Kent & Risley LLC

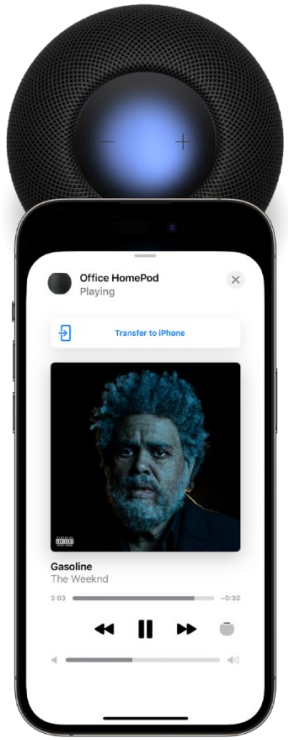
U.S. Patent No. 7,969,990 Claim language	Evidence
1. Apparatus for rerouting communication data, comprising: a mobile communication device comprising:	Apple mobile devices such as iPhones comprise an apparatus for rerouting communication data comprising a mobile communication device. For example, an Apple mobile apparatus (e.g., an iPhone) can reroute a media data stream (e.g., music, podcasts or other audio, including phone calls). On information and belief, various apps that come pre-installed (or can be installed later) on many Apple are streaming-enabled, such as Apple Music, Apple Podcasts, Amazon Music and Spotify. "AirPlay lets you share videos, photos, music, and more from Apple devices to your Apple TV, favorite speakers, and popular smart TVs. And what you share always stays personal and private. So sit back and enjoy everything you love — in more places than ever." Ref. 1, https://www.apple.com/airplay/ "Stream music, podcasts, and other audio to Apple TV, HomePod, or AirPlay 2-compatible speakers or smart TVs. Play audio across multiple speakers throughout your home in perfect sync. Or play something different in every room — all with AirPlay." "Play audio on your iPhone or iPad with iOS 11.4 or later, Apple TV, or a Mac with macOS Catalina or later. Then use AirPlay to stream that audio to your AirPlay-compatible speakers or smart TVs." Ref. 2, https://support.apple.com/en-il/HT202809 Handoff works with these devices and operating systems: **iOS 8 or later** **OS X Yosemite or later** **watchOS 1.0 or later**

	• iPhone 5 or later • iPad Pro (all models) • iPad (4th generation) or later • iPad Air or later • iPad mini or later • iPod touch (5th generation) or later • MacBook introduced in 2015 or later • MacBook Pro introduced in 2012 or later • MacBook Air introduced in 2012 later • Mac mini introduced in 2012 or later • iMac introduced in 2012 or later • iMac Pro • Mac Pro introduced in 2013 or later • Mac Studio introduced in 2022 or later • Apple Watch (all models) https://support.apple.com/en-us/108046 iPhone Cellular Calls iPhone Cellular Calls requires any iPhone using iOS 8.1 or later and an activated carrier plan. You can then relay calls to and from that iPhone from these devices: • Any Mac using OS X Yosemite or later. Mac mini and Mac Pro require an external microphone or headset. • Any iPhone, iPad, or iPod touch using iOS 8 or later.

	https://support.apple.com/en-us/108046 Make and receive phone calls on Mac or iPad With the iPhone Cellular Calls feature, you can make and receive phone calls from your Mac or iPad when those devices are on the same network as your iPhone. Set up iPhone Cellular Calls Make sure that your Mac, iPhone, and iPad meet the Continuity system requirements. Your devices must also be near each other and set up as follows: • Each device is signed in with the same Apple ID. • Each device is signed in to FaceTime with the same Apple ID. • Each device has Wi-Fi turned on. • Each device is connected to the same network using Wi-Fi or Ethernet. • On your iPhone, go to Settings > Phone > Calls on Other Devices, then turn on Allow Calls on Other Devices. • On your iPad, go to Settings > FaceTime > Calls from iPhone, then turn on Calls from iPhone. • On your Mac, open the FaceTime app, choose FaceTime > Settings (or Preferences), then select Calls From iPhone. If your carrier supports Wi-Fi calling on other devices, you can set up those devices to make and receive calls even when your iPhone isn't turned on or nearby. Learn about Wi-Fi calling. https://support.apple.com/en-us/102405 **Route the audio of an existing call through HomePod** Do either of the following:

- On your iOS or iPadOS device, tap Audio in the Phone or FaceTime app, then choose your HomePod.
- Hold your iPhone near the top of HomePod.

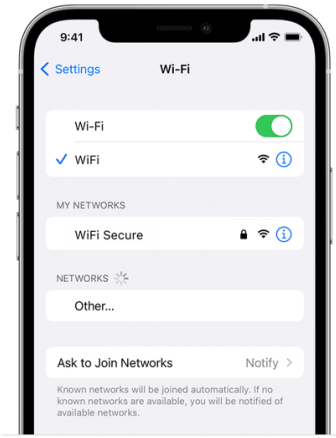
  To hand off audio, your device must have Bluetooth turned on and be on the same Wi-Fi network as HomePod. You must also turn on Transfer to HomePod in Settings > General > AirPlay & Handoff.

