ONKYO

The Basic Manual includes information needed when starting up and also instructions for frequently used operations. The Advanced Manual has more detailed information and advanced settings.

TX-NR646

AV RECEIVER

Basic Manual

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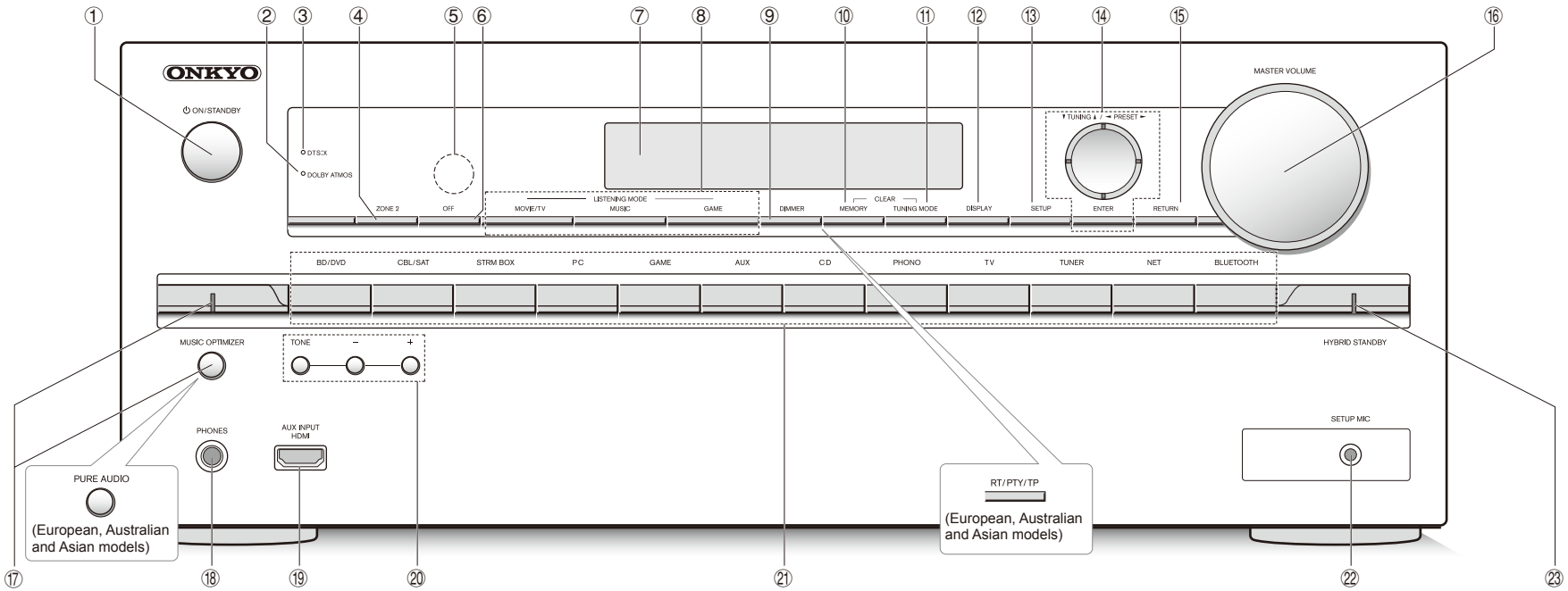
En

Features

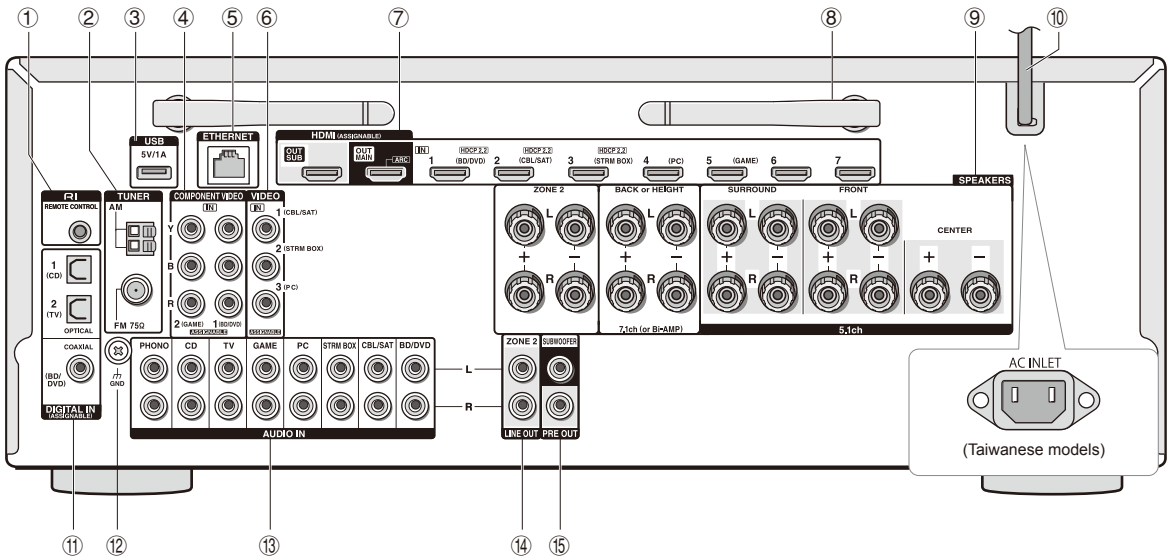
- Equipped with 7 ch amplifier
- Supports playback in Dolby Atmos format which provides 360-degree placement and movement of sounds including overhead sound
- Supports playback in DTS:X, which is DTS's next-generation object-based surround sound technology that includes height to deliver a fully-immersive listening experience to your living room
- Dolby Surround listening mode expands 2 ch, 5.1 ch or 7.1 ch source to available speaker configurations
- Equipped with 4K compatible HDMI IN/OUT jacks
- Equipped with 2 HDMI output jacks
- Supports the HDMI Standby Through function which allows signal transmission from players to the TV in standby state
- Supports HDCP2.2, a strict copy-protection for providing high quality content (HDMI IN1 to IN3/HDMI OUT MAIN/SUB)
- Supports ARC (Audio Return Channel)
- Supports USB storage playback
- Supports variety of network functions such as Internet Radio, DLNA, AirPlay etc.
- Supports Wi-Fi and Bluetooth®
- Equipped with a PHONO jack enabling connection with a turntable
- Bi-Amping capability
- A/V Sync Function to correct deviation of audio and video
- Multi-zone function which allows you to play a different source in another room from the main room
- 32 bit DSP (Digital Signal Processor) with excellent calculation performance
- Music Optimizer™ for compressed digital music files
- Phase Matching Bass System
- Automatic speaker setup available using supplied calibrated microphone (AccuEQ Room Calibration)
- Supports playback of MP3, WMA, WMA Lossless, FLAC, WAV, Ogg Vorbis, Apple Lossless, DSD, Dolby TrueHD via network and USB storage device (the supported formats will differ depending on the use environment)

Refer to the back cover for supplied accessories.



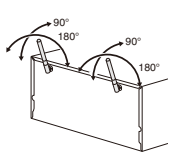
Front Panel

① **⏻ON/STANDBY button**: Turns the unit on or into standby mode.
② **DOLBY ATMOS indicator**: Lights when playing Dolby Atmos.
③ **DTS:X indicator**: Lights when playing DTS:X.
④ **ZONE2 button**: Controls the multi-zone function.
⑤ **Remote control sensor**: Receives signals from the remote controller.
⑥ **OFF button**: Switches the multi-zone function off.
⑦ **Display**
⑧ **LISTENING MODE buttons**: Allow you to select the listening mode.
⑨ **DIMMER button (North American and Taiwanese models)**: Switches the brightness of the display.
RT/PTY/TP button (European, Australian and Asian models): Can be used when receiving the station transmitting text information.
⑩ **MEMORY button**: Registers a station.
⑪ **TUNING MODE button**: Switches the tuning mode.
⑫ **DISPLAY button**: Switches the information on the display.
⑬ **SETUP button**: Used when making settings.
⑭ **Cursor buttons, ▼TUNING▲ button, ◄PRESET► button and ENTER button**: Move the cursor and confirms the selection. When listening to AM/FM broadcasting, tune in to the station with ▼TUNING▲ or select the registered station with ◄PRESET►.
⑮ **RETURN button**: Returns the display to the previous state.
⑯ **MASTER VOLUME**: Allows you to adjust the volume.
⑰ **MUSIC OPTIMIZER button/indicator (North American and Taiwanese models)**: Turns on/off the MUSIC OPTIMIZER function that improves the quality of the compressed audio.
PURE AUDIO button/indicator (European, Australian and Asian models): The display and analog video circuits are turned off to switch the unit to Pure Audio mode and provide purer sound.
⑱ **PHONES jack**: Stereo headphones with a standard plug are connected.
⑲ **AUX INPUT HDMI jack**: A HD camera or such other device is connected.
⑳ **TONE and Tone Level buttons**: Adjust the high tone and low tone.
㉑ **Input selector buttons**: Switch the input to be played.
㉒ **SETUP MIC jack**: The supplied speaker setup microphone is connected.
㉓ **HYBRID STANDBY indicator**: Lights if the unit enters standby mode when the HDMI Standby Through, USB Power Out at Standby, Network Standby or Wakeup from Bluetooth function is enabled.

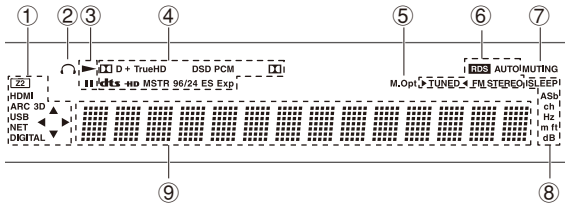


Rear Panel

① **RI REMOTE CONTROL jack**: An Onkyo product with RI jack can be connected and synchronized with this unit.
② **TUNER AM/FM (75Ω) terminal**: The supplied antennas are connected.
③ **USB port**: A USB storage device is connected so that music files stored in it can be played. USB devices can be supplied with power when connected with a USB cable.
④ **COMPONENT VIDEO IN jack**: Component video input jack
⑤ **ETHERNET port**: Used for LAN connection
⑥ **COMPOSITE VIDEO IN jacks**: Analog video signals are input.
⑦ **HDMI IN/OUT jacks**: Digital video signals and audio signals are transmitted between the unit and the connected devices.
⑧ **Wireless antenna**: Used for Wi-Fi connection or when using a Bluetooth-enabled device. Adjust their angles according to the connection status.



⑨ **SPEAKERS terminals**: Speakers are connected. To use the Multi-zone function, connect the speakers in the separate room to the ZONE2 speaker terminals.
⑩ **Power cord (North American, European, Australian and Asian models)**
AC INLET (Taiwanese models): The supplied power cord is connected.
⑪ **DIGITAL IN COAXIAL/OPTICAL jacks**: Digital audio signals are input.
⑫ **GND terminal**: The ground wire of the turntable is connected.
⑬ **COMPOSITE AUDIO IN jacks**: Analog audio signals are input.
⑭ **LINE OUT ZONE 2 jack**: Audio output jack connected to the pre-main amplifier for multi-zone playback in a separate room.
⑮ **PRE OUT SUBWOOFER jack**: A subwoofer with built-in amplifier is connected.



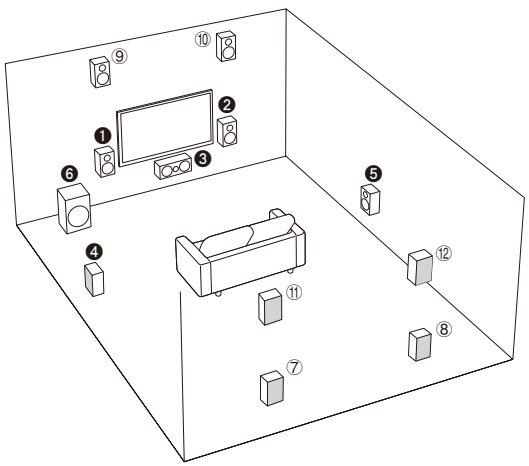
Display

① Lights in the following conditions. "Z2": Zone 2 output is on. / "HDMI": HDMI signals are input and HDMI input selector is selected. / "ARC": Audio signals are input from ARC compatible TV and TV input selector is selected. / "3D": Input signals are 3D. / "USB" (∗): "NET" input is selected and USB storage device is connected. / "NET" (∗): "NET" input is selected and the unit is connected to the network. / "DIGITAL": Digital signals are input and the digital input selector is selected. / Cursor indicators: NET or USB is controlled.
∗ "USB" and "NET" will flash if the connection is not correct.
② Stays lit when headphones are connected.
③ Lights when NET or USB is controlled.
④ Lights according to the type of input digital signals and the listening mode.
⑤ Stays lit when Music Optimizer is enabled.
⑥ Lights in the following conditions. "AUTO": Tuning mode is auto. / "►TUNED◄": Receiving AM/FM radio. ►◄ flashes while tuning is automatically performed. / "FM STEREO": Receiving FM stereo. / "RDS" (European, Australian and Asian models): Receiving RDS broadcasting.
⑦ "MUTING": Flashes when muting is on.
⑧ Lights in the following conditions. "SLEEP": Sleep timer has been set. / "ASb" (Auto Standby): Auto Standby is on. / "ch": Channel is being set. / "Hz": Crossover frequencies are being set. / "m/ft": Speaker distances are being set. / "dB": Speaker volume is being set.
⑨ Displays various information of the input signals. Pressing DISPLAY displays the type of input digital signals and the listening mode.

Step 1: Connections

1 Connecting speakers

Speaker layout



Important: The power cord must be connected only after all other connections are completed.

❶ ❷ Front speakers
❸ Center speaker
❹ ❺ Surround speakers
❻ Subwoofer
⑦ ⑧ Back speakers
⑨ ⑩ Height speakers (Front High)
⑪ ⑫ Height speakers (Rear High)

- 5.1 ch: ❶❷❸❹❺❻
- 7.1 ch: ❶❷❸❹❺❻+⑦⑧ or
  ❶❷❸❹❺❻+⑨⑩ or
  ❶❷❸❹❺❻+⑪⑫
  ⑦⑧ speakers, ⑨⑩ speakers and ⑪⑫ speakers share the same speaker terminals. Select either of the groups.

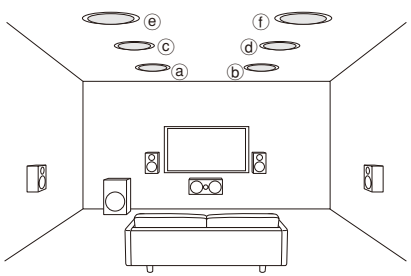
- To enjoy the Dolby Atmos listening mode, height speakers or back speakers need to be installed. There are a variety of height speakers apart from this type. see the next section for details.
- To use the multi-zone function, see "Multi-zone" in "Step 3: Playing Back".

Characteristics of speaker types

❶❷ output front stereo sound and ❸ output center sound such as dialogs and vocals. ❹❺ create back sound field. ❻ reproduces bass sounds and creates rich sound field.
Connecting ⑦⑧ speakers, ⑨⑩ speakers or ⑪⑫ speakers enables playback in 7.1 ch configuration. ⑦⑧ (back) speakers improve sense of envelopment created by back sound field as well as seamlessness of back sounds, providing more natural sound experiences in the sound field.
⑨⑩ or ⑪⑫ (height) speakers produce surround effects on a height plane. This unit can perform optimal sound field processing for the type of height speakers actually installed and registered in "Initial Setup".

Height speaker types

Installing speakers in ceiling

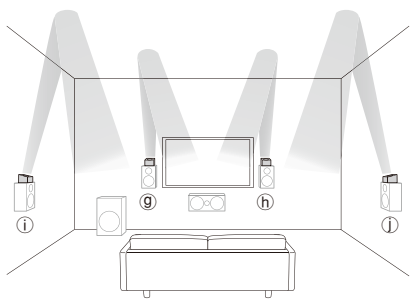


ⓐ ⓑ Top Front
ⓒ ⓓ Top Middle
ⓔ ⓕ Top Rear

Ceiling speakers, etc. are used for maximizing effects in Dolby Atmos or Dolby Surround listening mode. Install Top Front speakers so that they are positioned at a point between directly above the listening position and directly above the front speakers. Install Top Middle speakers so they are directly above the listening position. Install Top Rear speakers so they are positioned at a point between directly above the listening position and directly above the back speakers. You can select (ⓐ)(ⓑ), (ⓒ)(ⓓ) or (ⓔ)(ⓕ) on the unit. For connection with the unit, use the SPEAKERS BACK or HEIGHT terminals.

- Dolby Laboratories recommends placing the speakers as described in "Installing speakers in ceiling" to obtain the best Dolby Atmos effect.

Using Dolby Enabled Speakers



ⓖ ⓗ Dolby Enabled Speakers (Front)
ⓘ ⓙ Dolby Enabled Speakers (Surround)

A Dolby Enabled Speaker is specially designed to be used as a height speaker. There are two types of Dolby Enabled Speakers; one type is designed to be placed on top of other speakers such as front speakers and surround speakers,

and the other type is designed to be integrated with normal speakers. Dolby Enabled Speakers placed with their diaphragms facing toward the ceiling create higher effect in the Dolby Atmos and Dolby Surround listening modes by providing sounds echoing off the ceiling. You can select (ⓖ)(ⓗ) or (ⓘ)(ⓙ) on the unit. For connection with the unit, use the SPEAKERS BACK or HEIGHT terminals.

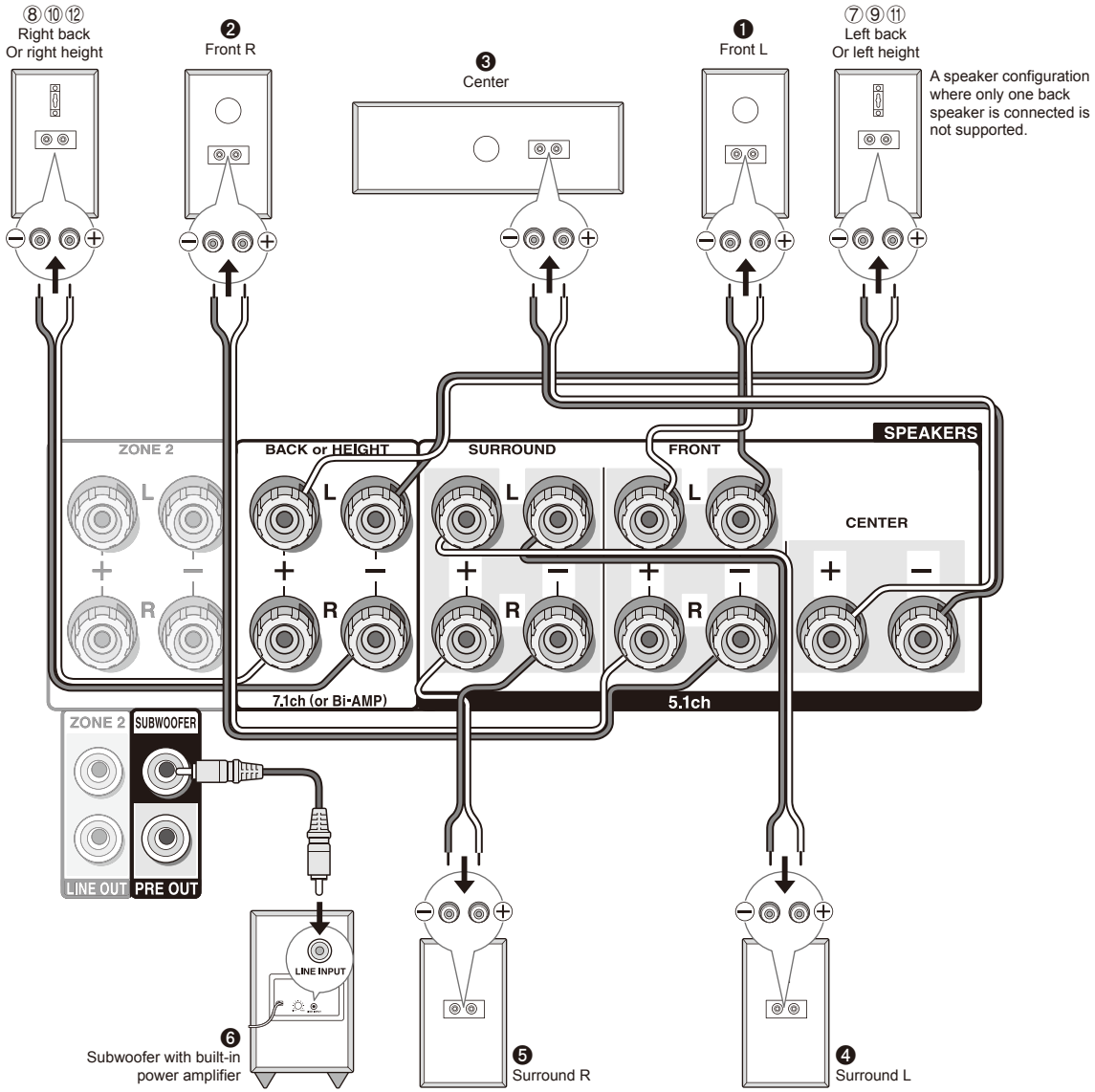
When playing Dolby Atmos, the speakers required depend on how you have setup your back speakers or height speakers. The following shows combinations of speakers for reproducing Dolby Atmos.

Connection pattern	Back or Height	Front	Center	Surround
1	Back	◎	○	◎
2	Front High	◎	○	○
3	Rear High	◎	○	○
4	Top Front	◎	○	○
5	Top Middle	◎	○	○
6	Top Rear	◎	○	○
7	Dolby Enabled Speaker (Front)	◎	○	○
8	Dolby Enabled Speaker (Surround)	◎	○	◎

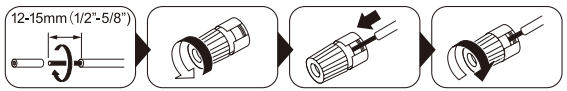
◎: Required, ○: Optional
∗ Connection of a subwoofer is optional.

Important: (North American and Taiwanese models) Connect speakers with 6 Ω to 16 Ω impedance. Using a speaker with less impedance than the supported value may result in failure.

Important: (European, Australian and Asian models) Connect speakers with 4 Ω to 16 Ω impedance. You have to change the setting if any of the speakers have 4 Ω or more to less than 6 Ω impedance. Using a speaker with less impedance than the setting may result in failure. You can set up by viewing the guidance displayed on the TV screen. Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN. Press RECEIVER and then SETUP on the remote controller. Select "2. Speaker" - "Configuration" - "Speaker Impedance" and change the default value from "6ohms" to "4ohms".

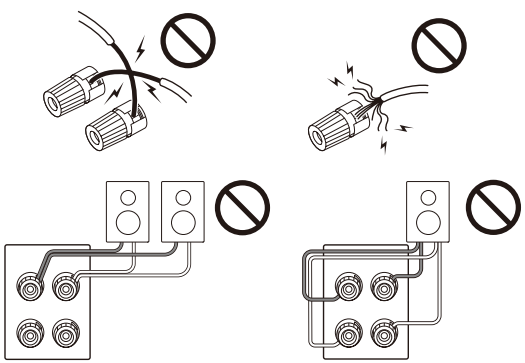


Instructions on how to connect speakers

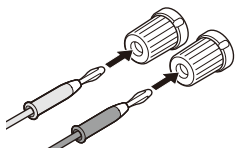


Cut and remove the plastic coating from the end of the speaker cable, twist the core and connect it to the terminal. Be sure to make correct connection between the unit's jacks and speaker's jacks (+ to + and - to -) for each channel. If connection is wrong, a bass sound may become poor due to reverse phase. Up to two subwoofers with built-in power amplifier can be connected to the subwoofer jacks. Set the cut-off filter selection switch of the subwoofer to DIRECT. If the subwoofer does not have a cut-off filter selection switch but has a cut-off frequency adjusting dial, turn it to the maximum frequency. If your subwoofer does not have built-in power amplifier, you can connect a power amplifier between the unit and the subwoofer.

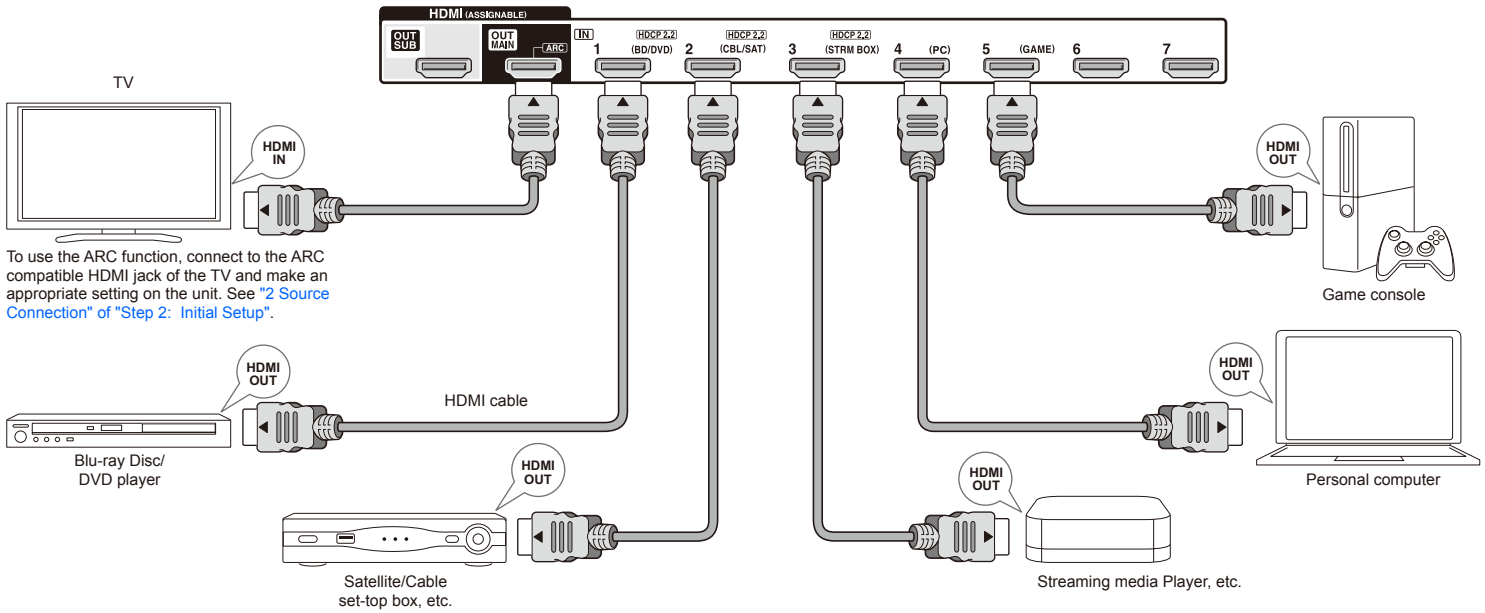
- The speaker setting is 7.1 channels at the time of purchase. You can change it manually or by using automatic speaker setting.
- Short-circuiting the + cable and - cable or contacting the cable core to the rear panel of the unit may cause failure. Also do not connect two or more cables to one speaker terminal or one speaker to several terminals.



When using commercially available banana plugs: tighten the speaker terminals to the end and then insert the banana plugs. Do not insert the core of speaker cable directly into the hole for banana plug of speaker terminal. (North American models)



2 Connecting the TV and players



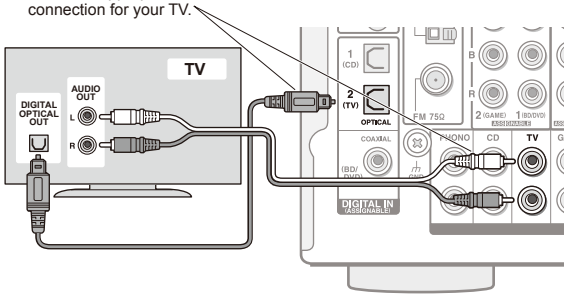
HDMI cable connection

The unit has many HDMI jacks on its rear panel and each of them corresponds to an input selector button of the same name on the front panel. For example, a Blu-ray Disc player will be connected to the HDMI IN1 jack and the BD/DVD button on the front panel will be used to listen to the playback sound (if the player is CEC compliant, input will be switched automatically when play is started). If you add another Blu-ray Disc player, you can use any other jack than HDMI IN1. It is possible to change assignment of the input jacks and input selector buttons. For how to make settings, see the Advanced Manual.

To connect the TV and the unit, connect the HDMI OUT MAIN jack of the unit and the HDMI IN jack of the TV using a HDMI cable. With this connection, it becomes possible to display the setting screen of the unit on the TV or transmit video/audio signals from the player to the TV. If your TV supports ARC (Audio Return Channel), it is possible to play the TV sound with the AV receiver's speakers with this connection only. If your TV does not support ARC, you need, in addition to the HDMI OUT MAIN jack connection, a digital optical cable connection between the digital audio out optical jack of the TV and the DIGITAL IN OPTICAL jack of the unit or an analog audio cable connection between the audio output jack of the TV and the AUDIO IN TV jack of the unit.

● Audio connection with a TV not supporting ARC

✳ Select an appropriate connection for your TV.



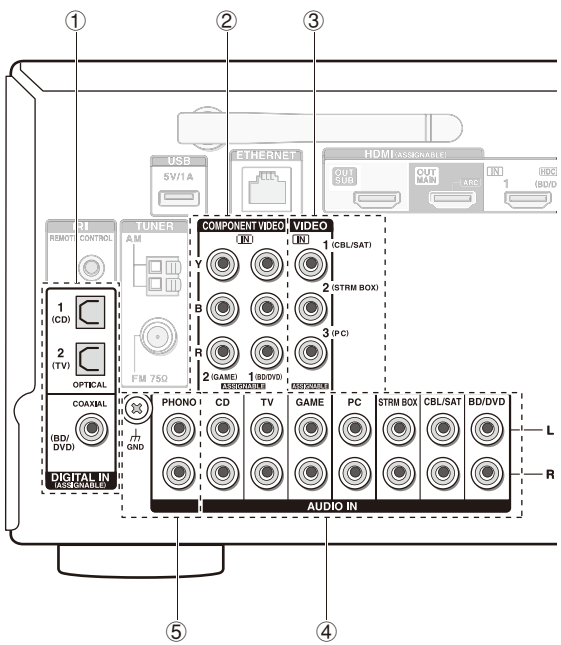
The unit supports the HDMI Standby Through function that allows video and audio signal transmission from players to the TV even if the unit is in standby. You have to

modify the settings to enable the input selection link with CEC (Consumer Electronics Control) compliant device, connection with ARC compatible TV, and HDMI Standby Through function. See "2 Source Connection" of "Step 2: Initial Setup".

- Another TV can be connected to the HDMI OUT SUB jack.
- To enjoy HDCP2.2 protected video, connect the player to one of the HDMI IN1 to IN3 jacks and connect the unit and the TV via HDMI. You will be unable to view images protected by HDCP2.2 if your TV does not have a HDCP2.2 compatible input jack.
- To play 4K or 1080p video, use a high speed HDMI cable or high speed HDMI with Ethernet cable.

Connecting Components without HDMI

If your AV component does not have HDMI jack, use an available jack of your component for cable connection with this unit.



① A player with a digital audio out jack can be connected.

Digital optical cable (OPTICAL)
∗ As the digital in optical jack of the unit has a cover, push in the cable against the cover as it is turned inside.

Digital coaxial cable (COAXIAL)

② A player with component video output jacks can be connected.

Component video cable
∗ Its transmitted video has higher quality than that of composite video cable.

③ A player with a composite video output jack can be connected.

Composite video cable

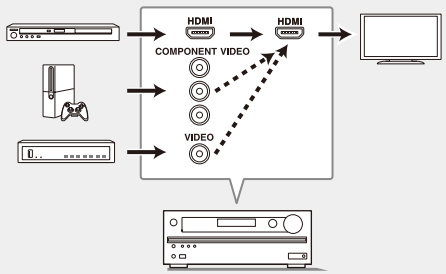
④ A player with analog audio out jacks can be connected. When using jacks ② and ③ for video input, connect to the audio input jacks corresponding to the jacks connected at ② and ③. (For example, when video input connection is to the ② BD/DVD jack, the audio input connection should also be to the ④ BD/DVD jacks.)
∗ It is possible to change assignment of the input jacks and input selector buttons. For how to make settings, see the Advanced Manual.
∗ To enjoy multi-zone playback with a player, connect player to either ① or ④ jacks.

Analog audio (RCA) cable

⑤ Connect a turntable that uses an MM type cartridge and does not have a built-in audio equalizer. If the connected turntable has a built-in audio equalizer, connect it to the ④ CD jack.
∗ If it uses an MC type cartridge, install an audio equalizer compatible with MC type cartridge between the unit and the turntable by connecting it to the ④ CD jack. For details, refer to the turntable's instruction manual.
∗ If the turntable has a ground wire, connect it to the GND terminal of this unit. If connecting the ground wire increases noise, disconnect it.

Video upconversion function

Video signals input to the composite video input jack or the COMPONENT VIDEO IN jacks will be upconverted to HDMI signals and then output from the HDMI output jack.



