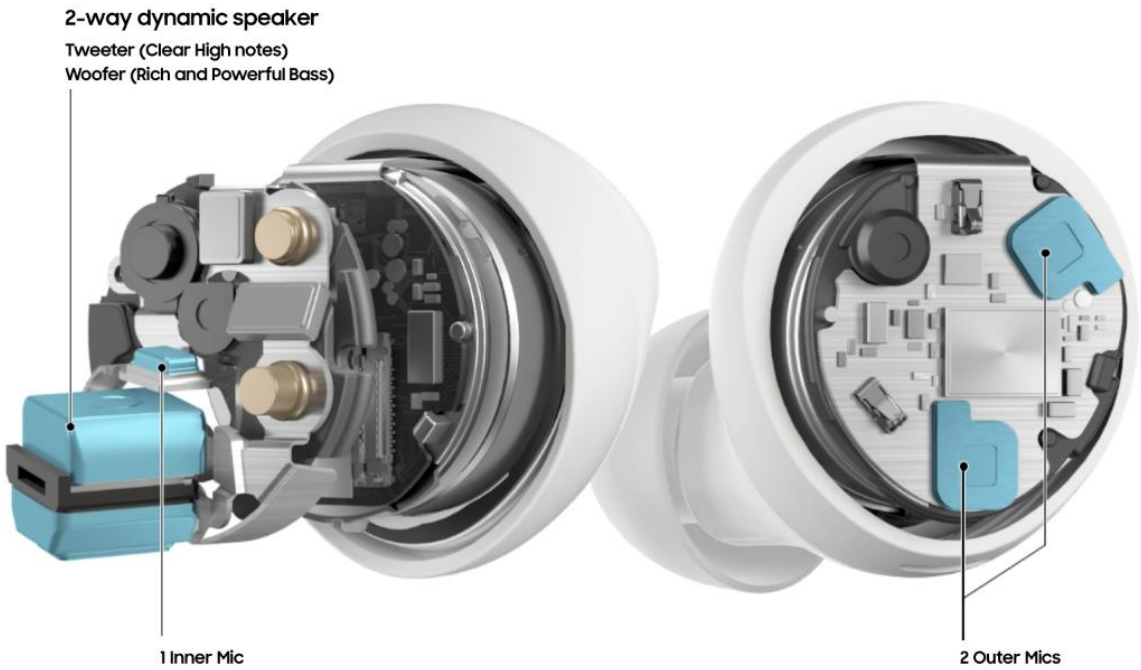

Adaptive Dual Microphone
Galaxy Bud's Adaptive Dual Microphone mixes audio from an inner and outer microphone to produce clear voice calls.
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In mid-level noise environment, Galaxy Buds combine signals from both microphones and enable User Voice Pick Up to produce clear audio.
In high-level noise environment, Galaxy Buds switch to the inner microphone, which picks up sound vibration inside the body.
Low-level noise environment
Mid-level noise environment
High-level noise environment
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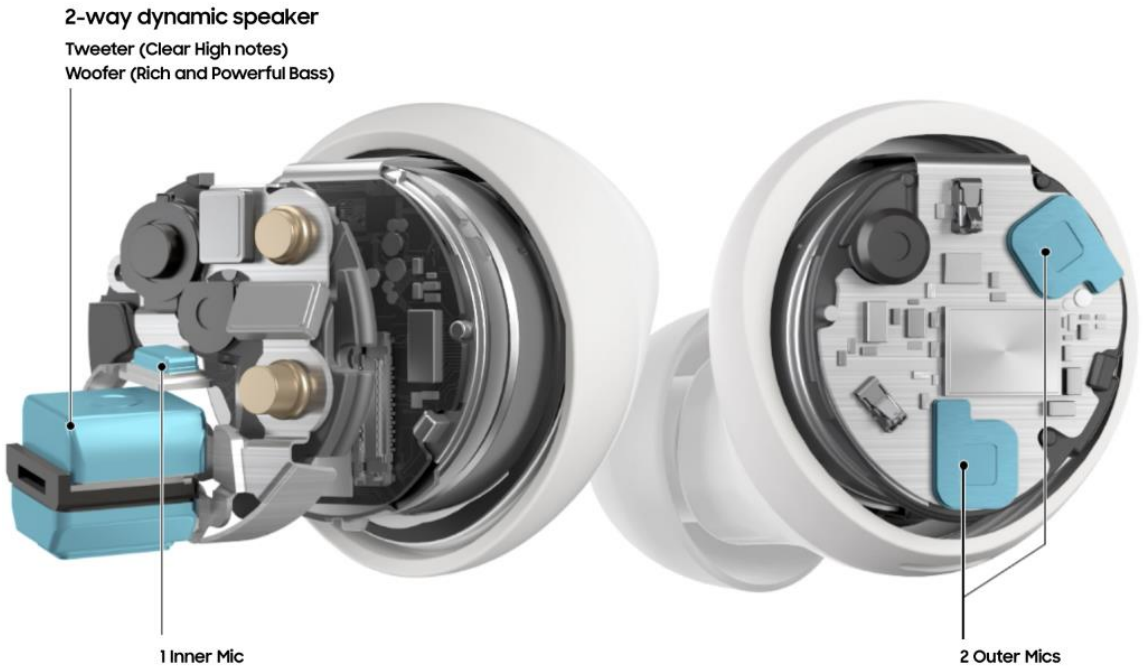
		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance
[8A]	a first microphone that measures a first acoustic environment to generate a first microphone signal;	The Samsung Earbud Products all comprise a first microphone that measures a first acoustic environment to generate a first microphone signal. For example, Samsung Galaxy earbuds contain an outer microphone that detects ambient noise.


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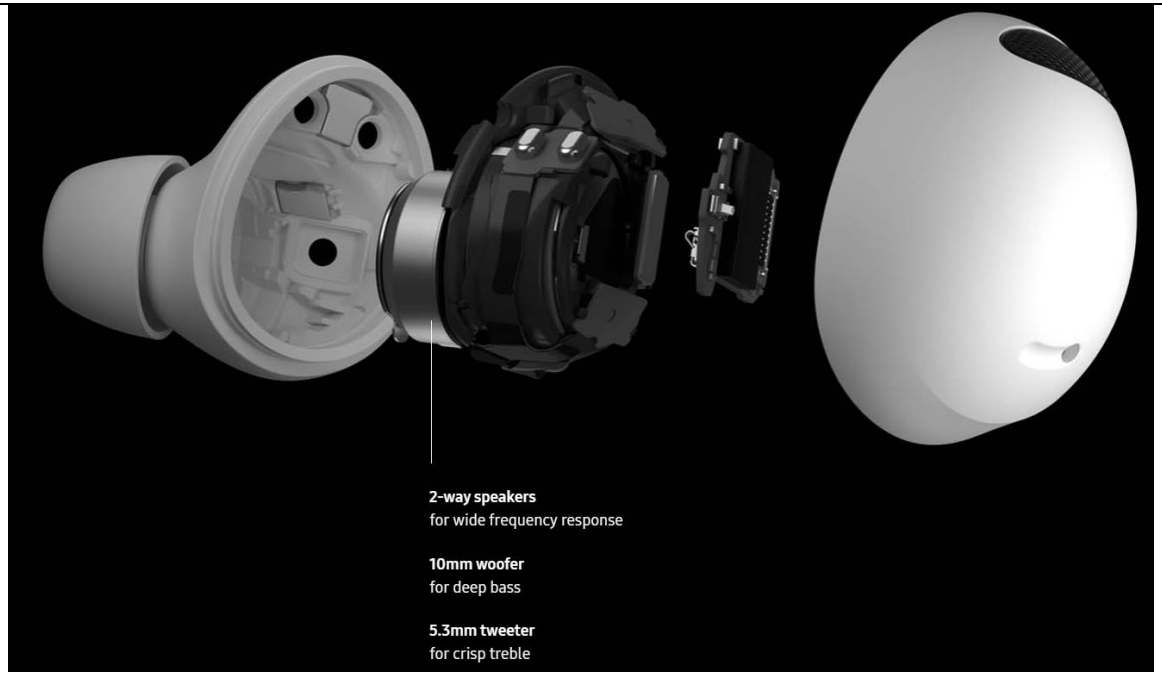
		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance
[8B]	a second microphone that is positioned closer to a user's ear canal than the first microphone when the device is worn, where the second microphone generates a second microphone signal;	The Samsung Earbud Products all comprise a second that is positioned closer to a user's ear canal than the first microphone when the device is worn, where the second microphone generates a second microphone signal For example, Samsung Galaxy earbuds contain an second microphone that detects sound vibration near the body.


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Mid-level noise environment
High-level noise environment
OUTER MIC
INNER MIC

		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance  https://web.archive.org/web/20201212191031/https://www.samsung.com/us/mobile/audio/galaxy-buds-plus/
[8C]	a speaker;	Samsung Galaxy Buds+ includes a 2-way dynamic speaker.

		 https://web.archive.org/web/20201212191031/https://www.samsung.com/us/mobile/audio/galaxy-buds-plus/ Samsung Galaxy Buds2, Bud2 Pro, and Buds Live all include a dynamic 2-way speaker for wide frequency response.