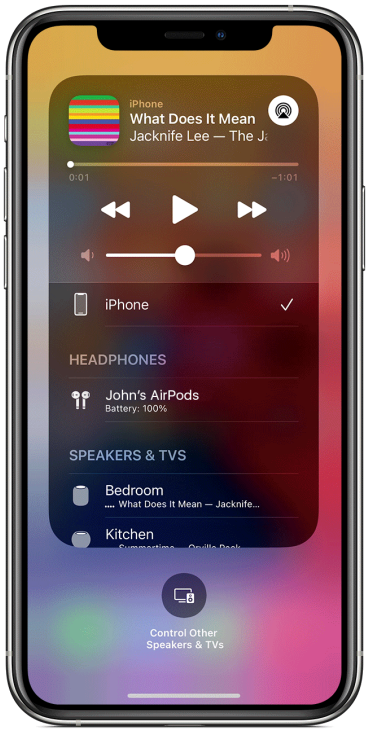


To change who can hand off phone calls to HomePod, see Allow others to control audio on HomePod.

https://support.apple.com/guide/homepod/use-for-phone-calls-apdeaa15a6c3/homepod

an announcer device associated with said mobile communication device, and configured for indicating to surrounding equipment that said mobile communication device is available to receive rerouting, thereby to enable receipt of rerouted data from said surrounding equipment, and	Apple mobile devices such as iPhones comprise an announcer device associated with said mobile communication device, and configured for indicating to surrounding equipment that said mobile communication device is available to receive rerouting, thereby to enable receipt of rerouted data from said surrounding equipment via the Wi-Fi connection. For example, an Apple mobile apparatus (e.g., a smartphone or tablet) announces its availability to receive data from surrounding equipment. "…AirPlay and AirPlay 2 will work over any IP network connection, whether wired or wireless (Wi-Fi). The only rule is that all AirPlay devices must be on the same network." Ref. 3, https://www.digitaltrends.com/home-theater/apple-airplay-2-explained/ Connecting to the Wi-Fi network, the Apple mobile apparatus (e.g. the wi-fi client) announces itself by sending probe request frames in accordance with the wi-fi protocol. "The client sends probe request frames which contain supported data rates and 802.11 capabilities." Ref. 4, https://netbeez.net/blog/how-wifi-connection-works/ Once connected to the Wi-Fi network, an Apple mobile apparatus (e.g., an iPhone) can receive streaming data to then be rerouted to compatible equipment in the vicinity, connected to the same network in accordance with Wi-Fi network capabilities. "Internet connectivity occurs through a wireless router. When you access Wi-Fi, you are connecting to a wireless router that allows your Wi-Fi-compatible devices to interface with the Internet." Ref. 5, https://www.cisco.com/c/en/us/products/wireless/what-is-wifi.html
a scout device associated with said mobile communication device, configured for	Apple mobile devices such as iPhones comprise a scout device associated with said mobile communication device, configured for scanning surroundings of said associated mobile

scanning surroundings of said associated mobile communication device to identify and determine availability of compatible equipment in the vicinity,	communication device to identify and determine availability of compatible equipment in the vicinity. For example, an Apple mobile apparatus (e.g., an iPhone) scans the surroundings to identify and determine availability of compatible equipment such as, for example a Mac, iPad, or Apple HomePod smart speaker) connected to the same network and available to receive data, including, for example, music, video, or phone calls. **Connect to Wi-Fi on your iPhone, iPad, or iPod touch** Learn how to connect your device to a Wi-Fi network, including open, secure, public networks, and networks that you've connected with in the past. **Connect to a Wi-Fi network** 1. From your Home screen, go to Settings > Wi-Fi. 2. Turn on Wi-Fi. Your device will automatically search for available Wi-Fi networks. 3. Tap the name of the Wi-Fi network that you want to join. Before you can join the network, you might be asked to enter the network's password or agree to terms and conditions. After you join the network, you'll see a blue checkmark ✓ next to the network and the connected Wi-Fi icon in the upper corner of your display. If you don't know the password to the Wi-Fi network, contact your network administrator.  Ref. 6, https://support.apple.com/en-il/HT202639

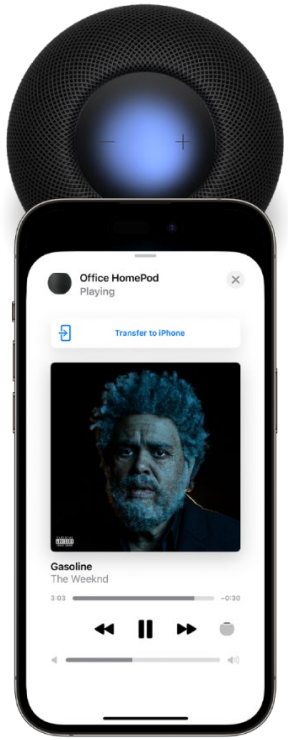
	Once connected to the Wi-Fi network, tapping the AirPlay icon on your device will list all compatible equipment, connected to the same network, available to receive the routed data (e.g., streamed music).  Ref. 2, https://support.apple.com/en-us/HT202809 Handoff works with these devices and operating systems: **iOS 8 or later** **OS X Yosemite or later** **watchOS 1.0 or later**

	• iPhone 5 or later • iPad Pro (all models) • iPad (4th generation) or later • iPad Air or later • iPad mini or later • iPod touch (5th generation) or later • MacBook introduced in 2015 or later • MacBook Pro introduced in 2012 or later • MacBook Air introduced in 2012 later • Mac mini introduced in 2012 or later • iMac introduced in 2012 or later • iMac Pro • Mac Pro introduced in 2013 or later • Mac Studio introduced in 2022 or later • Apple Watch (all models) https://support.apple.com/en-us/108046 iPhone Cellular Calls iPhone Cellular Calls requires any iPhone using iOS 8.1 or later and an activated carrier plan. You can then relay calls to and from that iPhone from these devices: • Any Mac using OS X Yosemite or later. Mac mini and Mac Pro require an external microphone or headset. • Any iPhone, iPad, or iPod touch using iOS 8 or later.