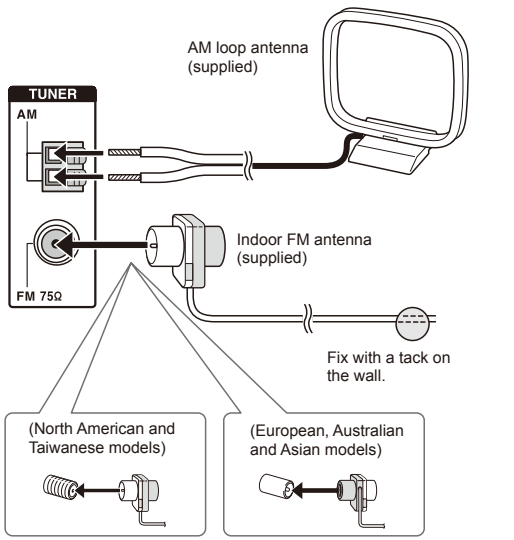
AV Receiver

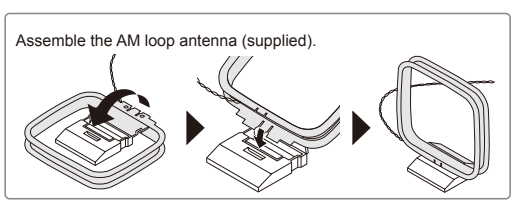
∗ When you upconvert video signals input to the COMPONENT VIDEO IN jacks and output them from the HDMI OUT jack, set the output resolution of the player to 480i or 576i. If the input has 480p/576p or higher resolution, a message prompting you to change the resolution setting will appear. If your player does not support 480i or 576i output, use the composite video jack.
∗ If multiple video signal inputs are put into one input system, the output will be made in the order of HDMI, COMPONENT VIDEO/composite video.

3 Other connections

AM/FM antenna connections

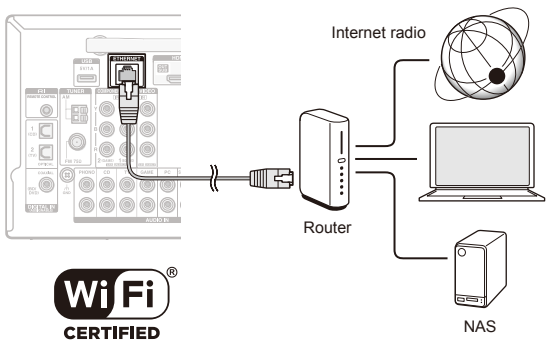
Connect the antennas to listen to AM/FM broadcast. When listening to the broadcast for the first time, adjust the antenna position and orientation to get the best reception.





Network connection

You can enjoy Internet radio, DLNA and AirPlay by connecting the unit to LAN. The unit can be connected to the router with an Ethernet cable or to the wireless LAN router with Wi-Fi connection. In case of wired connection, connect the Ethernet cable to the Ethernet port. See "4 Network Connection" of "Step 2: Initial Setup" for Wi-Fi settings.



Headphones connection

Connect stereo headphones with a standard plug (1/4 inch or ø 6.3 mm) to the PHONES jack on the front panel. Sound from the speakers will be off while you are using the headphones.

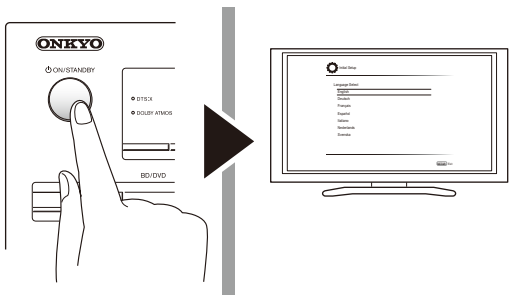
- If you selected any other listening mode than Pure Audio (European, Australian and Asian models), Stereo, Mono and Direct, connecting headphones will switch the listening mode to Stereo.

Power cord

Taiwanese models include removable power cords. Connect the power cord to AC INLET of the unit and then connect to the outlet. Always disconnect the outlet side first when disconnecting the power cord. When the unit is turned on, a large instantaneous current may flow affecting functionality of the computer and other devices, so it is recommended to use a separate outlet.

Step 2: Initial Setup

"Initial Setup" automatically starts on the TV when you first turn the unit on.



Settings proceed in the following order:

1 AccuEQ Room Calibration

- Automatic calibration for optimum speaker settings

2 Source Connection

- Checking that each input source is connected correctly
- HDMI link function settings

3 Remote Mode Setup

- Settings required to operate other AV Components with the Remote Controller

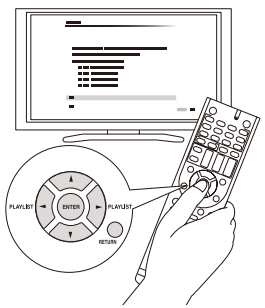
4 Network Connection

- Checking network connections
- Wi-Fi settings

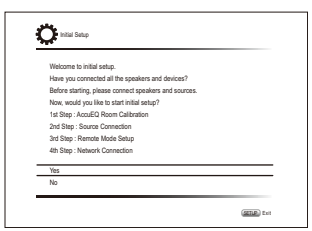
∗ **Firmware update notification**: If the unit is connected via LAN and there is firmware update available, the "Firmware Update Available" message will appear. To execute updating, select "Update Now" with the cursor buttons of the remote controller and press ENTER.
The unit automatically turns itself into standby mode about 3 minutes after "Completed!" appears on the display, and updating will be complete.

Before Start
Setup is performed as a series of responses to questions asked by the unit. Select the item with the cursors of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.

- You need to use HDMI connection between the unit and TV.
- Switch the input on the TV to that assigned to the unit.



Select the language first. Next, a summary of the initial settings is displayed. Select "Yes" in this screen and press ENTER on the remote controller.



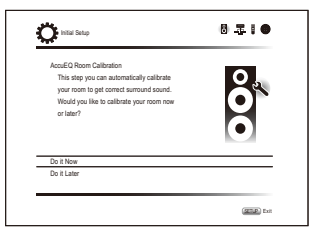
Re-doing initial setup: If you terminate the procedure on the way or change the setting made in the initial setup and want to call up the setup wizard again, press RECEIVER RECEIVER and then SETUP on the remote controller, select "8. Miscellaneous" - "Initial Setup", and press ENTER.

1 AccuEQ Room Calibration

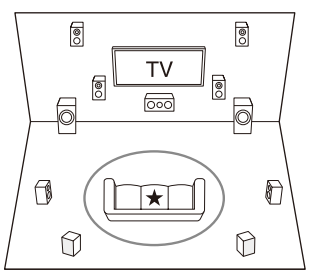
The test tone coming from each speaker will be measured to enable setting of the number of speakers, volume level, each speaker's optimum crossover frequencies, and distance from the primary listening position, and also enable correction of distortion caused by the room acoustic environment.

- You cannot return to the previous screen during speaker setup, even if you press RETURN.

1. Place the speaker setup microphone.



When the screen above is displayed, before starting the procedure, place the supplied speaker setup microphone at the measurement position ★ by referring to the following figure.

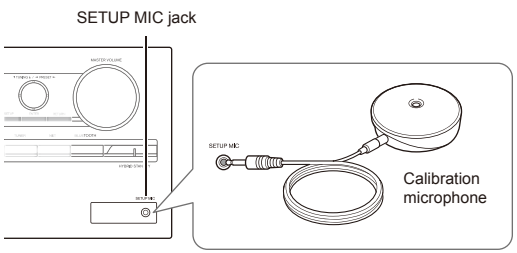


○ : Listening area ★ : Measurement position with microphone

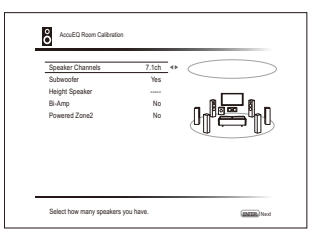
∗ Correct measurement will not be possible if the microphone is held by hand. Measurement is not possible if headphones are being used.

∗ The subwoofer sound may not be detected since it is extremely low frequencies. Set the subwoofer volume to around the half of its maximum volume and make its frequency to the maximum level.
∗ Measurement may be interrupted if there is ambient noise or radio frequency interference. Close the window and turn off the home appliance and fluorescent light.

2. **After placing the microphone at the measurement position, select "Do it Now" with the cursors and press ENTER.**
3. **When "Please plug microphone that came in a box with AV receiver" is displayed, connect the microphone to the SETUP MIC jack of the unit.**



4. **Select the settings for the connected speakers, the type of the height speakers, and other appropriate settings.**



When the screen above is displayed, set the items with the cursor buttons on the remote controller. Refer to the on-screen diagram for "Speaker Channels", which changes each time a different number of channels is selected. When all the items have been set, press ENTER on the remote controller. After that, follow the guidance displayed on the TV screen to operate the unit.

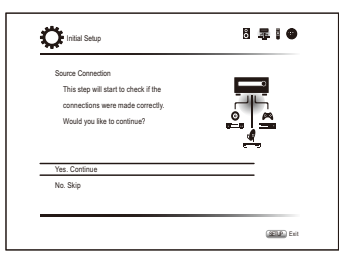
- Refer to the content of an item, which appears on the lower left of the screen when the cursor is on the item.

5. **The test tones sound from the connected speakers and automatic speaker setting starts.**
Measurement will be made 3 times or more for each speaker. It takes several minutes to be completed. Keep the room as quiet as possible during measurement. If any of the speakers do not produce the test tone, check for disconnection.
   - During measurement, each speaker outputs the test tones at a high volume. Be careful of sound leak that may disturb your neighbors, or be careful not to frighten young children.
6. **When the measurement is completed, the measurement result is displayed.**
Press ◄/► on the remote controller to check the settings. Press ENTER with "Save" selected. Select "On" in the next screen and press ENTER on the remote controller.
   - You should normally select "On (All Channels)", and to disable just the front speakers, you should select "On (Except Front Left/Right)".
   - If there is an error message, follow the on-screen instruction to remove the error cause.
7. **When "Please unplug setup microphone." is displayed, disconnect the microphone.**

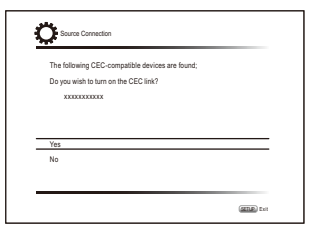
2 Source Connection

You can check the connections on the different inputs and make HDMI link function settings.

1. **When the Source Connection start screen is displayed, select "Yes, Continue" with the cursors and press ENTER.**

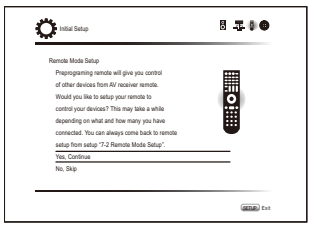


2. **Select the desired input to check the connection and press ENTER.**
Start playback of the selected device. If connection is correct, video/audio of the input source selected on the unit will be played.
3. **After checking the connection, select "Yes" with the cursors and press ENTER.**
   - If you select "No" and press ENTER, the error cause will be displayed. Follow the guidance to remove the error cause and check the connection again.
4. **Select "Yes" with the cursors and press ENTER on the remote controller to check the connection of other inputs or select "No, Done Checking" and press ENTER to skip.**
If you select "Yes", you will return to the screen of step 2.
If you select "No, Done Checking", you will proceed to step 5.
5. **Set the CEC link function.**
Select "Yes" to enable the HDMI link function with CEC-compliant equipment, then select "Yes" again in the next screen.



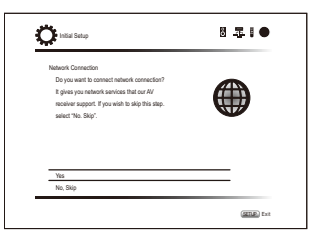
If you select "Yes", the connection with ARC compatible TV and HDMI Standby Through function will be set to "On" and enabled.

3 Remote Mode Setup



You can enable operation of the other components using the remote controller of the unit. When the Remote Mode Setup start screen is displayed, select "Yes, Continue" with the cursors and press ENTER on the remote controller. Follow the guidance to select the desired REMOTE MODE button and in the keyboard screen, enter the first three characters of the brand name of the device you are going to program and search for the remote control code. The guidance will also explain how to set the remote controller.

4 Network Connection



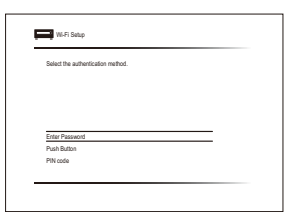
You can check the network connection and make the Wi-Fi setting. When the Network Connection start screen is displayed, select "Yes" with the cursors and press ENTER on the remote controller. If you select "Wired" in the next screen, you can view the LAN cable connection status. To make the Wi-Fi setting, select "Wireless", press ENTER on the remote controller and follow the sections below.

Make the following preparations.
Wi-Fi connection requires an access point such as wireless LAN router (∗). Write down the SSID and password (key) of the access point if they are shown in the label of the main body. If the access point has an automatic setting button (may be called differently according to the manufacturer), you can set up without inputting the password. For how to use the automatic setting button of the access point, refer to its instruction manual.
∗ The unit supports Wi-Fi connection with 2.4 GHz access point.

1. **Select the method of Wi-Fi connection with the cursors and press ENTER.**
   Scan Networks: Use this unit to search for and connect to a wireless LAN router or other access point.
   Use iOS Device (iOS7 or later): Select this method to let this unit share the Wi-Fi settings with your iOS device and establish a Wi-Fi connection with ease. (The device must be compatible with iOS version 7 or later.)

■ If you selected "Scan Networks"

2. **Select the SSID of the access point to be connected with the cursor buttons and press ENTER.**
   When the SSID of the access point appears on the TV screen, select the desired access point.
   - If you changed the initial setting of the access point to skip password entry, step 3 is unnecessary.
   - If you changed the initial setting of the access point to hide the SSID, see "When the access point is not displayed".
3. **Select and set the authentication method.**
   The "Enter Password" screen may be displayed automatically if the wireless LAN router does not have an automatic setting button.



When this screen is displayed, select and set one of the three authentication methods: "Enter Password", "Push Button" and "PIN code". See below for details of and how to set each method.

Enter Password: Enter the password of the access point to establish connection.
① Select "Enter Password" with the cursor buttons and press ENTER.
② Enter the password (∗) on the keyboard screen, select "OK" with the cursor buttons and press ENTER.
∗ Select "A/a" and press ENTER to toggle between upper and lower case. Select "←" or "→" and press ENTER to move the cursor to the selected direction. Select ⌫ and press ENTER to delete the character at the left of the cursor position. To select whether to mask the password with "∗" or display it in plain text, press D on the remote control. Press +10 on the remote controller to switch between upper and lower case. Press CLR to delete all the input characters.
③ If the security method of the access point to be connected is WEP, select "Default Key ID", select "OK" and press ENTER.

Push Button: Use the automatic setting button of the access point to establish connection.
① Select "Push Button" with the cursor buttons and press ENTER.
② Hold down the automatic setting button of the access point for the necessary seconds, select "OK" with the cursor buttons and press ENTER.

PIN code: Select this method when the automatic setting button of the access point is beyond the reach. Select "PIN code" with the cursor buttons and press ENTER to display the 8-digit PIN code. Register the displayed PIN code to the access point, select "OK" with the cursor buttons and press ENTER. For how to register the PIN code to the access point, refer to its instruction manual.

When the access point is not displayed
Select "Other..." with the ► cursor on the remote controller and press ENTER to display the keyboard screen. Input the SSID and password. Make the following settings according to the router setting.

■ WPA/WPA2 method
Select "WPA" or "WPA2" in "Security Method", select "OK" and press ENTER.

■ WEP method
Select "WEP" in "Security Method" and select "Default Key ID". Then select "OK" and press ENTER.

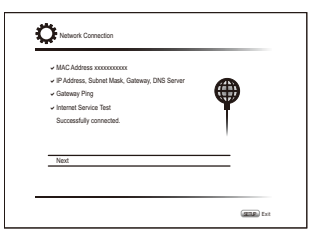
- If encryption setting has not been made on the wireless LAN router, select "None" in "Security Method", select "OK" and press ENTER.

■ If you selected "Use iOS Device (iOS7 or later)"

2. **On the iOS device, go to "Settings"-"Wi-Fi" and turn on the setting, then select this unit in "SETUP NEW AIRPLAY SPEAKER".**
3. **Tap "Next".**

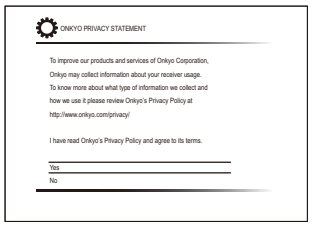
■ When connection is successful

"Successfully Connected" is displayed on the screen.



If the screen is not displayed, try doing the setting again. If "Push Button" connection with the wireless LAN router does not work, try "Enter Password".

- A confirmation screen asking you to agree to the privacy policy is displayed after connection. Select "Yes" and press ENTER to indicate agreement.



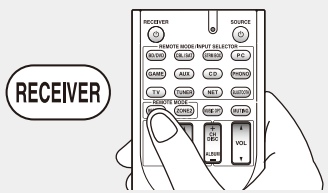
■ Terminating initial setup

After finishing the initial setup, keep "Finished" selected and press ENTER on the remote controller. Connection and setting of the unit is now complete.

Audio output of connected players
To enjoy digital surround sound including Dolby Digital and DTS, audio output should be set to "Bitstream output" on the connected Blu-ray Disc Player or other device.
Depending on the settings on the Blu-ray Disc Player, there may be cases when Dolby TrueHD, Dolby Atmos, and DTS-HD Master Audio is not output according to the format of the source.
In this case, in the Blu-ray Disc Player settings try setting "BD video supplementary sound" (or secondary sound) to "Off".
Change the listening mode after changing the setting to confirm.

Step 3: Playing Back

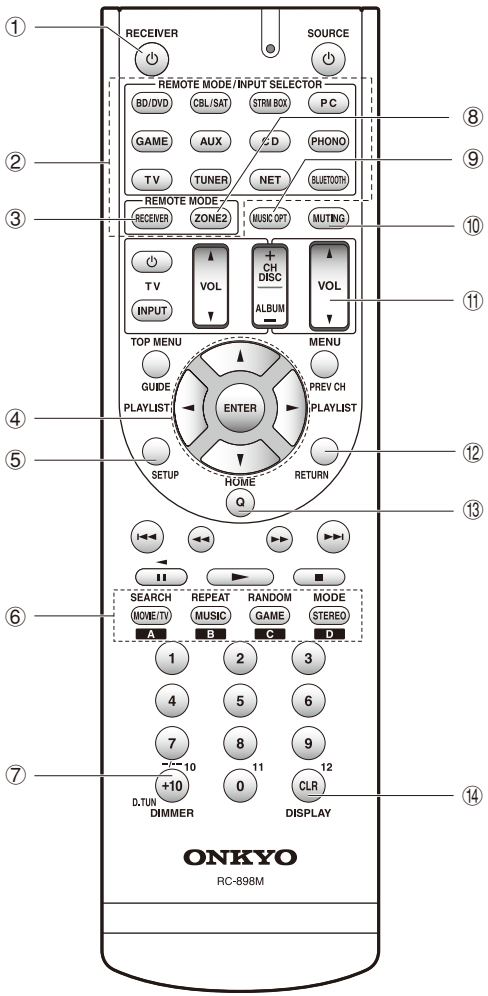
1 Basic Operations



● **When using the remote controller to operate the AV receiver**: The remote controller of this unit has the remote mode function for controlling other devices. You cannot control this unit when the remote controller is in the remote mode other than RECEIVER mode (for controlling this unit). Be sure to press ③ RECEIVER to select the RECEIVER mode before starting operation.

1. **Turning the power on.**
   Press ① ⏻ RECEIVER on the remote controller to turn the power on.
   - Switch the input on the TV to that assigned to the unit. Use the TV's remote controller.
2. **Select the input on the unit.**
   Press the ② INPUT SELECTOR button for the player you want to listen to. Press TV to listen to the TV's sound. You can also use the input selector buttons on the main unit.
   - Input will automatically be selected if the TV or player is CEC compliant and connected to the unit with HDMI cable.
3. **Select the desired listening mode.**
   After pressing ③ RECEIVER, press the ⑥ listening mode buttons to switch the mode so that you can enjoy different listening modes.
4. **Adjust the volume with ⑪ VOL.**

Part names and functions of the remote controller



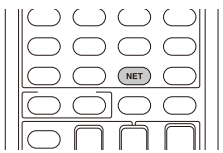
① ⏻ **RECEIVER button**: Turns the unit on or into standby mode.
② **REMOTE MODE/INPUT SELECTOR buttons**: Switch the input to be played. Furthermore, by registering a particular remote control code to a button, you can switch the remote control mode to operate other equipment by pressing that button.
③ **RECEIVER button**: Switches the remote controller to the mode for operating this unit.
④ **Cursor buttons and ENTER button**: Move the cursor and confirms the selection.
⑤ **SETUP button**: Displays the screen for making various settings for this unit.
⑥ **Listening mode buttons**: Allow you to select the listening mode.
MOVIE/TV button: You can select a listening mode suitable for movies and TV programs.
MUSIC button: You can select a listening mode suitable for music.
GAME button: You can select a listening mode suitable for games.
STEREO button: You can select a listening mode for stereo and all channel stereo sources.
- For details on the listening modes, see the Advanced Manual.

⑦ **DIMMER button**: Switches the brightness of the display.
⑧ **ZONE2 button**: For use when the unit is connected with a pre-main amplifier or speakers in a separate room and sound is played there.
⑨ **MUSIC OPT button**: Turns on/off the MUSIC OPTIMIZER function that improves the quality of the compressed audio.
⑩ **MUTING button**: Temporarily mutes audio. Press again to cancel muting.
⑪ **VOLUME buttons**: Allow you to adjust the volume. This button also cancels the muting.
⑫ **RETURN button**: Returns the display to the previous state.
⑬ **Q button**: Displays the Quick Setup menu that allows you to quickly access the frequently used setting items including sound quality adjustment.
⑭ **DISPLAY button**: Switches the information on the display.

2 Network Functions

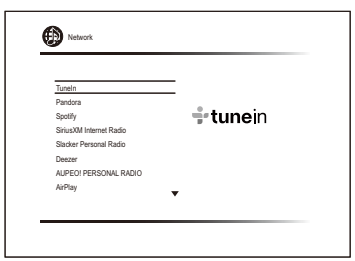
You can enjoy sources such as Internet radio by connecting the unit to a network. For details on the operation, see the Advanced Manual.

- The on-screen displays are not displayed when the OSD language is set to Chinese. Operate by confirming the display on the main unit. (European, Australian, Taiwanese and Asian models)



Press NET on the remote controller to display the NET TOP screen on the TV. Select the item with the cursors of the remote controller and press ENTER to confirm your selection.

∗ To return to the previous screen, press RETURN.
∗ Available services may vary depending on your area of residence.



Internet radio services

The unit comes preset with Internet radio services (*) such as TuneIn. After selecting the desired service, follow the on-screen instructions, using the cursors to select radio stations and programs, then press ENTER to play.

DLNA

You can play music files stored in the computer or NAS device connected to the network. Select the server with the cursors, select the desired music file and press ENTER to start playback.

- This unit needs to be connected to the same router as a computer or NAS device.

Home media

You can play music files in a shared folder on the computer or NAS device connected to the network. Select the server with the cursors, select the desired music file and press ENTER to start playback.

- This unit needs to be connected to the same router as a computer or NAS device.

USB

Connect the USB storage device to the USB port on the rear of the unit, select the desired folder or music file with the cursors, and press ENTER to confirm and start playback.

3 AirPlay®

You can wirelessly enjoy music files stored on an iPhone®, iPod touch®, or iPad®. You can also play back music files on the computer with iTunes.

Important: This unit needs to be connected to the network through the same router as the iOS terminal or PC.

■ Playing music files from an iPhone, iPod touch, or iPad

Update the OS version on your iOS device to the latest version before connecting it to this unit.

1. **Press NET on the remote controller.**
2. **Tap the AirPlay icon, select this unit from the list of devices displayed, and click "Done".**

- The AirPlay icon is displayed in the control center if you are using iOS 7 and later. To display the control center, swipe from the bottom of the screen of the iOS device.
- If the AirPlay icon is not displayed, confirm that this unit and the iOS device are both connected to the router correctly.

3. **Play music files from an iPhone, iPod touch, or iPad.**

■ Playing music files from a computer

- AirPlay is compatible with iTunes 10.2 or later.

1. **Press NET on the remote controller.**
2. **Turn on your computer and start iTunes.**
3. **Click the AirPlay icon of iTunes and select this unit from the list of devices displayed.**
4. **Play iTunes music files.**

- If "6. Hardware"-"Power Management"-"Network Standby" is set to on in the Setup menu, then once AirPlay starts, this unit turns on automatically and the "NET" input source is selected. Even if this setting is "Off", if the unit is already on then the "NET" input source can be selected.
- Due to the characteristics of AirPlay wireless technology, the sound produced on this unit may slightly be behind the sound played on the AirPlay-enabled device.
- Information such as the name of the track is displayed on the unit's display during AirPlay playback.
- There may be some differences in how operations are performed depending on the iOS or iTunes version.
- The on-screen displays are not displayed when the OSD language is set to Chinese. Operate by confirming the display on the main unit. (European, Australian, Taiwanese and Asian models)

Volume: The volume of this unit and the AirPlay-enabled device are linked. Take care that the volume does not become too loud when you adjust the volume on the AirPlay-enabled device. You may damage the unit or the speakers. Stop play on the AirPlay-enabled device immediately if the volume becomes too loud at any point.

4 Bluetooth®

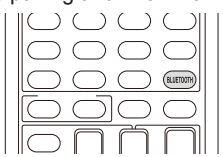
You can wirelessly enjoy music files stored in a smartphone or other Bluetooth-enabled device. The coverage area is 48 feet (15 meters).

- The Bluetooth-enabled device needs to support the A2DP profile.
- Note that connection is not always guaranteed with all Bluetooth-enabled devices.

■ Pairing

Pairing is necessary when connecting the Bluetooth-enabled device for the first time. Before starting the procedure, learn how to enable the Bluetooth setting function and to connect with other devices on the Bluetooth-enabled device.

1. **Press BLUETOOTH on the remote controller.**
   The unit begins pairing and "Now Pairing..." is displayed.



2. **While "Now Pairing..." is on the display, complete connection on the Bluetooth-enabled device in the nearby area within about 2 minutes.**
   If the name of this unit is displayed on the Bluetooth-enabled device's display, select this unit. Paring will end after a short time.
   - If a password is requested, enter "0000".
   - You can pair with another Bluetooth-enabled device by pressing and holding the BLUETOOTH button until "Now Pairing..." is on the display. This unit can store the data of up to 8 paired devices.

■ Playing Bluetooth-enabled devices

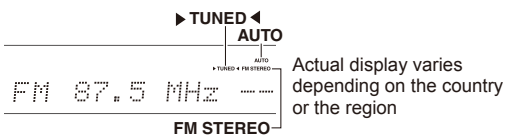
If the unit is on and the Bluetooth-enabled device is connected, the input will be automatically switched to BLUETOOTH. Play music in this state.
For details on using the remote controller for these operations, see the Advanced Manual.

- It may take about a minute until connection is established when the unit is on since the Bluetooth function takes some time to start up.
- If the volume setting on the Bluetooth-enabled device is low, the sound will not be output from this unit.
- Due to the characteristics of Bluetooth wireless technology, the sound produced on this unit may slightly be behind the sound played on the Bluetooth-enabled device.
- The on-screen displays are not displayed when the OSD language is set to Chinese. Operate by confirming the display on the main unit. (European, Australian, Taiwanese and Asian models)

5 AM/FM Radio

The Basic Manual explains the method using automatic tuning. For manual tuning, see the Advanced Manual.

1. **Press TUNER on the main unit several times to select either "AM" or "FM".**
2. **Press TUNING MODE on the unit, so that the "AUTO" indicator on the display lights.**
3. **Press ▼TUNING▲ on the unit.**
   The automatic tuning to a radio station starts. Searching stops when one is tuned. When tuned into a radio station, the "►TUNED◄" indicator on the display lights. The "FM STEREO" indicator lights if the radio station is an FM radio station.



Registering a radio station: You can register up to 40 of your favorite AM/FM radio stations.

1. Tune into the AM/FM radio station you want to register.
2. Press MEMORY on the unit so that the preset number on the display flashes.
3. Press ◄PRESET► on the unit several times to select a number between 1 and 40 while the preset number is flashing (about 8 seconds).
4. Press MEMORY again on the main unit to register the station.
   When registered, the preset number stops flashing.
   To select a preset radio station, press ◄PRESET► on the main unit or CH +/− on the remote controller.

- To delete a preset station, after selecting the preset number you want to delete with ◄PRESET► on the main unit, press TUNING MODE while holding down MEMORY on the main unit. When the preset number is deleted, it disappears from the display.

AM/FM frequency step setting
It may be necessary for you to change the frequency step to tune the radio in your area. Change the step with the following procedure. Note that when this setting is changed, all radio presets are deleted.

1. After pressing RECEIVER RECEIVER on the remote controller, press SETUP.
2. Use the cursor buttons to select "6. Hardware" and press ENTER.
3. Select "Tuner" with the cursor and press ENTER.
4. Select "AM / FM Frequency Step" (North American and Taiwanese models) or "AM Frequency Step" (European, Australian and Asian models) with the cursor and select the frequency step for your area.
   (For Taiwanese models only)
   The setting is "10 kHz / 0.2 MHz" at the time of purchase. Please change it to "9 kHz / 0.05 MHz".

6 Multi-zone

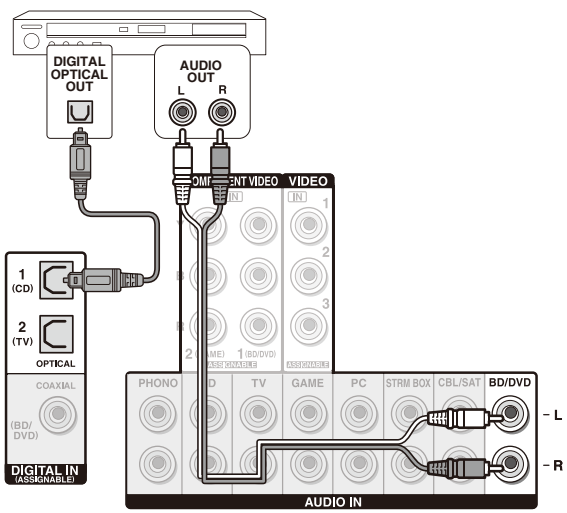
You can listen to audio in a room (called Zone 2) other than the one where this unit is located (called the main room).

■ Sources you can playback

- External players (∗1)
- NET (∗2)
- Bluetooth
- AM/FM Radio

∗1 Only analog and 2ch PCM audio signals can be output to Zone 2.
∗2 DSD and Dolby TrueHD audio signals cannot be output to Zone 2.

Important: Connection with external players
To listen to a player in Zone 2, you must connect using an RCA cable, a digital optical cable (OPTICAL), or a digital coaxial cable (COAXIAL). Some players may require audio output setting.

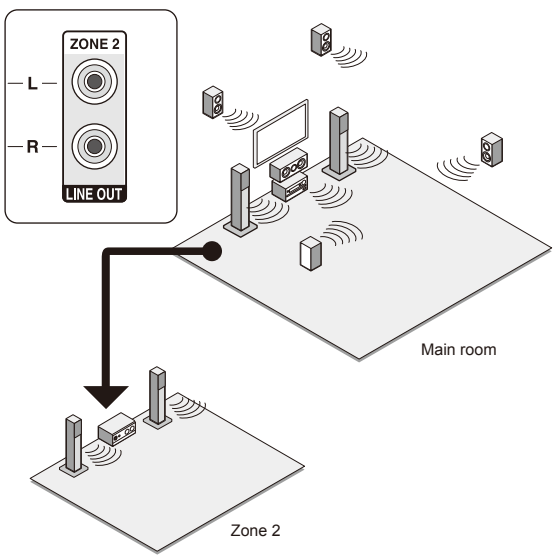


Making Multi-zone Connection

There are the following two methods of connection:
a. Connecting with a pre-main amplifier in a separate room
b. Connecting with speakers in a separate room

■ a. Connecting with a pre-main amplifier in a separate room

It is possible to play 2 ch source in a separate room while 7.1 ch source is being played in the main room.
Connect the LINE OUT ZONE2 jacks of the unit and the line-in jacks of the pre-main amplifier in a separate room with an RCA cable.

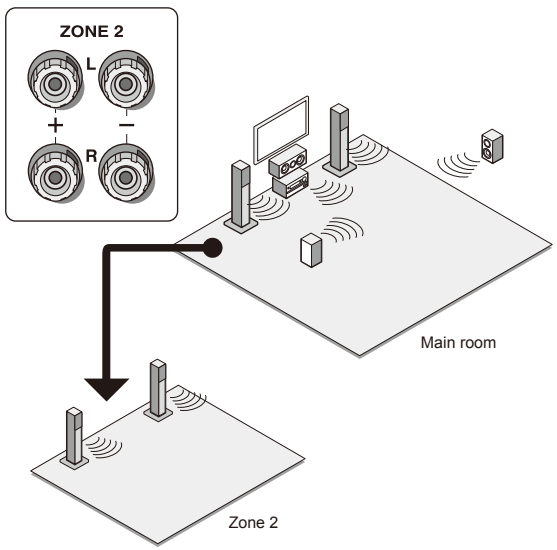


- The volume should be adjusted with the pre-main amplifier used in the separate room.

■ b. Connecting with speakers in a separate room

Connect the speakers in another room to the SPEAKERS ZONE2 jacks of the unit using speaker cables. Note that 5.1 ch will be the maximum (∗) in the main room during Zone 2 playback. No sound will be output from the back speakers and height speakers.

∗ In this case, the Dolby Atmos listening mode cannot be selected.



These settings are required: After connecting the speakers, press RECEIVER and then SETUP on the remote controller, select "2. Speaker" - "Configuration" and set "Powered Zone2" to "Yes".

- Adjust the volume on this unit. To adjust the volume, press ZONE2 on the remote controller and then adjust with VOL▲/▼. To control on the main unit, press ZONE 2 and within 8 seconds, adjust with the MASTER VOLUME control. You can mute the sound by pressing MUTING on the remote controller.

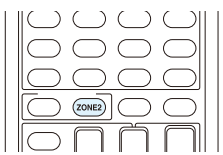
Performing Multi-zone Playback

It is possible to perform playback in the main room and a separate room at the same time, for example by playing the Blu-ray Disc player in the main room where the unit is placed while playing Internet radio in a separate room. It is also possible to perform playback only in a separate room.