		Galaxy Buds2 Pro  Bora Purple[22] **Features** Enhanced 360 audio 24-bit Hi-Fi Intelligent ANC **Battery** Up to 29hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** ○ **Voice Detect** ○ **Galaxy Buds2**  Olive[22] **Features** 360 audio 16-bit Hi-Fi ANC **Battery** Up to 20hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** ○ **Voice Detect** - **Galaxy Buds Live**  Mystic Bronze[22] **Features** 360 audio 16-bit Hi-Fi ANC **Battery** Up to 28hrs with case (ANC Off) **Speaker** Dynamic 2-way Woofer & tweeter **Microphone** 3 Mics + VPU **Ambient sound** - **Voice Detect** - https://www.samsung.com/us/mobile-audio/galaxy-buds2-pro/#design

		 https://www.samsung.com/us/mobile-audio/galaxy-buds2-pro/#design
[8D]	a memory that stores instructions; and	The Samsung Galaxy Buds, Buds+, and Buds2 Pro use Broadcom's chipsets BCM43014 and BCM43015 that include a memory (e.g., RAM/ROM) for storing instructions.

Broadcom Wireless Audio Chip Powers Samsung Galaxy Buds

Broadcom BCM43014 delivers premium Bluetooth sound and unmatched battery life in ultra-compact footprint

SAN JOSE, Calif., Feb. 28, 2019 (GLOBE NEWSWIRE) -- Broadcom Inc. (NASDAQ: AVGO) today unveiled the BCM43014 chip enabling the Samsung Galaxy Buds to deliver a premium audio experience. The BCM43014 is a highly-integrated low power SoC that brings together unique innovations in Bluetooth, audio DSP and sensor hub technology to render rich audio while delivering up to six hours of Bluetooth streaming or five hours of voice calls.

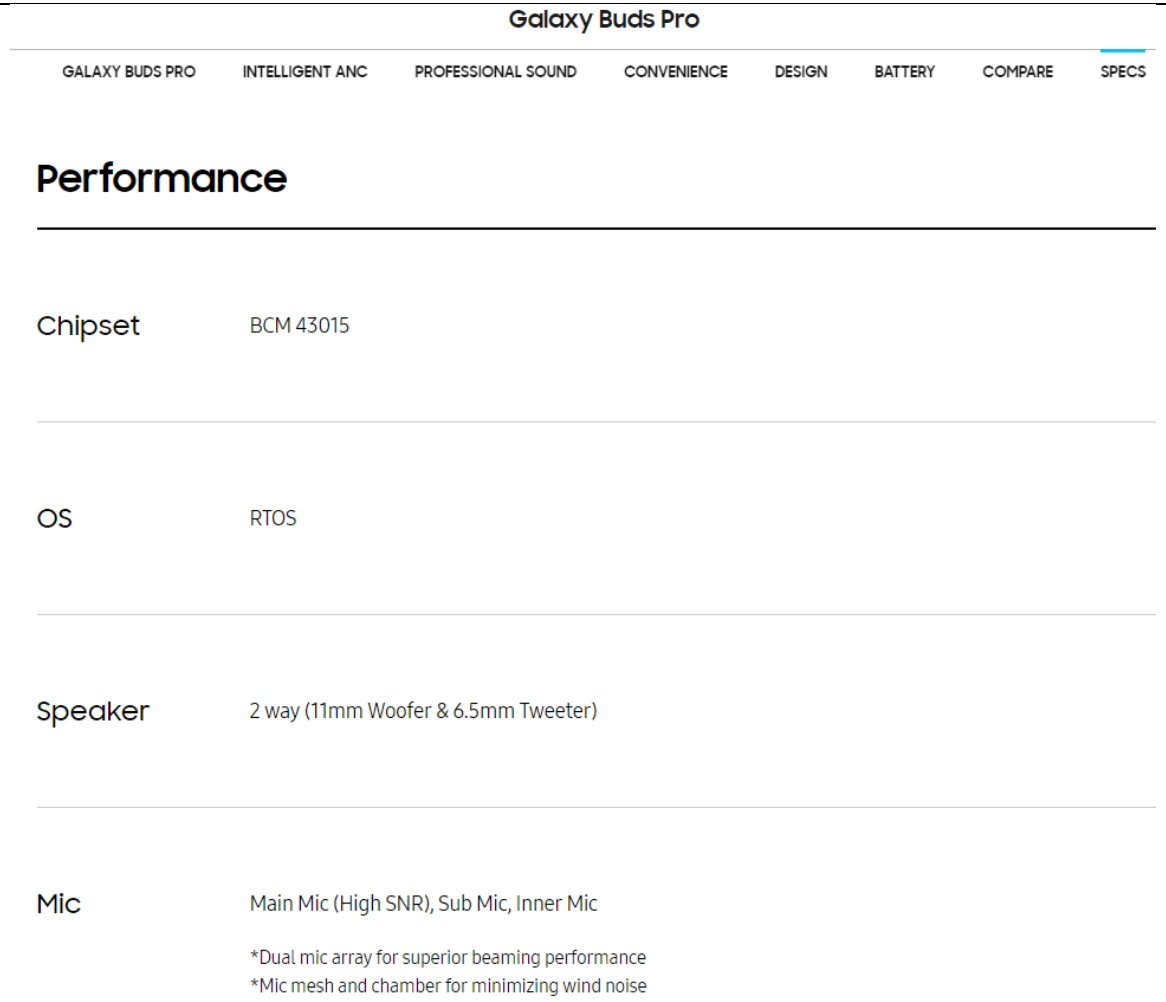
A superior in-ear audio experience requires the sound to be high-quality, robust and synchronized across the listener's ears. Wireless earbuds like the Galaxy Buds also must have long battery life, low latency, uncompromising audio quality and user mobility. For a seamless wireless experience, it is equally important that wireless earbuds instantly connect or switch across devices just like a wired pair of earbuds would when plugged into the phone.

Built on Broadcom's unique combination of deep semiconductor expertise and wireless audio engineering, the BCM43014 is engineered to meet the design requirements for in-ear wireless devices. In addition to Bluetooth 5, the chip is packed with innovative features and capabilities that:

- Allows for seamless integration of advanced acoustic algorithms that reduce background noise to deliver rich sound.
- Delivers synchronized audio to both the earbuds for various daily user scenarios using Broadcom's InConcert® technology to create a truly wireless experience.
- Innovates with a holistic low power system-level design that spans radio design, protocol optimization and software techniques.
- Seamlessly connects both Buds with phone and quickly switches between devices with Broadcom's advanced Bluetooth pairing technology to deliver continuity of content for the consumer.
- Enables the integration of the multi-dimensional sensors behind the convenient and intuitive user interface on the Buds.
- Facilitates slim earbud design by integrating multiple audio components into a single chip and reducing the c of materials.

Top

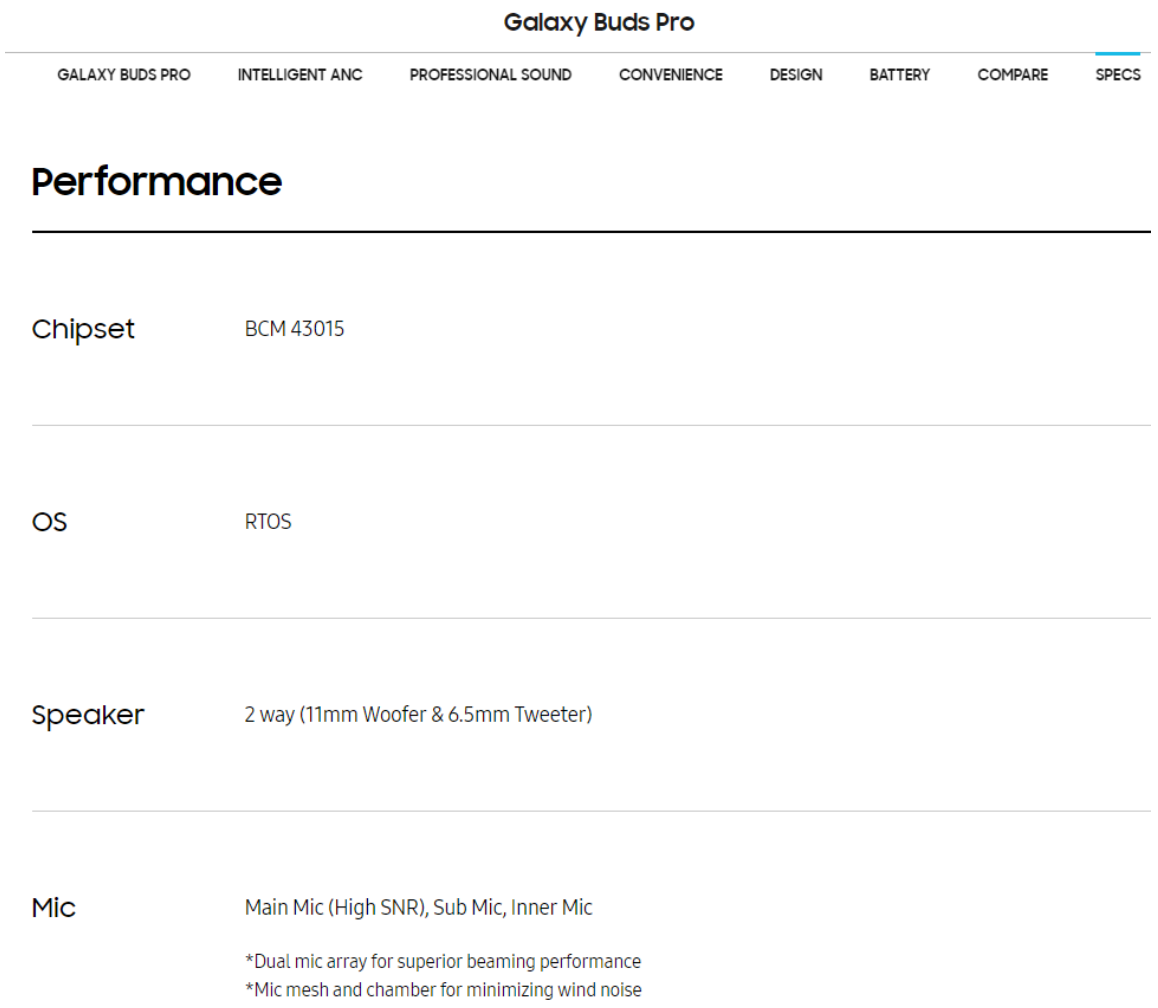
https://www.broadcom.com/company/news/product-releases/52201