	https://support.apple.com/en-us/108046 Make and receive phone calls on Mac or iPad With the iPhone Cellular Calls feature, you can make and receive phone calls from your Mac or iPad when those devices are on the same network as your iPhone. Set up iPhone Cellular Calls Make sure that your Mac, iPhone, and iPad meet the Continuity system requirements. Your devices must also be near each other and set up as follows: • Each device is signed in with the same Apple ID. • Each device is signed in to FaceTime with the same Apple ID. • Each device has Wi-Fi turned on. • Each device is connected to the same network using Wi-Fi or Ethernet. • On your iPhone, go to Settings > Phone > Calls on Other Devices, then turn on Allow Calls on Other Devices. • On your iPad, go to Settings > FaceTime > Calls from iPhone, then turn on Calls from iPhone. • On your Mac, open the FaceTime app, choose FaceTime > Settings (or Preferences), then select Calls From iPhone. If your carrier supports Wi-Fi calling on other devices, you can set up those devices to make and receive calls even when your iPhone isn't turned on or nearby. Learn about Wi-Fi calling. https://support.apple.com/en-us/102405 **Route the audio of an existing call through HomePod** Do either of the following:

- On your iOS or iPadOS device, tap Audio in the Phone or FaceTime app, then choose your HomePod.
- Hold your iPhone near the top of HomePod.

  To hand off audio, your device must have Bluetooth turned on and be on the same Wi-Fi network as HomePod. You must also turn on Transfer to HomePod in Settings > General > AirPlay & Handoff.

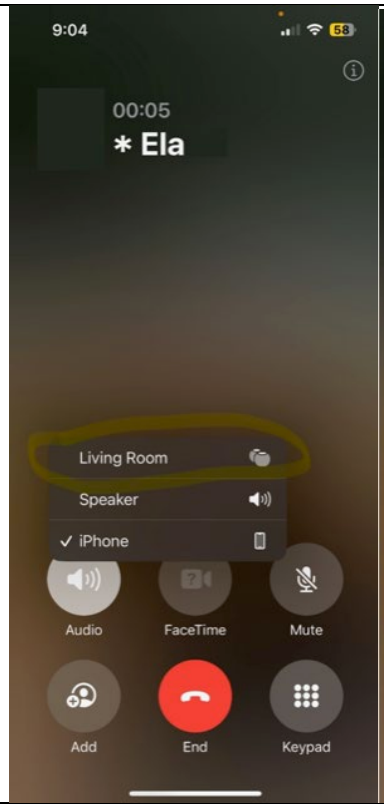
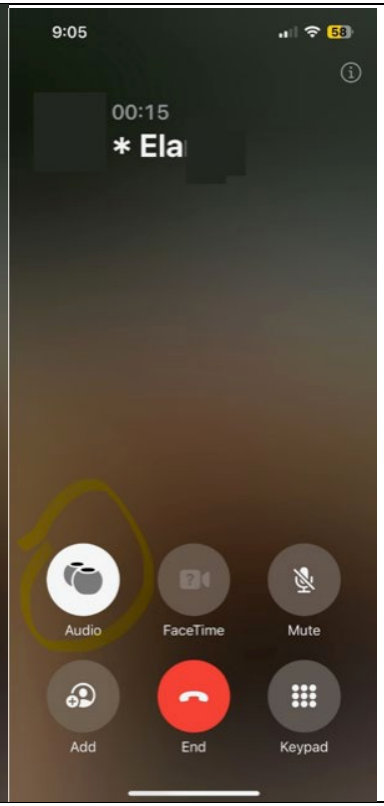


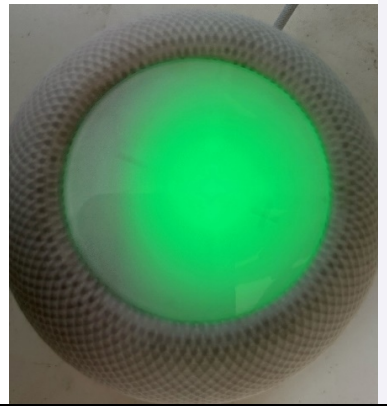
To change who can hand off phone calls to HomePod, see Allow others to control audio on HomePod.

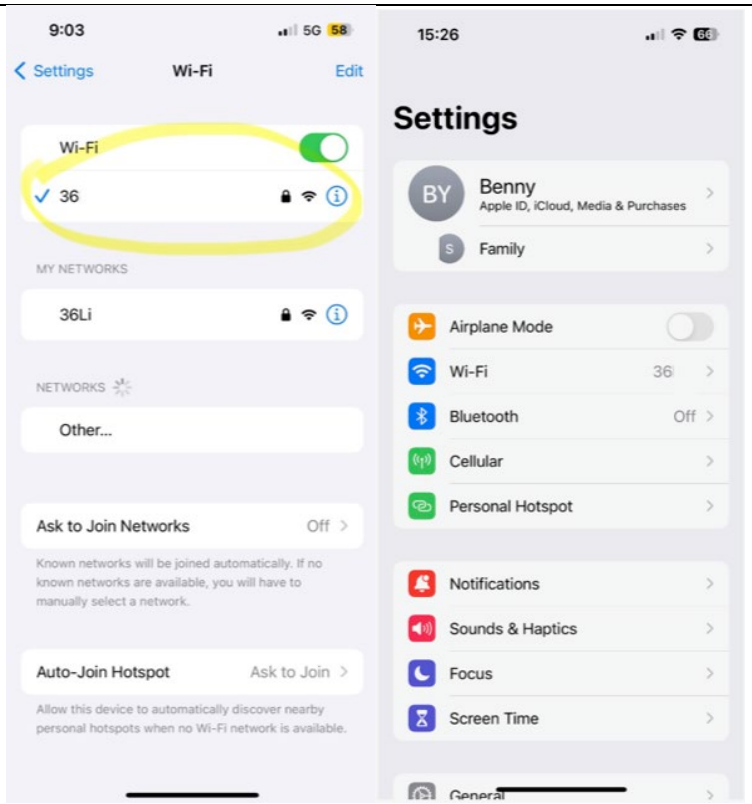
https://support.apple.com/guide/homepod/use-for-phone-calls-apdeaa15a6c3/homepod