- With external players, it is possible to play the same source or different sources in the main room and separate room.
- With "NET" and "BLUETOOTH", you cannot select different inputs for the main room and separate room. For example, if "NET" has been selected in the main room and then "BLUETOOTH" is selected as playback source in the separate room, the input in the main room will change to "BLUETOOTH" accordingly.
- When listening to AM/FM broadcasting, you cannot select different stations for the main room and separate room. Therefore broadcasting of the same station will be heard in the both rooms.

Playing Back

1. **Press ZONE2 on the remote controller, point the remote controller at the main unit and press ⏻RECEIVER.**
   "Z2" lights on the main unit display and the multi-zone function is enabled. (Zone 2 is now on.)



2. **Press ZONE2 again on the remote controller and press INPUT SELECTOR of the input to be played in a separate room.**
   - If you turn the unit to standby during multi-zone playback, the Z2 indicator is dimmed and the playback mode is switched to playback in a separate room only. Performing steps 1 and 2 while the unit is in standby also switches the playback mode to playback in a separate room only. To play the same source in the main room and separate room, hold down ZONE2 for approximately 3 seconds.

To control on the main unit: press ZONE2 and within 8 seconds, press the input selector button of the source to be played in the other room. (To play the same source in the main room and separate room, press ZONE2 twice.)

To turn off the function

After pressing ZONE2 on the remote controller, press ⏻RECEIVER. Alternatively press OFF on the main unit.

- If ZONE 2 is on, power consumption during standby becomes larger than normal.
- If ZONE 2 is turned on when the listening mode of the main room is Pure Audio, it will automatically switch to the Direct listening mode. (European, Australian and Asian models)
- While ZONE 2 is on, the RI linked system function (interlink between Onkyo components) is disabled.
- Pressing INPUT SELECTOR on the remote controller while you are using the remote controller for Zone 2 will switch the controlled target to the main room. To control Zone 2 again, press the ZONE2 button to enter the Zone control mode.

7 Quick Setup Menu

You can perform common settings on the TV screen while playing.

1. **Press Q on the remote controller.**
   The Quick Setup menu is displayed on the connected TV's screen.

2. **Select the item with the cursors of the remote controller and press ENTER to confirm your selection.**
   - To return to the previous screen, press RETURN.
3. **Select the setting with the cursors buttons of the remote controller.**

■ **Listening Mode**: Select the listening mode from the categories of "MOVIE/TV", "MUSIC" and "GAME". After selecting the Listening Mode, press ENTER button to confirm.

- It cannot be set when audio is played from the TV's speakers.

■ **Audio**: You can perform various audio settings including audio quality and speaker level adjustment.

- You cannot select this item when audio is output from the TV's speakers.

Bass, Treble: Adjust volume of the front speaker.

- It cannot be set if the listening mode is Pure Audio (European, Australian and Asian models) or Direct.

Phase Matching Bass: Suppress phase shift in the midrange to enhance bass sound. Thus smooth and powerful bass sound can be obtained.

- It cannot be set if the listening mode is Pure Audio (European, Australian and Asian models) or Direct.

Center Level, Subwoofer Level: Adjust the speaker level while listening to the sound. The adjustment you made will be reset to the previous status when you turn the unit to standby mode.

- Changes may not be possible depending on the settings in speakers.
- This setting is not possible during MUTING or when using headphones.

A/V Sync: If the video is behind the audio, you can delay the audio to offset the gap. Different settings can be set for each input selector.

- It cannot be set if the listening mode is Pure Audio (European, Australian and Asian models) or Direct.

AccuEQ Room Calibration: Enable or disable the settings made by automatic speaker setting. To enable them, you should normally select "On (All Ch)", and to disable just the front speakers, you should select "On (ex. L/R)". The setting can be separately set to each input selector.

- This setting cannot be selected if the automatic speaker setting has not been performed.
- It cannot be set if headphones are connected or the listening mode is Pure Audio (European, Australian and Asian models) or Direct.

Equalizer: Assign the equalizer settings adjusted in "Setup"-"2. Speaker"-"Equalizer Settings" to "Preset1" to "Preset3". The same sound field setting is applied to all

ranges when set to "Off".
- It cannot be set if the listening mode is Pure Audio (European, Australian and Asian models) or Direct.

Music Optimizer: Improve the quality of the compressed audio. Playback sound of lossy compressed files such as MP3 will be improved. The setting can be separately set to each input selector.
- The setting is effective in the signals of 48 kHz or less. The setting is not effective in the bitstream signals.
- It cannot be set if the listening mode is Pure Audio (European, Australian and Asian models) or Direct.

Late Night: Make small sounds to be easily heard. It is useful when you need to reduce the volume while watching a movie late night. You can enjoy the effect only with Dolby Digital, Dolby Digital Plus, Dolby TrueHD, and DTS sources.
- Turning the unit to standby mode will set the setting to "Off". In case of Dolby TrueHD, the setting will be set to "Auto".
- The setting cannot be used in the following cases.
  - If "Loudness Management" is set to "Off" when playing Dolby Digital Plus or Dolby TrueHD.
  - When the input signal is DTS and "Dialog Control" is other than 0 dB.

Cinema Filter: Adjust the soundtrack that was processed to enhance its treble, in order to make it suitable for home theater.
- This function can be used in the following listening modes: Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Multichannel, DTS, DTS-ES, DTS 96/24, DTS-HD High Resolution Audio, DTS-HD Master Audio, DTS Express, DSD.

Center Spread: Adjust the width of the sound field of the front channel when playing in the Dolby Surround listening mode.
To spread the width of the sound field to the left and right, set to "On". To concentrate sound in the center, set to "Off".
- This setting may be "Off" depending on the settings in speakers.

Dialog Control: You can increase the dialog portion of the audio in 1 dB steps up to 6 dB so that you can make dialog easier to hear over background noise.
- This setting is unavailable for content other than DTS:X.
- This setting may not be available for selection with some content.

■ **HDMI**: Select the HDMI OUT jack to be used for output.

■ **Information**:

Audio: Displays the audio input source, format, number of channels, sampling frequency, listening mode, and number of output channels.

Video: Displays information such as the video input source, resolution, color space, color depth, 3D information, Aspect and output.

Tuner: Displays information such as the band, frequency, and preset number. This is displayed only when "TUNER" is selected as the input source.

8 Other useful functions

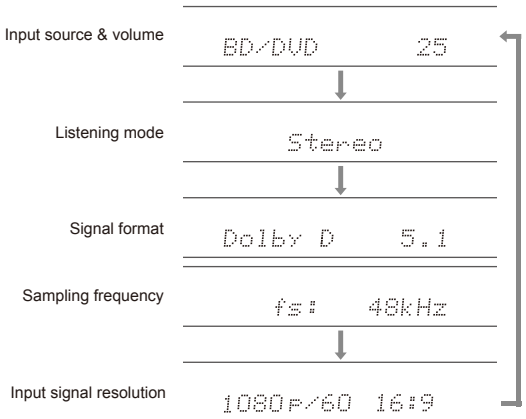
To adjust the sound quality

It is possible to enhance or moderate the bass and treble of front speakers. Press TONE on the main unit several times to select the desired setting from "Bass", "Treble" and "Phase Matching Bass", and adjust with +/-.
- It cannot be set if the listening mode is Pure Audio (European, Australian and Asian models) or Direct.

"Bass": Allows you to enhance or moderate the bass.
"Treble": Allows you to enhance or moderate the treble.
"Phase Matching Bass": Allows you to keep the clear midrange and effectively enhance the bass.

Checking the Input Format

Press DISPLAY on the remote controller several times to switch the display of the main unit in order of:



- If "Dolby D 5.1" is displayed in Signal format, the Dolby Digital 5.1 ch signals are being input. When listening to AM/FM radio, the band, frequency and preset number are displayed.

Playing Audio and Video from Separate Sources

It is possible to play audio and video from different sources. For example, you can play audio from the CD player and video from the BD/DVD player. In this case, press BD/DVD and then CD. Then start playback on the BD/DVD player and CD player. This function is effective when an input with audio only has been selected (CD, NET, BLUETOOTH, TUNER or PHONO in the initial setting).(∗)

∗ When NET or BLUETOOTH is selected, press MODE on the remote controller after pressing NET or BLUETOOTH on the remote controller.

Others

Troubleshooting

Before starting the procedure
Problems may be solved by simply turning the power on/off or disconnecting/connecting the power cord, which is easier than working on the connection, setting and operating procedure. Try the simple measures on both the unit and the connected device. If the problem is that the video or audio is not output or the HDMI linked operation does not work, disconnecting/connecting the HDMI cable may solve it. When reconnecting, be careful not to wind the HDMI cable since if wound the HDMI cable may not fit well. After reconnecting, turn off and on the unit and the connected device.

The AV receiver turns off unexpectedly.

- The AV receiver will automatically enter standby mode when Auto Standby or Sleep Timer is set and launched.
- The protection circuit may have been activated. If this is the case, when you turn the unit on again, "AMP Diag Mode" will appear on the main unit's display. The unit will then enter a mode that detects abnormal conditions. If no problems are detected, "AMP Diag Mode" will disappear and the unit will return to a normal state. If "CHECK SP WIRE" appears on the display, the speaker cables may be short-circuited. Turn the unit off, and check to see if the cable core of any of the speaker cables is in contact with that of another speaker cable or with the rear panel. After that, turn the unit on again. If "NG" appears, unplug the power cord immediately and contact your Onkyo dealer.

There's no sound, or it's very quiet.

- A wrong input selector button has been selected. Select a correct input for the player. Also check that muting is not on.
- Not all listening modes use all speakers.

There's no picture.

- A wrong input selector button has been selected.
- Video from the analog input is not displayed if the listening mode is Pure Audio. (European, Australian and Asian models)
- To display video from the connected player on the TV screen while the unit is in standby, you need to enable HDMI Standby Through function.
- When the TV image is blurry or unclear, power cord or connection cables of the unit may have interfered. In that case, keep distance between TV antenna cable and cables of the unit.
- If you connect a player supporting HDCP2.2, be sure to connect it to one of the HDMI IN1 to IN3 jacks of the unit.

Video and audio are out of synch.

- Video may be delayed relative to audio depending on the settings and connections with your TV. Adjust in "Step 3: Playing Back", "7 Quick Setup Menu", "A/V Sync".

Cannot play digital surround.

- To enjoy digital surround sound including Dolby Digital and DTS, audio output should be set to "Bitstream output" on the connected Blu-ray Disc Player or other device.

Cannot output audio such as Dolby Atmos according to the format of the source.

- If you cannot output audio according to the format of the source (Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, etc.), in the Blu-ray Disc Player settings try setting "BD video supplementary sound" (or secondary sound) to "Off". Change the listening mode for each source after changing the setting to confirm.

HDMI control does not function correctly.

- Set the CEC link function of the unit to on. It is also necessary to make the HDMI linked system setting on the TV. See the TV's instruction manual for details.

Cannot access to network.

- Try plugging/unplugging the unit or the wireless LAN router or check their power-on status. This will work well in many cases.
- If the desired wireless LAN router is not in the access point list, it may be set to hide SSID or the ANY connection may be off. Change the setting and try again.

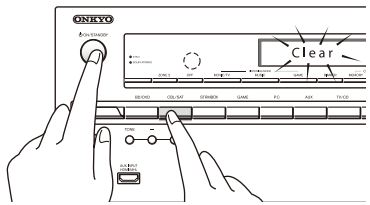
■ Resetting the unit

Resetting the unit to the status at the time of shipment may solve the problem. If the measures above do not solve the problem, reset the unit with the following procedure. If you reset the unit status, your preferences will be reset to the defaults. Note them down before starting reset.

- **How to reset**:

1. **While holding down CBL/SAT on the main unit (note that step 2 must be performed with this button pressed down)**
2. **Press ⏻ON/STANDBY on the main unit ("Clear" appears on the display and the unit returns to standby).**

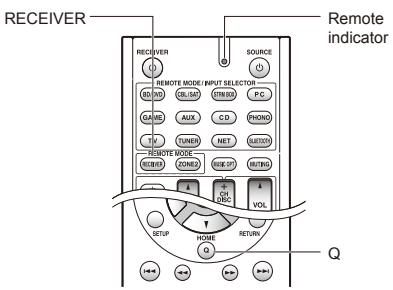
- Do not unplug the power cord until "Clear" disappears from the display.



2. **Press ⏻ON/STANDBY.** 1. **While holding down CBL/SAT,**

- **How to reset the remote controller**:

1. **While holding down RECEIVER on the remote controller, press Q until the remote indicator stays lit (about 3 seconds).**
2. **Within 30 seconds, press RECEIVER again.**



Specifications

Amplifier Section

Rated Output Power (North American)
With 8 ohm loads, both channels driven, from 20-20,000 Hz; rated 100 watts per channel minimum RMS power, with no more than 0.08% total harmonic distortion from 250 milliwatts to rated output.
Surround Mode Output Power (∗)
(6 ohms, 1 kHz THD 0.9%) 170 W per channel
∗ Reference output for each speakers.
Depending on the source and the listening mode settings, there may be no sound output.
Rated Output Power (Others)
7 ch × 160 W at 6 ohms, 1 kHz, 1 ch driven of 1% (IEC)
Maximum Effective Output Power
7 ch × 175 W at 6 ohms, 1 kHz, 1 ch driven (JEITA) (Asian)
Dynamic Power (∗)
∗ IEC60268-Short-term maximum output power
240 W (3 Ω, Front)
210 W (4 Ω, Front)
120 W (8 Ω, Front)
THD+N (Total Harmonic Distortion+Noise)
0.08% (20 Hz - 20 kHz, half power)
Input Sensitivity and Impedance
200 mV/47 kΩ (LINE, 1 kHz 100 W/8 Ω)
3.5 mV/47 kΩ (PHONO MM)
Rated RCA Output Level and Impedance
100 mV/2.3 kΩ (ZONE2 LINE OUT)
1 V/470 Ω (SUBWOOFER PRE OUT)
Phono Overload
70 mV (MM 1 kHz 0.5% Direct)
Frequency Response
10 Hz - 100 kHz/+1 dB, –3 dB (Direct mode)
Tone Control Characteristics
±10 dB, 20 Hz (BASS)
±10 dB, 20 kHz (TREBLE)
Signal to Noise Ratio
100 dB (LINE, IHF-A)
80 dB (PHONO MM, IHF-A)
Speaker Impedance
6 Ω - 16 Ω (North American and Taiwanese)
4 Ω - 16 Ω/6 Ω - 16 Ω (Others)

Video Section

Signal level
1.0 Vp-p/75 Ω (Component Y)
0.7 Vp-p/75 Ω (Component Pb/Cb, Pr/Cr)
1.0 Vp-p/75 Ω (Composite)
Maximum resolution supported by component video
480i/576i

Tuner Section

FM Tuning Frequency Range
87.5 MHz - 107.9 MHz
(North American and Taiwanese)
87.5 MHz - 108.0 MHz, RDS (Others)
AM Tuning Frequency Range
522/530 kHz - 1611/1710 kHz
Preset Channel
40

Network Section

Ethernet LAN
10BASE-T/100BASE-TX
Wireless LAN
IEEE 802.11 b/g/n standard
(Wi-Fi® standard)
2.4 GHz band:
1 - 11 ch (North American)
10 - 11 ch (Spain)
10 - 13 ch (France)
1 - 13 ch (Others)
(Wi-Fi® standard)

Bluetooth Section

Communication system
Bluetooth Specification version 2.1 +EDR (Enhanced Data Rate)
Maximum communication range
Line of sight approx. 15 m (∗)
Frequency band
2.4 GHz band
Modulation method
FHSS (Freq Hopping Spread Spectrum)
Compatible Bluetooth profiles
A2DP 1.2 (Advanced Audio Distribution Profile)
AVRCP 1.3 (Audio Video Remote Control Profile)
Supported Codecs
SBC
Transmission range (A2DP)
20 Hz - 20,000 Hz (Sampling frequency 44.1 kHz)
∗ The actual range will vary depending on factors such as obstacles between devices, magnetic fields around a microwave oven, static electricity, cordless phone, reception sensitivity, antenna's performance, operating system, software application, etc.

General

Power Supply
AC 120 V, 60 Hz (North American and Taiwanese)
AC 220 - 240 V, 50/60 Hz (Others)
Power Consumption
6.4 A (North American and Taiwanese)
630 W (Others)
0.1 W (Stand-by, North American and Taiwanese)
0.15 W (Stand-by, Others)
2.6 W (Network Standby)
70 W (No-sound)
Dimensions (W × H × D)
435 mm × 173.5 mm × 329 mm
17-1/8" × 6-13/16" × 12-15/16"
Weight
9.4 kg (20.7 lbs.) (North American and Taiwanese)
9.8 kg (21.6 lbs.) (Others)

● HDMI

Input
IN1 (BD/DVD, HDCP2.2), IN2 (CBL/SAT, HDCP2.2), IN3 (STRM BOX, HDCP2.2), IN4 (PC), IN5 (GAME), IN6, IN7, AUX INPUT HDMI (front)
Output
OUT MAIN (ARC), OUT SUB
Video Resolution
4K 60 Hz (RGB/YCbCr4:4:4/YCbCr4:2:2, 24 bit)
Audio Format
Dolby Atmos, Dolby TrueHD, Dolby Digital Plus, Dolby Digital, DTS:X, DTS-HD Master Audio, DTS-HD High Resolution Audio, DTS 96/24, DTS-ES, DTS, DTS Express, DSD, Multichannel PCM (up to 8ch)
Supported
3D, Audio Return Channel, Deep Color, x.v.Color™, LipSync, CEC, 4K, Extended Colorimetry (sYCC601, Adobe RGB, Adobe YCC601), Content Type, 3D Dual View, 21:9 Aspect Ratio Video Format

● Video Inputs

Component
IN1 (BD/DVD), IN2 (GAME)
Composite
IN1 (CBL/SAT), IN2 (STRM BOX), IN3 (PC)

● Audio Inputs

Digital
OPTICAL 1 (CD), 2 (TV)
COAXIAL (BD/DVD)
Analog
BD/DVD, CBL/SAT, STRM BOX, PC, GAME, TV, CD, PHONO

● Audio Outputs

Analog
ZONE2 LINE OUT
2 SUBWOOFER PRE OUT
Speaker Outputs
FRONT L/R, CENTER, SURROUND L/R, BACK or HEIGHT L/R, ZONE2 L/R
Phones
PHONES (Front, ø 6.3)

● Others

Setup Mic	1 (Front)
RI REMOTE CONTROL	1
USB	1 (1.1, 5 V/1 A)
Ethernet	1

Supports multi-language on-screen display
(North American) English, German, French, Spanish, Italian, Dutch, Swedish
(Taiwanese) English, German, French, Spanish, Italian, Dutch, Swedish, Chinese (∗)
(Others) English, German, French, Spanish, Italian, Dutch, Swedish, Russian, Chinese (∗)
∗ OSD is not displayed when the input selector is "NET" or "BLUETOOTH". Use the display on the main unit when operating the unit.

Specifications and features are subject to change without notice.

Table of image resolutions

Refer to the following table for information about the image formats and resolutions output by this unit in response to input signals

Input \ Output		HDMI 4K	1080p/24	1080p	1080i	720p	480p/576p	480i/576i
HDMI	4K	✔						
	1080p/24		✔					
	1080p			✔				
	1080i				✔			
	720p					✔		
	480p/576p						✔	
	480i/576i							✔
Component	1080p							
	1080i							
	720p							
	480p/576p							
	480i/576i							✔
Composite	480i/576i							✔

Resolutions supported by HDMI

Input support	Content protection technology	Display resolution	Frame rate	Color space	Color Depth	Remarks
HDMI input IN1 to IN3	HDCP1.4 HDCP2.2	720×480i	60 Hz	RGB/YCbCr4:4:4/ YCbCr4:2:2	8/10/12/16 bit	∗
		720×576i	50 Hz			
		720×480p	60 Hz			
		720×576p	50 Hz			
		1920×1080p	50/60 Hz			
		1280×720p	24/25/30/50/60 Hz			
		1680×720p	24/25/30/50/60 Hz			
		1920×1080p	24/25/30/50/60 Hz			
		2560×1080p	24/25/30 Hz			
			50/60 Hz			
		4K (3840×2160p)	24/25/30 Hz	RGB/YCbCr4:4:4/ YCbCr4:2:2	8/10/12/16 bit	∗
			50/60 Hz	RGB/YCbCr4:4:4	8 bit	
				YCbCr4:2:2	12 bit	
				YCbCr4:2:0	8/10/12/16 bit	
		4K SMPTE (4096×2160p)	24/25/30 Hz	RGB/YCbCr4:4:4/ YCbCr4:2:2	8/10/12/16 bit	∗
				RGB/YCbCr4:4:4	8 bit	
			50/60 Hz	YCbCr4:2:2	12 bit	
				YCbCr4:2:0	8/10/12/16 bit	
HDMI input IN4 to IN7 Front	HDCP1.4	720×480i	60 Hz	RGB/YCbCr4:4:4/ YCbCr4:2:2	8/10/12/16 bit	∗
		720×576i	50 Hz			
		720×480p	60 Hz			
		720×576p	50 Hz			
		1920×1080i	50/60 Hz			
		1280×720p	24/25/30/50/60 Hz			
		1680×720p	24/25/30/50/60 Hz			
		1920×1080p	24/25/30/50/60 Hz			
		2560×1080p	24/25/30 Hz			
			50/60 Hz	RGB/YCbCr4:4:4/ YCbCr4:2:2	8/10/12 bit	∗
		4K (3840×2160p)	24/25/30 Hz	RGB/YCbCr4:4:4	8 bit	
				YCbCr4:2:2	12 bit	
			50/60 Hz	YCbCr4:2:0	8 bit	
		4K SMPTE (4096×2160p)	24/25/30 Hz	RGB/YCbCr4:4:4	8 bit	
				YCbCr4:2:2	12 bit	
			50/60 Hz	YCbCr4:2:0	8 bit	

∗ With YCbCr4:2:2, Color Depth supported is 12 bit only.

Precautions

For European Models

Declaration of Conformity

We declare, under our sole responsibility, that this product complies with the standards:

- Safety
- Limits and methods of measurement of radio disturbance characteristics
- Limits for harmonic current emissions
- Limitation of voltage changes, voltage fluctuations and flicker
- RoHS Directive, 2011/65/EU

- Hereby, Onkyo Corporation, declares that this TX-NR646 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
- С настоящето, Onkyo Corporation, декларира, че TX-NR646 е в съответствие със съществените изисквания и другитеприложими разпоредби на Директива 1999/5/ЕС.
- Onkyo Corporation tímto prohlašuje, že TX-NR646 splňuje základní požadavky a všechna příslušná ustanoveni Směrnice 1999/5/ES.
- Undertegnede Onkyo Corporation erklærer herved, at følgende udstyr TX-NR646 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
- Hiermit erklärt Onkyo Corporation, dass sich das Gerät TX-NR646 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
- Käesolevaga kinnitab Onkyo Corporation seadme TX-NR646 vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
- ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Ο ΚΑΤΑΣΚΕΥΑΣΤΗΣ Onkyo Corporation ΔΗΛΩΝΕΙ ΟΤΙ TX-NR646 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ
- Por la presente, Onkyo Corporation, declara que este TX-NR646 cumple con los requisitos esenciales y otras exigencias relevantes de la Directiva 1999/5/EC.
- Par la présente, Onkyo Corporation déclare que l'appareil TX-NR646 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
- Con la presente Onkyo Corporation dichiara che questo TX-NR646 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
- Ar šo Onkyo Corporation deklarē, ka TX-NR646 atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
- Šiuo Onkyo Corporation deklaruoja, kad šis TX-NR646 atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
- A Onkyo Corporation ezzennel kijelenti, hogy a TX-NR646 típusú berendezés teljesíti az alapvető követelményeket és más 1999/5/EK irányelvben meghatározott vonatkozó rendelkezéseket.
- Hierbij verklaart Onkyo Corporation dat het toestel I TX-NR646 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
- Niniejszym Onkyo Corporation deklaruje że TX-NR646 jest zgodny z zasadniczymi wymaganiami i innymi właściwymi postanowieniami Dyrektywy 1999/5/EC.
- Eu, Onkyo Corporation, declaro que o TX-NR646 cumpre os requisitos essenciais e outras provisões relevantes da Directiva 1999/5/EC.
- Prin prezenta, Onkyo Corporation, declară că aparatul TX-NR646 este în conformitate cu cerinţele esenţiale şi cu alte prevederi pertinente ale Directivei 1999/5/CE.
- Onkyo Corporation týmto vyhlasuje, že TX-NR646 a spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
- Onkyo Corporation izjavlja, da je ta TX-NR646 v skladu z bistvenimi zahtevami in drugimi relevantnimi določili direktive 1999/5/ES.
- Onkyo Corporation vakuuttaa täten että TX-NR646 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
- Härmed förklarar Onkyo Corporation att denna TX-NR646 följer de väsentliga kraven och andra relevanta stadgar i Direktiv 1999/5/EC.
- Hér með lýsir Onkyo Corporation því yfir að varan TX-NR646 er í samræmi við grunnkröfur og aðrar kröfur sem gerðar eru í tilskipun 1999/5/EC.
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Package List

linux	uClibc	busybox
libgcc	libstdc++	libmms
compat-wireless	wpa_supplicant	dnsmasq
libiconv	bluez	dbus
iperf	faad	

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Version 2.1, February 1999

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[49]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver
[50]Harlan Stenn <harlan@pfcs.com> GNU automake/autoconfigure makeover, various other bits (see the ChangeLog)
[51]Kenneth Stone <ken@sdd.hp.com> HP-UX port
[52]Ajit Thyagarajan <ajit@ee.udel.edu>IP multicast/anycast support
[53]Tomoaki TSURUOKA <tsuruoka@nc.fukuoka-u.ac.jp>TRAK clock driver
[54]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver
[55]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and validated HTML documents according to the HTML DTD
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Supplied Accessories

Indoor FM antenna --- (1)

AM loop antenna --- (1)

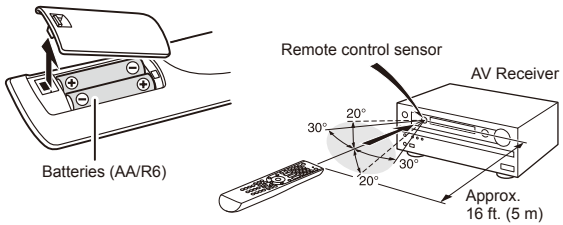
Remote controller (RC-898M) --- (1)
Batteries (AA/R6) --- (2)

Power cord (Taiwanese models) --- (1)

Speaker setup microphone --- (1)

∗ The number in parenthesis indicates the quantity. On packaging, the letter at the end of the product name indicates the color.

How to use the remote controller



∗ If you do not use the remote controller for a long time, remove the batteries to prevent leakage.
∗ Note that keeping consumed batteries inside may cause corrosion resulting in damage of the remote controller.

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The Basic Manual includes information needed when starting up and also instructions for frequently used operations. The Advanced Manual has more detailed information and advanced settings.

TX-NR646

AV RECEIVER

Advanced Manual

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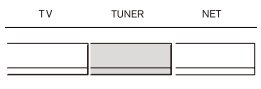
En

Details on AM/FM reception

Tuning into a Radio Station

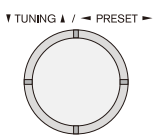
■ Tuning automatically

1. Press TUNER on the main unit several times to select either "AM" or "FM".



2. Press TUNING MODE so that the "AUTO" indicator on the display lights.

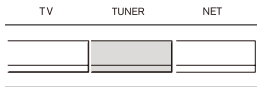
3. Press ▼TUNING▲ to start automatic tuning.
   - Searching automatically stops when a station is found. When tuned into a radio station, the "►TUNED◄" indicator on the display lights. When tuned into an FM radio station, the "FM STEREO" indicator lights.
   - No sound is output while the "►TUNED◄" indicator is off.



When the signal from an FM radio station is weak: Radio wave may be weak depending on the building structure and environmental conditions. In that case, perform the manual tuning procedure as explained in the next section, "Tuning manually", to manually select the desired station.

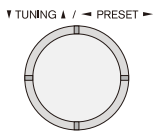
■ Tuning manually

1. Press TUNER on the main unit several times to select either "AM" or "FM".



2. Press TUNING MODE so that the "AUTO" indicator on the display goes off.

3. Press ▼TUNING▲ to select the desired radio station.
   - The frequency changes by 1 step each time you press the button. The frequency changes continuously if the button is held down and stops when the button is released. Tune by looking at the display.

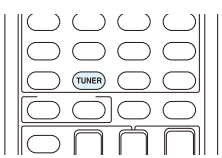


To return to automatic tuning: Press TUNING MODE on the main unit again. The unit automatically tunes into a radio station. Normally "AUTO" should be displayed.

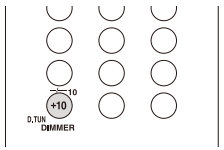
■ Tuning to the frequency directly

It allows you to directly enter the frequency of the radio station you want to listen to.

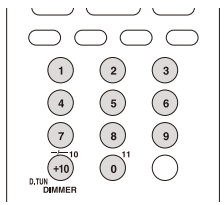
1. Press TUNER on the remote controller several times to select either "AM" or "FM".



2. Press D.TUN.



3. Using the number buttons, enter the frequency of the radio station within 8 seconds.
   - To enter 87.5 (FM), for example, press 8, 7, 5, or 8, 7, 5, 0. If you entered the wrong number, press D.TUN and enter the correct one.

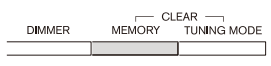


Presetting an AM/FM Radio Station

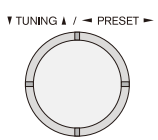
It allows you to register up to 40 of your favorite AM/FM radio stations. Registering radio stations in advance allows you to tune into your radio station of choice directly.

■ Registration Procedure

1. Tune into the AM/FM radio station you want to register.
2. Press MEMORY on the unit so that the preset number on the display flashes.



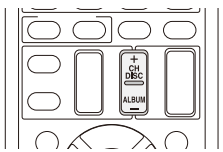
3. Press ◄PRESET► several times to select a number between 1 and 40 while the preset number is flashing (about 8 seconds).



4. Press MEMORY again to register the station.
   - When the station is registered, the preset number stops flashing.
   - Repeat this procedure for all of your favorite AM/FM radio stations.

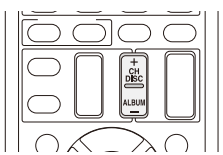
■ Selecting a Preset Radio Station

1. Press CH +/- on the remote controller to select a preset number.
   - Alternatively you can press ◄PRESET► on the main unit. You can also select by directly entering the preset number with the number buttons on the remote controller.

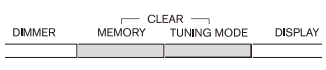


■ Deleting a Preset Radio Station

1. Press CH +/- on the remote controller to select the preset number to delete.



2. Press and hold MEMORY on the main unit and press TUNING MODE to delete the preset number.
   - When deleted, the number on the display goes off.



Using RDS (European, Australian and Asian models)

RDS stands for Radio Data System and is a method of transmitting data in FM radio signals.

- RDS works only in areas where RDS broadcasts are available.
- In some cases, the text information appeared on the display is not identical to the content transmitted by the RDS station. Furthermore, unexpected characters may be displayed when the unit receives unsupported characters. However, this is not a malfunction.
- If the signal from an RDS station is weak, the RDS data may be displayed continuously or not at all.

PS (Program Service): Tuning into a radio station distributing Program Service information displays the radio station name. Pressing DISPLAY displays the frequency for 3 seconds.

RT (Radio Text): Tuning into a radio station transmitting Radio Text information displays text on the display of the unit.

PTY (Program Type): Allows you to search for RDS stations by program type.

TP (Traffic Program): Allows you to search for radio stations transmitting traffic information.

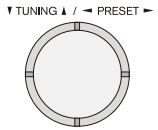
■ Displaying Radio Text (RT)

1. Press RT/PTY/TP on the main unit once.
   - The Radio Text (RT) is displayed scrolling across the display. "No Text Data" is displayed when no text information is available.

■ Searching by Type (PTY)

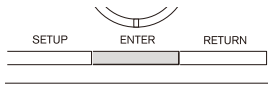
1. Press RT/PTY/TP on the main unit twice.
   - The current program type appears on the display.

2. Press ◄PRESET► to select the type of program to search for.



- The following RDS station types are displayed:
  None
  News (News reports)
  Affairs (Current affairs)
  Info (Information)
  Sport
  Educate (Education)
  Drama
  Culture
  Science (Science and technology)
  Varied
  Pop M (Pop music)
  Rock M (Rock music)
  Easy M (Middle of the road music)
  Light M (Light classics)
  Classics (Serious classics)
  Other M (Other music)
  Weather
  Finance
  Children (Children's programmes)
  Social (Social affairs)
  Religion
  Phone In
  Travel
  Leisure
  Jazz (Jazz music)
  Country (Country music)
  Nation M (National music)
  Oldies (Oldies music)
  Folk M (Folk music)
  Document (Documentary)

3. Press ENTER to search the radio stations of the selected type.

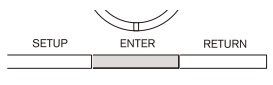


4. When such a radio station is found, the indication on the display flashes. Then, press ENTER again.
   - If no stations are found, the message "Not Found" is displayed.

■ Listening to Traffic Information (TP)

1. Press RT/PTY/TP on the main unit three times.
   - "[TP]" will be displayed if traffic information is transmitted by the radio station you are tuned in. "TP" only is displayed if no traffic information is available.