https://www.samsung.com/global/galaxy/galaxy-buds-pro/specs/

		Performance **AP** BCM43015 **OS** RTOS **Connectivity** Bluetooth 5.0 Profile: A2DP, AVRCP, HFP Codec: Scalable (Samsung proprietary), AAC, SBC *Scalable Codec is Samsung's proprietary codec which offers users a stable Bluetooth Connection, even over ambient Wi-Fi Interference. Scalable Codec also supports UHQ(24bit&96kHz) Audio streaming over Bluetooth on Samsung Mobiles supporting Android 7.0 and above in stable wireless connection condition. https://web.archive.org/web/20210227010522/https://www.samsung.com/global/galaxy/galaxy-buds-plus/specs/ **Processors** **Model Number(s)** SM-R510 **Clock Speed** @ 0.00 GHz **Memory** **RAM/ROM sizes** RAM with ROM https://www.sammobile.com/samsung/galaxy-buds-2-pro/specs/
[8E]	a processor that executes	The Samsung Galaxy Buds, Buds+, and Buds2 Pro use Broadcom's chipsets BCM43014 and BCM43015. They include a processor to execute the instructions stored in the memory to perform operations. Broadcom's chipsets BCM43014 and BCM43015 are coupled to the first ASM, the second ASM, the ECM, and the speaker.

	the instructions to perform operations, the operations comprising:	**Broadcom Wireless Audio Chip Powers Samsung Galaxy Buds** **Broadcom BCM43014 delivers premium Bluetooth sound and unmatched battery life in ultra-compact footprint** SAN JOSE, Calif., Feb. 28, 2019 (GLOBE NEWSWIRE) -- Broadcom Inc. (NASDAQ: AVGO) today unveiled the BCM43014 chip enabling the Samsung Galaxy Buds to deliver a premium audio experience. The BCM43014 is a highly-integrated low power SoC that brings together unique innovations in Bluetooth, audio DSP and sensor hub technology to render rich audio while delivering up to six hours of Bluetooth streaming or five hours of voice calls. A superior in-ear audio experience requires the sound to be high-quality, robust and synchronized across the listener's ears. Wireless earbuds like the Galaxy Buds also must have long battery life, low latency, uncompromising audio quality and user mobility. For a seamless wireless experience, it is equally important that wireless earbuds instantly connect or switch across devices just like a wired pair of earbuds would when plugged into the phone. Built on Broadcom's unique combination of deep semiconductor expertise and wireless audio engineering, the BCM43014 is engineered to meet the design requirements for in-ear wireless devices. In addition to Bluetooth 5, the chip is packed with innovative features and capabilities that: • Allows for seamless integration of advanced acoustic algorithms that reduce background noise to deliver rich sound. • Delivers synchronized audio to both the earbuds for various daily user scenarios using Broadcom's InConcert® technology to create a truly wireless experience. • Innovates with a holistic low power system-level design that spans radio design, protocol optimization and software techniques. • Seamlessly connects both Buds with phone and quickly switches between devices with Broadcom's advanced Bluetooth pairing technology to deliver continuity of content for the consumer. • Enables the integration of the multi-dimensional sensors behind the convenient and intuitive user interface on the Buds. • Facilitates slim earbud design by integrating multiple audio components into a single chip and reducing the of materials. Top https://www.broadcom.com/company/news/product-releases/52201



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[8F]	receiving an audio content signal; modifying the audio content signal to generate a modified audio content signal;	The Samsung Earbud Products all receive and audio content signal and modify the audio content signal to generate a modified audio content signal. For example, the Samsung Earbud Products receive an audio content gain value. *See* claim [1E]. The Samsung Earbud Products also receive an audio content signal. *See* claim [1F]. The Samsung Earbud Products apply the audio content gain value to the audio content signal to generate a modified audio content signal. *See* claim [1G]. Source code is required to fully understand the functionality of these elements of the accused products.

[8G]	modifying the first microphone signal to generate a modified first microphone signal;	The Samsung Earbud Products modify the first microphone signal to generate a modified first microphone signal.

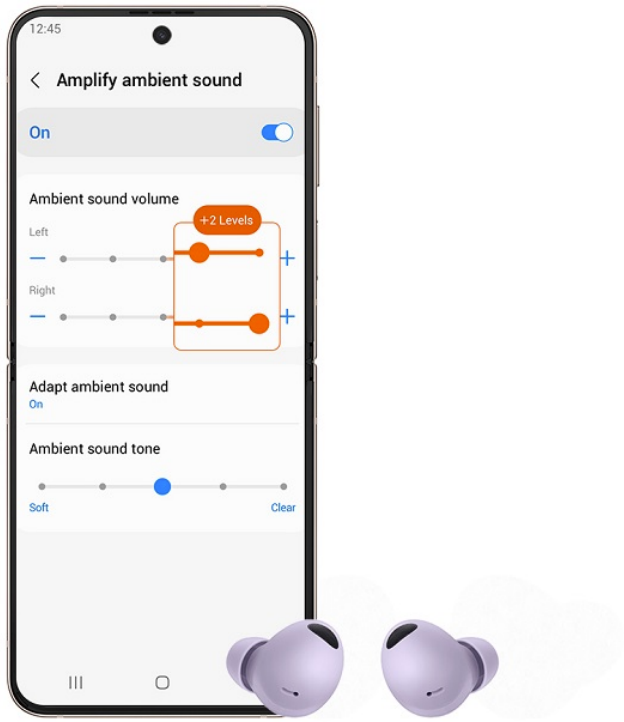

Adaptive Dual Microphone
Galaxy Bud's Adaptive Dual Microphone mixes audio from an inner and outer microphone to produce clear voice calls.
STEP 01
Outer microphone detects ambient noise
STEP 02
Galaxy Buds' processor and software algorithms categorize noise level into three levels
STEP 03
Depending on the noise level, Galaxy Buds select and combine audio from the inner or outer microphone
In low-level noise environment, Galaxy Buds use the outer microphone to pick up audio.
In mid-level noise environment, Galaxy Buds combine signals from both microphones and enable User Voice Pick Up to produce clear audio.
In high-level noise environment, Galaxy Buds switch to the inner microphone, which picks up sound vibration inside the body.
Low-level noise environment
Mid-level noise environment
High-level noise environment
OUTER MIC
INNER MIC

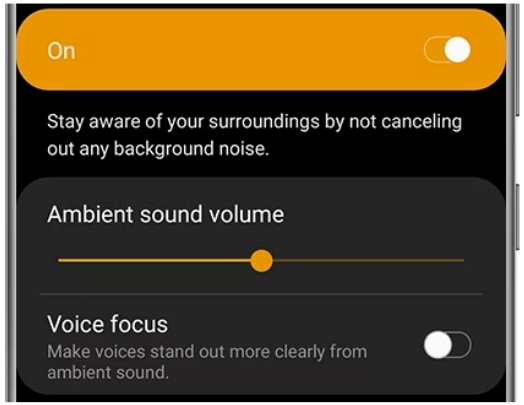
		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance

Bringing New Levels to Audio Customization

With this improved feature, Galaxy Buds2 Pro users can also fine tune their Ambient Sound settings across a variety of needs. Users can adjust the volumes on the left and the right respectively, as well as customize their Ambient Sound tone range from soft to clear across five different stages. Additionally, Ambient Sound can tune to users' ears through the Adapt Ambient Sound feature, allowing for even more clarity in helping users hear the world around them better.

"We are excited to be introducing the new enhanced accessibility feature of the Galaxy Buds2 Pro to users on Global Accessibility Awareness Day," said Han-gil Moon, Master and Head of Advanced Audio Lab, MX Business at Samsung Electronics. "Samsung will continue to work to help each and every user experience the best possible audio anytime, anywhere with their Galaxy Buds2 Pro."



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[8H]	modifying the second microphone signal to generate a	The Samsung Earbud Products modify the second microphone signal to generate a modified second microphone signal.