thereby to reroute data from said mobile communication device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment, said bidirectional link having a first link direction from said mobile communication device to said selected surrounding equipment and a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying streaming data over both directions of said first link direction and said second link direction,	Apple mobile devices such as iPhones are equipped to reroute data from said mobile communication device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment, said bidirectional link having a first link direction from said mobile communication device to said selected surrounding equipment and a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying streaming data over both directions of said first link direction and said second link direction, and wherein said scout device is operable to determine media type requirements of said compatible equipment. For example, an Apple mobile apparatus (e.g., an iPhone) sets up a bidirectional communication link with selected surrounding equipment (e.g., Mac, iPad, or HomePod). The following screenshots depict the use of an iPhone to route a phone call to an Apple HomePod, which on information and belief utilizes a bidirectional link carrying streaming data over both directions of said first link direction and said second link direction.[1]

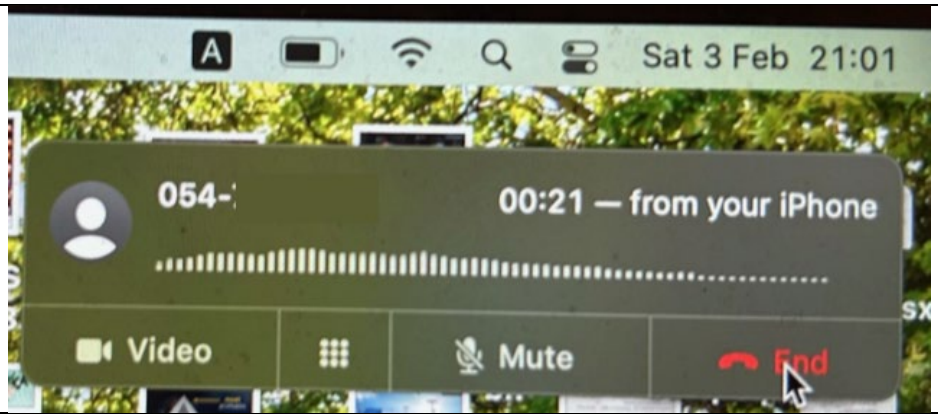
[1] The screenshots included herein have been edited to remove certain identifying information, such as full names and phone numbers, Wi-Fi network names, and user photographs.

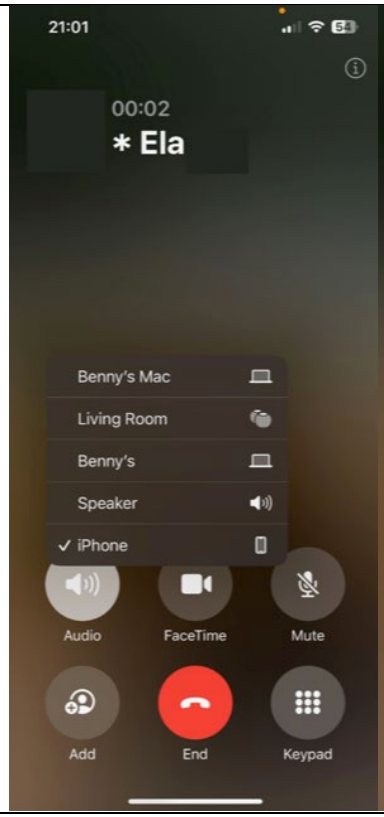
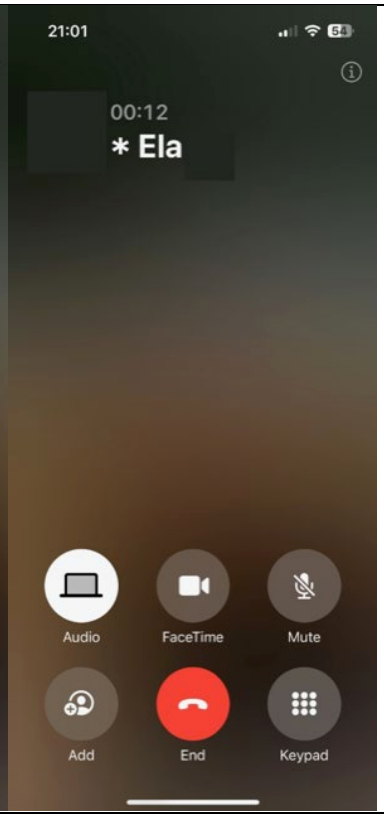
		 9:04 00:05 * Ela Living Room Speaker ✓ iPhone Audio FaceTime Mute Add End Keypad  9:05 00:15 * Ela Audio FaceTime Mute Add End Keypad	

	 9:03 5G 58 Settings Phone Share Name and Photo Off To personalize your messages, choose your name and photo, and who can see what you share. CALLS Wi-Fi Calling Off Calls on Other Devices Off Respond with Text Call Forwarding Call Waiting Show My Caller ID Silence Unknown Callers Off Blocked Contacts SMS/Call Reporting Dial Assist Dial assist automatically determines the correct



The following screenshots depict the use of an iPhone to route a phone call to a Mac, which on information and belief utilizes a bidirectional link carrying streaming data over both directions of said first link direction and said second link direction.