2. Press ENTER to search a radio station distributing traffic information.

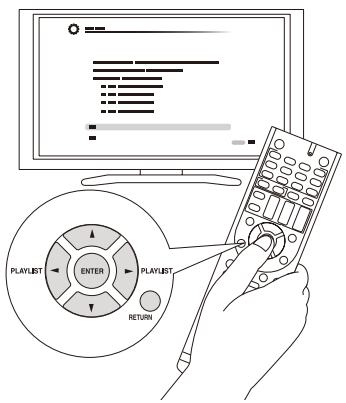


3. When a radio station is found, searching stops and traffic information is received.
   - "Not Found" is displayed if no radio station distributing traffic information is found.

Playing Music Files on a USB Storage Device

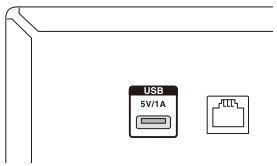
● **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.

- (European, Australian, Taiwanese and Asian models) If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).

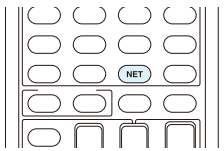


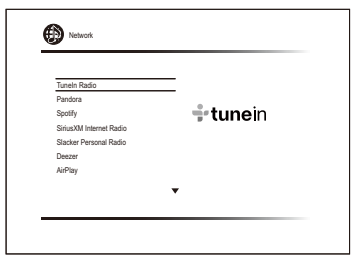
■ Playing Back

1. Plug your USB storage device with the music files into the USB port on the rear of the unit.

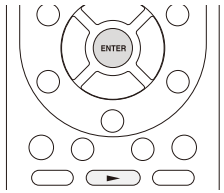


2. Press NET on the remote controller to display the NET TOP screen.





3. Select "USB" with the cursors and press ENTER.
   - If the "USB" indicator on the display flashes, check whether the USB storage device is plugged in properly.
   - Do not unplug the USB storage device while "Connecting..." is on the display. This may cause data corruption or malfunction.
4. Press ENTER again in the next screen. The list of folders and music files on the USB storage device are displayed. Select the folder with the cursors and press ENTER to confirm your selection.
5. With the cursors, select the music file to play, and then press ENTER or ► to start playback.



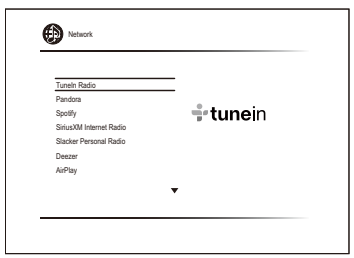
- The USB port of this unit conforms with the USB 1.1 standard. The transfer speed may be insufficient for some content you play, which may cause some interruption in sound.

Listening to Internet Radio

About Internet Radio

The unit comes preset with Internet radio stations such as TuneIn Radio for you to enjoy these services, just by connecting the unit to the Internet.

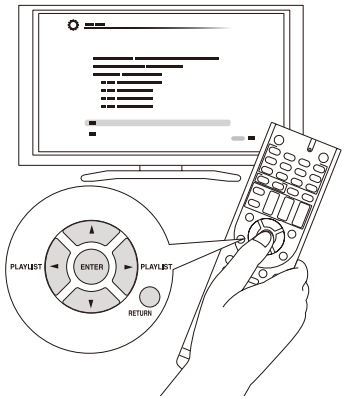
- Network services or contents may become unavailable if the service provider terminates its service.



TuneIn Radio

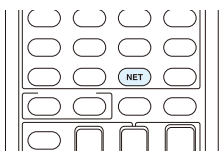
With more than 70,000 radio stations and 2 million on-demand programs registered, TuneIn Radio is a service where you can enjoy music, sports and news from all over the world.

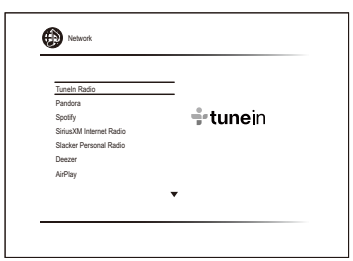
- **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.
  - (European, Australian, Taiwanese and Asian models) If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).



■ Playing Back

1. Press NET on the remote controller to display the NET TOP screen.





2. Select "TuneIn Radio" with the cursors and press ENTER to display the TuneIn Radio top screen.
3. With the cursors, select a radio station or program and press ENTER to start playing.

■ Regarding the TuneIn Radio Menu

To display the TuneIn menu, press MENU or ENTER while playing a radio station. Selecting the corresponding menu item with the cursors and pressing ENTER allows you to perform the following operations:

Add to My Presets: Registers the radio station or program being broadcast in "My Presets". Once registered, "My Presets" is displayed in the level under TuneIn Radio. To play, select the program from "My Presets".

Remove from My Presets: Deletes a radio station or program from your "My Presets" within TuneIn Radio.

Report a problem: Reports a problem or interactively solves a problem related to TuneIn Radio.

View Schedule: Displays the radio station or program schedule.

Clear recents: Clears all radio stations and programs from the "Recents" within TuneIn Radio. (This menu is displayed only when a radio station or program inside the "Recents" is being played.)

Add to My Favorites: Registers the radio station or program being broadcast in "My Favorites". "My Favorites" are displayed in the level under the one displayed when you press NET. To play, select the program from "My Favorites".

■ Regarding the TuneIn Radio Account

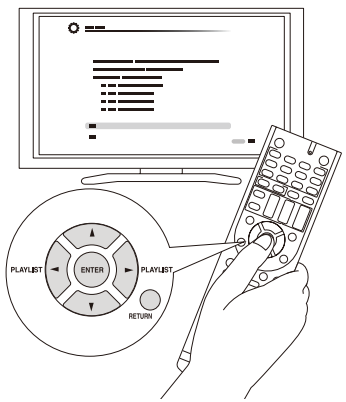
Creating an account on the TuneIn Radio website (tunein.com) and logging in it from the unit allows you to automatically add radio stations and programs to your "My Presets" on the unit as you save them on the website. "My Presets" are displayed in the level under TuneIn Radio. To display a radio station registered in "My Presets", you must log into TuneIn Radio from the unit. To log in, select "Login" - "I have a TuneIn account" in the "TuneIn Radio" top list on the unit, and then enter your user name and password.

- If you associate the device on My Page within the TuneIn Radio website using the registration code obtained by selecting "Login" - "Login with a registration code" on the unit, you can log in without entering the user name and password.

Pandora®–Getting Started (U.S., Australia and New Zealand only)

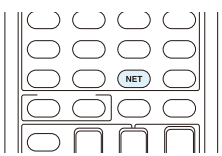
Pandora is a free, personalized Internet radio service that plays the music you know and helps you discover music you'll love.

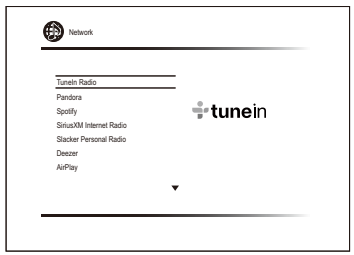
- **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.
- (European, Australian, Taiwanese and Asian models) If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).



■ Playing Back

1. Press NET on the remote controller to display NET TOP screen.





2. With the cursors on the remote controller, select "Pandora", and then press ENTER.
3. Use ▲/▼ to select "I have a Pandora Account" or "I'm new to Pandora" and then press ENTER.
   If you are new to Pandora select "I'm new to Pandora". You will see an activation code on your TV screen. Please write down this code. Go to an Internet connected computer and point your browser to www.pandora.com/onkyo. Enter your activation code and then follow the instructions to create your Pandora account and your personalized Pandora stations. You can create your stations by entering your favorite tracks and artists when prompted. After you have created your account and stations you can return to your Onkyo receiver and press ENTER to begin listening to your personalized Pandora.
   If you have an existing Pandora account, you can add your Pandora account to your Onkyo receiver by selecting "I have a Pandora Account" and logging in with your email and password.
   - If you want to use multiple user accounts, see "Using Multiple Accounts". Login can be made from the "Users" screen.
4. To play a station, use ▲/▼ to select the station from your station list, and then press ENTER. Playback starts and the playback screen appears.

■ Create a New Station

Enter the name of a track, artist, or genre and Pandora will create a unique radio station for you based on the musical qualities of that track, artist, or genre.

I like this track: Give a track "thumbs-up" and Pandora will play more music like it.

I don't like this track: Give a track "thumbs-down" and Pandora will ban that track from the current station.

Why is this track playing?: Discover some of the musical attributes that Pandora uses to create your personal radio stations.

I'm tired of this track: If you are tired of a track, you can put the track to sleep and Pandora will not play it for one month.

Create station from this artist: Creates a radio station from this artist.

Create station from this track: Creates a radio station from this track.

Delete this station: This will permanently delete a station from your Pandora account. All of your thumbs feedback will be lost should you choose to re-create the station with the same track or artist.

Rename this station: Lets you rename the current radio station.

Bookmark this artist: Pandora will bookmark your favorite artist for your profile on www.pandora.com.

Bookmark this track: Pandora will bookmark the current track and allow you to buy them all from Amazon or iTunes in one step!

Add to My Favorites: Adds a station to My Favorites list.

PANDORA

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Spotify

This unit is compatible with Spotify Connect. To enable Spotify Connect, install the Spotify application on your smartphone or tablet and create a Spotify premium account.

- Refer to the following for the procedures for configuring Spotify:
  www.spotify.com/connect/
- The Spotify software is subject to third party licenses found here:
  www.spotify.com/connect/third-party-licenses

■ Playing Back

Just by clicking the Connect icon in the playback screen of the Spotify application and selecting this unit, you can automatically turn this unit on (auto power on function), switch input to the NET position, and start playback of high-quality streaming from Spotify. To enable the auto power on function, make sure the "Network Standby" setting item in this unit's Setup is "On".

■ Notes for using the multi-zone function

- To enjoy Spotify music in a separate room, select zone 2, and manually select "NET" as the input of the separate room. Also select this unit in the Spotify application.
- Volume adjustment with the Spotify application is possible only for the equipment connected to the ZONE2 speaker terminals. If any other terminal is used for connection, adjust the volume on the audio equipment placed in a separate room.
- To enjoy Spotify music in the main room after playing it in a separate room, select "NET" as the input of the main room.

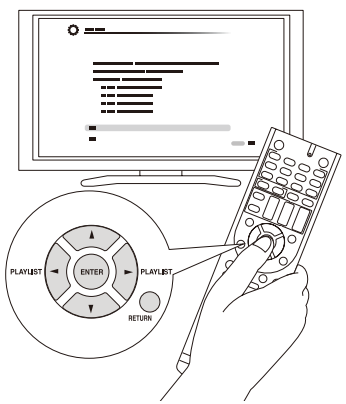
Spotify

Spotify

SiriusXM Internet Radio (North American only)

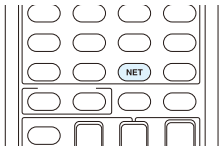
If you want to listen to the service, you must subscribe. To subscribe go to www.siriusxm.com/internetradio with your computer. When you subscribe, you will be provided with a username and password which has to be entered into the AV receiver. To use SiriusXM Internet Radio, you must have your AV receiver connected to the Internet. Using the remote control, follow these steps:

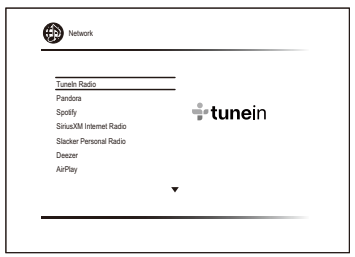
- **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.
- (European, Australian, Taiwanese and Asian models) If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).



■ Playing Back

1. Press NET on the remote controller to display NET TOP screen.





2. With the cursors on the remote controller, select "SiriusXM Internet Radio", and then press ENTER.
3. Select "Sign In", and then press ENTER. If you have an existing SIRIUS account, you can sign in by selecting "Sign In". Enter your user name and password in the next keyboard screen, or in Web Setup. If you do not know your username or password, call Sirius XM at (888) 539-7474 for assistance.
   - If you want to use multiple user accounts, see "Using Multiple Accounts". Login can be made from the "Users" screen.

   Using the keyboard screen
   ① Use ▲/▼/◄/► and ENTER to enter your user name and password.
   ② Select "OK".
   ③ Press ENTER. The "Confirm your entries" screen appears.
   ④ Press ENTER. "Please wait..." appears and then "SiriusXM Internet Radio" screen appears which displays the category available for selection.
4. Use ▲/▼ to select the category and then press ENTER. The channel list screen for the selected category appears.
5. Use ▲/▼ to select the desired channel and then press ENTER.
   The playback screen for the selected channel appears and you can listen to SiriusXM Internet Radio. You can control the tracks with the buttons on the remote control. Enabled buttons: ►, ■, ⏮, ⏭

   Add to My Favorites: Adds a channel to My Favorites list.

   Add to Presets: Adds the currently playing station to presets list.

   Delete from Presets: Deletes the currently playing station from presets list.

SiriusXM

SiriusXM Internet Radio subscriptions are sold separately and are governed by the Sirius Terms and Conditions (see www.sirius.com). Be sure to read this agreement before you purchase your subscription.
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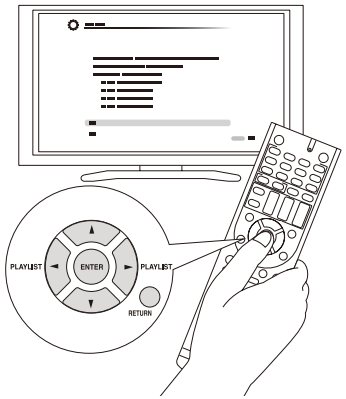
Slacker Personal Radio (North American only)

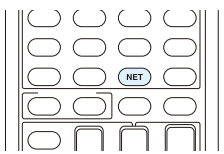
● **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.

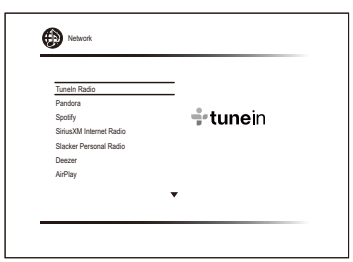
● (European, Australian, Taiwanese and Asian models)
If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).



■ Playing Back

1. Press NET on the remote controller to display NET TOP screen.





2. With the cursors on the remote controller, select "Slacker Personal Radio", and then press ENTER.
3. If you do not have an account, create one on the Slacker website (www.slacker.com) with your computer. If you already have a Slacker account, select "Sign in to your account" and then press ENTER. The keyboard screen appears. You can enter information from the remote control or the keys on the main unit.

4. If there are no mistakes in the information you have entered, use ▲/▼/◄/► to select "OK" then press ENTER. An account information confirmation screen appears.
5. If you do not have an account, select "Access without Sign In" and press ENTER to use a restricted version of the service. Note that use will be restricted.
   - If you want to use multiple user accounts, see "Using Multiple Accounts". Login can be made from the "Users" screen.
6. Use ▲/▼ to select a menu item and then press ENTER. To sign out, use ▲/▼ to select "Sign out" from this screen and then press ENTER.
7. Use ▲/▼ to select a station and then press ENTER or ► to start playback from the station. The playback screen appears.
8. You can control the tracks with the buttons on the remote control.
   Enabled buttons: ►, ❚❚, ■, ►►❙

   Rate Song as Favorite: Stores information to server, making it more likely that the song will be played again.

   Ban Song: Stores information to server, making it less likely that the song will be played again.

   Ban Artist: Stores information to server, making it less likely that the songs from this artist will be played again.

   Mark Favorite: Adds the currently playing station to your favorites.

   Unmark Favorite: Deletes the currently playing station from your favorites.

   Add song to Library: Adds the currently playing track to your library.

   Delete song from Library: Deletes the currently playing track from your library.

   Add to My Favorites: Adds a station or song to My Favorites list.

Using Multiple Accounts: The AV receiver supports multiple user accounts, which means you can freely switch between several logins. After registering user accounts, login is performed from the "Users" screen.
Press MENU while the Users screen is displayed. "Add new user", "Remove this user" menu appear. You can either store a new user account, or delete an existing one.

- Some of the services do not allow the use of multiple user accounts.
- You can store up to 10 user accounts.
- To switch between accounts you must first log out from the current account, and log in again on the "Users" screen.

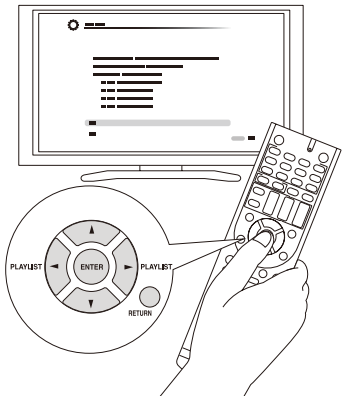
Registering Other Internet Radios

To listen to other Internet radio program, register the program in the "My Favorites" list as described in the next section. "My Favorites" are displayed in the level under the one displayed when you press NET.

- You can register up to 40 Internet radio stations.
- The unit supports Internet radio stations stored in the following formats: PLS (URL ending in .pls), M3U (URL ending in .m3u) and RSS (URL ending in rss/rdf/xml). Depending on the data type and playback format, there may be some you cannot play.
- Available services may vary depending on your area of residence.

● **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.

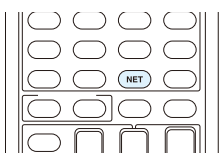
- (European, Australian, Taiwanese and Asian models) If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (✳).

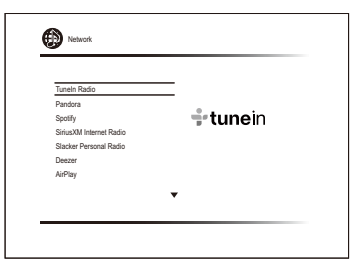


■ Registration Procedure

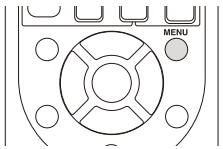
Before Performing any Operation: The name and URL of the radio station that you want to add are required for registration. Check the specifications before use.

1. Press NET on the remote controller to display the NET TOP screen.





2. Select "My Favorites" with the cursors and press ENTER to display the "My Favorites" list screen.
3. With the cursors, select a blank area of "My Favorites" and press MENU to display the menu screen.

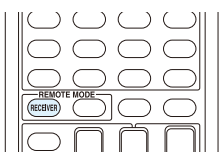


4. Select "Create new station" with the cursors and press ENTER to display the keyboard screen.
5. Enter the name and URL of the radio station to add.
   - Select "A/a" and press ENTER to toggle between upper and lower case. Select "←" or "→" and press ENTER to move the cursor to the selected direction. Select "⌫" and press ENTER to delete one character to the left of the cursor position.

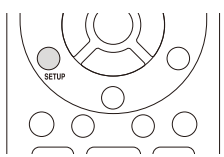
■ Registering a Station with PC

Before Performing any Operation: The name and URL of the radio station that you want to add are required for registration. Check the specifications before use. Also, Make sure this unit and a computer are connected to the same router.

1. Press RECEIVER on the remote controller.
   - Always press RECEIVER first to change the remote controller to Receiver mode (the mode to operate this unit) since its mode may be changed to operate another component.



2. Press SETUP to display the SETUP menu.

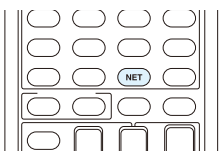


3. With the cursors, select "6. Hardware" - "Network" -"IP Address" to display the IP address.
   - Take note of the IP address since you will need it later.
4. Open the Internet browser on your PC or smartphone and enter the IP address of the unit in the URL field.
   - When using Internet Explorer, you can alternatively select "Open" in the "File" menu to enter the IP address.
   - Information of the unit is displayed on the browser. ("WEB Setup")
5. Click "My Favorites" tab, then enter the name and URL of the Internet radio station.
6. Click "Save" to register the entered Internet radio station in "My Favorites".

To rename the registered radio station: Select the radio station in the "My Favorites" list and press MENU to display the menu screen. Select "Rename this station" with the cursors and press ENTER to display the keyboard screen. Rename the station as desired.
- Radio stations can be renamed also from "WEB Setup".

■ Playing a Registered Radio Station

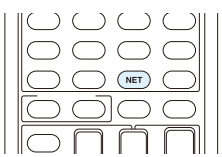
1. Press NET on the remote controller to display the NET TOP screen.



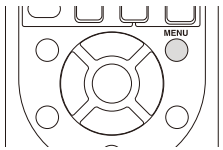
2. Select "My Favorites" with the cursors and press ENTER to display the registered Internet radio stations.
3. With the cursors, select a radio station and press ENTER to start playing.

■ Deleting a Registered Radio Station

1. Press NET on the remote controller to display the NET TOP screen.



2. Select "My Favorites" with the cursors and press ENTER to display the registered Internet radio stations.
3. With the cursors, select the radio station to delete and press MENU to display the menu screen.

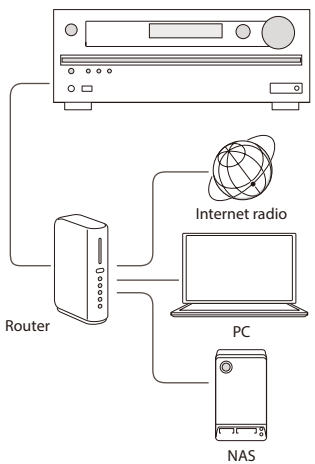


4. With the cursors, select "Delete from My Favorites", and then press ENTER. A confirmation screen will appear.
5. With the cursors, select "OK", and then press ENTER to delete the radio station.
   - Select "Back" to return to the previous screen.
   - Radio stations can be deleted also from "WEB Setup".

Playing Music with DLNA

About DLNA

Digital Living Network Alliance (DLNA) can be referred to as a technology standard or the industry group to develop the technology standard to interconnect and use AV components, computers and other devices in a home network. This unit allows you to use DLNA to play music files stored on a computer or a hard disk connected to your home network (NAS device). Make sure this unit and a computer or NAS device are connected to the same router.



- To stream a music file, you need a NAS device with DLNA server functions or a PC where a player (e.g., Windows Media® Player 11 or Windows Media Player 12) with DLNA server functions is installed. To enable streaming with Windows Media® Player 11 or Windows Media Player 12, you must first configure the settings.

Configuring the Windows Media® Player

■ Windows Media® Player 11

1. Turn on your PC and start Windows Media® Player 11.
2. In the "Library" menu, select "Media Sharing" to display a dialog box.
3. Select the "Share my media" check box, and then click "OK" to display the compatible devices.
4. Select this unit, and then click "Allow".
   - When it is clicked, the corresponding icon is checked.
5. Click "OK" to close the dialog.

- Depending on the version of Windows Media® Player, the names of the items you need to select may differ from the explanation here.

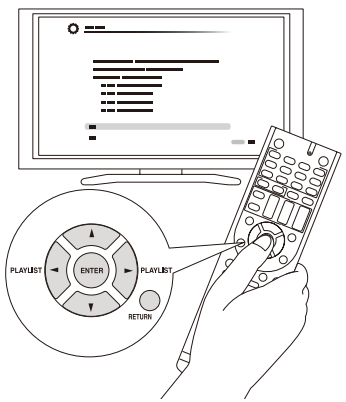
■ Windows Media® Player 12

1. Turn on your PC and start Windows Media® Player 12.
2. In the "Stream" menu, select "Turn on media streaming" to display a dialog box.
   - If media streaming is already turned on, select "More streaming options..." in the "Stream" menu to list players in the network, and then go to step 4.
3. Click "Turn on media streaming" to list players in the network.
4. Select this unit in "Media streaming options" and check that it is set to "Allow".
5. Click "OK" to close the dialog.

- Depending on the version of Windows Media® Player, the names of the items you need to select may differ from the explanation here.

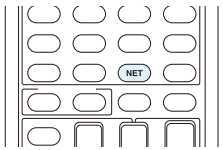
DLNA Playback

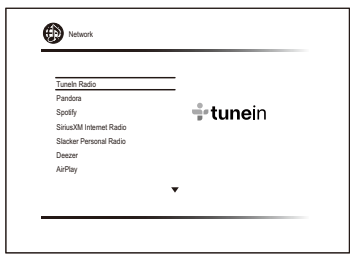
- **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.
- (European, Australian, Taiwanese and Asian models) If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).



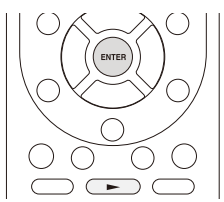
■ Playing Back

1. Start the server (Windows Media® Player 11, Windows Media® Player 12, or NAS device) containing the music files to play.
2. Press NET on the remote controller to display the NET TOP screen.
   - If the "NET" indicator on the display flashes, the unit is not properly connected to the network. Check the connection.





3. Select "DLNA" with the cursors and press ENTER.
4. Select the target server with the cursors and press ENTER to display the items list screen.
   - Searching does not work in servers that do not support search functions.
   - The unit cannot access pictures and videos stored on servers.
   - Contents stored on the server may not be displayed depending on the server sharing settings.
5. With the cursors, select the music file to play, and then press ENTER or ► to start playback.
   - If "No Item" is displayed, check whether the network is properly connected.



Controlling Remote Playback from a PC

You can use this unit to play music files stored on your PC by operating the PC inside your home network. The unit supports remote playback with Windows Media® Player 12. To use the remote playback function with Windows Media® Player 12, Windows Media Player 12 must be configured in advance.

- Using a DLNA-compatible controller (such as an Android application), you can select a music file stored on Windows Media® Player 12 and stream to this unit by operating the controller. For information on how to remotely play using the controller, refer to the controller's instruction manual.

■ Setting PC

1. Turn on your PC and start Windows Media® Player 12.
2. In the "Stream" menu, select "Turn on media streaming" to display a dialog box.
   - If media streaming is already turned on, select "More streaming options..." in the "Stream" menu to list players in the network, and then go to step 4.
3. Click "Turn on media streaming" to list players in the network.
4. Select this unit in "Media streaming options" and check that it is set to "Allow".
5. Click "OK" to close the dialog box.
6. Open the "Stream" menu and check that "Allow remote control of my Player..." is checked.

- Depending on the version of Windows Media® Player, the names of the items you need to select may differ from the explanation here.

■ Remote playback

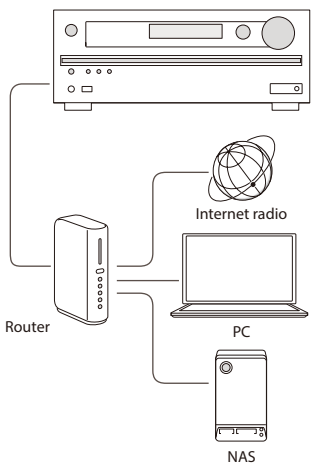
1. Turn on the power of the unit.
2. Turn on your PC and start Windows Media® Player 12.
3. Select and right-click the music file to play with Windows Media® Player 12.
   - To remotely play a music file on another server, open the target server from "Other Libraries" and select the music file to play.
4. Select this unit in "Play to" to open the "Play to" window of Windows Media® Player 12 and start playback on the unit.
   - Operations during remote playback are possible from the "Play to" window on the PC. The playback screen is displayed on the TV connected to the HDMI output of the unit. If your PC is running on Windows 8®, click "Play to", and then select this unit.
5. Adjust the volume using the volume bar on the "Play to" window.
   - Sometimes, the volume displayed on the remote playback window may differ from that appeared on the display of the unit.
   - When the volume is adjusted from the unit, the value is not reflected in the "Play to" window.
   - This unit cannot play music files remotely in the following conditions.
     - It is using a network service.
     - It is playing a music file on a USB storage device.

- Depending on the version of Windows Media® Player, the names of the items you need to select may differ from the explanation here.

Playing Music Files in a Shared Folder

About Shared Folder

A shared folder is configured in a network device such as a PC or NAS (hard disk connected to your home network) for access from other users.
You can play music files in a shared folder on your PC or NAS connected to the same home network as that of the unit. To play music files in a shared folder, you must first configure Windows® 8 or Windows® 7, Make sure the unit and PC or NAS device are connected to the same router.



- The sharing options must be configured and a shared folder created on the PC in advance.
- For information on how to configure the NAS device and create a shared folder, refer to the NAS device's instruction manual.

Setting PC

■ Configuring the Sharing Options

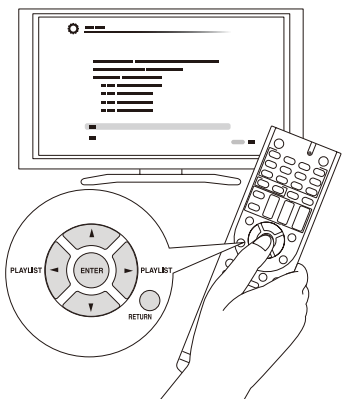
1. Select "Choose home group and sharing options" on the "Control Panel".
   - If the menu is not displayed, check whether "View by" is set to "Category".
2. Select "Change advanced sharing settings".
3. Check whether the following radio buttons are selected in "Home or Work":
   "Enable network discovery"
   "Turn on file and printer sharing"
   "Turn on sharing so anyone with network access can read and write files in the Public folders."
   "Turn off password protected sharing"
4. Select "Save Changes" and click "OK" on the dialog box.

■ Creating a Shared Folder

1. Select and right-click the folder to share.
2. Select "Properties".
3. Select "Advanced Sharing" on the "Sharing" tab.
4. Select the "Share this folder" check box and click "OK".
5. Select "Share" for "Network File and Folder Sharing".
6. Select "Everyone" from the pull-down menu. Click "Add", and then "Share".
   - To set user name and password to a shared folder, set "Permissions" in "Advanced Sharing" on the "Sharing" tab.
   - Check whether a workgroup is set.

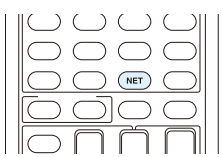
Playing from a Shared Folder

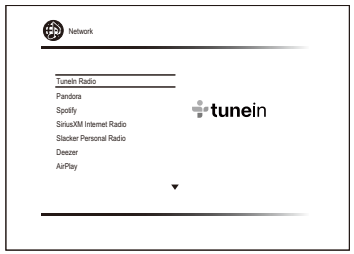
- **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.
- (European, Australian, Taiwanese and Asian models)
  If the OSD language is set to Chinese, the operations in this section are not displayed on the TV. Operate by looking at the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).



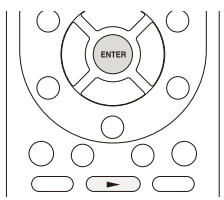
■ Playing Back

1. Press NET on the remote controller to display the NET TOP screen.
   - If the "NET" indicator on the display flashes, the unit is not properly connected to the network. Check the connection.





2. With the cursors, select "Home Media", and then press ENTER.
3. With the cursors, select the target server, and then press ENTER.
   - You can check the server name of your PC from the PC properties.
4. With the cursors, select the target shared folder, and then press ENTER.
5. If a username and password is required, enter the necessary login information.
   - The login information is the account information set at the time of creating the shared folder.
   - Once entered, the login information will be remembered from the next time onward.
6. With the cursors, select the music file to play, and then press ENTER or ► to start playback.



Operating Music Files with the Remote Controller

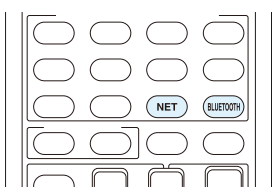
About the Remote Controller

The remote controller of this unit allows you to play music files stored on USB storage devices, Internet radio, PCs and NAS devices on your home network, as well as on Bluetooth-enabled devices. It also allows you to view information of the music file being played and perform various other operations.

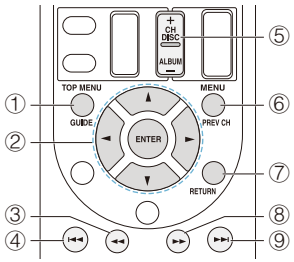
- Available buttons may vary depending on the service and device to play.
- Some buttons cannot be used with Bluetooth-enabled devices. Furthermore, the Bluetooth-enabled devices must support the AVRCP profile. Some devices may not be operated, even when they support AVRCP profile.

Remote Controller Buttons

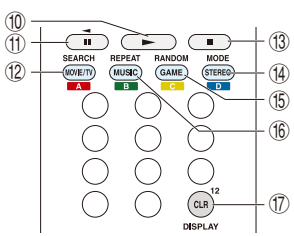
1. Press INPUT SELECTOR (NET, or BLUETOOTH) appropriate for the input source on the remote controller.



2. Operate the remote controller by referring to the name and function of each of the buttons.



① **TOP MENU**: This button displays the top menu for each media or server.
② **▲/▼, ENTER**: These buttons navigate through items and activate the selected item.
◄/►: These buttons allow you to navigate to other pages when the list continues on other pages.
③ ◄◄: This button fast-reverses the current track. This button is not operable from 10 seconds before the playback ends.
④ ⏮: This button plays the current track from the beginning. Pressing this button twice plays the previous track.
⑤ **+/– button**: Moves the cursor up or down on the Internet radio stations list in "My Favorites".
⑥ **MENU**: This button displays the menu of each Internet radio service.
⑦ **RETURN**: This button returns to the previous screen.
⑧ ►►: This button fast-forwards the current track. This button is not operable from 10 seconds before the playback ends.
⑨ ⏭: This button plays the next track.



⑩ ►: This button starts the playback.
⑪ ❚❚: This button pauses the playback.
⑫ **SEARCH**: This button toggles between the playback screen and list screen during playback.
⑬ ■: This button stops the playback.
⑭ **MODE**: This button displays the video from the input selected in "Video Select". Each press of the button displays or turns off the video. You can change the display position of the OSD by pressing ENTER while the video is displayed on the screen.
- These buttons are disabled when the OSD language is set to Chinese. (European, Australian, Taiwanese and Asian models)

⑮ **RANDOM**: This button performs random playback.
⑯ **REPEAT**: This button replays the track(or tracks). Pressing this button repeatedly cycles through the repeat modes.
⑰ **DISPLAY**: This button changes the displayed track information during playback. Pressing this button when the list screen is displayed toggles the screen to playback.
- Bluetooth-enabled devices: Usable buttons are ►, ⏮, ◄◄, ❚❚, ►►, ⏭, and ■.