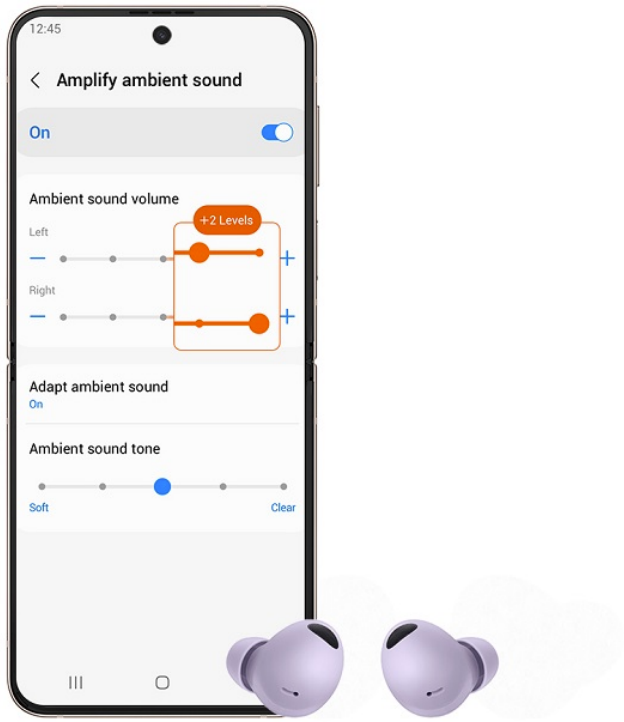
	modified second microphone signal;	

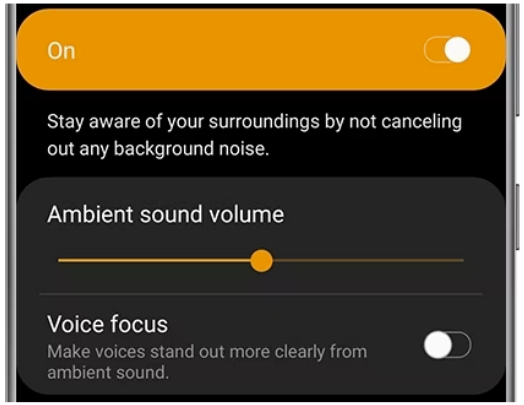
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[8I]	generating an ambient sound signal	The Samsung Earbud Products generate an ambient sound signal from at least one of the modified first microphone signal, the modified second microphone signal or a combination thereof.

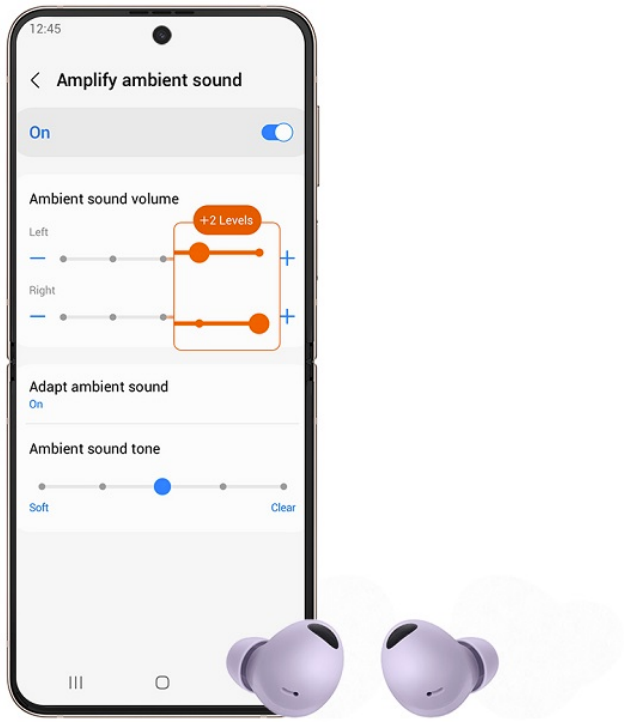
	from at least one of the modified first microphone signal, the modified second microphone signal or a combination thereof;		

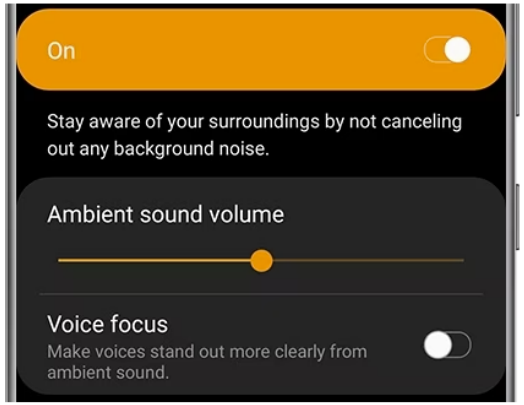
		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance

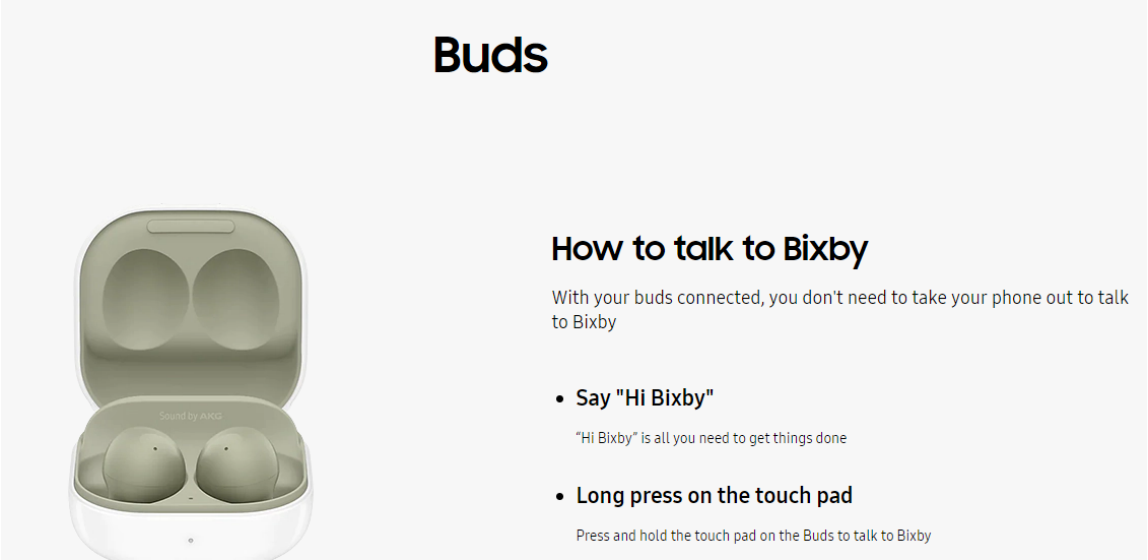
Bringing New Levels to Audio Customization

With this improved feature, Galaxy Buds2 Pro users can also fine tune their Ambient Sound settings across a variety of needs. Users can adjust the volumes on the left and the right respectively, as well as customize their Ambient Sound tone range from soft to clear across five different stages. Additionally, Ambient Sound can tune to users' ears through the Adapt Ambient Sound feature, allowing for even more clarity in helping users hear the world around them better.

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[8J]	detecting an acute sound by analyzing at least one of the	The Samsung Earbud Products detect an acute sound by analyzing at least one of the modified first microphone signal, the modified second microphone signal or a combination thereof. For example, Samsung Galaxy earbuds (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support Bixby, a virtual assistant that can be activated with the user's voice.

	modified first microphone signal, the modified second microphone signal or a combination thereof;	Launching Bixby and providing commands on earbuds.  https://www.samsung.com/us/apps/bixby/bixby-user-guide/ On information and belief, the Samsung Earbud Products detect the Bixby launch command by analyzing at least one of the modified first microphone signal, the modified second microphone signal or a combination thereof. Additionally, the Samsung Earbud Products detect the user speaking.

Turn on the voice detect feature on the Buds Pro

When you start to talk while listening to music, your Galaxy Buds Pro automatically detect your voice and reduce the volume of your music so that you can clearly hear the other person. In addition, if your voice is not detected for a certain period of time, it automatically returns to the previous setting. (You can manually adjust this to 5, 10, and 15 seconds.)

- **Voice detect on Active noise cancelling (ANC)**: ANC off + Music down + Ambient On (Mic is focused to listener's voice)
- **Voice detect on Ambient sound**: Music down

https://www.samsung.com/ie/support/mobile-devices/experience-noise-control-modes-on-your-galaxy-buds-pro/

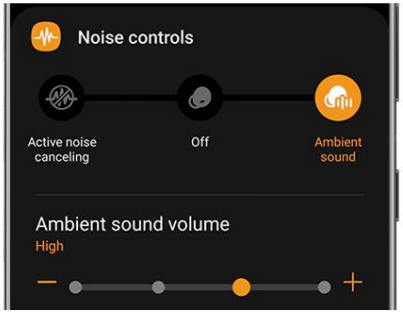
Galaxy Buds Pro

Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you.

Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**.

If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**.

The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations.