		 Sat 3 Feb 21:01 054- 00:21 — from your iPhone Video Mute End	

		 21:01 00:02 * Ela Benny's Mac Living Room Benny's Speaker ✓ iPhone Audio FaceTime Mute Add End Keypad  21:01 00:12 * Ela Audio FaceTime Mute Add End Keypad	

iPhone Cellular Calls

iPhone Cellular Calls requires any iPhone using iOS 8.1 or later and an activated carrier plan. You can then relay calls to and from that iPhone from these devices:

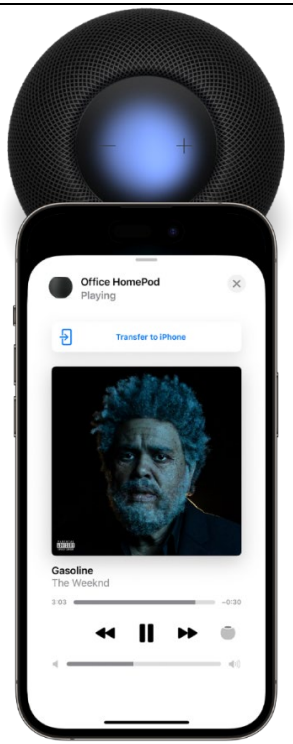
- Any Mac using OS X Yosemite or later. Mac mini and Mac Pro require an external microphone or headset.
- Any iPhone, iPad, or iPod touch using iOS 8 or later.

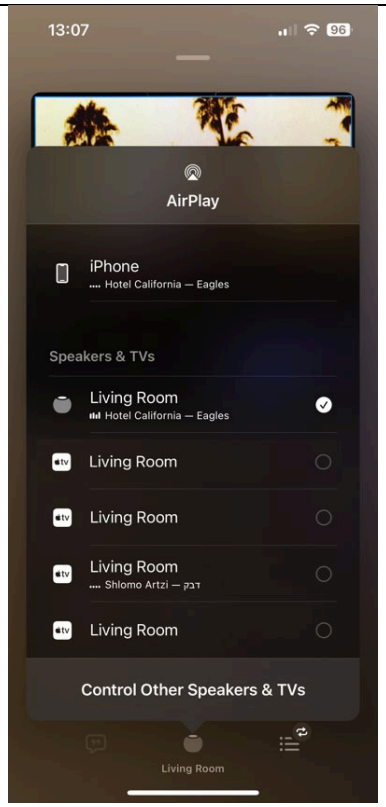
https://support.apple.com/en-us/108046

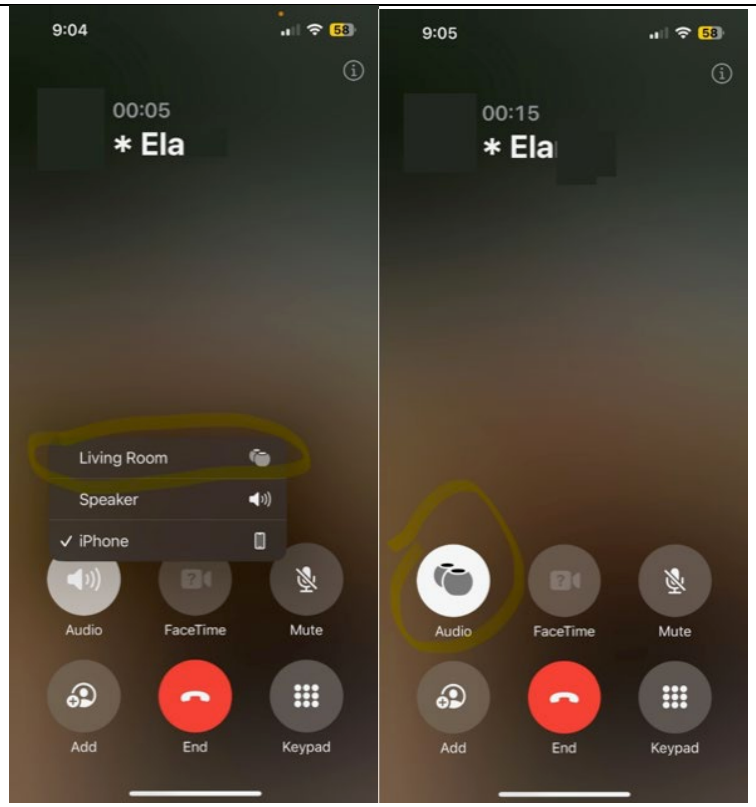
Make and receive phone calls on Mac or iPad

With the iPhone Cellular Calls feature, you can make and receive phone calls from your Mac or iPad when those devices are on the same network as your iPhone.

	https://support.apple.com/en-us/102405 **Route the audio of an existing call through HomePod** Do either of the following: • On your iOS or iPadOS device, tap Audio in the Phone or FaceTime app, then choose your HomePod. • Hold your iPhone near the top of HomePod. To hand off audio, your device must have Bluetooth turned on and be on the same Wi-Fi network as HomePod. You must also turn on Transfer to HomePod in Settings > General > AirPlay & Handoff.

	 To change who can hand off phone calls to HomePod, see Allow others to control audio on HomePod. https://support.apple.com/guide/homepod/use-for-phone-calls-apdeaa15a6c3/homepod
and wherein said scout device is operable to determine media type requirements of said compatible equipment;	The scout device of an Apple apparatus (e.g., iPhone) is operable to determine media type requirements of compatible equipment. As illustrated in the screenshots below, an iPhone allows streaming media data to compatible devices (e.g., streaming music to AirPlay-compatible devices or routing phone calls to capable devices). This includes, for example, displaying equipment compatible to receive music via AirPlay, including identifying compatible equipment by its screen capability where applicable.