Icons Displayed during Playback

Icons are displayed on the display during music file playback. The meaning of each icon is as follows:

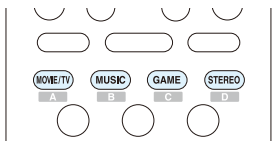
: Folder
: Track
: Play
: Pause
: Fast-forward
: Fast-reverse
: Artist
: Album
: Repeat one track
: Repeat within a folder
: Repeat
: Shuffle

Using the Listening Modes

Selecting Listening Mode

The listening modes allow you to select the best sound effect for your input source.

1. After pressing RECEIVER on the remote controller, press one of the following four buttons.



2. Press the selected button repeatedly to switch the modes displayed on the display of the unit.
   - Set the listening mode of your choice by listening to the actual sound.

Dolby D

For details on the listening modes see "Listening Mode Types". For listening modes selectable with each button, refer to "Selectable Listening Modes".

Listening Mode Types

The unit allows you to enjoy audio in a variety of listening modes. This section lists the types of listening modes available on the unit and describes their functions.

■ Future listening mode update

A future firmware update is planned to enable the unit to support playback in DTS:X audio format. For this reason, the available listening modes will vary depending on the firmware version.

Versions before the release of an update with support for the DTS:X audio format
- Neo:6 Cinema and Neo:6 Music are available.

Versions that support the DTS:X audio format
- DTS:X and DTS Neural:X are available. (Neo:6 Cinema and Neo:6 Music become unavailable after the update.)

In alphabetical order

■ AllCh Stereo

Ideal for background music, this mode fills the entire listening area with stereo sound.

■ Direct

In this mode, audio from the input source is output as-is. For example, if a 2 ch source from a music CD is input, the output will be stereo, or if Dolby Digital signal is input, the sound field will be controlled in accordance with the number of channels present.

■ Dolby Atmos

Introduced first in the cinema, Dolby Atmos brings a revolutionary sense of dimension and immersion to the Home Theater experience. Dolby Atmos is an adaptable and scalable object based format that reproduces audio as independent sounds (or objects) that can be accurately positioned and move dynamically throughout the 3 dimensional listening space during playback. A key ingredient of Dolby Atmos is the introduction of a height plane of sound above the listener.

■ Dolby D (Dolby Digital)

Mode suitable for playing sources recorded in Dolby Digital.
- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ Dolby D+ (Dolby Digital Plus)

Mode suitable for playing sources recorded in Dolby Digital Plus.
- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ Dolby Surround

Dolby surround is a next generation surround technology that intelligently up mixes stereo; 5.1 and 7.1 content for playback through your surround speaker system. Dolby surround is compatible with traditional speaker layouts, as well as Dolby Atmos enabled playback systems that employ inceiling speakers or products with Dolby speaker technology.

■ Dolby TrueHD

Mode suitable for playing sources recorded in Dolby TrueHD.
- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ DSD

Mode suitable for playing sources recorded in DSD.
- This unit supports DSD signals input through HDMI IN. However, depending on the connected player, better sound is possible when output from the PCM output of the player.
- This listening mode can be selected only if your Blu-ray Disc/DVD player's output setting is DSD.

■ DTS

Mode suitable for playing sources recorded in DTS.
- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ DTS 96/24

Mode suitable for playing sources recorded in DTS 96/24. With 96 kHz sampling rate and 24-bit resolution, it provides superior fidelity.

- Depending on the settings, this listening mode becomes DTS.
- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ DTS Express

Mode suitable for playing sources recorded in DTS Express.

- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ DTS-HD HR (DTS-HD High Resolution Audio)

Mode suitable for playing sources recorded in DTS-HD High Resolution Audio.

- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ DTS-HD MSTR (DTS-HD Master Audio)

Mode suitable for playing sources recorded in DTS-HD Master Audio

- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.

■ DTS Neo:6

This mode expands any 2 ch source for 5.1 ch multichannel surround playback. It offers full-bandwidth on all channels, with great independence between the channels. There are two variants for this mode: one ideal for movies and another ideal for music.

- **Neo:6 Cinema**: Use this mode with any 2 ch movie.
- **Neo:6 Music**: Use this mode with any 2 ch music source.

■ DTS Neural:X

Neural:X enables upmixing of legacy content such as mono, stereo, 5.1 or 7.1ch to many higher speaker count including the layout using elevated channels set for DTS:X playback.

■ DTS:X

This mode is for use with DTS sources. DTS:X is DTS's next-generation object-based surround sound technology that includes height to deliver a fully-immersive listening experience to your living room.

■ ES Discrete (DTS-ES Discrete)

This mode is for use with DTS-ES Discrete sources and enables 6.1 ch or 7.1 ch playback using back channel. Completely discrete seven channels will improve spatial imaging and enable 360-degree sound localization producing a sound crossing between the surround channels.

- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.
- Use on the DVD with DTS ES logo, particularly on the software containing DTS-ES Matrix soundtrack.

■ ES Matrix (DTS-ES Matrix)

This mode is for use with DTS-ES Matrix soundtrack and enables 6.1 ch or 7.1 ch playback using matrix-encoded back channel.

- This listening mode can be selected only if your Blu-ray Disc/DVD player is digitally connected to the unit or the player's output setting is bitstream.
- Use on the CD, DVD or LD with DTS ES logo, particularly on the software containing DTS-ES Matrix soundtrack.

■ Full Mono

In this mode, all speakers output the same sound in mono, so the sound you hear is the same regardless of where you are within the listening room.

■ Game-Action

In this mode, sound localization is distinct with emphasis on bass.

■ Game-Rock

In this mode, sound pressure is emphasized to heighten live feel.

■ Game-RPG

In this mode, the sound has a dramatic feel with a similar atmosphere to Orchestra mode.

■ Game-Sports

Suitable for audio source with much reverberation.

■ Mono

Use this mode when watching an old movie with a mono soundtrack, or use it to separately reproduce soundtracks in two different languages recorded in the left and right channels of some movies. It is also suitable for DVDs or other sources containing multiplexed audio.

■ Multich (Multichannel)

Mode suitable for playing sources recorded in PCM multichannel.

■ Orchestra

Suitable for classical or operatic music. This mode emphasizes the surround channels in order to widen the stereo image, and simulates the natural reverberation of a large hall.

■ Pure Audio (European, Australian and Asian models)

This mode reproduces the original sound accurately. Since the audio from the input source is output without surround sound processing and the display and video circuitry are turned off, possible noise sources are minimized for a realistic audio reproduction.

- This mode cannot be selected when Zone 2 is active. Activating Zone 2 when this mode is selected automatically switches to the Direct listening mode.

■ Stereo

In this mode, sound is output from the front left and right speakers and subwoofer.

■ Studio-Mix

Suitable for rock or pop music, Listening to music in this mode creates a lively sound field with a powerful acoustic image, like being at a club or rock concert.

■ T-D (Theater-Dimensional)

In this mode, you can enjoy a virtual playback of multichannel surround sound even with only two or three speakers. This works by controlling how sounds reach the listener’s left and right ears.

■ TV Logic

Suitable for TV shows produced in a TV studio. This mode enhances the surround effects to the entire sound to give clarity to voices and create a realistic acoustic image.

■ Unplugged

Suitable for acoustic instruments, vocals and jazz. This mode emphasizes the front stereo image, giving the impression of being right in front of the stage.

Selectable Listening Modes

Listening modes that can be selected with the listening mode buttons will differ depending on the input signal format and actual speaker configuration. Also note that depending on the player settings and content, some listening modes may not be available for selecting.

- Listening modes available when headphones are connected are: Pure Audio (European, Australian and Asian models), Mono, Direct, and Stereo.

■ Future listening mode update

A future firmware update is planned to enable the unit to support playback in DTS:X audio format. For this reason, the available listening modes will vary depending on the firmware version.

Versions before the release of an update with support for the DTS:X audio format

- Neo:6 Cinema and Neo:6 Music are available.

Versions that support the DTS:X audio format

- DTS:X and DTS Neural:X are available. (Neo:6 Cinema and Neo:6 Music become unavailable after the update.)

■ MOVIE/TV button

You can select a mode suitable for movies and TV programs.

Input Format	Listening Mode
Analog	Direct
	Mono
	Dolby Surround
	Neo:6 Cinema*1
	DTS Neural:X
	TV Logic*2
	AllCh Stereo*3
	Full Mono*3
	T-D

*1 Center speaker or surround speakers need to be installed.
*2 Surround speakers or height speakers need to be installed.
*3 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
PCM	Direct
	Mono
	Dolby Surround
	Neo:6 Cinema*1
	DTS Neural:X
	TV Logic*2
	AllCh Stereo*3
	Full Mono*3
	T-D

*1 Center speaker or surround speakers need to be installed.
*2 Surround speakers or height speakers need to be installed.
*3 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Multich PCM	Direct
	Mono
	Multich*1
	Dolby Surround
	DTS Neural:X
	TV Logic*2
	AllCh Stereo*3
	Full Mono*3
	T-D

*1 Center speaker or surround speakers need to be installed.
*2 Surround speakers or height speakers need to be installed.
*3 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DSD	Direct
	Mono
	DSD*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby Atmos ● The listening mode of Dolby Digital Plus or Dolby TrueHD can be selected if back speakers or height speakers are not connected.	Direct
	Mono
	Dolby Atmos
	TV Logic
	AllCh Stereo
	Full Mono
	T-D

Input Format	Listening Mode
Dolby D	Direct
	Mono
	Dolby D*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby TrueHD	Direct
	Mono
	Dolby TrueHD*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS 96/24	Direct
	Mono
	DTS 96/24*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby D+	Direct
	Mono
	Dolby D+*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS	Direct
	Mono
	DTS*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS Express	Direct
	Mono
	DTS Express*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-HD HR	Direct
	Mono
	DTS-HD HR*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-HD MSTR	Direct
	Mono
	DTS-HD MSTR*1 *2
	Dolby Surround
	Neo:6 Cinema*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-ES	Direct
	Mono
	DTS*1
	ES Matrix*2
	ES Discrete*2
	Dolby Surround*3
	DTS Neural:X
	TV Logic*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Can only be selected when the back speakers are not installed.
*2 Back speakers need to be installed.
*3 Height speakers need to be installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS:X	Direct
	Mono
	DTS:X
	TV Logic*1
	AllCh Stereo*2
	Full Mono*2
	T-D

*1 Surround speakers or height speakers need to be installed.
*2 Center speaker, surround speakers or height speakers need to be installed.

■ MUSIC button

You can select a mode suitable for music.

Input Format	Listening Mode
Analog	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	Dolby Surround
	Neo:6 Music*1
	DTS Neural:X
	Orchestra*2
	Unplugged*2
	Studio-Mix*2
	AllCh Stereo*3
	Full Mono*3

*1 Center speaker or surround speakers need to be installed.
*2 Surround speakers or height speakers need to be installed.
*3 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
PCM	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	Dolby Surround
	Neo:6 Music*1
	DTS Neural:X
	Orchestra*2
	Unplugged*2
	Studio-Mix*2
	AllCh Stereo*3
	Full Mono*3

*1 Center speaker or surround speakers need to be installed.
*2 Surround speakers or height speakers need to be installed.
*3 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Multich PCM	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	Multich*1
	Dolby Surround
	DTS Neural:X
	Orchestra*2
	Unplugged*2
	Studio-Mix*2
	AllCh Stereo*3
	Full Mono*3

*1 Center speaker or surround speakers need to be installed.
*2 Surround speakers or height speakers need to be installed.
*3 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DSD	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DSD*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby Atmos ● The listening mode of Dolby Digital Plus or Dolby TrueHD can be selected if back speakers or height speakers are not connected.	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	Dolby Atmos
	Orchestra
	Unplugged
	Studio-Mix
	AllCh Stereo
	Full Mono

Input Format	Listening Mode
Dolby D	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	Dolby D*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby D+	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	Dolby D+*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DTS*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS Express	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DTS Express*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby TrueHD	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	Dolby TrueHD*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS 96/24	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DTS 96/24*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-HD HR	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DTS-HD HR*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-HD MSTR	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DTS-HD MSTR*1 *2
	Dolby Surround
	Neo:6 Music*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Can only be selected when the input format is 2 ch and a center speaker or surround speakers are installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-ES	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DTS*1
	ES Matrix*2
	ES Discrete*2
	Dolby Surround*3
	DTS Neural:X
	Orchestra*4
	Unplugged*4
	Studio-Mix*4
	AllCh Stereo*5
	Full Mono*5

*1 Can only be selected when the back speakers are not installed.
*2 Back speakers need to be installed.
*3 Height speakers need to be installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS:X	Pure Audio (European, Australian and Asian models)
	Direct
	Stereo
	DTS:X
	Orchestra*1
	Unplugged*1
	Studio-Mix*1
	AllCh Stereo*2
	Full Mono*2

*1 Surround speakers or height speakers need to be installed.
*2 Center speaker, surround speakers or height speakers need to be installed.

■ GAME button

You can select a mode suitable for games.

Input Format	Listening Mode
Analog	Direct
	Dolby Surround
	DTS Neural:X
	Game-RPG*1
	Game-Action*1
	Game-Rock*1
	Game-Sports*1
	AllCh Stereo*2
	Full Mono*2
	T-D

*1 Surround speakers or height speakers need to be installed.
*2 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
PCM	Direct
	Dolby Surround
	DTS Neural:X
	Game-RPG*1
	Game-Action*1
	Game-Rock*1
	Game-Sports*1
	AllCh Stereo*2
	Full Mono*2
	T-D

*1 Surround speakers or height speakers need to be installed.
*2 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Multich PCM	Direct
	Multich*1
	Dolby Surround
	DTS Neural:X
	Game-RPG*2
	Game-Action*2
	Game-Rock*2
	Game-Sports*2
	AllCh Stereo*3
	Full Mono*3
	T-D

*1 Center speaker or surround speakers need to be installed.
*2 Surround speakers or height speakers need to be installed.
*3 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DSD	Direct
	DSD*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby Atmos ● The listening mode of Dolby Digital Plus or Dolby TrueHD can be selected if back speakers or height speakers are not connected.	Direct
	Dolby Atmos
	Game-RPG
	Game-Action
	Game-Rock
	Game-Sports
	AllCh Stereo
	Full Mono
	T-D

Input Format	Listening Mode
Dolby D	Direct
	Dolby D*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby D+	Direct
	Dolby D+*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS	Direct
	DTS*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS Express	Direct
	DTS Express*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
Dolby TrueHD	Direct
	Dolby TrueHD*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS 96/24	Direct
	DTS 96/24*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-HD HR	Direct
	DTS-HD HR*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-HD MSTR	Direct
	DTS-HD MSTR*1 *2
	Dolby Surround
	DTS Neural:X
	Game-RPG*3
	Game-Action*3
	Game-Rock*3
	Game-Sports*3
	AllCh Stereo*4
	Full Mono*4
	T-D

*1 Cannot be selected when the input format is monaural or 2 ch.
*2 Center speaker or surround speakers need to be installed.
*3 Surround speakers or height speakers need to be installed.
*4 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS-ES	Direct
	DTS*1
	ES Matrix*2
	ES Discrete (DTS-ES Discrete)*2
	Dolby Surround*3
	DTS Neural:X
	Game-RPG*4
	Game-Action*4
	Game-Rock*4
	Game-Sports*4
	AllCh Stereo*5
	Full Mono*5
	T-D

*1 Can only be selected when the back speakers are not installed.
*2 Back speakers need to be installed.
*3 Height speakers need to be installed.
*4 Surround speakers or height speakers need to be installed.
*5 Center speaker, surround speakers or height speakers need to be installed.

Input Format	Listening Mode
DTS:X	Direct
	DTS:X
	Game-RPG*1
	Game-Action*1
	Game-Rock*1
	Game-Sports*1
	AllCh Stereo*2
	Full Mono*2
	T-D

*1 Surround speakers or height speakers need to be installed.
*2 Center speaker, surround speakers or height speakers need to be installed.

■ STEREO button

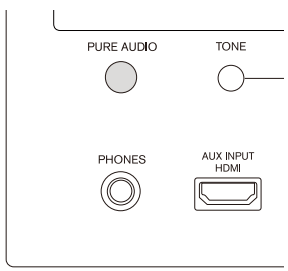
You can select a listening mode for stereo and all channel stereo sources.

Input Format	Listening Mode
All format	Stereo
	AllCh Stereo*1

*1 Center speaker, surround speakers or height speakers need to be installed.

■ PURE AUDIO button (on the main unit only) (European, Australian and Asian models)

The display and analog video circuit are turned off to switch the unit to Pure Audio mode (European, Australian and Asian models) which provides purer sound. Selecting this mode lights the PURE AUDIO indicator on the unit. Pressing the button again reselects the previous listening mode.



- Selecting Pure Audio for listening mode turns off the display and analog video circuitry, but the video signals input through HDMI input are output from HDMI output.

Checking the Input Format

While audio from the player is being input, press DISPLAY on the remote controller several times to switch the information shown on the main unit display. For example, if "Dolby D 5.1" is displayed, the Dolby Digital 5.1 ch signals are being input.

- The number of channels is not displayed when the input signal is "Dolby Atmos" format.

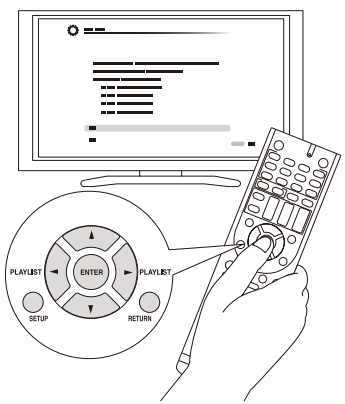
Dolby D 5.1

Advanced Settings (Setup Menu)

How to Set

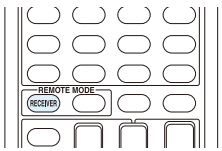
The unit allows you to configure advanced settings in order to provide even better experience.

● **Operation**: You can set up by viewing the guidance displayed on the TV screen (OSD). Select the item with the cursor buttons of the remote controller and press ENTER to confirm your selection. To return to the previous screen, press RETURN.

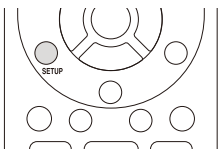


■ Operation

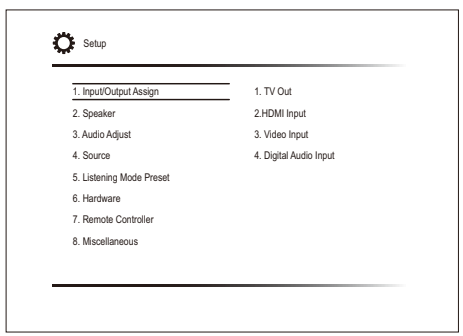
1. Press RECEIVER on the remote controller.
   - Always press RECEIVER first to change the remote controller to RECEIVER mode (the mode to operate this unit) since its mode may be changed to operate another component.



2. Press SETUP to display the Setup menu.

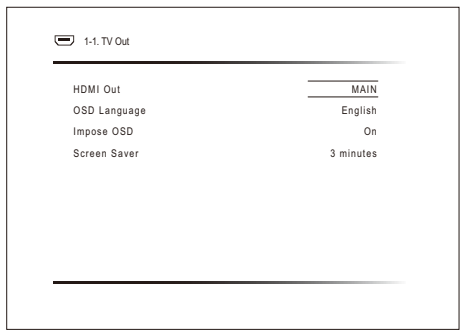


3. Press ▲/▼ to select the desired menu, and then press ENTER.



4. Press ▲/▼ to select the item, and then press ENTER.

5. With the ▲/▼/◄/► cursors, select the item to configure the settings.



To exit the setup menu, press SETUP.

Overview of the Setup menu

1. Input/Output Assign
Make settings to assign the various jacks and for the on-screen display function on the TV when you use the setting menu, for example.

2. Speaker
Make advanced settings for the speakers.

3. Audio Adjust
Make a variety of settings related to sound.

4. Source
Make settings for input sources, such as volume difference adjustments for each input selector for the connected equipment.

5. Listening Mode Preset
You can preset your favorite listening mode.

6. Hardware
Make a variety of settings such as for linked operation with connected HDMI equipment, the standby mode and network connection for this unit.

7. Remote Controller
Make settings related to the remote controller.

8. Miscellaneous
Update the firmware and perform initial settings, etc.

1. Input/Output Assign

TV Out

Select the HDMI jack to be connected with the TV. Make settings for the on-screen display function on the TV when you use the setting menu, for example.

Setting Item	Default Value	Setting Details
HDMI Out	MAIN	Select the HDMI jack to be connected with the TV. "MAIN": When connecting the TV to the HDMI OUT MAIN jack "SUB": When connecting the TV to the HDMI OUT SUB jack "MAIN+SUB": When connecting to both the MAIN and SUB jacks
OSD Language	English	Select the on-screen display language. Select from English, German, French, Spanish, Italian, Dutch, Swedish, Russian (European, Australian and Asian models), or Chinese (European, Australian, Taiwanese and Asian models).
Impose OSD	On	Set whether or not to display the information on the TV when the volume is adjusted or input is changed, for example. "On": OSD will be displayed on the TV. "Off": OSD will not be displayed on the TV. ● The OSD may not be displayed depending on the input signal even if "On" is selected. If the operation screen is not displayed, change the resolution of the connected device.
Screen Saver	3 minutes	Set the time to start the screen saver. Select a value from "3 minutes", "5 minutes", "10 minutes" and "Off".

HDMI Input

You can change input assignment between the input selectors and HDMI IN jacks.

Setting Item	Default Value	Setting Details
BD/DVD	HDMI 1 (HDCP 2.2)	"HDMI 1 (HDCP 2.2)" to "HDMI 7": Assign a desired HDMI IN jack to the BD/DVD button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.
CBL/SAT	HDMI 2 (HDCP 2.2)	"HDMI 1 (HDCP 2.2)" to "HDMI 7": Assign a desired HDMI IN jack to the CBL/SAT button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.
STRM BOX	HDMI 3 (HDCP 2.2)	"HDMI 1 (HDCP 2.2)" to "HDMI 7": Assign a desired HDMI IN jack to the STRM BOX button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.
PC	HDMI 4	"HDMI 1 (HDCP 2.2)" to "HDMI 7": Assign a desired HDMI IN jack to the PC button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.
GAME	HDMI 5	"HDMI 1" to "HDMI 7": Assign a desired HDMI IN jack to the GAME button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.
AUX	(Front)	The setting cannot be changed.
CD	-----	"HDMI 1 (HDCP 2.2)" to "HDMI 7": Assign a desired HDMI IN jack to the CD button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.
PHONO	-----	"HDMI 1 (HDCP 2.2)" to "HDMI 7": Assign a desired HDMI IN jack to the PHONO button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.

Setting Item	Default Value	Setting Details
TV	-----	"HDMI 1 (HDCP 2.2)" to "HDMI 7": Assign a desired HDMI IN jack to the TV button. If you do not assign a jack, select "-----". To select an HDMI IN jack already assigned to another input selector, change its setting to "-----" first.

Video Input

You can change assignment of the COMPONENT VIDEO IN 1 and 2 jacks and the VIDEO IN 1 to 3 jacks between the input selectors. If you do not assign a jack, select "-----".

Setting Item	Default Value	Setting Details
BD/DVD	COMPONENT 1	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the BD/DVD button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the BD/DVD button.
CBL/SAT	VIDEO 1	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the CBL/SAT button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the CBL/SAT button.
STRM BOX	VIDEO 2	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the STRM BOX button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the STRM BOX button.
PC	VIDEO 3	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the PC button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the PC button.
GAME	COMPONENT 2	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the GAME button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the GAME button.
AUX	-----	The setting cannot be changed.
CD	-----	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the CD button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the CD button.

Setting Item	Default Value	Setting Details
PHONO	-----	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the PHONO button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the PHONO button.
TV	-----	"COMPONENT 1", "COMPONENT 2": Assign the COMPONENT VIDEO IN jacks to the TV button. "VIDEO 1" to "VIDEO 3": Assign a desired VIDEO IN jack to the TV button.

- When you convert video signals input to the COMPONENT VIDEO IN jacks and output them from the HDMI OUT jack, set the output resolution of the player to 480i or 576i. If the input has 480p/576p or higher resolution, an error message will appear.

Digital Audio Input

You can change input assignment between the input selectors and DIGITAL IN COAXIAL/ OPTICAL 1 to 2 jacks. If you do not assign a jack, select "-----".

Setting Item	Default Value	Setting Details
BD/DVD	COAXIAL	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the BD/DVD button.
CBL/SAT	-----	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the CBL/SAT button.
STRM BOX	-----	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the STRM BOX button.
PC	-----	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the PC button.
GAME	-----	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the GAME button.
AUX	-----	The setting cannot be changed.
CD	OPTICAL 1	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the CD button.
PHONO	-----	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the PHONO button.
TV	OPTICAL 2	"COAXIAL", "OPTICAL 1", "OPTICAL 2": Assign a desired DIGITAL IN jack to the TV button.

- Sampling rates for PCM signals (stereo, mono) from a digital input are 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz/16 bit, 20 bit, and 24 bit.

2. Speaker

Allows you to change the speaker configuration such as presence or not of subwoofer, crossover frequency, and so on. Settings are automatically configured if you use the Automatic Speaker Setup.
This setting cannot be selected if headphones are connected or audio is output from the speakers of the TV.

Configuration

You can change the number of speaker channels connected, the type of front speaker connection, the height speaker type, and other speaker settings.

Setting Item	Default Value	Setting Details
Speaker Channels	7.1 ch	Select "2.1 ch", "3.1 ch", "4.1 ch", "5.1 ch", "6.1 ch", "7.1 ch", "2.1.2 ch", "3.1.2 ch", "4.1.2 ch", or "5.1.2 ch" to suit the number of speaker channels connected.
Subwoofer	Yes	Set whether a subwoofer is connected or not. "Yes": When subwoofer is connected "No": When subwoofer is not connected
Height Speaker	Front High	Set the speaker type if height speakers are connected to the BACK or HEIGHT terminals. Select "Front High", "Top Front", "Top Middle", "Top Rear", "Rear High", "Dolby Speaker (Front)", or "Dolby Speaker (Surr)" according to the connected speaker type and location. ● If an item cannot be selected even though connection is correct, check that the settings in "Speaker Channels" matches the number of connected channels.
Bi-Amp	No	Set whether your front speaker connection is bi-amp. "No": When front speakers are connected in a normal manner "Yes": When front speakers are bi-amp connected ● If an item cannot be selected even though connection is correct, check that the settings in "Speaker Channels" matches the number of connected channels.

Setting Item	Default Value	Setting Details
Powered Zone 2	No	Set the connection of speakers to Zone 2 speaker terminals. "Yes": When speakers are connected to ZONE2 speaker terminals "No": When speakers are not connected to ZONE2 speaker terminals ● This item will be set to "No" when "Bi-Amp" is set to "Yes".
Speaker Impedance (European, Australian and Asian models)	6ohms	Set the impedance of the connected speakers. "4ohms": When any of the connected speakers have 4 Ω or more to less than 6 Ω impedance "6ohms": When the connected speakers all have 6 Ω or more impedance ● For impedance, check the indications on the back of the speakers or their instruction manual.

Crossover

Allows you to change speaker configurations, such as crossover frequency. Settings are automatically configured if you use the Automatic Speaker Setup. Audio will not be output while you are making this setting.

Setting Item	Default Value	Setting Details
Front	100 Hz	Select the crossover frequency from "40Hz" to "200Hz" to start outputting frequencies for each channel. "Full Band": Full band will be output. ● If "Configuration" - "Subwoofer" is set to "No", "Front" will be fixed to "Full Band" and the low pitched range of the other channels will be output from the front speakers. Refer to the instruction manual of your speakers to make the setting.
Center	100 Hz	Select the crossover frequency from "40Hz" to "200Hz" to start outputting frequencies for each channel. "Full Band": Full band will be output. ● "Full Band" can be selected only when "Front" is set to "Full Band". ● If an item cannot be selected even though connection is correct, check that the settings in "Configuration" - "Speaker Channels" matches the number of connected channels.
Height	100 Hz	Select the crossover frequency from "40Hz" to "200Hz" to start outputting frequencies for each channel. "Full Band": Full band will be output. ● "Full Band" can be selected only when "Front" is set to "Full Band". ● If an item cannot be selected even though connection is correct, check that the settings in "Configuration" - "Speaker Channels" matches the number of connected channels.
Surround	100 Hz	Select the crossover frequency from "40Hz" to "200Hz" to start outputting frequencies for each channel. "Full Band": Full band will be output. ● "Full Band" can be selected only when "Front" is set to "Full Band". ● If an item cannot be selected even though connection is correct, check that the settings in "Configuration" - "Speaker Channels" matches the number of connected channels.
Back	100 Hz	Select the crossover frequency from "40Hz" to "200Hz" to start outputting frequencies for each channel. "Full Band": Full band will be output. ● This cannot be selected in the following conditions. – The setting for "Configuration" - "Bi-Amp" is "Yes" – "Configuration" - "Powered Zone 2" is set to "Yes" and ZONE 2 is on ● "Full Band" can be selected only when "Surround" is set to "Full Band". ● If an item cannot be selected even though connection is correct, check that the settings in "Configuration" - "Speaker Channels" matches the number of connected channels.
LPF of LFE	120Hz	Set the low-pass filter for LFE (low-frequency effect) signals in order to pass lower frequency signals than the set value and thus cancel unwanted noises. The low-pass filter will be effective only on sources with LFE channel. The value from "80Hz" to "120Hz" can be set. "Off": Do not use this function

Setting Item	Default Value	Setting Details
Double Bass	On	This can only be selected when "Configuration" - "Subwoofer" is set to "Yes" and "Front" is set to "Full Band". Boost bass output by feeding bass sounds from the front left and right, and center speakers to the subwoofer. "On": Bass output will be boosted. "Off": Bass output will not be boosted. ● The setting will not automatically be configured even if you performed the automatic speaker setup.

Distance

Set the distance from each speaker to the listening position. Settings are automatically configured if you use the automatic speaker setup.

Setting Item	Default Value	Setting Details
Unit	feet/meters	Specify the unit of distance for configuring settings. "feet": When setting in feet (0.1 ft to 30.0 ft, in increments of 0.1 ft) "meters": When setting in meters (0.03 m to 9.00 m, in increments of 0.03 m)
Front Left	12.0ft/3.60m	Specify the distance between each speaker and the listening position.
Center	12.0ft/3.60m	Specify the distance between each speaker and the listening position.
Front Right	12.0ft/3.60m	Specify the distance between each speaker and the listening position.
Height Left	9.0ft/2.70m	Specify the distance between each speaker and the listening position. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Height Right	9.0ft/2.70m	Specify the distance between each speaker and the listening position. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Surround Right	7.0ft/2.10m	Specify the distance between each speaker and the listening position.
Back Right	7.0ft/2.10m	Specify the distance between each speaker and the listening position. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Back Left	7.0ft/2.10m	Specify the distance between each speaker and the listening position. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Surround Left	7.0ft/2.10m	Specify the distance between each speaker and the listening position.
Subwoofer	12.0ft/3.60m	Specify the distance between each speaker and the listening position.

- Default values vary depending on the regions.
- The speaker "Distance" may be unable to be changed depending on the settings in "Configuration" - "Speaker Channels" / "Subwoofer".

Level Calibration

Adjust the level of each speaker with the built-in test tone. Settings are automatically configured if you use the Automatic Speaker Setup.

Setting Item	Default Value	Setting Details
Front Left	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level.
Center	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level.
Front Right	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level.
Height Left	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.

Setting Item	Default Value	Setting Details
Height Right	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Surround Right	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level.
Back Right	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Back Left	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level. ● This setting cannot be changed if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Surround Left	0 dB	Select a value between "-12 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level.
Subwoofer	0 dB	Select a value between "-15 dB" and "+12 dB". A test tone will be output each time you change the value. Select the desired level.

- The speaker "Level Calibration" may be unable to be changed depending on the settings in "Configuration" - "Speaker Channels" / "Subwoofer".
- "Level Calibration" cannot be changed while muting is on.

Equalizer Settings

Adjust the output volume of each range of each connected speaker. You can adjust the volume of each range of each speaker. You can set three types of equalizer settings in the Presets 1, 2, and 3.

- You can adjust the bass in the low range frequencies (63 Hz, etc.), and the treble in the high range frequencies (16 kHz, etc.).
- You can select up to five frequency bands for each speaker.

Setting Item	Default Value	Setting Details
Front	0 dB	First select the frequency of the speaker from "25 Hz" to "16 kHz" with the ◄/► cursors, then use ▲/▼ to adjust the volume of the frequency between "−6dB" to "+6dB".
Center	0 dB	First select the frequency of the speaker from "25 Hz" to "16 kHz" with the ◄/► cursors, then use ▲/▼ to adjust the volume of the frequency between "−6dB" to "+6dB".
Height	0 dB	First select the frequency of the speaker from "25 Hz" to "16 kHz" with the ◄/► cursors, then use ▲/▼ to adjust the volume of the frequency between "−6dB" to "+6dB". ● This cannot be selected if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Surround	0 dB	First select the frequency of the speaker from "25 Hz" to "16 kHz" with the ◄/► cursors, then use ▲/▼ to adjust the volume of the frequency between "−6dB" to "+6dB".
Back	0 dB	First select the frequency of the speaker from "25 Hz" to "16 kHz" with the ◄/► cursors, then use ▲/▼ to adjust the volume of the frequency between "−6dB" to "+6dB". ● This cannot be selected if "Configuration" - "Powered Zone 2" is set to "Yes" and Zone2 is set to on.
Subwoofer	0 dB	First select the frequency of the speaker from "25 Hz" to "160Hz" with the ◄/► cursors, then use ▲/▼ to adjust the volume of the frequency between "−6dB" to "+6dB". ● This cannot be selected if "Configuration" - "Subwoofer" is set to "No".