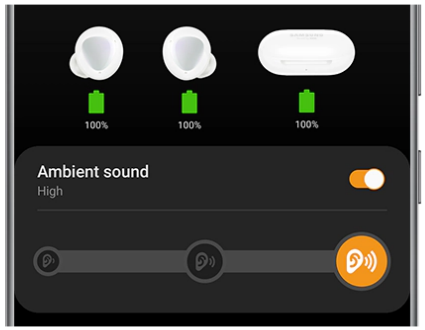


Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

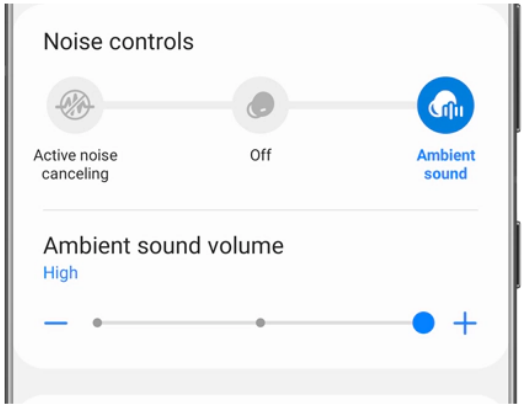


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

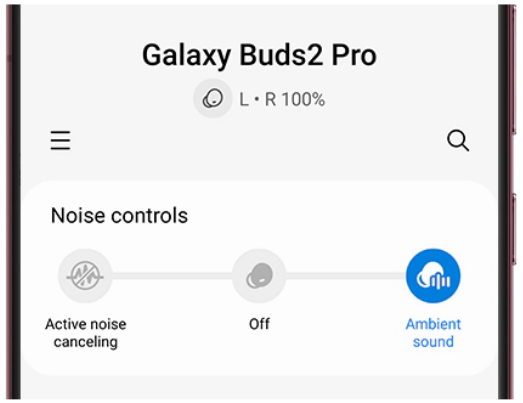
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.

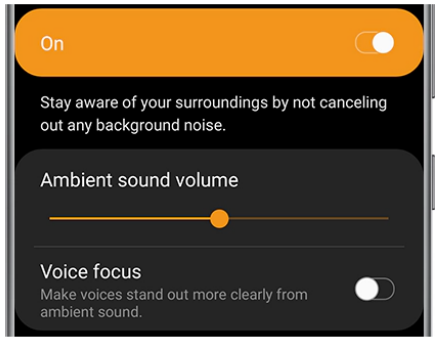


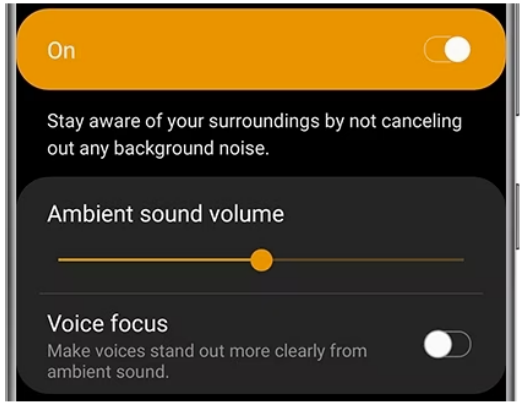
Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.



		Galaxy Buds **Note:** Ambient sound is only available when the Buds are connected to the Galaxy Wearable app. When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit. 1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.  2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound. 3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud. 4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work. **Note:** During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call. https://www.samsung.com/us/support/answer/ANS00078084/ Additionally, the Samsung Earbud Products can isolate voices more clearly when Ambient sound is enabled.

		Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on. You can use the **slider** to adjust the Ambient sound volume, or tap **Voice focus** to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.  Additionally, you can change the **Touchpad** settings in the app to control **Ambient sound** using the left or right earbud. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work. https://www.samsung.com/in/support/mobile-devices/use-ambient-sound-on-your-galaxy-buds/#:~:text=Tap%20Advanced%2C%20and%20then%20tap,and%20then%20tap%20Ambient%20sound. Source code is required to fully understand the functionality of these elements of the accused products.
[8K]	modifying the modified audio content signal if an acute sound is	The Samsung Earbud Products modify the modified audio content signal if an acute sound is detected to generate a new modified audio content signal. For example, the Samsung Earbud Products will turn the user's music down if a voice is detected.

	detected to generate a new modified audio content signal;	**Turn on the voice detect feature on the Buds Pro** When you start to talk while listening to music, your Galaxy Buds Pro automatically detect your voice and reduce the volume of your music so that you can clearly hear the other person. In addition, if your voice is not detected for a certain period of time, it automatically returns to the previous setting. (You can manually adjust this to 5, 10, and 15 seconds.) • **Voice detect on Active noise cancelling (ANC)**: ANC off + Music down + Ambient On (Mic is focused to listener's voice) • **Voice detect on Ambient sound**: Music down https://www.samsung.com/ie/support/mobile-devices/experience-noise-control-modes-on-your-galaxy-buds-pro/ Source code is required to fully understand the functionality of these elements of the accused products.
[8L]	generating a mixed signal by mixing the ambient sound signal with the modified audio content signal or the new modified audio content signal; and	The Samsung Earbud Products generate a mixed signal by mixing the ambient sound signal with the modified audio content signal or the new modified audio content signal.

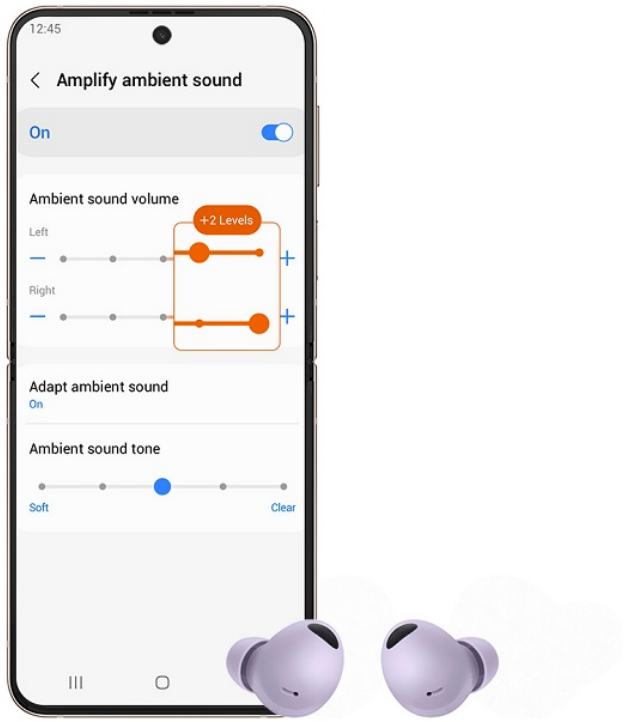

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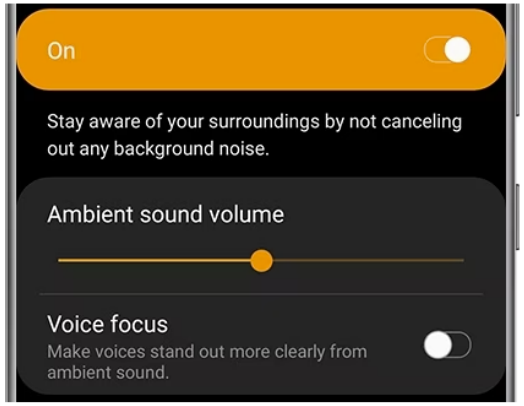
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"We are excited to be introducing the new enhanced accessibility feature of the Galaxy Buds2 Pro to users on Global Accessibility Awareness Day," said Han-gil Moon, Master and Head of Advanced Audio Lab, MX Business at Samsung Electronics. "Samsung will continue to work to help each and every user experience the best possible audio anytime, anywhere with their Galaxy Buds2 Pro."



		https://news.samsung.com/global/global-accessibility-awareness-day-galaxy-buds2-pro-brings-enhanced-ambient-sound-for-people-who-are-hard-of-hearing Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on. You can use the **slider** to adjust the Ambient sound volume, or tap **Voice focus** to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.  Additionally, you can change the **Touchpad** settings in the app to control **Ambient sound** using the left or right earbud. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work. https://www.samsung.com/in/support/mobile-devices/use-ambient-sound-on-your-galaxy-buds/#:~:text=Tap%20Advanced%2C%20and%20then%20tap,and%20then%20tap%20Ambient%20sound. Source code is required to fully understand the functionality of these elements of the accused products.
[8M]	sending the mixed signal to the speaker.	The Samsung Earbud Products all send the mixed signal to the speaker.