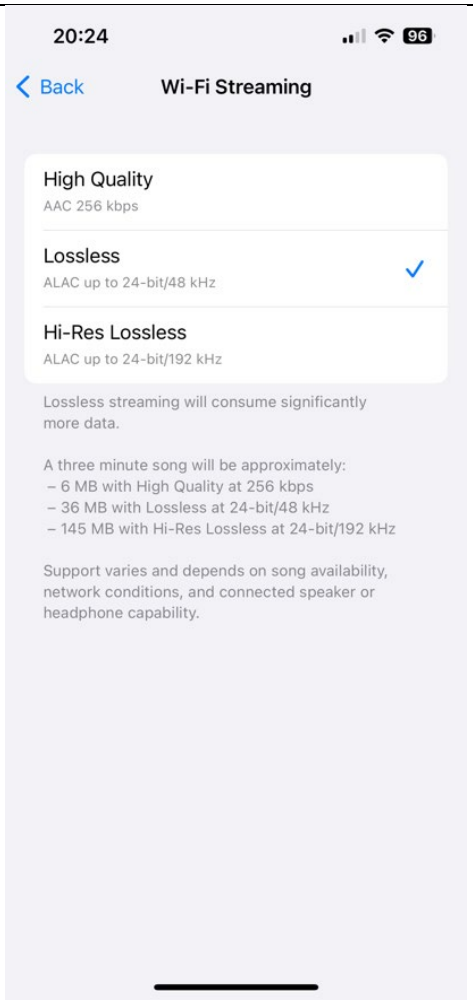
	 Moreover, the following screenshots show an iPhone displaying equipment compatible to receive a routed phone call:



The scout device can further determine data rate requirements of compatible equipment.

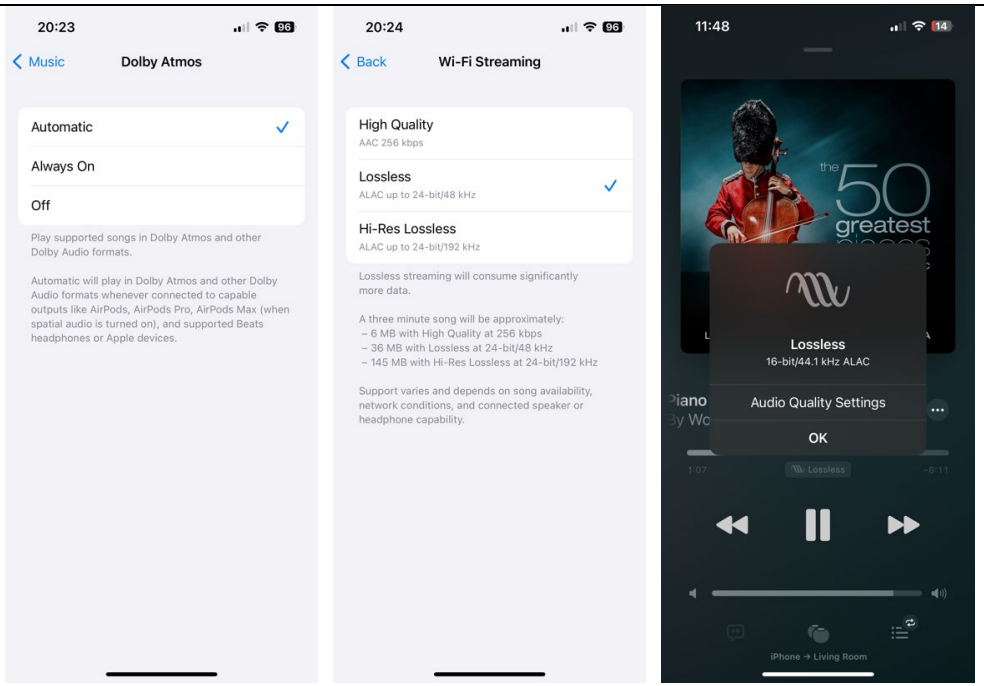
"…with regards to using AirPlay 2 to send lossless Apple Music streams. Apple Music's Lossless streams supposedly convert from ALAC (Apple's lossless codec) into AAC (Apple's lossy codec) at a pretty lowly 256kbps when transmitted over AirPlay – and therefore *not* losslessly."

Ref. 9, https://www.whathifi.com/advice/apple-airplay-2-everything-you-need-to-know

	
a media transformer, associated with said scout device, for transforming media	As described above, the scout device of an Apple iPhone identifies and determines availability of compatible equipment in the vicinity.