- The Speaker "Equalizer Settings" may be unable to be changed depending on the settings in "Configuration" - "Speaker Channels" / "Subwoofer".
- Adjust the volume of each speaker in "Level Calibration".
- Adjust the volume in 1 dB steps.
- This is not effective if the listening mode is Pure Audio (European, Australian and Asian models) or Direct.
- The result may not be as expected depending on the input source and listening mode setting.

3. Audio Adjust

Configure various settings related to sound, such as settings for listening to multiplex audio or multilingual TV broadcasts and sound field settings for listening modes.

Multiplex/Mono

Setting Item	Default Value	Setting Details
Multiplex Input Channel	Main	Set the audio channel or language to be output when playing multiplex audio or multilingual TV broadcasts etc. "Main": Main channel only "Sub": Sub channel only "Main/Sub": Main and sub channels will be output at the same time. ● If multiplex audio is being played, "1+1" will be displayed when DISPLAY is pressed.
Mono Input Channel	Left+Right	Set the input channel to use for playing any 2 ch digital source such as Dolby Digital, or 2-ch analog/PCM source in the Mono listening mode. "Left": Left channel only "Right": Right channel only "Left + Right" : Left and right channels

Dolby

Make the settings for Dolby listening mode.

Setting Item	Default Value	Setting Details
Loudness Management	On	Enable the Late Night function that allows you to enjoy surround sound of Dolby TrueHD playback even in low volume. "On": Use this function "Off": Do not use this function

Theater-Dimensional

Make the settings for Theater-Dimensional listening mode.

Setting Item	Default Value	Setting Details
Listening Angle	Wide	To enhance the effect of Theater-Dimensional, select the actual angle of the left and right front speakers as it appears from the listening position. "Narrow": Less than 30° "Wide": Greater than 30°

● Position the front speakers 20° to the listening position if you have selected "Narrow" in "Listening Angle" and 40° if you have selected "Wide".

Volume

Make the detailed volume setting of the unit.

Setting Item	Default Value	Setting Details
Maximum Volume	Off	Set the maximum value to avoid too high volume. Select a value from "Off", "30" to "79".
Power On Volume	Last	Set the volume level of when the power is turned on. Select a value from "Last" (Volume level before entering standby mode), "Min", "1" to "79" and "Max". ● You cannot set a higher value than that of "Maximum Volume".
Headphone Level	0 dB	Adjust the output level of the headphones. Select a value between "-12 dB" and "+12 dB".

4. Source

Make settings for input sources, such as volume difference adjustments for each input selector for the connected equipment. Select the input selector to configure.

IntelliVolume

Setting Item	Default Value	Setting Details
IntelliVolume	0 dB	Adjust the volume level difference between the devices connected to the unit. Select a value between "-12 dB" and "+12 dB". Set a negative value if the volume of the target device is larger than the others and a positive value if smaller. When you select a desired input to check the audio, start playback of the connected device. ● This function is not effective in Zone 2.

Name Edit

Set an easy name to each input. The set name will be shown on the main unit display. Select the input selector to configure.

Setting Item	Default Value	Setting Details
Name	Input name	1. Select a character or symbol with the cursors and press ENTER. Repeat it to input 10 or less characters. "A/a": Switches between upper and lower cases. (Pressing +10 on the remote controller also toggles between upper and lower cases.) "←" "→": Moves the cursor to the arrow direction. "⌫": Removes a character on the left of the cursor. "Space": Puts a space. ● Pressing CLR on the remote controller will remove all the input characters. 2. After inputting, select "OK" with the cursors and press ENTER. The input name will be saved.

- To name a preset radio station, press TUNER on the remote controller, select AM/FM and select the preset number.
- It cannot be set if the "NET" or "BLUETOOTH" input is selected.

Audio Select

Make the audio input setting. The setting can be separately set to each input selector button. Select the input selector to configure.

Setting Item	Default Value	Setting Details
Audio Select	BD/DVD: HDMI CBL/SAT: HDMI STRM BOX: HDMI PC: HDMI GAME: HDMI AUX: HDMI CD: OPTICAL TV: OPTICAL PHONO: Analog	Select the priority for input selection when multiple audio sources are connected to one input selector, such as connections to both the "BD/DVD" of HDMI IN jack and "BD/DVD" of AUDIO IN jack. You cannot select a jack that is not associated with the currently selected input. ● The priority is HDMI → COAXIAL/OPTICAL → Analog if this setting is not changed. ARC: When giving priority to input signal from ARC compatible TV. ● The setting can be selected only when "HDMI" - "Audio Return Channel" is set to "Auto" and also the "TV" input is selected. HDMI: When giving priority to input signal from HDMI jacks ● The setting can be selected only when the input is assigned to the HDMI IN jack in the "HDMI Input" setting. "COAXIAL (Coaxial input)": When giving priority to input signal from DIGITAL IN COAXIAL jacks. ● The setting can be selected only when the input is assigned to the COAXIAL jack in the "Digital Audio Input" setting. "OPTICAL (Optical input)": When giving priority to input signal from DIGITAL IN OPTICAL jacks. ● The setting can be selected only when the input is assigned to the OPTICAL jack in the "Digital Audio Input" setting. "Analog": To always output analog audio independently of the input signal
PCM Fixed Mode	Off	Select whether to fix input signals to PCM (except multi-channel PCM) when you have selected "HDMI", "COAXIAL", or "OPTICAL" in the "Audio Select" setting. Set this item to "On" if noise is produced or truncation occurs at the beginning of a track when playing PCM sources. Select "Off" normally. ● Changing "Audio Select" changes the setting to "Off".

- The setting cannot be changed when "TUNER", "NET", or "BLUETOOTH" input is selected.

Video Select

Setting Item	Default Value	Setting Details
Video Select	Last	Select the video input played along with audio output when either "TUNER", "NET" or "BLUETOOTH" is selected. ● This setting is effective only for an input selector which is assigned in "HDMI Input" or "Video Input". "Last": Select the video input played immediately prior. "BD/DVD", "CBL/SAT", "STRM BOX", "PC", "GAME", "AUX", "CD", "PHONO", "TV": Play the video from the selected input.

- The setting cannot be changed when input other than "TUNER", "NET" or "BLUETOOTH" is selected.
- When input is "NET" or "BLUETOOTH", switch between displaying and not displaying video by pressing MODE on the remote controller.

5. Listening Mode Preset

You can preset your favorite listening mode to each input. (For example, you can always apply straight decode to the Dolby TrueHD source of Blu-ray Disc to play it in unchanged sound field.)
When the list of input sources is displayed, set the signal type and listening mode.
Although it is possible to select the listening mode during playback, the selected mode will be reset when the unit enters standby mode.

Setting Item	Default Value	Setting Details
Analog/PCM	Last Valid	Set the listening mode for playing PCM signals of CD and analog signals of record and cassette tape.
Mono/Multiplex	Last Valid	Set the listening mode for playing Dolby Digital and other digital signals recorded in monaural or multiplex audio.
2 ch Source	Last Valid	Set the listening mode for playing Dolby Digital and other digital signals recorded in 2 channels.
Dolby D/Dolby D+/ TrueHD	Last Valid	Set the listening mode for playing Dolby Digital, Dolby Digital Plus and Dolby TrueHD signals.
DTS/DTS-ES/ DTS-HD	Last Valid	Set the listening mode for playing digital audio signals in DTS and DTS-HD High Resolution formats. Select the listening mode specified for Blu-ray or such other DTS-HD Master Audio source.
Other Multich Source	Last Valid	Set the listening mode for playing DSD signals of DVD-Audio and Super Audio CD that are input from HDMI IN jack.

- Available listening modes vary depending on the input signal.
- Setting "Last Valid" will always select the last selected mode.
- Only "Analog" can be set to the "TUNER" input.
- "Digital" and "TrueHD" can be set to the "NET" input.
- Only "Digital" can be set to the "BLUETOOTH" input.

6. Hardware

Tuner

Setting Item	Default Value	Setting Details
AM/FM Frequency Step (North American and Taiwanese models)	10kHz/0.2MHz	Select a frequency step depending on your area of residence. Select "10kHz/0.2MHz" or "9kHz/0.05MHz". ● When this setting is changed, all radio presets are deleted.
AM Frequency Step (European, Australian and Asian models)	9kHz	Select a frequency step depending on your area of residence. Select "10kHz" or "9kHz". ● When this setting is changed, all radio presets are deleted.

HDMI

Setting Item	Default Value	Setting Details
HDMI CEC (RIHD)	Off	Setting to "On" enables the input selection link and other link functions with HDMI connected CEC compliant device. "On": Use this function "Off": Do not use this function When changing this setting, turn off and then on again the power of all connected components. ● Depending on the TV set, a link may need to be configured on the TV. ● This function is effective only when the device is connected to the HDMI OUT MAIN terminal. ● When this setting is "On", the names of the CEC-compatible components and "CEC On" are displayed after this operation screen is closed. ● Power consumption in standby mode may increase if this setting is "On". (Depending on the TV status, the unit will enter the normal standby mode.) ● If you operate the MASTER VOLUME control on the unit when this setting is "On" and audio is output from the TV speakers, audio will be output also from the speakers connected to the unit. If you want to output from only either of them, change the unit or TV settings, or reduce the volume of the unit. ● If abnormal operation occurs when you set the setting to "On", set it to "Off". ● When connecting a non-CEC compatible component, or when you are not sure whether it is compatible, set the setting to "Off".

Setting Item	Default Value	Setting Details
HDMI Standby Through	Off	When this is set to anything other than "Off", you can play the video and audio of an HDMI connected player on the TV even if the unit is in standby mode. Only "Auto" and "Auto(Eco)" can be selected if "HDMI CEC (RIHD)" is set to "On". If you select anything else, set "HDMI CEC (RIHD)" to "Off." ● Power consumption in standby mode increases if set to anything other than "Off". "BD/DVD", "CBL/SAT", "STRM BOX", "PC", "GAME", "AUX", "CD", "PHONO", "TV": For example, if you select "BD/DVD", you can play the equipment connected to the "BD/DVD" terminal on the TV even if the unit is in standby mode. Select this setting if you have decided which player to use with this function. "Last": You can play the video and audio of the input selected immediately prior to the unit being switched to standby on the TV. When "Last" is selected, you can switch the input of the unit even in the standby mode with the remote controller or the Onkyo Remote app. "Auto", "Auto (Eco)": Select one of these settings when you have connected equipment that conforms to the CEC standard. You can play the video and audio of the input selected on the TV, irrespective of what input was selected immediately prior to the unit being switched to standby, using the CEC link function. ● To play players on the TV that do not conform to the CEC standard, you will need to turn the unit on and switch to the relevant input. ● When using a TV that conforms to the CEC standard, you can reduce the power consumption in standby mode by selecting "Auto (Eco)"

Setting Item	Default Value	Setting Details
Audio TV Out (MAIN)	Off	You can enjoy audio through the speakers of the HDMI connected TV while this unit is on. "On": Use this function "Off": Do not use this function ● To select "On", set "HDMI CEC (RIHD)" to "Off." ● The setting is fixed to "Auto" if "HDMI CEC" is set to "On". ● Listening mode cannot be changed while "Audio TV Out (MAIN)" is set to "On" and audio is being output through the speakers of the TV. ● Depending on your TV set or input signal of the component, audio may not output through the speakers of the TV even if this setting is set to "On". In such case, audio is output from the speakers of the unit. ● If you operate the MASTER VOLUME control on the unit when "Audio TV Out (MAIN)" or "HDMI CEC (RIHD)" is "On" and audio is output from the TV speakers, audio will be output from the unit. If you do not want to output audio from the unit, change the unit or TV settings, or reduce the volume of the unit. ● This setting is fixed to "Off" if "TV Out" - "HDMI Out" is set to "SUB".

Setting Item	Default Value	Setting Details
Audio TV Out (SUB)	Off	You can enjoy audio through the speakers of the HDMI connected TV while this unit is on. "On": Use this function "Off": Do not use this function ● Listening mode cannot be changed while "Audio TV Out (SUB)" is set to "On" and audio is being output through the speakers of the TV. ● Depending on your TV set or input signal of the component, audio may not output through the speakers of the TV even if this setting is set to "On". In such case, audio is output from the speakers of the unit. ● If you operate the MASTER VOLUME control on the unit when "Audio TV Out (SUB)" or "HDMI CEC (RIHD)" is "On" and audio is output from the TV speakers, audio will be output from the unit. If you do not want to output audio from the unit, change the unit or TV settings, or reduce the volume of the unit. ● This setting is fixed to "Off" if "TV Out" - "HDMI Out" is set to "MAIN".
Audio Return Channel	Auto	You can enjoy sound of the HDMI connected ARC compatible TV through the speakers connected to the unit. To use this function, set "HDMI CEC (RIHD)" to "On" in advance. "Auto": When enjoying the TV sound through the speakers connected to the unit "Off": When not using the ARC function
Auto LipSync	On	This setting automatically corrects any desynchronization between the video and audio signals based on data from the HDMI LipSync compatible TV. "On": Automatic correction will be enabled. "Off": Automatic correction will be disabled.

Power Management

Setting Item	Default Value	Setting Details
Sleep Timer	Off	Select to turn the unit into standby mode automatically when the specified time elapses. Select a value between "10 minutes" to "90 minutes". "Off": Select if you do not want the unit to automatically switch to standby.
Auto Standby	On/Off	This setting places the unit on standby automatically after 20 minutes of inactivity without any video or audio input. "On": The unit will automatically enter standby mode ("ASb" will light). "Off": The unit will not automatically enter standby mode. ● "Auto Standby" is appeared on the display and TV screen 30 seconds before the Auto Standby comes on. ● "Auto Standby" does not work when Zone 2 is active. ● Default values vary depending on the regions.
Auto Standby in HDMI Standby Through	Off	Enable or disable "Auto Standby" while "HDMI Standby Through" is on. "On": The setting will be enabled. "Off": The setting will be disabled. ● This setting cannot be set to "On" if "Auto Standby" is set to "Off".
USB Power Out at Standby	Off	When this function is "On", you can still have equipment connected to the USB port supplied with power even when this unit is in standby. ● When this function is being used, the power consumption increases even when the unit is on standby. However, the increase in power consumption is kept to a minimum by automatically entering the HYBRID STANDBY mode, where only the essential circuit is operating.

Setting Item	Default Value	Setting Details
Network Standby	Off	When this function is "On", you can turn on the power of the unit via network using an application such as Onkyo Remote. ● When "Network Standby" is used, the power consumption increases even when the unit is on standby. However, the increase in power consumption is kept to a minimum by automatically entering the HYBRID STANDBY mode, where only the essential circuit is operating.
Bluetooth Wakeup	Off	This function wakes up the unit on standby by connecting a Bluetooth-enabled device. "On": Use this function "Off": Do not use this function ● Setting to "On" increases the power consumption even when the unit is on standby. However, the increase in power consumption is kept to a minimum by automatically entering the HYBRID STANDBY mode, where only the essential circuit is operating. ● This setting is fixed to "Off" if "Bluetooth" - "Auto Input Change" is set to "Off".

● Wait for a while if "Network Standby" or "Bluetooth Wakeup" cannot be selected. It will appear when the network function is started up.

Network

Make the network setting.

● When LAN is configured with a DHCP, set "DHCP" to "Enable" to configure the setting automatically. ("Enable" is set by default) To assign fixed IP addresses to each components, you must set "DHCP" to "Disable" and assign an address to this unit in "IP Address" as well as set information related to your LAN, such as Subnet Mask and Gateway.

Setting Item	Default Value	Setting Details
Wi-Fi	Off (Wired)	Connect the unit to network via wireless LAN router. "On": Wireless LAN connection "Off (Wired)": Wired LAN connection
Wi-Fi Setup	–	You can configure wireless LAN settings by pressing ENTER when "Start" is displayed.
Wi-Fi Status	–	The information of the connected access point will be displayed. "SSID": SSID of the connected access point. "Signal": Signal strength of the connected access point. "Status": Status of the connected access point.
MAC Address	–	This is the MAC address of the AV receiver. This value is specific to the component and cannot be changed.
DHCP	Enable	"Enable": Auto configuration by DHCP "Disable": Manual configuration without DHCP ● If selecting "Disable", you must set "IP Address", "Subnet Mask", "Gateway", and "DNS Server" manually.
IP Address	–	Displays/Sets the IP address.
Subnet Mask	–	Displays/Sets the subnet mask.
Gateway	–	Displays/Sets the gateway.
DNS Server	–	Displays/Sets the primary DNS server.
Proxy URL	–	Displays/Sets the proxy server URL.
Proxy Port	–	Displays/Sets the proxy server port number when you enter "Proxy URL".

Setting Item	Default Value	Setting Details
Friendly Name	TX-NR646	Change the name for this unit to a simple one for display on the equipment connected by network. 1. Press ENTER to display the Edit screen. 2. Select a character or symbol with the cursors and press ENTER. Repeat it to input 31 or less characters. "A/a": Switches between upper and lower cases. (Pressing +10 on the remote controller also toggles between upper and lower cases.) "←" "→": Moves the cursor to the arrow direction. "⌫": Removes a character on the left of the cursor. "Space": Puts a space. ● Pressing CLR on the remote controller will remove all the input characters. 3. After inputting, select "OK" with the cursors and press ENTER. The input name will be saved.
AirPlay Password	-----	You can enter a password (maximum of 31 places) so that only the entered user can use AirPlay. 1. Press ENTER to display the Edit screen. 2. Select a character or symbol with the cursors and press ENTER. Repeat it to input 31 or less characters. "A/a": Switches between upper and lower cases. (Pressing +10 on the remote controller also toggles between upper and lower cases.) "←" "→": Moves the cursor to the arrow direction. "⌫": Removes a character on the left of the cursor. "Space": Puts a space. ● Pressing D on the remote controller will switch whether to mask the password with "⁎" or display in the plain text. ● Pressing CLR on the remote controller will remove all the input characters. 3. After inputting, select "OK" with the cursors and press ENTER. The input password will be saved.

Setting Item	Default Value	Setting Details
Usage Data	No	As a means of improving the quality of our products and services, Onkyo may collect information about your usage over the network. Select "Yes" if you agree to our collecting this information. Select "No" if you do not want us to collect this information. ● You can set this after confirming the Privacy Policy. When you select "Usage Data" and press ENTER, the Privacy Policy is displayed. (The same screen is displayed once also when setting up the network connection.) If you agree to the collection of the information, this setting also becomes "Yes". Note that if you agree to the Privacy Policy but select "No" for this setting, the information will not be collected.
Network Check	–	You can check the network connection. Press ENTER when "Start" is displayed.

● Wait for a while if "Network" cannot be selected. It will appear when the network function is started up.

Bluetooth

Setting Item	Default Value	Setting Details
Bluetooth	On	Select whether or not to use the Bluetooth function. "On": Enables connection with a Bluetooth-enabled device by using the Bluetooth function. Select "On" also when making various Bluetooth settings. "Off": When not using the Bluetooth function
Auto Input Change	On	The input of the unit will automatically be switched to "BLUETOOTH" when connection is made from a Bluetooth-enabled device to the unit. "On": The input will automatically become "BLUETOOTH" when a Bluetooth-enabled device is connected. "Off": The function is disabled. ● If the input is not switched automatically, set to "Off" and change the input manually.
Auto Reconnect	On	This function automatically reconnects to the Bluetooth-enabled device connected last when you change the input selector to "BLUETOOTH". "On": Use this function "Off": Do not use this function ● This may not work with some Bluetooth-enabled devices.
Pairing Information	–	The information of the previous pairing stored in this unit will be initialized. Pressing ENTER when "Clear" is displayed initializes the pairing information stored in this unit. ● This function does not initialize the pairing information on the Bluetooth-enabled device. When pairing the unit again with the device, be sure to clear the pairing information on the Bluetooth-enabled device in advance. For information on how to clear the pairing information, refer to the Bluetooth-enabled device's instruction manual.
Device	–	Displays the name of the Bluetooth-enabled device connected to the unit. ● The name is not displayed when "Status" is "Ready" or "Pairing".
Status	–	Displays the status of the Bluetooth-enabled device connected to the unit. "Ready": Not paired "Pairing": Pairing "Connected": Successfully connected

● Wait for a while if "Bluetooth" cannot be selected. It will appear when the Bluetooth function is started up.

7. Remote Controller

Setting Item	Default Value	Setting Details
Remote ID	1	Select an ID for the unit's remote controller from "1", "2", and "3" to prevent interference between the unit and other Onkyo components that are installed in the same room. After changing the ID on the main unit, change the ID on the remote controller accordingly with the following procedure. 1. While holding down RECEIVER, press and hold SETUP for about 3 seconds until the remote indicator lights. 2. With the number buttons, press one of 1, 2, and 3. The remote indicator flashes twice.
Remote Mode	–	Input and register the remote controller code of other devices. ● For registration of the remote control code, refer to "Operating Other Components with the Remote Controller".

8. Miscellaneous

Firmware Update

Setting Item	Default Value	Setting Details
Update Notice	Enable	Availability of a firmware update will be notified via network. "Enable": Notify updates "Disable": Do not notify updates
Version	–	The current firmware version will be displayed.
Update via NET	–	Press ENTER to select when you want to update the firmware via network. ● You will not be able to select this setting if you do not have Internet access or there is nothing to update.
Update via USB	–	Press ENTER to select when you want to update the firmware via USB. ● You will not be able to select this setting if a USB storage device is not connected or there is nothing to update in the USB storage device.

● Wait for a while if "Firmware Update" cannot be selected. It will appear when the network function is started up.

Initial Setup

You can make the initial setup from the setup menu.

● Wait for a while if "Initial Setup" cannot be selected. It will appear when the network function is started up.

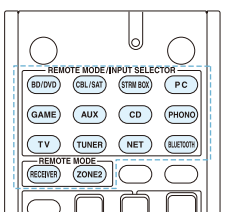
Lock

Setting Item	Default Value	Setting Details
Setup Parameter	Unlocked	Lock the Setup menu to protect the settings. "Locked": The menu is locked. "Unlocked": The menu is unlocked.

Operating Other Components with the Remote Controller

Functions of REMOTE MODE Buttons

You can control any other device than this unit by programming a specified remote control code to a REMOTE MODE button of the remote controller. Register a remote control code to a desired REMOTE MODE button and press it to enter the remote mode that allows you to operate the corresponding device.



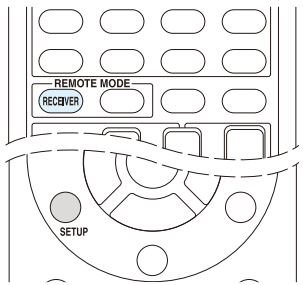
∗ The RECEIVER and ZONE2 buttons cannot be programmed.

Programming Remote Control Codes

■ Searching in the Setup Menu

You can search a remote control code and register it to a desired REMOTE MODE button in the unit's Setup menu.

1. After pressing RECEIVER on the remote controller, press SETUP.

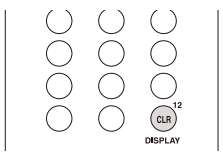


2. With the cursors, select "7. Remote Controller" - "Remote Mode" and press ENTER.
3. With the cursors, select the REMOTE MODE button for which you want to register a remote control code and press ENTER to display the subcategory selection screen.
4. With the cursors, select the target subcategory, and then press ENTER to display the brand name input screen.
5. Select a character with the cursors and press ENTER. Repeat it to enter the first three characters of the brand name.
6. Select "Search" with the cursors and press ENTER.
   - After a search is done, the list of possible brand names is displayed. If the brand name list is not displayed, select "Not Listed" with the cursors and press ENTER to return to the brand name input screen in step 5.
7. With the cursors, select the target brand name, and then press ENTER.
   - When the brand name is specified, the remote control code of the brand and how to register it will be displayed on the TV screen.
8. Follow the guidance displayed on the TV screen.
9. If the component can successfully be operated with its registered remote control code, select "OK" with the cursors and press ENTER.
   - Only TV remote control codes can be entered for TV.
   - Program a remote control code in accordance with the input since each button also works as the input selector. (For example, when the CD player is connected to the CD jack, program the remote control code for the CD player to CD)
   - If the component cannot be operated, select "Try Next Code" with the cursors and press ENTER to display another code.

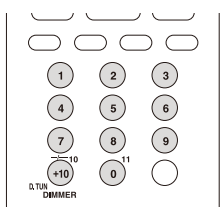
■ Consulting the Remote Control Code List

Find the remote control code in the remote control code list.

1. Look up the Remote Control Codes for the corresponding remote control code.
   - The codes in the Remote Control Code List are those known as of the date of publication and may be changed.
   - The following REMOTE MODE buttons are preprogrammed with remote control codes.
     BD/DVD: Onkyo Blu-ray Disc/DVD player
     CD: Onkyo CD player
     STRM BOX: Apple TV
   - Only TV remote control codes can be entered for TV.
   - Program a remote control code in accordance with the input since each button also works as the input selector. (For example, when the CD player is connected to the CD jack, program the remote control code for the CD player to CD)
2. Press and hold DISPLAY for 3 or more seconds while holding down the REMOTE MODE button to which you want to program the remote control code.
   - The remote indicator lights in the input mode.



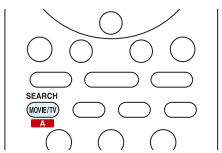
3. With the number buttons, enter the 5-digit remote control code within 30 seconds.
   - Programming is complete when the remote indicator flashes twice. The remote indicator flashes once slowly when programming the remote control code fails. Try programming again.



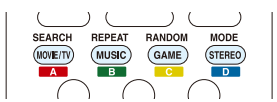
■ Remapping the Colored Buttons

The colored button assignment on the AV receiver's remote controller can be remapped to match that on the remote controller of the component whose remote control code you programmed to REMOTE MODE. However, you will not be able to remap the colored buttons if Zone 2 is selected.

1. Hold down the REMOTE MODE button to map and A (Red) simultaneously until the remote indicator lights (about 3 seconds).
   - Remapping is possible only for codes included in the categories of the Remote Control Code List (DVD player, TV, etc.)



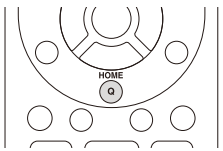
2. Within 30 seconds, press the colored buttons from left to right, in the order you want to remap.
   - For example, if the colored buttons on the remote controller of the other component are yellow, green, blue, and red from left to right, press the buttons on the AV receiver's remote controller in that order.
   - Programming is complete when the remote indicator flashes twice. The remote indicator flashes once slowly when programming the remote control code fails. Try programming again.
   - Pressing any other button than a colored button cancels the remap operation.



■ Resetting the REMOTE MODE Buttons

You can reset the remote control code registered in the REMOTE MODE button to its default status. This operation can be executed on a single REMOTE MODE button.

1. Press and hold Q for 3 or more seconds while holding down the REMOTE MODE button you want to reset.
   - The remote indicator will light.

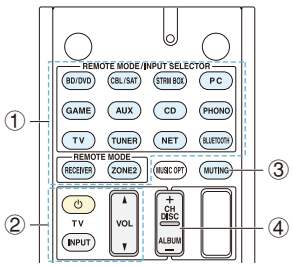


2. Within 30 seconds, press the REMOTE MODE button again.
   - Resetting is complete when the remote indicator flashes twice.

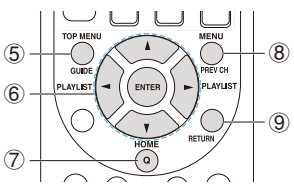
To reset all the remote controller settings: While holding down RECEIVER, press and hold Q for 3 or more seconds until the remote indicator stays lit. Within 30 seconds, press RECEIVER again. Resetting is complete when the remote indicator flashes twice.

TV operation

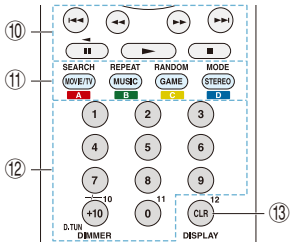
Press the REMOTE MODE button programmed with the remote control code for the relevant AV component to switch the remote controller mode to that for the AV component. Then, operate by using the corresponding buttons. Available buttons vary depending on the product category of the component. Operation may be incorrect or impossible depending on the product.



① REMOTE MODE
② ⏻, INPUT, VOL ▲/▼
③ MUTING
④ CH +/–



⑤ GUIDE
⑥ ▲/▼/◄/►, ENTER
⑦ HOME
⑧ PREV CH
⑨ RETURN

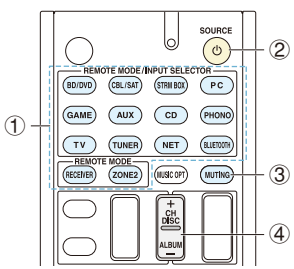


⑩ ►, ❚❚, ■, ◄◄, ►►, ❙◄◄, ►►❙ (∗)
⑪ A (Red), B (Green), C (Yellow), D (Blue)
⑫ Number 1 to 9, 0, +10
⑬ CLR, DISPLAY

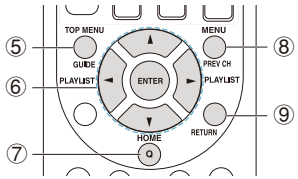
∗ Not CEC-compatible.

Blu-ray Disc player/DVD player/DVD recorder operation

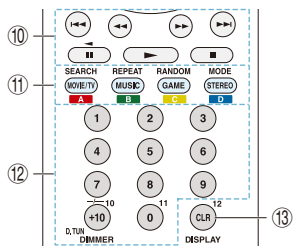
Press the REMOTE MODE button programmed with the remote control code for the relevant AV component to switch the remote controller mode to that for the AV component. Then, operate by using the corresponding buttons. Available buttons vary depending on the product category of the component. Operation may be incorrect or impossible depending on the product.



① REMOTE MODE
② ⏻SOURCE
③ MUTING
④ CH +/–, DISC +/–



⑤ TOP MENU
⑥ ▲/▼/◄/►, ENTER
⑦ HOME
⑧ MENU
⑨ RETURN

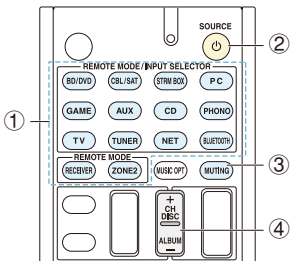


⑩ ►, ❚❚, ■, ◄◄, ►►, ❙◄◄, ►►❙
⑪ A (Red), B (Green), C (Yellow), D (Blue)
⑫ Number 1 to 9, 0, +10 (∗)
⑬ CLR, DISPLAY

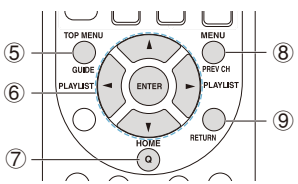
∗ Not CEC-compatible.

VCR/PVR operation

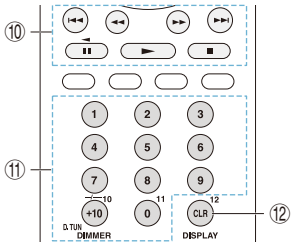
Press the REMOTE MODE button programmed with the remote control code for the relevant AV component to switch the remote controller mode to that for the AV component. Then, operate by using the corresponding buttons. Available buttons vary depending on the product category of the component. Operation may be incorrect or impossible depending on the product.



① REMOTE MODE
② ⏻SOURCE
③ MUTING
④ CH +/–



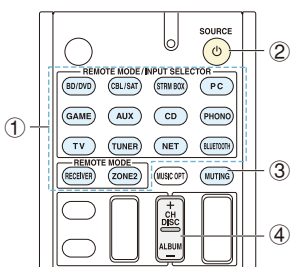
⑤ GUIDE
⑥ ▲/▼/◄/►, ENTER
⑦ HOME
⑧ PREV CH
⑨ RETURN



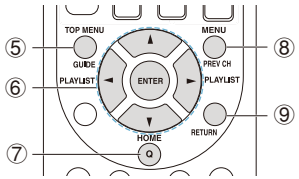
⑩ ►, ❚❚, ■, ◄◄, ►►, ❙◄◄, ►►❙
⑪ Number 1 to 9, 0, +10
⑫ CLR, DISPLAY

Satellite receiver / Cable receiver operation

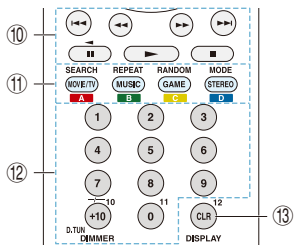
Press the REMOTE MODE button programmed with the remote control code for the relevant AV component to switch the remote controller mode to that for the AV component. Then, operate by using the corresponding buttons. Available buttons vary depending on the product category of the component. Operation may be incorrect or impossible depending on the product.



① REMOTE MODE
② ⏻SOURCE
③ MUTING
④ CH +/–



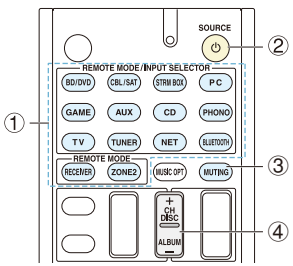
⑤ GUIDE
⑥ ▲/▼/◄/►, ENTER
⑦ HOME
⑧ PREV CH
⑨ RETURN



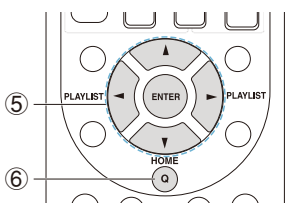
⑩ ►, ❚❚, ■, ◄◄, ►►, ❙◄◄, ►►❙
⑪ A (Red), B (Green), C (Yellow), D (Blue)
⑫ Number 1 to 9, 0, +10
⑬ CLR, DISPLAY

CD player operation

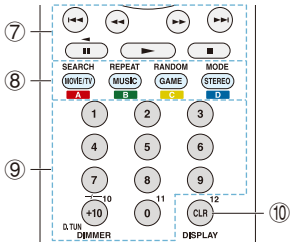
Press the REMOTE MODE button programmed with the remote control code for the relevant AV component to switch the remote controller mode to that for the AV component. Then, operate by using the corresponding buttons. Available buttons vary depending on the product category of the component. Operation may be incorrect or impossible depending on the product.