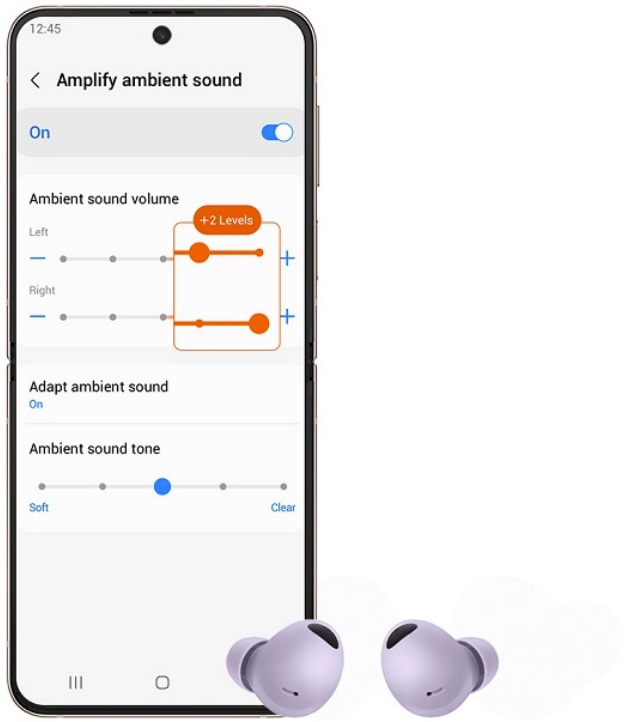

Adaptive Dual Microphone
Galaxy Bud's Adaptive Dual Microphone mixes audio from an inner and outer microphone to produce clear voice calls.
STEP 01
Outer microphone detects ambient noise
STEP 02
Galaxy Buds' processor and software algorithms categorize noise level into three levels
STEP 03
Depending on the noise level, Galaxy Buds select and combine audio from the inner or outer microphone
In low-level noise environment, Galaxy Buds use the outer microphone to pick up audio.
In mid-level noise environment, Galaxy Buds combine signals from both microphones and enable User Voice Pick Up to produce clear audio.
In high-level noise environment, Galaxy Buds switch to the inner microphone, which picks up sound vibration inside the body.
Low-level noise environment
Mid-level noise environment
High-level noise environment
OUTER MIC
INNER MIC

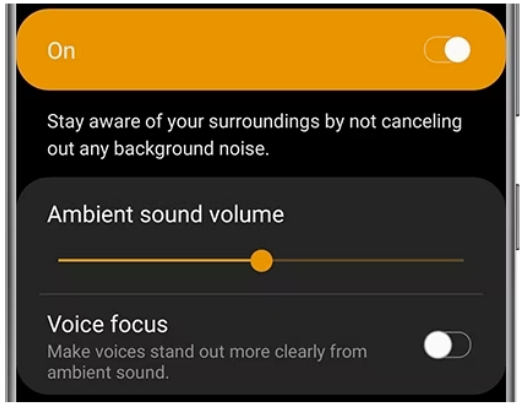
		https://news.samsung.com/global/the-secrets-behind-galaxy-buds-premium-audio-performance

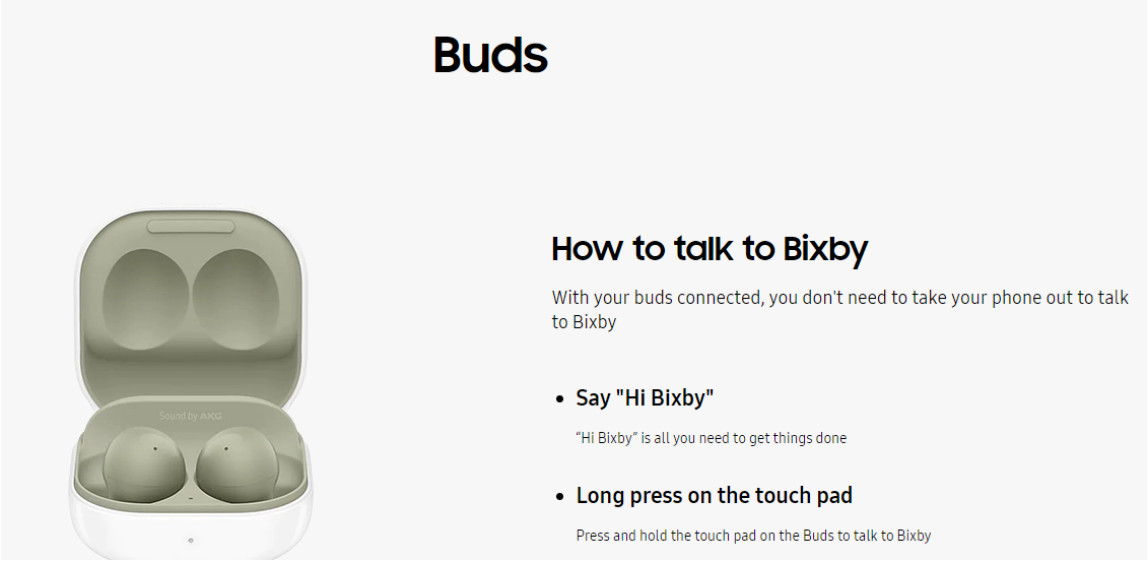
Bringing New Levels to Audio Customization

With this improved feature, Galaxy Buds2 Pro users can also fine tune their Ambient Sound settings across a variety of needs. Users can adjust the volumes on the left and the right respectively, as well as customize their Ambient Sound tone range from soft to clear across five different stages. Additionally, Ambient Sound can tune to users' ears through the Adapt Ambient Sound feature, allowing for even more clarity in helping users hear the world around them better.

"We are excited to be introducing the new enhanced accessibility feature of the Galaxy Buds2 Pro to users on Global Accessibility Awareness Day," said Han-gil Moon, Master and Head of Advanced Audio Lab, MX Business at Samsung Electronics. "Samsung will continue to work to help each and every user experience the best possible audio anytime, anywhere with their Galaxy Buds2 Pro."



		https://news.samsung.com/global/global-accessibility-awareness-day-galaxy-buds2-pro-brings-enhanced-ambient-sound-for-people-who-are-hard-of-hearing Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on. You can use the **slider** to adjust the Ambient sound volume, or tap **Voice focus** to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.  Additionally, you can change the **Touchpad** settings in the app to control **Ambient sound** using the left or right earbud. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work. https://www.samsung.com/in/support/mobile-devices/use-ambient-sound-on-your-galaxy-buds/#:~:text=Tap%20Advanced%2C%20and%20then%20tap,and%20then%20tap%20Ambient%20sound.
[9P]	The device according to claim 8, wherein the operations	The Samsung Earbud Products all embody the elements of claim 8. *See* claim [8].

	further comprise:	
[9]	determining if the acute sound is a user's voice by analyzing the temporal and spectral characteristics of at least one of the modified first microphone signal, the modified second microphone signal or a combination thereof.	The Samsung Earbud Products all determine if the acute sound is a user's voice by analyzing the temporal and spectral characteristics of at least one of the modified first microphone signal, the modified second microphone signal or a combination thereof. For example, Samsung Galaxy earbuds (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support Bixby, a virtual assistant that can be activated with the user's voice. Launching Bixby and providing commands on earbuds.  https://www.samsung.com/us/apps/bixby/bixby-user-guide/ On information and belief, the Samsung Earbud Products detect the Bixby launch command by analyzing the temporal and spectral characteristics of at least one of the modified first microphone signal, the modified second microphone signal or a combination thereof.

Additionally, the Samsung Earbud Products detect the user speaking.

Turn on the voice detect feature on the Buds Pro

When you start to talk while listening to music, your Galaxy Buds Pro automatically detect your voice and reduce the volume of your music so that you can clearly hear the other person. In addition, if your voice is not detected for a certain period of time, it automatically returns to the previous setting. (You can manually adjust this to 5, 10, and 15 seconds.)

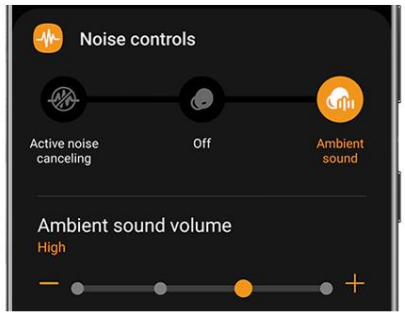
- **Voice detect on Active noise cancelling (ANC)**: ANC off + Music down + Ambient On (Mic is focused to listener's voice)
- **Voice detect on Ambient sound**: Music down

https://www.samsung.com/ie/support/mobile-devices/experience-noise-control-modes-on-your-galaxy-buds-pro/

Galaxy Buds Pro

Ambient sound can be used on Galaxy Buds Pro when you need to hear what's going on around you. You can also use the new Detect conversations feature to easily hear if someone is speaking to you.

Make sure you are wearing both earbuds, and then navigate to and open the **Galaxy Wearable** app. Tap **Ambient sound** and then choose your desired volume level by adjusting the **slider**.



If you would like to use Ambient sound with a single bud, tap **Earbuds settings**, and then tap **Accessibility**. Tap the switch by **Noise controls with one earbud**.

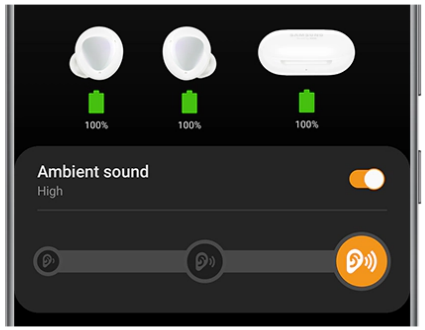
The Detect conversations feature will allow you to hear nearby conversations. Your earbuds' volume will automatically decrease if you're listening to music, so you can hear what is being said to you. To turn this on, tap the **switch** next to Detect conversations.

Galaxy Buds+

Note: Ambient sound is only available when the Buds+ are connected to the Galaxy Wearable app on Android devices or the **Buds app** on an iPhone 7 or later with iOS 10 or higher.