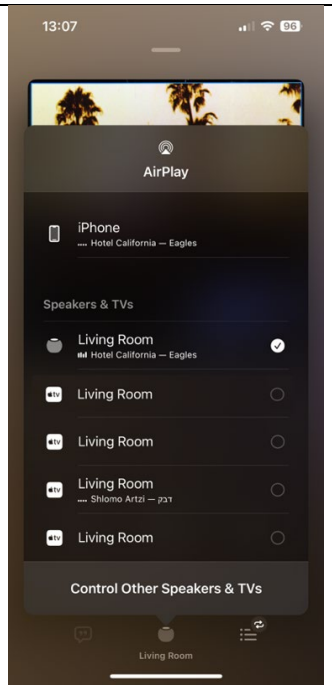
into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and	Apple mobile devices such as iPhones comprise a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer. For example, as evidenced below, an audio stream routed to compatible devices (e.g., Apple TV, Apple HomePod smart speaker and other Airplay-compatible speakers) via AirPlay can be transformed to a format compatible with the destination device. "…with regards to using AirPlay 2 to send lossless Apple Music streams. Apple Music's Lossless streams supposedly convert from ALAC (Apple's lossless codec) into AAC (Apple's lossy codec) at a pretty lowly 256kbps when transmitted over AirPlay – and therefore *not* losslessly." Ref. 9, https://www.whathifi.com/advice/apple-airplay-2-everything-you-need-to-know When an Apple mobile apparatus (e.g., iPhone) streams the audio to the compatible devices (e.g., Apple TV, Apple HomePod smart speaker and other Airplay-compatible speakers) via AirPlay, it converts the audio format to AAC. As can be seen in the below iPhone screen capture, the iPhone further plays Dolby Atmos format on specific compatible speakers. The Apple device provides a user interface allowing a user to select Dolby Atmos.

	11:38 support.apple.com **Turn on Dolby Atmos** 1. Go to Settings > Music > Dolby Atmos. 2. Choose Automatic or Always On. • *Automatic:* Plays Dolby Atmos whenever iPhone is connected to compatible headphones such as AirPods (3rd generation), AirPods Pro, or AirPods Max, or to speakers or receivers compatible with Dolby Atmos. • *Always On:* Plays Dolby Atmos on any headphones or speakers. The Music app will attempt to play Dolby Atmos tracks on any headphones or speakers connected to iPhone. Dolby Atmos will play on any headphones, but not all speakers will play Dolby Atmos as intended. **Control Spatial Audio and head tracking on iPhone** The following links provide documentation information on different formats supported by AirPlay: https://developer.apple.com/documentation/avfaudio/avaudioformat; https://developer.apple.com/documentation/avfoundation/streaming_and_airplay/supporting_airplay_in_your_app. The following iPhone screenshots show a user interface allowing a user to select media type for transforming the media data.

	
a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.	Apple mobile devices such as iPhones comprise a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer. For example, an Apple mobile apparatus (e.g., an iPhone) is capable of streaming a single audio stream to one or more compatible devices (e.g., Apple TV, Apple HomePod smart speaker and other Airplay-compatible speakers) connected to the same network via AirPlay.

	"Play audio on multiple AirPlay 2-enabled devices: With AirPlay 2 and iPhone, you can play audio on multiple AirPlay 2-enabled devices connected to the same Wi-Fi network. For example, you can play a party playlist on HomePod speakers in the living room and kitchen, on an Apple TV in the bedroom, and on an AirPlay 2-enabled smart TV in the den." Ref. 10, https://support.apple.com/en-il/guide/iphone/iph315e0d58d/ios "As long as all the devices are on the same wi-fi network (remember, AirPlay requires a wi-fi connection to work), you simply have to access the music controls on, say, your iPhone, iPad or Apple TV, and select a connected speaker (or more than one) to send the music to." Ref. 9, https://www.whathifi.com/advice/apple-airplay-2-everything-you-need-to-know

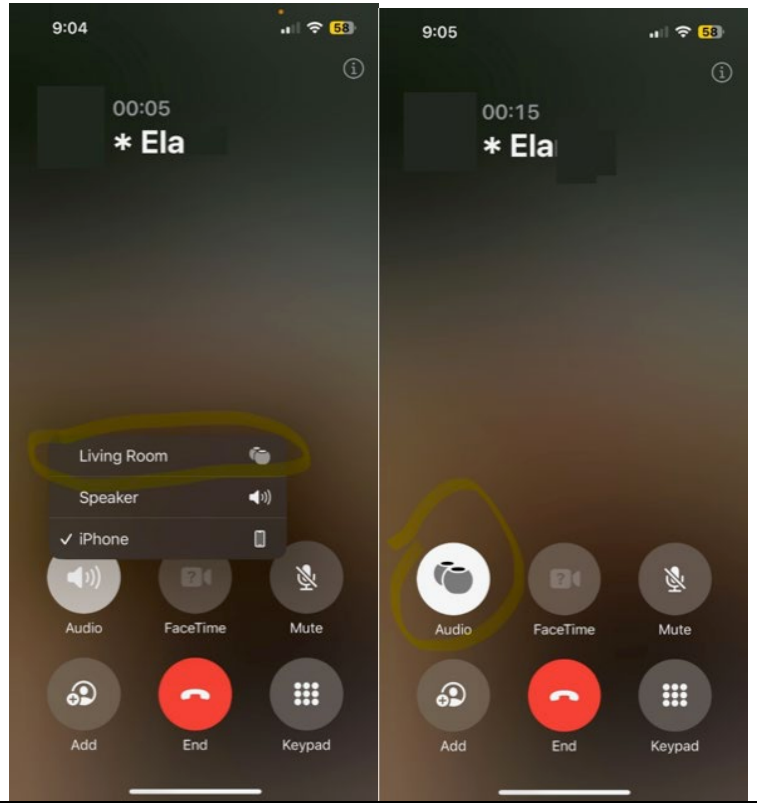
2. Apparatus according to claim 1, further comprising a user interface associated with said scout device for allowing a user to select between available compatible equipment to reroute data thereto.	Apple mobile devices such as iPhones comprise a user interface associated with said scout device for allowing a user to select between available compatible equipment to reroute data thereto. For example, an Apple mobile apparatus (e.g., an iPhone) allows the user to detect and select between one or more available compatible devices. "…you simply have to access the music controls on, say, your iPhone, iPad or Apple TV, and select a connected speaker (or more than one) to send the music to." Ref. 9, https://www.whathifi.com/advice/apple-airplay-2-everything-you-need-to-know The following iPhone screen capture shows the user interface allowing a user to select available compatible equipment to stream the audio to.