① REMOTE MODE
② ⏻SOURCE
③ MUTING
④ DISC +/–



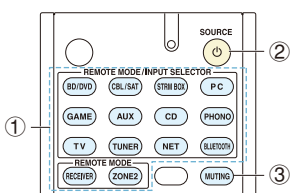
⑤ ▲/▼/◄/►, ENTER
⑥ HOME



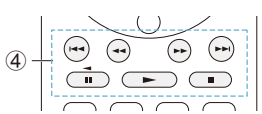
⑦ ►, ❚❚, ■, ◄◄, ►►, ❙◄◄, ►►❙
⑧ SEARCH, REPEAT, RANDOM, MODE
⑨ Number 1 to 9, 0, +10
⑩ CLR, DISPLAY

Cassette tape deck operation

Press the REMOTE MODE button programmed with the remote control code for the relevant AV component to switch the remote controller mode to that for the AV component. Then, operate by using the corresponding buttons. Available buttons vary depending on the product category of the component. Operation may be incorrect or impossible depending on the product.



① REMOTE MODE
② ⏻SOURCE
③ MUTING



④ ►, ◄(Reverse Playback), ■, ◄◄, ►►, ❙◄◄, ►►❙

To operate CEC-compatible components

If this unit is connected via HDMI to a TV or BD/DVD player, you may be able to control the devices using the remote controller of this unit with CEC (Consumer Electronics Control) linked operation.
TV: The TV button on the remote controller is preprogrammed with remote control codes for linked operation of some CEC(Consumer Electronics Control)-compatible TV sets.

- If you cannot operate your CEC-compatible TV, program one of the following remote control codes (11807/13100/13500) to the TV button.

BD/DVD player: By registering a remote control code (32910/33101/33501/31612) in the BD/DVD button, your remote controller will be able to take advantage of linked operation with CEC-compatible BD/DVD players.

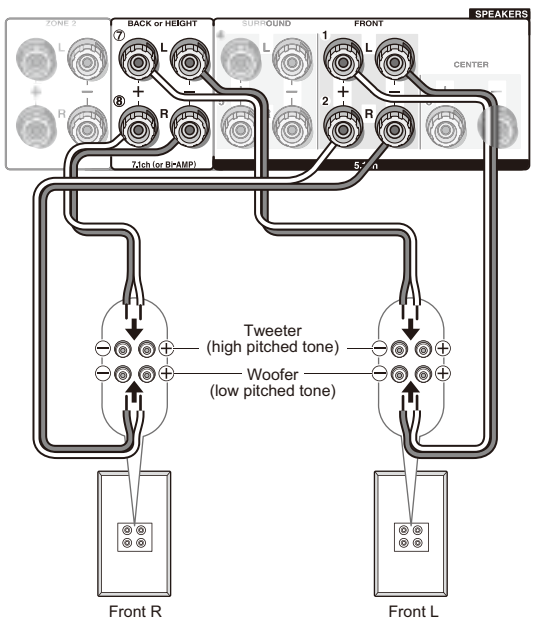
Advanced speaker connections

Connecting Bi-amp Speakers

It is possible to connect speakers supporting bi-amping to improve quality of the bass and treble. Up to 5.1 ch will be played in bi-amping.

■ Connections

1. Connect as below using the FRONT terminals and BACK or HEIGHT terminals.



2. Turn the unit on and make the bi-amping setting.
   ① After pressing RECEIVER on the remote controller, press SETUP.
   ② With the cursors, select "2. Speaker" - "Configuration" - "Bi-Amp".
   ③ Select "Yes" with the cursors.

- Before bi-amping, be sure to remove the short-circuit connector that connects the tweeter (treble) jack and the subwoofer (bass) jack.
- Use speakers supporting bi-amping only. For details, refer to the speakers' instruction manual.

Connecting and Operating Onkyo RI Components

About RI Function

Connecting an Onkyo component with RI jack such as the separately sold RI Dock to the unit by using an RI cable and an analog audio cable enables the following RI functions:

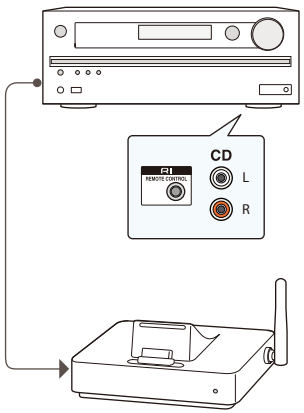
System On / Auto Power On: Starting playback on a component connected via RI when the unit is on standby mode, automatically turns on the unit to select the relevant component as its input source.

Direct Change: When playback is started on a component connected via RI, the unit selects that component as the input source.

Remote Controller Operation: Allows you to operate RI-compatible Onkyo components using the AV receiver's remote controller. Point the remote controller at remote control sensor of the unit. This operation is possible only when the RI remote control code is programmed.

- Some components may not support all RI functions.
- These functions do not work when Zone 2 is turned on.
- For information on the RI functions, also refer to each component's instruction manual.

RI Connection and Setting



Connect an Onkyo component with RI jack to this unit using an RI cable and an analog audio cable. For details, refer to the instruction manual of the component with RI jack. The RI cable can be connected in any order. When there are two RI jacks, both jacks work in the same way and are interchangeable.
To connect the RI Dock or cassette tape deck via RI, the following settings are required.

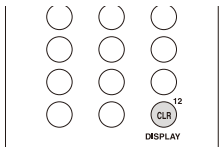
■ Rename the input selector

To make the RI functions work, you must rename the input selectors on the unit. Press CD or GAME to display "CD" or "GAME" on the main unit display. Then press and hold CD or GAME 3 seconds or more to switch the display to "DOCK" or "TAPE".

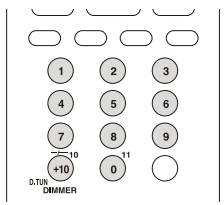
■ To program the RI remote control code

Program the remote control code to any REMOTE MODE button on the remote controller. This will allow you to operate the component by pointing the remote controller at the unit instead of the component.

1. Press and hold DISPLAY for 3 or more seconds while holding down the REMOTE MODE button to which you want to program the remote control code.
   - The remote indicator will light.
   - The RECEIVER and ZONE2 buttons cannot be programmed.



2. With the number buttons, enter the following 5-digit remote control code within 30 seconds.
   RI Dock: 81993
   Cassette tape deck with RI jack: 42157
   - Programming is complete when the remote indicator flashes twice. The remote indicator flashes once slowly when programming the remote control code fails. Try programming again.



Input selector on the RI Dock: Switch to "DOCK" or "TAPE". For details, refer to the RI Dock's instruction manual.

To operate Onkyo components directly or Onkyo components that are not connected via RI, use the following remote control codes:
Onkyo DVD player: 30627
Onkyo CD player: 71817
RI Dock: 82990

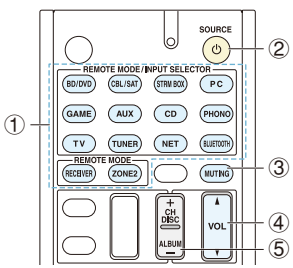
- With some models, operation may be not possible in part or not possible at all.

iPod®/iPhone® Operation

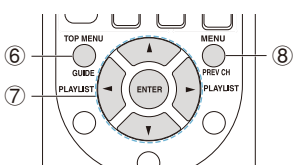
The RI Dock allows you to use the AV receiver's remote controller to operate and play music on your iPod/iPhone. Moreover, it also allows you to view videos on your iPod/iPhone on the screen of your TV, as well as perform RI operations if connected via RI. This operation is possible only when the RI remote control code is programmed.

Before performing any operation: Make sure the OS for your iPod/iPhone is updated to the latest version. Certain buttons may not work for some iPod/iPhone models and generations, or RI Dock. For details on the operation, refer to the RI Dock's instruction manual.

Switch the remote controller mode by pressing the REMOTE MODE button programmed with the remote control code for the iPod/iPhone, and operate by using the corresponding buttons. Point the remote controller at the unit.

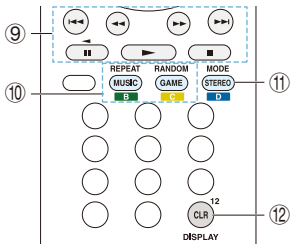


① REMOTE MODE
② ⏻SOURCE
③ MUTING
④ VOL ▲/▼
⑤ ALBUM +/–



⑥ TOP MENU
⑦ ▲/▼/◄/►, ENTER, PLAYLIST◄/►

⑧ MENU



⑨ ►, ❚❚, ■, ◄◄, ►►, ❙◄◄, ►►❙
⑩ REPEAT, RANDOM
⑪ MODE
⑫ DISPLAY

- Pressing DISPLAY turns on the backlight for a few seconds.
- MODE allows you to use the Resume function.

Firmware Update

About Firmware Update

There are two methods for updating the firmware; via network and via USB.
Use the one that best suits your environment.

- For the latest information on updates, visit the Onkyo website.
- Before updating, make sure that the speaker setup microphone is not connected.
- During an update, do not
  - Disconnect and reconnect any cable, USB storage device, speaker setup microphone or headphones, or perform any operation on the component such as turn off its power
  - Access to this unit from a PC or smartphone using Android application
- The update may take about 30 minutes to complete for either method: via network or via USB.
  Furthermore, existing settings are guaranteed regardless of the method used for update.

Disclaimer: The program and accompanying online documentation are furnished to you for use at your own risk.
Onkyo will not be liable and you will have no remedy for damages for any claim of any kind whatsoever concerning your use of the program or the accompanying online documentation, regardless of legal theory, and whether arising in tort or contract.
In no event will Onkyo be liable to you or any third party for any special, indirect, incidental, or consequential damages of any kind, including, but not limited to, compensation, reimbursement or damages on account of the loss of present or prospective profits, loss of data, or for any other reason whatsoever.

Updating the Firmware via Network

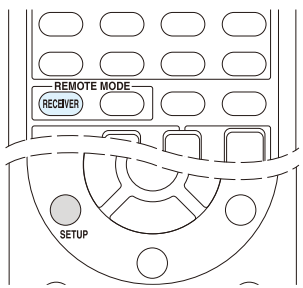
Before Starting

- Check that the unit is turned on, and the connection to the Internet is secured.
- Turn off the controller component (PC etc.) connected to the network.
- Stop any playing Internet radio, USB storage device, or server content.
- If the multi-zone function is active, press OFF on the main unit to turn it off.
- If "HDMI CEC (RIHD)" is set to "On", set it to "Off" (default value).
  - After pressing RECEIVER on the remote controller, press SETUP. Then, after selecting "6. Hardware" - "HDMI" and pressing ENTER, select "HDMI CEC (RIHD)" to select "Off".

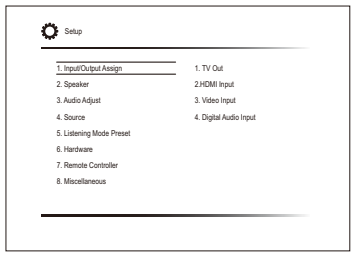
∗ The description may differ from the on-screen display but that will not change the way to operate or the function.

■ Update

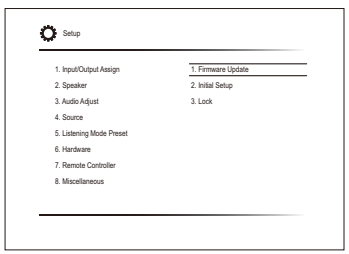
1. After pressing RECEIVER on the remote controller, press SETUP.



The Setup menu is displayed on the TV screen.

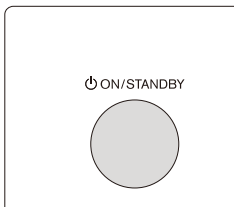


2. With the cursors, select "8. Miscellaneous" - "Firmware Update" - "Update via NET", and then press ENTER.



- If "Firmware Update" is grayed out and cannot be selected, wait for a while until it starts up.
- You will not be able to select "Update via NET" if there is nothing to update.

3. Press ENTER with "Update" selected to start update.
   - During the update, the TV screen may go black depending on the updated program. In that case, check the progress on the display of the unit. The TV screen will remain black until the update is complete and the power is turned on again.
   - "Completed!" is displayed when the update is complete.
4. Press ⏻ON/STANDBY on the main unit to turn the unit into standby mode. The process is completed and your firmware is updated to the latest version.
   - Do not use ⏻RECEIVER on the remote controller.



■ If an Error Message is Displayed

When an error occurs, "*-** Error!" is displayed on the unit. ("*" represents an alphanumeric character.) Check the following:

Error Code

- ***-01, *-10:**
  Ethernet cable not found. Connect the Ethernet cable properly.
- ***-02, *-03, *-04, *-05, *-06, *-11, *-13, *-14, *-16, *-17, *-18, *-20, *-21:**
  Internet connection error. Check the following:
  – Whether the router is turned on
  – Whether this unit and router are connected to the network
  Try to disconnect and then connect again the power to the unit and router. This may solve the problem. If you are still unable to connect to the Internet, the DNS server or proxy server may be temporarily down. Check the service status with your ISP provider.
- **Others**
  First disconnect then reconnect the AC power cord, and then retry from the beginning.

Updating the Firmware via USB

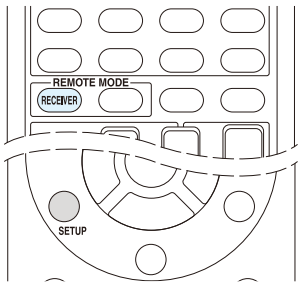
Before Starting

- Prepare a 64MB or larger USB storage device.
  – Media inserted in a USB card reader may not be used for this function.
  – USB storage devices with security function are not supported.
  – USB hubs and USB devices with hub function are not supported. Do not connect these devices to the unit.
- Delete any data stored on the USB storage device.
- Turn off the controller component (PC etc.) connected to the network.
- Stop any playing Internet radio, USB storage device, or server content.
- If the multi-zone function is active, press OFF on the main unit to turn it off.
- If "HDMI CEC (RIHD)" is set to "On", set it to "Off" (default value).
  – After pressing RECEIVER on the remote controller, press SETUP. Then, after selecting "6. Hardware" - "HDMI" and pressing ENTER, select "HDMI CEC (RIHD)" to select "Off".

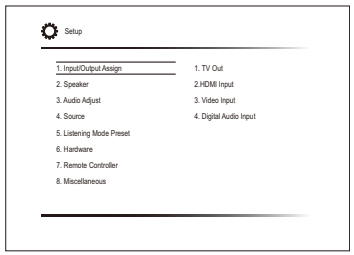
∗ Some USB storage devices may take long to load, may not be loaded correctly, or may not be correctly fed depending on the device or their content.
∗ Onkyo will not be liable whatsoever for any loss or damage of data, or storage failure arising from the use of the USB storage device with this AV receiver. Thank you for your understanding.
∗ The description may differ from the on-screen display but that will not change the way to operate or the function.

■ Update

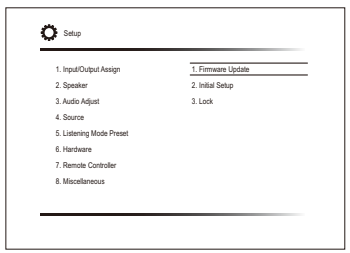
1. Connect the USB storage device to your PC.
2. Download the firmware file from the Onkyo website to your PC and unzip.
   Firmware files are named in the following way:
   ONKAVR****_**********.zip
   Unzip the file on your PC. The number of unzipped files and folders varies depending on the model.
3. Copy all unzipped files and folders to the root folder of the USB storage device.
   - Make sure to copy the unzipped files.
4. Connect the USB storage device to the USB port of the unit.
   - If you connect a USB hard disk drive to the USB port of the unit, we recommend that you use its AC adapter to power it.
   - If the USB storage device has been partitioned, each section will be treated as an independent device.
5. After pressing RECEIVER on the remote controller, press SETUP.



The Setup menu is displayed on the TV screen.

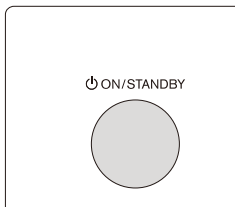


6. With the cursors, select "8. Miscellaneous" - "Firmware Update" - "Update via USB", and then press ENTER.



- If "Firmware Update" is grayed out and cannot be selected, wait for a while until it starts up.
- You will not be able to select "Update via USB" if there is nothing to update.

7. Press ENTER with "Update" selected to start update.
   - During the update, the TV screen may go black depending on the updated program. In that case, check the progress on the display of the unit. The TV screen will remain black until the update is complete and the power is turned on again.
   - During the update, do not turn off, or disconnect and reconnect the USB storage device.
   - "Completed!" is displayed when the update is complete.
8. Disconnect the USB storage device from the unit.
9. Press ⏻ON/STANDBY on the main unit to turn the unit into standby mode. The process is completed and your firmware is updated to the latest version.
   - Do not use ⏻RECEIVER on the remote controller.



If an Error Message is Displayed

When an error occurs, "*-** Error!" is displayed on the unit. ("*" represents an alphanumeric character.) Check the following:

Error Code

- ***-01, *-10:**
  USB storage device not found. Check whether the USB storage device or USB cable is correctly inserted to the USB port of the unit.
  Connect the USB storage device to an external power source if it has its own power supply.
- ***-05, *-13, *-20, *-21:**
  The firmware file is not present in the root folder of the USB storage device, or the firmware file is for another model. Retry from the download of the firmware file.
- **Others**
  First disconnect then reconnect the AC power cord, and then retry from the beginning.

Troubleshooting

Before starting the procedure

Problems may be solved by simply turning the power on/off or disconnecting/connecting the power cord, which is easier than working on the connection, setting and operating procedure. Try the simple measures on both the unit and the connected device. If the problem is that the video or audio is not output or the HDMI linked operation does not work, disconnecting/connecting the HDMI cable may solve it. When reconnecting, be careful not to wind the HDMI cable since if wound the HDMI cable may not fit well. After reconnecting, turn off and on the unit and the connected device.

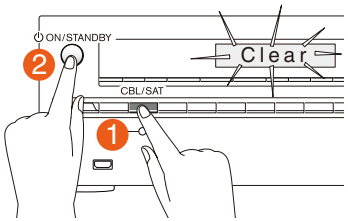
- The AV receiver contains a microPC for signal processing and control functions. In very rare situations, severe interference, noise from an external source, or static electricity may cause it to lockup. In the unlikely event that this happens, unplug the power cord from the wall outlet, wait at least 5 seconds, and then plug it back in.
- Onkyo is not responsible for damages (such as CD rental fees) due to unsuccessful recordings caused by the unit's malfunction. Before you record important data, make sure that the material will be recorded correctly.

Resetting the unit

Resetting the unit to the status at the time of shipment may solve the problem. If the measures mentioned in the troubleshooting do not solve the problem, reset the unit with the following procedure. If you reset the unit status, your preferences will be reset to the defaults. Note them down before starting reset.

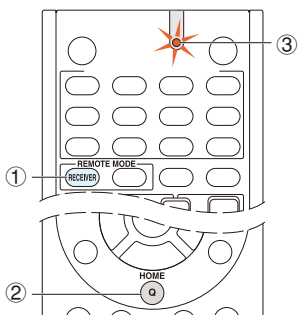
■ How to reset

1. While holding down CBL/SAT on the main unit (note that step 2 must be performed with this button pressed down)
2. Press ⏻ON/STANDBY on the main unit. "Clear" is appeared on the display and the unit will enter standby mode.



■ How to reset the remote controller

1. While holding down ① RECEIVER on the remote controller (note that step 2 must be performed with this button pressed down)
2. Press and hold ② Q for 3 or more seconds until the ③ remote indicator stays lit. Within 30 seconds, press ① RECEIVER again.



Power

■ Cannot turn on the unit

- Make sure that the power cord is properly plugged into the wall outlet.
- Unplug the power cord from the wall outlet, wait 5 seconds or more, then plug it in again.

■ The unit turns off unexpectedly

- The AV receiver will automatically enter standby mode when Auto Standby or Sleep Timer is set and launched.
- The protection circuit may have been activated. If this is the case, when you turn the unit on again, "AMP Diag Mode" will appear on the main unit's display. The unit will then enter a mode that detects abnormal conditions.

  If no problems are detected, "AMP Diag Mode" will disappear and the unit will return to a normal state. If "CHECK SP WIRE" appears on the display, the speaker cables may be short-circuited. Turn the unit off, and check to see if the cable core of any of the speaker cables is in contact with that of another speaker cable or with the rear panel. After that, turn the unit on again. If "NG" appears, unplug the power cord immediately and contact your Onkyo dealer.

WARNING: If smoke, smell or abnormal noise is produced by the unit, unplug the power cord from the wall outlet immediately and contact the dealer or Onkyo Support.

Audio

- Make sure that the speaker setup microphone is not still connected.
- Check that the output jack of the connected equipment and the input jack of this unit are connected correctly.
- Make sure that none of the connecting cables are bent, twisted, or damaged.
- If the MUTING indicator on the display flashes, press MUTING on the remote controller to unmute the unit.
- While headphones are connected to the PHONES jack, no sound is output from the speakers.
- If "Audio Select" - "PCM Fixed Mode" is set to "On", set it to "Off".

If the above does not solve the problem, check the following.

■ There is no sound from the television

- The input selector of this unit needs to be in the position that corresponds to the jack where the television is connected.
- If your TV does not support ARC, you need, in addition to the HDMI OUT MAIN jack connection, a digital optical cable connection between the digital audio out optical jack of the TV and the DIGITAL IN OPTICAL jack of the unit or an analog audio cable connection between the audio output jack of the TV and the AUDIO IN TV jack of the unit.

■ There is no sound from the connected player

- The input selector of this unit needs to be in the position that corresponds to the jack where the player is connected.
- Check the digital audio output setting on the connected component. On some game consoles, such as those

that support DVD, the default setting is off.
- With some DVD-Video discs, you need to select an audio output format from a menu.

■ **One of the speakers produces no sound**
- Make sure that the polarity of the speaker cables is correct, and that no bare wires are in contact with the metal part of speaker terminals.
- Make sure that the speaker cables are not shorting.
- Make sure the speakers are configured correctly.

■ **Only the front speakers produce sound**
- When the Stereo or Mono listening mode is selected, only the front speakers and subwoofer produce sound.

■ **Only the center speaker produces sound**
- If you use the Dolby Surround listening mode with a mono source, such as an AM radio station or mono TV program, the sound is concentrated in the center speaker.

■ **The surround speakers produce no sound**
- When the T-D (Theater-Dimensional), Stereo or Mono listening mode is selected, the surround speakers produce no sound.
- Depending on the source and current listening mode, not much sound may be produced by the surround speakers. Try selecting another listening mode.

■ **The center speaker produces no sound**
- When the Stereo or Mono listening mode is selected, the center speaker produces no sound.

■ **No sound from the back speakers and height speakers**
- Depending on the source and current listening mode, not much sound may be produced by the speakers. Try selecting another listening mode.

■ **The subwoofer produces no sound**
- When the input signal does not include a subwoofer audio element (LFE), the subwoofer may not produce sound.

■ **Volume is low**
- Check the volume. The volume level is adjustable between Min, 1 to 79, Max (80). A level of around 40 is normal in a domestic environment.

■ **There is no sound from a connected turntable.**
- If your turntable uses an MC cartridge, you must connect an audio equalizer and either an MC head amp or an MC transformer.

■ **Noise can be heard**
- Using cable ties to bundle audio cables with power cords, speaker cables, etc. may degrade the audio performance, so refrain from doing it.
- An audio cable may be picking up interference. Try repositioning your cables.

■ **The sound changes when I connect my headphones**
- When a listening mode other than Direct, Pure Audio (European, Australian and Asian models), or Mono is selected, connecting a headphone automatically selects Stereo.

■ **About DTS signals**
- When DTS program material ends and the DTS bitstream stops, the unit remains in DTS listening mode and the dts indicator remains on. This is to prevent noise when you use the pause, fast forward, or fast reverse function on your player. If you switch your player from DTS to PCM, you may not hear any sound because the unit does not switch formats immediately. In such case, you should stop your player for about 3 or more seconds and then resume playback.
- With some CD and LD players, you will not be able to playback DTS material properly even though your player is connected to a digital input on the unit. This is usually because the DTS bitstream has been processed (e.g., output level, sampling rate, or frequency response changed) and the unit does not recognize it as a genuine DTS signal. In such cases, you may hear noise.
- When playing DTS program material, using the pause, fast forward, or fast reverse function on your player may produce a short audible noise. This is not a malfunction.

■ **The beginning of audio received by an HDMI IN cannot be heard**
- Since it takes longer to identify the format of an HDMI signal than it does for other digital audio signals, audio output may not start immediately.

Listening Mode

- When listening to Dolby Digital and/or DTS sound, digital connection is necessary.
- Check the digital audio output setting on the connected component. On some game consoles, such as those that support DVD, the default setting is off.
- After pressing RECEIVER on the remote controller, repeatedly press DISPLAY to switch the display on the main unit. You can see the input format.

If the above does not solve the problem, check the following.

■ **Cannot select a desired listening mode**
- Depending on the connecting status of the speaker, some listening modes may not be selected. Check the details in "Selectable Listening Modes" section.

■ **There is no sound with Dolby Atmos**
- You need to have either back speakers or height speakers connected. After connecting each of the speakers, make sure the connection settings in "Configuration" - "Speaker Channels" are correct.
- Dolby Atmos play is only possible when the input signal is Dolby Atmos.

■ **Cannot select the Pure Audio listening mode (European, Australian and Asian models)**
- The Pure Audio listening mode cannot be selected while Zone 2 is on.

Video

- Check that the output jack of the connected equipment and the input jack of this unit are connected correctly.
- Make sure that none of the connecting cables are bent, twisted, or damaged.
- Make sure the switching of input screens is proper at the monitor side such as a TV.

If the above does not solve the problem, check the following.

■ **There is no picture from a source connected to an HDMI IN**
- The input selector of this unit needs to be in the position that corresponds to the jack where the player is connected.
- While the Pure Audio (European, Australian and Asian models) listening mode is selected only video signals input through HDMI IN can be output.
- Check if "Resolution Error" is displayed on the main unit display when video input via HDMI IN jack is not displayed. In this case, the TV does not support the resolution of the video input from the player. Change the setting on the player.
- Reliable operation with an HDMI-to-DVI adapter is not guaranteed. In addition, video signals from a PC are not supported.
- Try switching off the DeepColor function. To turn off the

DeepColor function, simultaneously press the STRM BOX and ⏻ON/STANDBY buttons on the main unit. While holding down STRM BOX, press ⏻ON/STANDBY repeatedly until "Deep Color:Off" appears on the display. To reactivate the DeepColor function, repeat the above described step until "Deep Color:On" is appeared on the display.

■ **There is no picture from a source connected to the component video input jack**

- If multiple video inputs are put into one input, the output will be made in the order of HDMI, COMPONENT VIDEO/composite video. In this case, to output composite video, set "HDMI Input" to "-----".

■ **Images flicker**

- It is possible that the resolution of the player is not compatible with the TV's resolution. If you have connected the player to this unit with an HDMI cable, try changing the output resolution on the player. There also may be an improvement if you change the screen mode on the TV.

Linked operation

■ **There is no HDMI linked operation with CEC-compliant equipment such as a television**

- Set the HDMI CEC (RIHD) setting of the unit to "On". Press RECEIVER and then SETUP on the remote controller, select "Setup" - "6. Hardware" - "HDMI" - "HDMI CEC (RIHD)" and set to "Yes".
- It is also necessary to make the HDMI linked system settings on the CEC-compliant equipment. Check the operating instructions.

■ **The RI functions do not work**

- To use RI, you must make an RI connection and an analog audio connection (RCA) between the component and AV receiver.
- While Zone 2 is selected, the RI functions do not work.

Tuner

■ **Reception is noisy, FM stereo reception is noisy, or the "FM STEREO" indicator does not stay lit**

- Re-check the antenna connection.
- Relocate your antenna.
- Move the unit away from your TV or PC.
- Passing cars and airplanes can cause interference.
- Concrete walls weaken radio signals.
- Listen to the station in mono.
- When listening to an AM station, operating the remote controller may cause noise.

Bluetooth

- Try plugging/unplugging the power of the unit and try turning on/off the Bluetooth-enabled device. Re-startup of the Bluetooth-enabled device may be effective.
- The Bluetooth-enabled devices must support the A2DP profile.
- Near components such as microwave oven or cordless phone, which use the radio wave in the 2.4 GHz range, a radio wave interference may occur, which disables the use of this unit.
- If there is a metallic object near the unit, Bluetooth connection may not be possible as the metal can effect on the radio wave.

If the above does not solve the problem, check the following.

■ **Cannot connect with this unit**

- The Bluetooth function of the Bluetooth-enabled device is not enabled. Refer to the user manual of the Bluetooth-enabled device for how to enable the Bluetooth function.
- When building a Bluetooth connection between this unit and your Bluetooth-enabled device for the first time, if the connection fails, select "6.Hardware" - "Bluetooth", execute "Clear" in "Pairing Information", turn off and then on again your Bluetooth-enabled device to clear the device name, and build the Bluetooth connection again.
- If the wireless LAN and Bluetooth connections are used at the same time, try connecting the ETHERNET port and router with the Ethernet cable after selecting "6. Hardware" - "Network" and changing "Wi-Fi" to "Off(Wired)" for a better connection.

■ **Music playback is unavailable on the unit even after successful Bluetooth connection**

- When the audio volume of your Bluetooth-enabled device is set low, the playback of audio may be unavailable. Increase the volume of the Bluetooth-enabled device.
- Depending on the Bluetooth-enabled device, Send/Receive selector switch may be provided. Select Send mode.
- Depending on the characteristics or specifications of your Bluetooth-enabled device, playback on the unit is not guaranteed.

■ **Sound is interrupted**

- Problem may be occurring at the Bluetooth-enabled device. Check the information on a web page.

■ **The audio quality is poor after connection with a Bluetooth-enabled device**

- The Bluetooth reception is poor. Move the Bluetooth-enabled device closer to the unit or remove any obstacle between the Bluetooth-enabled device and this unit.

■ **"Bluetooth" - "Auto Reconnect" does not work**

- This may not work with some Bluetooth-enabled devices.
  In that case, pair the unit and the Bluetooth-enabled device and then play again.

Network function

- "Network Setup" becomes selectable after the network starts up even if it cannot be selected first. It may take about a minute to start up.
- When NET is blinking, the AV receiver is not properly connected to the home network.
- Try unplugging the power supply of this unit and the router, and then plugging in again. Try rebooting the router.

If the above does not solve the problem, check the following.

■ **Cannot access the Internet radio**

- Certain network service or contents available through the unit may not be accessible in case the service provider terminates its service.
- Make sure that your modem and router are properly connected, and make sure they are both turned on.
- Make sure that the router LAN side port is properly

connected to the AV receiver.
- Make sure that connecting to Internet from other components is possible. If connecting is not possible, turn off all components connected to the network, wait for a while, and then turn on the components again.
- If a specific radio station is unavailable for listening, make sure the registered URL is correct, or whether the format distributed from the radio station is supported by this unit.
- Depending on ISP, setting the proxy server is necessary.
- Make sure that the used router and/or modem is supported by your ISP.

■ **Cannot access the network server**
- This unit needs to be connected to the same router as the network server.
- Make sure your network server has been started up.
- Make sure your network server is properly connected to the home network.
- Make sure your network server is correctly set.
- Make sure that the router LAN side port is properly connected to the AV receiver.

■ **Playback stops while listening to music files on the network server**
- Make sure the network server is compatible with this unit.
- When the PC is serving as the network server, try quitting any application software other than the server software (Windows Media® Player 12 etc.).
- If the PC is downloading or copying large files, the playback may be interrupted.

USB storage device

■ **USB storage device is not displayed**
- Check whether the USB storage device or USB cable is correctly inserted to the USB port of the unit.
- Remove the USB storage device from the AV receiver once, and then try re-connecting.
- Performance of the hard disk that receive power from the USB port of the unit is not guaranteed.
- Depending on the type of format, the playback may not be performed normally. Check the type of the file formats that is supported.
- USB storage devices with security functions may not be played.

Wi-Fi (Wireless LAN) Network

- Try plugging/unplugging the power supply of wireless LAN router and the unit, check the wireless LAN router power-on status, and try reboot of the wireless LAN router.

If the above does not solve the problem, check the following.

■ **Cannot access to Wi-Fi (Wireless LAN) network**
- The wireless LAN router setting may be switched to Manual. Return the setting to Auto.
- Try the manual set-up. The connection may succeed.
- When the wireless LAN router setting is at stealth mode (mode to hide the SSID key) or when ANY connection is off, the SSID is not displayed. Change the setting and try again.
- Check if SSID and encryption settings (WEP, etc.) are correct. Make sure the network settings of the unit is properly set.
- Connection to an SSID that includes multi-byte characters is not supported. Name the SSID of the wireless LAN router using single-byte alphanumeric characters only and try again.

■ **Playback is interrupted and communication does not work**
- Cannot receive signals due to a bad connection. Shorten the distance from wireless LAN access point or remove obstacles for a good visibility, and try again. Place the unit away from microwave ovens or other access points. It is recommended to place the Wi-Fi router (access point) and the unit in the same room.
- If there is a metallic object near the unit, wireless LAN connection may not be possible as the metal can effect on the radio wave.
- 2.4 GHz band for wireless LAN may not be enough. Connect ETHERNET port of the unit and the router via an Ethernet cable after selecting "6. Hardware" - "Network" and changing "Wi-Fi" to "Off(Wired)".
- When other wireless LAN devices are used near the unit, several issues such as interrupted playback and communication may occur. You can avoid these issues by changing the channel of your Wi-Fi router. For instructions on changing channels, see the instruction manual provided with your Wi-Fi router.