Ambient sound lets noise from your surroundings flow into your earbuds, so you can keep your ears open to what's going on in the world around you. Ambient sound may cause howling or whistling when your ear tips do not fit correctly, when you're adjusting the volume, or when you're touching the microphone. In this case, you can try **adjusting your earbuds** for a more comfortable fit or changing the level of the Ambient sound.

1. Ambient sound can be turned on with a single earbud when using Galaxy Buds+. Navigate to and open the **Galaxy Wearable** app, and then tap the **switch** next to Ambient sound.

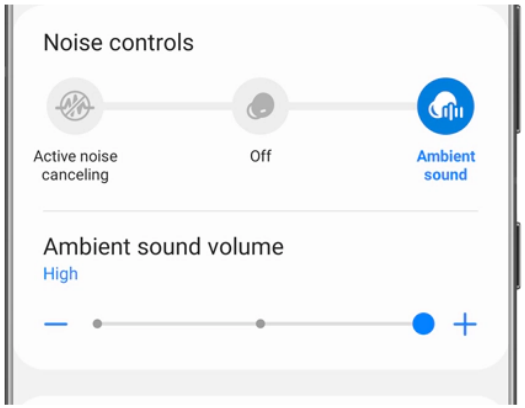


2. You can amplify sounds with High or Extra high volume options to hear additional surrounding noises.
3. To use Ambient sound during phone calls, tap **Advanced**, and then tap the **switch** next to Use Ambient sound during calls.
4. You can also activate Ambient sound using the touchpads on the earbuds. Open the **Galaxy Wearable** app, and then tap **Touchpad**. Under the Touch and hold touchpad section, tap **Left** or **Right**, and then tap **Ambient sound**.
5. Next, touch and hold the earbud of your choice to use Ambient sound. Keep in mind that the touch-sensitive sensor must be clean in order for this to work.

Galaxy Buds2

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

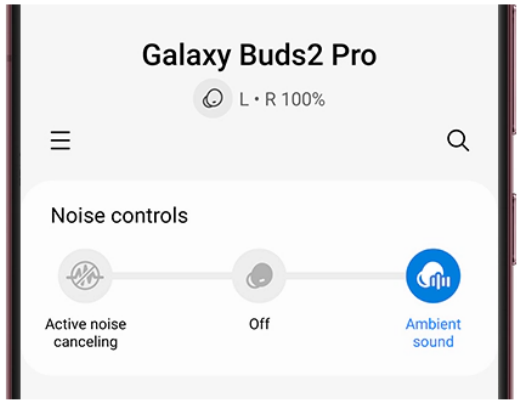
Ambient sound on **Galaxy Buds2** will help you filter out unnecessary noises so you can focus on your favorite music or podcast. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. You can turn off Ambient sound by tapping **Off**.



Galaxy Buds2 Pro

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

You can use Ambient sound on **Galaxy Buds2 Pro** to filter out surrounding noises. First, insert both earbuds into your ears. Then, open the **Galaxy Wearable** app, and tap **Ambient sound**. Tap **Off** to turn Ambient sound off.

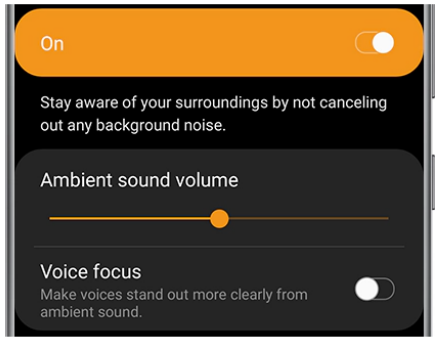


Galaxy Buds

Note: Ambient sound is only available when the Buds are connected to the Galaxy Wearable app.

When you need to be aware of your surroundings, turn on Ambient sound. Remember to also **adjust your earbuds** for a comfortable fit.

1. Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on.

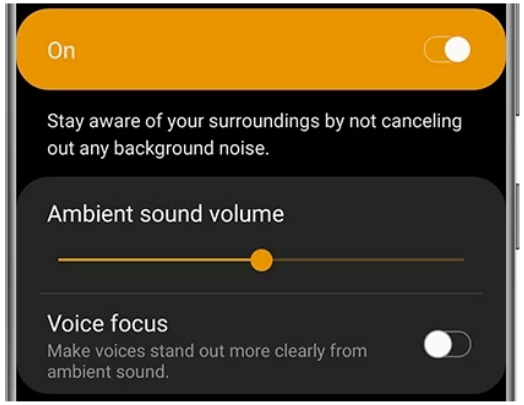


2. You can use the **slider** to adjust the Ambient sound volume, or tap the **switch** next to Voice focus to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.
3. Additionally, you can change the Touchpad settings in the app to control Ambient sound using the left or right earbud.
4. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work.

Note: During a call with Galaxy Buds, Ambient sound will turn off. It will automatically turn back on after the call.

https://www.samsung.com/us/support/answer/ANS00078084/

Additionally, the Samsung Earbud Products can isolate voices more clearly when Ambient sound is enabled.

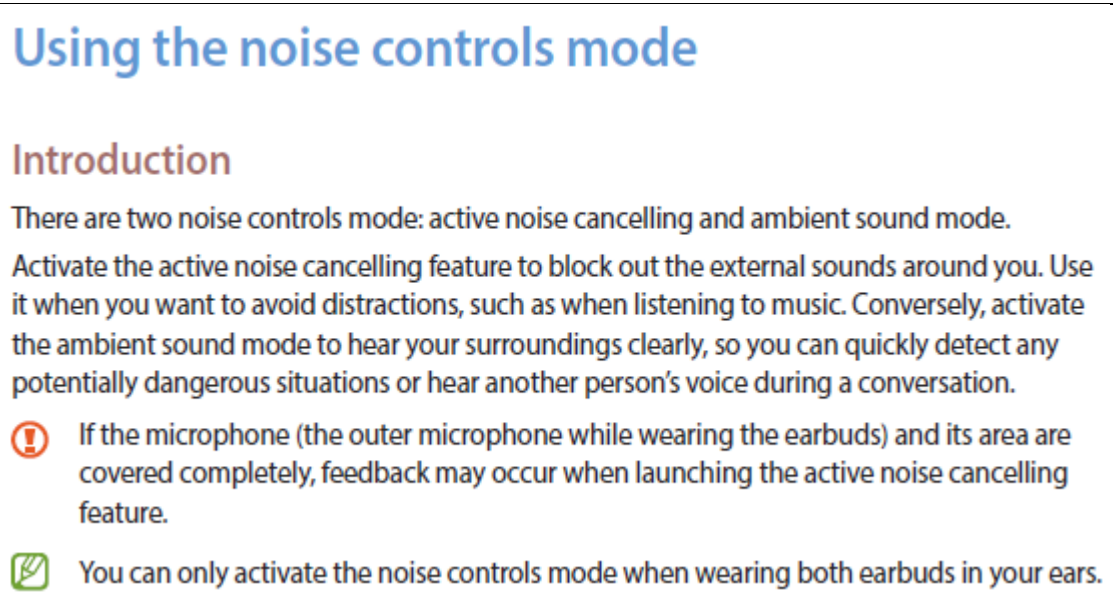
		Navigate to and open the **Galaxy Wearable** app. Swipe to and tap **Ambient sound**, and then tap the **switch** to turn it on. You can use the **slider** to adjust the Ambient sound volume, or tap **Voice focus** to make voices stand out more clearly while using Ambient sound. Both earbuds must be detected to use Ambient sound.  Additionally, you can change the **Touchpad** settings in the app to control **Ambient sound** using the left or right earbud. Once set, just tap and hold the touchpad on the earbud to turn the feature on and off. The touch-sensitive sensor must be clean in order for this to work. https://www.samsung.com/in/support/mobile-devices/use-ambient-sound-on-your-galaxy-buds/#:~:text=Tap%20Advanced%2C%20and%20then%20tap,and%20then%20tap%20Ambient%20sound. Source code is required to fully understand the functionality of these elements of the accused products.

[10P]	The device according to claim 9, wherein the operations further comprise:	The Samsung Earbud Products embody the elements of claim 9. *See* claim [9].

[10A]	generating a noise signal from at least one of the modified first microphone signal, the modified second microphone signal, or both;	The Samsung Earbud Products further generate a noise signal from at least one of the modified first microphone signal, the modified second microphone signal, or both. For example, the Samsung Earbud Products support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies. On information and belief, the Samsung Galaxy earbuds generate a noise signal to enable the devices to perform ANC. With ANC, earbuds block out noise in the nearby area, so you can fully enjoy your music. The feature actively seeks out and destroys ambient sound before it reaches your ears. It uses the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies. Both frequencies then cancel each other out. Samsung offers three levels of ambient sound control, so you have more options than just blocking out all ambient sound. https://www.xda-developers.com/samsung-galaxy-buds-2-anc/

		 https://www.samsung.com/global/galaxy/galaxy-buds2-pro/

		 https://www.samsung.com/us/mobile-audio/galaxy-buds2-pro/#noise_cancellation

		 https://www.sammobile.com/wp-content/uploads/2022/08/Samsung-Galaxy-Buds-2-Pro-User-Manual.pdf Source code is required to fully understand the functionality of these elements of the accused products.
[10B]	generating a noise reduction signal.	The Samsung Earbud Products generate a noise reduction signal. For example, the Samsung Earbud Products support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies.