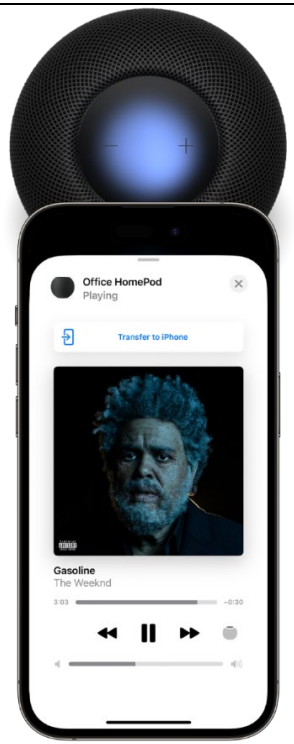
The following links provide documentation information on different AirPlay objects providing a user interface for the user to select from available devices:

"AVRouteDetector: An object that detects available media playback routes."
"…the object reports whether it detects multiple playback routes. If it does, use AVRoutePickerView to present the UI for the user to select an appropriate route."

Ref. 11,
https://developer.apple.com/documentation/avfoundation/streaming_and_airplay/supporting_airplay_in_your_app

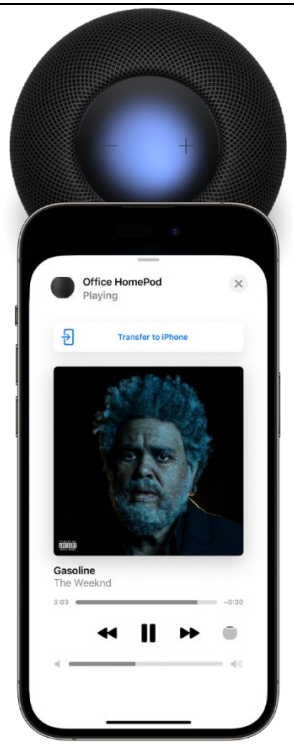
	The following screenshot shows a user interface for routing a phone call to another device. In this particular case, the phone call was routed to a HomePod. 
9. Apparatus according to claim 1, further comprising control functionality operable to carry out said rerouting through locally available network infrastructure.	Apple mobile devices such as iPhones comprise control functionality operable to carry out said rerouting through locally available network infrastructure. iPhone Cellular Calls iPhone Cellular Calls requires any iPhone using iOS 8.1 or later and an activated carrier plan. You can then relay calls to and from that iPhone from these devices:

	• Any Mac using OS X Yosemite or later. Mac mini and Mac Pro require an external microphone or headset. • Any iPhone, iPad, or iPod touch using iOS 8 or later. https://support.apple.com/en-us/108046 Make and receive phone calls on Mac or iPad With the iPhone Cellular Calls feature, you can make and receive phone calls from your Mac or iPad when those devices are on the same network as your iPhone. https://support.apple.com/en-us/102405 **Route the audio of an existing call through HomePod** Do either of the following: • On your iOS or iPadOS device, tap Audio in the Phone or FaceTime app, then choose your HomePod. • Hold your iPhone near the top of HomePod. To hand off audio, your device must have Bluetooth turned on and be on the same Wi-Fi network as HomePod. You must also turn on Transfer to HomePod in Settings > General > AirPlay & Handoff.

	 To change who can hand off phone calls to HomePod, see Allow others to control audio on HomePod. https://support.apple.com/guide/homepod/use-for-phone-calls-apdeaa15a6c3/homepod
24. A cellular telephone comprising the apparatus of claim 1.	The apparatus of claim 1 can comprise a cellular telephone (e.g., an iPhone). "Play audio on your iPhone or iPad with iOS 11.4 or later, Apple TV, or a Mac with macOS Catalina or later. Then use AirPlay to stream that audio to your AirPlay-compatible speakers or smart TVs." Ref. 2, https://support.apple.com/en-il/HT202809 Handoff works with these devices and operating systems:

	iOS 8 or later	**OS X Yosemite or later**	**watchOS 1.0 or later**
	• iPhone 5 or later • iPad Pro (all models) • iPad (4th generation) or later • iPad Air or later • iPad mini or later • iPod touch (5th generation) or later	• MacBook introduced in 2015 or later • MacBook Pro introduced in 2012 or later • MacBook Air introduced in 2012 later • Mac mini introduced in 2012 or later • iMac introduced in 2012 or later • iMac Pro • Mac Pro introduced in 2013 or later • Mac Studio introduced in 2022 or later	• Apple Watch (all models)
	https://support.apple.com/en-us/108046 iPhone Cellular Calls iPhone Cellular Calls requires any iPhone using iOS 8.1 or later and an activated carrier plan. You can then relay calls to and from that iPhone from these devices: • Any Mac using OS X Yosemite or later. Mac mini and Mac Pro require an external microphone or headset. • Any iPhone, iPad, or iPod touch using iOS 8 or later.		

	https://support.apple.com/en-us/108046 **Route the audio of an existing call through HomePod** Do either of the following: • On your iOS or iPadOS device, tap Audio in the Phone or FaceTime app, then choose your HomePod. • Hold your iPhone near the top of HomePod. To hand off audio, your device must have Bluetooth turned on and be on the same Wi-Fi network as HomePod. You must also turn on Transfer to HomePod in Settings > General > AirPlay & Handoff.

	 To change who can hand off phone calls to HomePod, see Allow others to control audio on HomePod. https://support.apple.com/guide/homepod/use-for-phone-calls-apdeaa15a6c3/homepod