		With ANC, earbuds block out noise in the nearby area, so you can fully enjoy your music. The feature actively seeks out and destroys ambient sound before it reaches your ears. It uses the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies. Both frequencies then cancel each other out. Samsung offers three levels of ambient sound control, so you have more options than just blocking out all ambient sound. https://www.xda-developers.com/samsung-galaxy-buds-2-anc/ Source code is required to fully understand the functionality of these elements of the accused products.
[11]	The device according to claim 10, wherein the operations further comprise:	The Samsung Earbud Products embody the elements of claim 10. *See* claim [10].
[11A]	mixing the noise reduction signal with the mixed signal to generate a new mixed	The Samsung Earbud Products mix the noise reduction signal with the mixed signal to generate a new mixed signal, and sending the new mixed signal to the speaker instead of the mixed signal.. For example, the Samsung Earbud Products support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies.

	signal, and sending the new mixed signal to the speaker instead of the mixed signal.	With ANC, earbuds block out noise in the nearby area, so you can fully enjoy your music. The feature actively seeks out and destroys ambient sound before it reaches your ears. It uses the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies. Both frequencies then cancel each other out. Samsung offers three levels of ambient sound control, so you have more options than just blocking out all ambient sound. https://www.xda-developers.com/samsung-galaxy-buds-2-anc/ Source code is required to fully understand the functionality of these elements of the accused products.
[12P]	The device according to claim 11, wherein the operations further comprise:	The Samsung Earbud Products embody the elements of claim 11. *See* claim [11].
[12]	sending a modified ambient signal to the speaker instead of the new mixed	The Samsung Earbud Products send a modified ambient signal to the speaker instead of the new mixed signal if the user's voice is detected. For example, the Samsung Earbud Products automatically turn ANC off and Ambient On when it detects the user’s voice.

	signal if the user's voice is detected.	**Turn on the voice detect feature on the Buds Pro** When you start to talk while listening to music, your Galaxy Buds Pro automatically detect your voice and reduce the volume of your music so that you can clearly hear the other person. In addition, if your voice is not detected for a certain period of time, it automatically returns to the previous setting. (You can manually adjust this to 5, 10, and 15 seconds.) • **Voice detect on Active noise cancelling (ANC)**: ANC off + Music down + Ambient On (Mic is focused to listener's voice) • **Voice detect on Ambient sound**: Music down https://www.samsung.com/ie/support/mobile-devices/experience-noise-control-modes-on-your-galaxy-buds-pro/ Source code is required to fully understand the functionality of these elements of the accused products.
[13P]	The device according to claim 9, wherein the operations further comprise:	The Samsung Earbud Products embody the elements of claim 9. *See* claim [9].
[13]	sending a modified ambient signal to the speaker instead of the mixed signal if the user's	*See* claim [12].

	voice is detected.	
[14P]	The device according to claim 9, wherein the operations further comprise:	The Samsung Earbud Products embody the elements of claim 9. *See* claim [9].
[14]	detecting whether the acute sound is at least one of a warning sound, siren, voice, specific noise type, or a combination, by analyzing the spectrum of at least one of the modified first	The Samsung Earbud Products detect whether the acute sound is at least one of a warning sound, siren, voice, specific noise type, or a combination, by analyzing the spectrum of at least one of the modified first microphone signal, the modified second microphone signal, the modified ambient sound signal, or a combination. *See* claim [9].

	microphone signal, the modified second microphone signal, the modified ambient sound signal, or a combination.	
[15P]	The device according to claim 14, wherein the operations further comprise:	The Samsung Earbud Products embody the elements of claim 14. *See* claim [14].
[15]	decreasing a volume of the modified audio content signal when a	The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies (anti-noise signal). The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support ambient sound mode. Ambient sound mode allows the user to hear his or her surroundings clearly and adjusts the audio content signal accordingly.

	warning or siren is detected.	The Samsung Earbud Products decrease the volume of the modified audio content signal when a warning or siren is detected to let "the important stuff like voices and announcements" be output to a person wearing the earbuds. **How can I use the Active Noise Canceling feature on Galaxy Buds Live?** Last Update date : Aug 11. 2020 Galaxy Buds Live is ideal for daily life as it reduces unnecessary disturbances while letting the important stuff through like voices and announcements. Active noise cancellation, or as we call it, ANC for open type gives you the power to tune in without tuning out.  https://www.samsung.com/africa_en/support/mobile-devices/how-can-i-use-the-active-noise-canceling-feature-on-galaxy-buds-live/ Source code is required to fully understand the functionality of these elements of the accused products.

[16P]	The device according to claim 14, where the operations further comprise:	The Samsung Earbud Products embody the elements of claim 14. *See* claim [14].
[16]	sending a notification signal to the speaker if the acute sound is a warning sound or siren.	The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies (anti-noise signal). The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support ambient sound mode. Ambient sound mode allows the user to hear his or her surroundings clearly and adjusts the audio content signal accordingly. The Samsung Earbud Products send a notification signal to the speaker if the acute sound is "important stuff like voices and announcements" be output to a person wearing the earbuds.

		How can I use the Active Noise Canceling feature on Galaxy Buds Live? Last Update date : Aug 11. 2020 Galaxy Buds Live is ideal for daily life as it reduces unnecessary disturbances while letting the important stuff through like voices and announcements. Active noise cancellation, or as we call it, ANC for open type gives you the power to tune in without tuning out.  https://www.samsung.com/africa_en/support/mobile-devices/how-can-i-use-the-active-noise-canceling-feature-on-galaxy-buds-live/ Source code is required to fully understand the functionality of these elements of the accused products.
[17P]	The device according to claim	The Samsung Earbud Products embody the elements of claim 17. *See* claim [17].

	16, wherein	
[17]	the warning sound is at least one of a bell, an emergency vehicle, the sound of a security system or a combination thereof.	The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies (anti-noise signal). The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support ambient sound mode. Ambient sound mode allows the user to hear his or her surroundings clearly and adjusts the audio content signal accordingly. The Samsung Earbud Products send a notification signal to the speaker if the acute sound is "important stuff like voices and announcements" be output to a person wearing the earbuds.

		How can I use the Active Noise Canceling feature on Galaxy Buds Live? Last Update date : Aug 11. 2020 Galaxy Buds Live is ideal for daily life as it reduces unnecessary disturbances while letting the important stuff through like voices and announcements. Active noise cancellation, or as we call it, ANC for open type gives you the power to tune in without tuning out.  https://www.samsung.com/africa_en/support/mobile-devices/how-can-i-use-the-active-noise-canceling-feature-on-galaxy-buds-live/ Source code is required to fully understand the functionality of these elements of the accused products.
[18P]	The device according to claim 14, wherein	The Samsung Earbud Products embody the elements of claim 14. *See* claim [14].

[18]	if an alarm is detected it is at least one of a police siren, an ambulance siren, a car honking or a combination thereof.	The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support active noise cancellation (ANC). The ANC feature tracks and eliminates outside sounds by using the onboard microphones to detect ambient noise frequencies and then electronically generates opposite sound frequencies (anti-noise signal). The Samsung Earbud Products (e.g., Buds2, Buds2 Pro, Buds+, and Buds Live) support ambient sound mode. Ambient sound mode allows the user to hear his or her surroundings clearly and adjusts the audio content signal accordingly. The Samsung Earbud Products send a notification signal to the speaker if the acute sound is "important stuff like voices and announcements" be output to a person wearing the earbuds.

		How can I use the Active Noise Canceling feature on Galaxy Buds Live? Last Update date : Aug 11. 2020 Galaxy Buds Live is ideal for daily life as it reduces unnecessary disturbances while letting the important stuff through like voices and announcements. Active noise cancellation, or as we call it, ANC for open type gives you the power to tune in without tuning out.  https://www.samsung.com/africa_en/support/mobile-devices/how-can-i-use-the-active-noise-canceling-feature-on-galaxy-buds-live/ Source code is required to fully understand the functionality of these elements of the accused products.
[19P]	The device according to claim 8, wherein the	The Samsung Earbud Products embody the elements of claim 8. *See* claim [8].

	operations further comprise:	
[19]	decreasing a volume of the modified audio content signal when a user's voice is detected.	The Samsung Earbud Products decrease the volume of the modified audio content signal when a user's voice is detected. For example, the Samsung Earbud Products will turn the user's music down if a voice is detected. **Turn on the voice detect feature on the Buds Pro** When you start to talk while listening to music, your Galaxy Buds Pro automatically detect your voice and reduce the volume of your music so that you can clearly hear the other person. In addition, if your voice is not detected for a certain period of time, it automatically returns to the previous setting. (You can manually adjust this to 5, 10, and 15 seconds.) • **Voice detect on Active noise cancelling (ANC)**: ANC off + Music down + Ambient On (Mic is focused to listener's voice) • **Voice detect on Ambient sound**: Music down https://www.samsung.com/ie/support/mobile-devices/experience-noise-control-modes-on-your-galaxy-buds-pro/ Source code is required to fully understand the functionality of these elements of the accused products.
[20]	The device according to claim 8, wherein the acute sound is a voice.	*See* claim [8K].