Multi-zone Function

■ **There is no zone output from the connected player**
- With multi-zone function, sound is output only when the signal input source is an external component connected to the digital audio input jacks or analog audio input jacks, "NET", "BLUETOOTH", "AM" or "FM". Multi-zone output is not possible if the player and the unit are connected via HDMI cable.
  Connect the player using a digital optical cable (OPTICAL), digital coaxial cable (COAXIAL), or RCA cable. Also, some players require audio output setting.
- Only analog and 2ch PCM audio signals can be output from an external component to Zone 2.
- When the "NET" input source is selected, DSD and Dolby TrueHD audio signals cannot be output to Zone 2.

Remote Controller

- Make sure that the batteries are installed with the correct polarity.
- Install new batteries. Do not mix different types of batteries, or old and new batteries.
- Make sure that the remote controller is not too far away from the unit, and that there is no obstruction between the remote controller and the remote control sensor of the unit.
- Make sure that the unit is not subjected to direct sunshine or inverter-type fluorescent lights. Relocate if necessary.
- If the unit is installed in a rack or cabinet with colored-glass doors or if the doors are closed, the remote controller may not work reliably.

If the above does not solve the problem, check the following.

■ **The remote controller does not work**
- Before operating this unit with the remote controller, be sure to press RECEIVER.

■ **Operating other Onkyo component by using a RI remote control code is not available**
- Make sure that the Onkyo component is properly connected with RI cable. When RI cable is used for connection, make sure to connect analog audio cable as well. (Connecting only an RI cable will not be enough.)
- Make sure you have selected the correct remote controller mode.

- When the RI remote control code is input, point the remote controller at remote control sensor of the unit.
- Make sure that the input display is correctly set.
- Input the RI remote control code again.

■ **Cannot operate Onkyo components (ones without RI connection) and components of other makers**
- Operate the remote controller by setting toward the light receiving section of each component.
- When using the remote controller to control other manufacturers' AV components, some buttons may not work as expected. Also, some components may not operate at all.
- Make sure you have selected the correct remote controller mode.
- Make sure you have entered the correct remote control code.
- Make sure to set the same ID on both the unit and remote controller.
- Input a correct remote control code again. If there are several codes, try each code.

Display and OSD

■ **The display does not light**
- Make sure that Dimmer function is not working. Press DIMMER button and change the brightness level of the display.
- The display is turned off when the Pure Audio (European, Australian and Asian models) listening mode is selected.

■ **The on-screen menus do not appear**
- On your TV, make sure that the video input to which this unit is connected is selected.
- Set "TV Out" - "Impose OSD" to "On".
- (European, Australian, Taiwanese and Asian models) The guidance displayed on the TV screen (OSD) are not displayed when the OSD language is set to Chinese if the input selector is "NET" or "BLUETOOTH". Operate by confirming the display on the main unit. Note that the display on the main unit does not support the display of Chinese characters. Characters that cannot be displayed are replaced with asterisks (⁎).

RI Dock

- Make sure the unit is turned on, the correct input source is selected, and the volume is turned up.
- Make sure cord and cable plugs are properly plugged in.
- Make sure your iPod/iPhone is properly inserted in the Dock. If your iPod/iPhone is in a case, it may not connect properly to the Dock. Always remove your iPod/iPhone from the case before inserting it into the Dock. Try reconnecting your iPod/iPhone.
- Make sure your iPod/iPhone is actually playing.

If the above does not solve the problem, check the following.

■ **There is no sound**
- Try resetting your iPod/iPhone.

■ **There is no video**
- Make sure the correct input is selected on your TV or the unit.
- Make sure that your iPod/iPhone model's TV OUT setting is set to On.
- Some versions of the iPod/iPhone do not output video.

■ **The AV receiver's remote controller does not control your iPod/iPhone**
- The iPod/iPhone cannot be operated while it is displaying the Apple logo.
- Make sure you have selected the correct remote controller mode.
- When you use the AV receiver's remote controller, point it toward this unit.
- Before operating with the remote controller, you may need to play on your iPod/iPhone to make the input selector be recognized.
- Depending on your iPod/iPhone model and generation, some buttons may not work as expected.
- Try resetting your iPod/iPhone.

■ **The unit unexpectedly selects your iPod/iPhone as the input source**
- Always pause iPod/iPhone playback before selecting a different input source. If playback is not paused, the Direct Change function may select your iPod/iPhone as the input source by mistake during the transition between tracks.

Others

■ **Strange noises can be heard from the unit**
- If you have connected another unit to the same wall outlet as this unit, this noise may be an effect from the other unit. If the symptoms improve by unplugging the power cord of the other unit, use different wall outlets for this unit and the other unit.

■ **When performing Automatic Speaker Setup, the measurement fails and the message "Ambient noise is too high." is displayed.**
- This can be caused by a malfunction in your speaker unit. Check if the unit produces normal sounds.

■ **The Late Night function does not work**
- Make sure the source material is Dolby Digital, Dolby Digital Plus, Dolby TrueHD, or DTS.

■ **The Cinema Filter function does not work**
- This function can be used in the following listening modes: Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Multichannel, DTS, DTS-ES, DTS 96/24, DTS-HD High Resolution Audio, DTS-HD Master Audio, DTS Express, DSD.

■ **How do I change the language of a multiplex source**
- Select "Main" or "Sub" for "3. Audio Adjust" - "Multiplex/Mono" - "Multiplex Input Channel".

■ **Cannot connect to the AV receiver from a Web browser**
- Make sure that the IP address of the AV receiver is correctly input to the Internet browser.
- When DHCP is used for allocating the IP address, the IP address of this AV receiver may have been changed.
- Make sure that both AV receiver and PC are properly connected to the network.

■ **Power consumption in standby mode**
- In the following cases, the power consumption in standby mode may reach up to a maximum of 4.4 W:
  - When "Network Standby" in "6. Hardware" - "Power Management" - "Network" is set to "On".
  - When "HDMI CEC (RIHD)" is set to "On". (Depending on the TV status, this unit will enter normal standby mode.)
  - The "HDMI Standby Through" setting is set to other than "Off".
  - When "Bluetooth Wakeup" in "6. Hardware" - "Power Management" is set to "On".
  - When "USB Power Out at Standby" is set to "On"

Reference Information

Linked Operation with CEC-compatible Components

Link operation with a product conforming to the CEC of the HDMI standard.
Note that linked operation is not always guaranteed with all CEC devices.

Operation has been confirmed on the following devices (as of February 2015).
TV (Random order):
- Toshiba TV sets
- Sharp TV sets

Players/Recorders (Random order):
- Onkyo and Integra RIHD-compatible players
- Toshiba players and recorders
- Sharp players and recorders (only when used together with Sharp TV sets)

Caution: For linking functions to work properly, do not connect more RIHD-compatible components than the quantities specified below, to the HDMI jacks. Linking functions are not guaranteed when more RIHD-compatible components than the below mentioned quantities are connected. Furthermore, do not connect the AV receiver to another AV receiver/AV amplifier via HDMI.
- Blu-ray Disc/DVD players: up to 3.
- Blu-ray Disc/DVD recorders: up to 3.
- Cable TV tuner, terrestrial digital tuner, and satellite broadcasting tuner: up to 4 units.

Checking whether the HDMI Linked Operation Settings Are Enabled

1. Turn on the power of all connected components.
2. Turn off the power of the TV, and confirm that the power of the connected components is turned off automatically with the link operation.
3. Turn on the power of the Blu-ray Disc/DVD player/recorder.
4. Start playback on the Blu-ray Disc/DVD player/recorder, and verify the following:
   - The AV receiver automatically turns on, and selects the input to which the Blu-ray Disc/DVD player/recorder is connected.
   - The TV automatically turns on, and selects the input to which the AV receiver is connected.
5. Following the instruction manual of the TV, select "Use the TV speakers" from the menu screen of the TV, and confirm that the audio is output from the speakers of the TV, and not from the speakers connected to the AV receiver.
6. Select "Use the speakers connected from the AV receiver" from the menu screen of the TV, and confirm that the audio is output from the speakers connected to the AV receiver, and not from the TV speakers.

Caution:
- Even if you set to output audio on the TV speakers, audio will be output from the speakers connected to the AV receiver when you adjust the volume or switch the input on the AV receiver. To output audio from the TV speakers, redo the corresponding operations on the TV.
- In case of an RIHD connection with RI and RI EX audio control compatible components, do not connect the RI cable at the same time.
- On the TV, when you select anything other than the HDMI jack to which the AV receiver is connected, the input on the AV receiver will be switched to "TV".
- The AV receiver will automatically power on in conjunction when it determines it to be necessary. Even if the AV receiver is connected to an RIHD compatible TV or player/recorder, it will not power on if it is not necessary. It may not power on in conjunction when the TV is set to output audio from the TV.
- Linked system functions with the AV receiver may not work depending on the component model connected. In such cases, operate the AV receiver directly.
- When the player/recorder cannot be operated with the remote controller of the AV receiver, the corresponding component may not be programmed to support the remote controller operation of CEC. Program the remote control code of the component maker to the remote controller for using.

About HDMI

HDMI (High-Definition Multimedia Interface) is a digital interface standard for connecting TVs, projectors, Blu-ray Disc/DVD players, set-top boxes, and other video components. Until now, several separate video and audio cables have been required to connect AV components. With HDMI, a single cable can carry control signals, digital video and digital audio (2-channel PCM, multichannel digital audio, and multichannel PCM).
The HDMI video stream (i.e., video signal) is compatible with DVI (Digital Visual Interface) (*1), so TVs and displays with a DVI input can be connected by using an HDMI-to-DVI adapter cable. (This may not work with some TVs and displays, resulting in no picture.)
This unit supports HDCP (High-bandwidth Digital Content Protection) (*2), so it can display picture only on HDCP-compatible components.
HDMI of the unit supports the following functions.
Audio Return Channel, 3D, x.v.Color, Deep Color, LipSync, 4K (Passthrough)

Audio Formats Supported by The Unit:
- 2-channel linear PCM (32 - 192 kHz, 16/20/24 bit)
- Multichannel linear PCM (up to 7.1 ch, 32 - 192 kHz, 16/20/24 bit)
- Bitstream (Dolby Atmos, Dolby Digital, Dolby Digital Plus, Dolby TrueHD, DTS, DTS-HD High Resolution Audio, DTS-HD Master Audio)
- DSD

Your Blu-ray Disc/DVD player must also support HDMI output of the above audio formats.

About Copyright Protection:
The unit supports Revision 1.4 and Revision 2.2 (HDMI OUT MAIN/SUB and HDMI IN1 to 3 only) of the HDCP (High-bandwidth Digital Content Protection) (*2), a copy-protection system for digital video signals. Other devices connected to the unit must also support HDCP.

*1 DVI (Digital Visual Interface): The digital display interface standard set by the DDWG (*3) in 1999.
*2 HDCP (High-bandwidth Digital Content Protection): The video encryption technology developed by Intel for HDMI/DVI. It is designed to protect video content and requires a HDCP-compatible HDMI/DVI receiver to display the encrypted video.
*3 DDWG (Digital Display Working Group): Lead by Intel, Compaq, Fujitsu, Hewlett Packard, IBM, NEC, and Silicon Image, this open industry group's objective is to address the industry's requirements for a digital connectivity specification for high-performance PC and digital displays.

Caution:
- There are some content that can be played only with HDCP Rev. 2.2 compatible devices. To play such content, connect an HDCP Rev.2.2 compatible TV or player to the HDMI OUT MAIN/SUB jack or HDMI IN1 to 3 jacks of the unit.
- The HDMI video stream (i.e., video signal) is compatible with DVI (Digital Visual Interface), so TVs and displays with a DVI input can be connected by using an HDMI-to-DVI adapter cable. (Note that DVI connections only carry video, so you will need to make a separate connection for audio.) However, reliable operation with such an adapter is not guaranteed. In addition, video signals from a PC are not supported.
- The HDMI audio signal (sampling rate, bit length, etc.) may be restricted by the connected source component. If the picture is poor or there is no sound from a component connected via HDMI, check its setup. Refer to the connected component's instruction manual for details.

Home network (LAN)

The connection of several components via cables enabling the mutual communication is called a network.
At households, many families create (generally, the term "build" is used) a network to connect PC and gaming machines to the Internet and to exchange data between PC.
The network established in a relatively narrow area such as one household is called a LAN (Local Area Network).
In this manual, a term "home network" (network for a family) is used instead of "LAN", so this LAN becomes more familiar.
By connecting this unit with the network server such as a PC, playing music files in the network server (in the PC) is possible. Moreover, by connecting to the Internet, listening to the Internet radio is also possible.
This unit, PC, and Internet are not directly connected.
When connecting with a PC and/or Internet, several components (network components) are necessary.

Components necessary for establishing a home network (LAN):
Components necessary for the home network (LAN) for using the NET function of this unit are as follows.

■ Router
A router is a device that controls information (data) flow between the unit, PC, and the Internet.
As a network term, the flow of information (data) is called "traffic". The router has a role to control the information flow as the traffic control, between connected components.
- A router with a built-in 100Base-TX switch is recommended.
- In addition, if your router has the DHCP function, facilitating the network setting becomes possible.
- Some routers have a built-in modem, and some Internet Service Providers (ISP) require you to use specific routers.

Please consult your ISP or PC dealer if you are unsure.

■ CAT5 Ethernet cable
The Ethernet cable is a cable that actually connects components that comprise the network. There are straight type and cross type Ethernet cables.
- Use a shielded CAT5 Ethernet cable (straight-type) to connect the unit to your home network.

Consult your cable store for details of Ethernet cable.

■ Network server (When PC etc./network server is used)
Component that stores music files and provides the unit with those files at the time of playback.

- Requirements for use with this unit depend on the component that is used as a network server.
- Conditions for pleasant playback of music files on the unit depend on the using network server (PC performance). See instruction manuals of using components.

■ Modem (when Internet radio is used)
Device that connects home network (LAN) and Internet
There are many kinds of modems depending on the forms of Internet connection.
In addition, when connecting to the Internet, it is required to conclude an agreement with a company that provides Internet connection service, called ISP (Internet Service Provider).
Use a modem that is recommended by your ISP company for the Internet connection.
There are some devices that have both router and modem functions.
Within above network components, prepare a router, Ethernet cable, and network server when the NET function "network server" is used.
For enjoying the NET function "Internet radio", it is necessary to use the router, Ethernet cable, and modem (and agreement with ISP).

Server Requirements

■ Server playback
This unit can play digital music files stored on a PC or media server and supports the following technologies:
- Windows Media® Player 11
- Windows Media® Player 12
- DLNA-certified media server

The network server must be connected to the same network as this unit.
Up to 20,000 folders can be displayed, and folders may be nested up to 16 levels deep.

Caution: Depending on the media server, the unit may not recognize it, or may not be able to play its music files.

■ Remote playback
Remote playback is the function that enables this unit to play music files saved in different components by operating the DLNA-compliant controller component and PC in the home network.
- Windows Media® Player 12
- DLNA-certified (within DLNA Interoperability Guidelines version 1.5) media server or controller component.
  ∗ The setting varies depending on the media server or controller components. Refer to your components' instruction manual for details.

If the operating system of your personal PC is Windows® 8/Windows® 7, Windows Media® Player 12 is already installed. For more information, see the Microsoft web site.

USB Storage Device Requirements

- USB mass storage device class (but not always guaranteed).
- FAT16 or FAT32 file system format.
- If the USB storage device has been partitioned, each section will be treated as an independent device.
- Up to 20,000 folders can be displayed, and folders may be nested up to 16 levels deep.
- USB hubs and USB storage devices with hub functions are not supported. Do not connect these devices to the unit.

Caution:
- If the media you connect is not supported, the message "No Storage" will be displayed.

- Sound files that are protected by copyright cannot be played.
- When the USB audio player and this unit are connected, the audio player screen and the screen of the unit may be different. In addition, control functions of the audio player (classifying and sorting music files and adding information, etc.) are not available on this unit.
- Do not connect a PC to the USB port of the unit. Inputting sound to the USB port of the unit from a PC is not possible.
- Media inserted to the USB card reader may not be available in this function.
- Some USB storage devices and its contents may require some time to be read.
- Depending on the USB storage device, proper reading of the contents and proper supply of the power supply may not be possible.
- Onkyo accepts no responsibility whatsoever for the loss or damage to data stored on a USB storage device when that device is used with this unit. We recommend that you back up your important music files beforehand.
- Performance of the hard disk that receive power from the USB port of the unit is not guaranteed.
- If you connect a USB hard disk drive to the USB port of the unit, we recommend that you use its AC adapter to power it.
- When an audio player that are operated with batteries is used, make sure that the batteries have enough remaining power.
- This unit does not support USB storage devices with security functions.

Supported Audio Formats

- For server playback and playback from a USB storage device, this unit supports the following music file formats.
- Music files of the following formats that can be played depend on the network server. For example, when using Windows Media® Player 12, not all music files in the PC can be played. The music files that can be played are the ones registered to the Windows Media® Player 12 library.
- Variable bit-rate (VBR) files are supported. However, playback times may not be displayed correctly.
- This unit supports the gapless playback of the USB storage device in the following conditions.
  When WAV, FLAC and Apple Lossless files are continuously played back with the same format, sampling frequency, channels and quantization bit rate
- Remote playback does not support the gapless playback.
- For playback via wireless LAN, the sampling rate of 88.2 kHz or higher, DSD and Dolby TrueHD are not supported.

Caution:
- With remote playback on this unit the following formats are not supported:
  - FLAC, Ogg Vorbis, DSD and Dolby TrueHD.

■ MP3 (.mp3 or .MP3)
- Supported formats: MPEG-1/MPEG-2 Audio Layer 3
- Supported sampling rates: 8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz
- Supported bitrates: Between 8 kbps and 320 kbps. Incompatible files cannot be played.

■ WMA (.wma or .WMA)
WMA stands for Windows Media Audio and is an audio compression technology developed by Microsoft Corporation. Audio can be encoded in WMA format by using Windows Media® Player.
- Supported sampling rates: 8 kHz, 11.025 kHz, 16 kHz, 22.05 kHz, 32 kHz, 44.1 kHz, 48 kHz
- Supported bitrates: Between 5 kbps and 320 kbps. Incompatible files cannot be played.
- WMA Pro/Voice formats are not supported.

■ WMA Lossless (.wma or .WMA)
- Supported sampling rates: 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
- Quantization bit: 16 bit, 24 bit

■ WAV (.wav or .WAV)
WAV files contain uncompressed PCM digital audio.
- Supported sampling rates: 8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz, 64 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
- Quantization bit: 8 bit, 16 bit, 24 bit
  ∗ For playback from a USB storage device, sampling rates of 176.4 kHz and 192 kHz are not supported.
  ∗ For playback from a USB storage device, 5.1 ch is not supported.

■ AAC (.aac/.m4a/.mp4/.3gp/.3g2/.AAC/.M4A/.MP4/.3GP or .3G2)
- Supported formats: MPEG-2/MPEG-4 Audio
- Supported sampling rates: 8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz, 64 kHz, 88.2 kHz, 96 kHz
- Supported bitrates: Between 8 kbps and 320 kbps. Incompatible files cannot be played.

■ FLAC (.flac or .FLAC)
FLAC is a file format for lossless audio data compression.
- Supported sampling rates: 8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz, 64 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
- Quantization bit: 8 bit, 16 bit, 24 bit
  ∗ For playback from a USB storage device, sampling rates of 176.4 kHz and 192 kHz are not supported.
  ∗ For playback from a USB storage device, 5.1 ch is not supported.

■ Ogg Vorbis (.ogg or .OGG)
- Supported sampling rates: 8 kHz, 11.025 kHz, 16 kHz, 22.05 kHz, 32 kHz, 44.1 kHz, 48 kHz
- Supported bitrates: Between 32 kbps and 500 kbps. Incompatible files cannot be played.
- Incompatible files cannot be played.

■ LPCM (Linear PCM)
- Supported sampling rates: 44.1 kHz, 48 kHz
- Quantization bit: 16 bit
  ∗ Only for playback via DLNA.

■ Apple Lossless (.m4a/.mp4/.M4A/.MP4)
- Supported sampling rates: 8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz, 64 kHz, 88.2 kHz, 96 kHz
- Quantization bit: 16 bit, 24 bit

■ DSD (.dsf or .DSF)
- Supported sampling rates: 2.8224 MHz, 5.6448 MHz
  ∗ For playback from a USB storage device, 5.6448 MHz is not supported.

■ Dolby TrueHD (.vr/.mlp/.VR/.MLP)
- Supported sampling rates: 48 kHz, 64 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
  ∗ Only sampling rates of 48 kHz is supported for playback from USB.
  ∗ Playback via DLNA is not supported.
  ∗ For playback from a USB storage device, 7.1 ch is not supported.

Radio Wave Caution

The AV receiver uses a 2.4 GHz radio wave frequency, which is a band used by other wireless systems as 1 and 2 described below.

1. Devices which use a 2.4 GHz radio wave frequency
   - Cordless phones
   - Cordless facsimiles
   - Microwave ovens

- Wireless LAN devices (IEEE802.11b/g/n)
- Wireless AV equipment
- Wireless controllers for game systems
- Microwave oven-based health aids
- Video transmitter
- Specific type of external monitor and LCD display

2. Less common devices which use a 2.4 GHz radio wave frequency
   - Anti-theft systems
   - Amateur radio stations (HAM)
   - Warehouse logistic management systems
   - Discrimination systems for train or emergency vehicles

If these devices and the AV receiver are used at the same time, the audio may be undesirably stopped or disturbed due to a radio wave interference.
Suggestions for improvement
- Switch off the devices which emit the radio wave.
- Place the interfering devices away from the AV receiver.

- The AV receiver uses radio wave, and a third person can receive the wave on purpose or accidentally. Do not use the communication for important or fatal matters.
- We assume no responsibility whatsoever for any error or damage of network environment or access device resulting from the use of this apparatus.
  Confirm with the provider or access device maker for more information.

Scope of Operation

Use of the AV receiver is limited to home use.
(Transmission distances may be reduced depending on communication environment.)
In the following locations, poor condition or inability to receive radio waves may cause the audio to be interrupted or stopped:
- In reinforced concrete buildings or steel framed or iron framed buildings.
- Near large metallic furniture.
- In a crowd of people or near a building or obstacle.
- In a location exposed to the magnetic field, static electricity or radio wave interference from radio communication equipment using the same frequency band (2.4 GHz) as the AV receiver, such as a 2.4 GHz wireless LAN device (IEEE802.11b/g/n) or microwave oven.
- If you live in a heavily populated residential area (apartment, townhouse, etc.) and if your neighbor's microwave oven is placed near your AV receiver, you may experience radio wave interference. If this occurs, move your AV receiver to a different place.
  When the microwave oven is not in use, there will be no radio wave interference.

Radio Wave Reflections

The radio waves received by the AV receiver include the radio wave coming directly from the devices and waves coming from various directions due to reflections by walls, furniture and building (reflected waves). The reflected waves (due to obstacles and reflecting objects) further produce a variety of reflected waves as well as variation in reception condition depending on locations. If the audio cannot be received properly due to this phenomenon, try moving the location of the wireless LAN device a little.
Also note that audio may be interrupted due to the reflected waves when a person crosses or approaches the space between the AV receiver and the wireless LAN device.
- We assume no responsibility whatsoever for any damages resulting from the use of this apparatus except in the cases deemed acceptable under the applicable laws and regulations.
- Operation in all environment is not guaranteed for wireless LAN. The communication may not be possible or have desirable communication speed.

Precautions

- Do not use this apparatus near an electronic device handling high-accuracy controls or weak signals. Doing so may cause an accident due to a malfunction of the device.
- Do not use this apparatus in use prohibited location such as an aircraft equipment or a hospital. Doing so may cause an accident due to a malfunction of an electronic device or an electro-medical apparatus. Follow the instructions of the medical facilities.

■ Electronic device which requires cautions

Hearing aid, pace maker, other medical electronic devices, fire alarm, automatic door, and other automatic control device.
When using a pace maker or other medical electronic devices, confirm with the medical electronic device maker or dealer for the effect of the radio wave.

Remote Control Codes

■ Television (A to E)

A.R. Systems	10037, 10556
ACCENT	10037
Acoustic Solutions	11667, 11585, 11523, 11037
Action	10650
Adcom	10625
Addison	10653, 11150
Admiral	10093
AEG	12197, 11037, 12239
Affinity	13717, 13870, 13577
Aftron	13478
Aiko	10037
Aim	10037
Akai	12676, 10812, 10037, 10672, 10208, 10714, 11523, 13067, 12414, 13183, 10178, 10556, 12197
Akiba	10037
Akito	10037
Akura	12289, 10037, 11667, 10714, 10668, 11585, 10171, 11037, 11498, 11687, 11983, 12239
Alba	12676, 11037, 10037, 10668, 10714, 11585, 13005, 13067, 13790, 11667, 12104, 12561
Alfide	10672
Alien	11037
Allstar	10037
Amstrad	10037, 10171, 11037
Anam	10037, 10650
Andersson	12676, 11585
Anitech	10037
Ansonic	10668, 10037
AOC	11589, 12769, 11365, 13720, 12014, 12087, 13790, 10093, 10178, 10625, 11150
Apex Digital	12397
Apollo	12239
Ardem	10714, 10037
Arena	10037
Ario	12397
Aristona	10556, 10037
ART	11037
Art Mito	11585, 11667
AS	11667, 11585, 11523, 11037
Asberg	10037
Astra	10037
ATD	10698
Atlantic	10037
Atvio	13636
Audiosonic	10714, 12104, 10037, 13067, 11983
Audio-Technica	10000, 10093, 10150, 11150
Audiovox	11769
Audioworld	10698
Auria	12087, 12014
Autovox	12676
Aventura	10171
Axxon	10714
Azuki	12239
B & O	10620
Baier	12239
Baird	10208
Bang & Olufsen	10620
Barco	10556
Base	10698
Basic Line	10037, 10668, 11037, 10556
Bauer	12197
Baur	10037, 10512, 10195
BBK	12098, 11523
Beaumark	10178
Beijing	10208, 10812
Beko	10714, 12125, 10037, 12239
Bell & Howell	10017
Belson	10698, 11667
Belstar	11037
BenQ	12563, 11562, 11523
Beon	10037
Berthen	10556, 10668
Bestar	10037
Bexa	12493
BGH	14070, 14029, 10898, 12414, 12098
Black Diamond	11037
Blaupunkt	10195, 12426
Blue Sky	10714, 10037, 11037, 10668, 10556, 10625
BlueDiamond	12426
Bluetech	12561
bogo	12561
BPL	10208, 10037
Brandt	10625, 11585, 10714
Brinkmann	10037, 10668
Brionvega	10037
Britania	12414
BuBuGao	12098, 11523
Bush	11037, 10037, 12676, 10668, 10714, 13790, 13005, 11667, 11687, 11983, 10556, 12125, 10208, 11585, 12104, 10698, 11589, 12673, 12964
Byd:sign	12209
Cameron	11523
Camper	10037
Carad	11037, 10668
Carena	10037
Carrefour	10037
Cascade	10037
Casio	10037
Cathay	10037
CCE	13782, 14091, 10037
Celcus	12676, 11585
Celebrity	10000
cello	12673
Centrum	11037
Centurion	10037
Changhong	13434, 12769, 11498, 10508, 10208
Chiawin	10810
Chimei	12769
CHL	13067
Chung Hsin	11150
Chunyun	10000, 11150, 11687
Cinema	10672
Clarivox	10037
Clatronic	10037, 10714
Clayton	11037
CME	10037, 10512
CMX	13332, 13067

Coby	13478, 12315, 13627
Commercial Solutions	11447
Condor	10037
Conia	11498, 11523, 11687
Conrowa	10698
Contec	10037
Cosmel	10037
CPTEC	10625
Crosley	10000
Crown	10037, 10714, 10208, 10672, 11037, 10668
Crown Mustang	10672, 10898
Crypton	11667
Currys Essentials	12486
Curtis	12855, 13577, 12466, 12352, 13895, 12397, 13636, 13382, 14035
Curtis Mathes	10093
Cyberpix	11667
Daenyx	10672
Daewoo	10634, 10037, 10672, 10556, 12098, 10178, 11150, 12125
Dansai	10037, 10208
Dantax	11037, 12676, 10714, 11667
Datsura	10208
DAWA	10037
Daytek	10672
Daytron	10037
De Graaf	10208
Decca	10037
Dell	11863
Denver	12197, 13067, 10037, 12239
Desmet	10037

Devant	12098
DGM	12239
Diamant	10037
Diamond	10698, 10672
Dick Smith Electronics	10698
Digatron	10037
Digihome	12676, 11667
Digiline	10037, 10668
Digimate	12239
Digisonic	11826
Digitor	10698, 10037
Digitrex	13067
Dikom	12561
diVision	12197, 12239
Dixi	10037
DNS	13434
Domeos	10668
Donghai	10037, 10668, 11037
Drean	10037
DSE	10698
Dual	12197, 11037, 12676, 11667, 10037, 11585, 10714
Dumont	10017
Durabrand	10171, 10178, 10714, 11037
Dux	10037
D-Vision	12197, 10037, 10556
DX Antenna	13817
Dynatron	10037
Dynex	12049
E.S.C.	10037
Easy Living	12104
ECE	10037
ECG	12197, 12125
Eiki	10735

Elbe	10037, 10556
Electroband	10000
Electrograph	11755
Electrohome	11670
Electrolux	11585
Electron	12466, 12855
Elektra	10017
Element	13559, 11687, 12183, 12964, 13907, 11886, 12256
Elfunk	11037
ELG	10037
Elin	10037
Elite	13867, 10037
Emerson	11864, 11394, 10171, 11886, 10178, 10037, 13623, 12183, 10668, 10714, 13559
e-motion	12426
Enox.	12673
Envision	11589, 11365, 12087, 12014, 11506
Epson	11379
EQD	12014, 12087
EQD Auria	12014, 12087
Erisson	13183
Erres	10037
ESA	10812, 10171
Essentials	12486
Euroman	10037
Europa	10037
Europhon	10037
Evesham Technology	11667
Evotel	12561
Excello	11037
Exquisit	10037

■ **Television (F to J)**

F&U	12676
FairTec	11585
Favi	13382
Fedders Lloyd	13639
Ferguson	10625, 11037, 13005, 10037, 12426, 10195, 11585, 12676
Fidelity	10037, 10512, 10171
Finlandia	10208
Finlux	11667, 12676, 10714, 10037, 10556
Firstline	10714, 10037, 10668, 11037, 10208, 10556
Fisher	11585, 10208
Flint	10037
Fluid	12964, 13907
Formenti	10037
Fortress	10093
Fraba	10037
Friac	10037
Frigidaire	11826
Fujimaro	11498, 11687
Fujimaru	11687
Fujitsu	10809
Fujitsu Siemens	10809
Funai	13817, 10171, 11394, 10000, 11037, 10714, 10668, 11864
Funai United	12676
Furrion	13332
Gaba	11037
Galaxi	10037
Galaxis	10037
Gateway	11755

GE	11447, 10178, 10735, 10625, 10093, 11454
GEC	10037
General Electric	11447, 10178, 10735, 10625, 10093, 11454
Genesis	10037
Genexxa	10037
GFM	10171, 11864, 11886
Gibralter	10017
Gibson	11826
Gintai	11150
Godrej	11585
GoGen	12676, 11585
Goldfunk	10668
GoldStar	10178, 10037, 10714, 13183, 11150
Goodmans	10037, 11037, 10634, 11667, 10668, 11523, 11585, 11687, 11983, 10714, 10556, 10625, 12426, 12676
Gorenje	11585, 12676
Gradiente	10037
Graetz	10714
Gran Prix	12197
Granada	10037, 10208
Grandin	10037, 10714, 10668, 11037, 10556, 12125
Grundig	10195, 11223, 12125, 12239, 10556, 10037, 11523, 11667, 13067, 10672, 12561, 12676
Grunkel	11523

GVA	12098, 13067
Haier	12876, 11749, 12309, 13382, 11753, 13620, 13613, 13429, 10698, 11983, 12293, 13790, 13987, 10037, 10508
Hallmark	10178
Handic	12676
Hankook	10178
Hannspree	11826
Hanseatic	10037, 10634, 10714, 10625, 10556
Hantarex	12197, 10037
Hantor	10037
Harwood	10037
Hauppauge	10037
Havermy	10093
HB	10714
HB Ingelen	10714
H-Buster	13620, 13419
HCM	10037
Heran	11826
Herosonic	11826
Highline	10037
Hikona	11983
Hinari	10037, 10208
HiPlus	11826
Hisawa	10714
Hisense	12846, 12098, 13519, 12183, 10556, 13123, 10508, 14029, 10208, 13382

Hitachi	11643, 12676, 11576, 11585, 11037, 11691, 13317, 11667, 10634, 13639, 10037, 10679, 12170, 12846, 10150, 10178, 10508, 11150
Hitachi Fujian	10150
Hitec	10698
Hiteker	13118
Hoher	10714, 13434
Hongmei	10093
Hornyphon	10037
Hua Tun	11150
Hypson	10037, 10714, 10556, 10668, 11037
Hyundai	10698, 12414, 12676, 11037, 11523
Iberia	10037
ICE	10037
iLo	11394
Imperial	10037
Indiana	10037
Ingelen	10714
Ingo Devices	12239
Inno Hit	11585, 11037
Innova	10037
Insignia	12049, 11423, 10171
Integra	11807, 13100, 13500
Inteq	10017
Interbuy	10037
Interfunk	10037, 10512
Internal	10556
Intervision	10037
Irradio	10037

IRT	10698
Isis	12676
Isukai	10037
iSymphony	13429, 13382, 13118
ITS	10037
ITT	12675, 12125, 12676, 10208, 11523
ITT Nokia	10208
ITV	10037
James	13183
Jay-tech	13067
JC Penney	10178
JCB	10000
JCM	12256
Jinfeng	10208
Jinxing	10556, 10037, 10698
JMB	12676, 10634, 10556, 12426
JTC	13067
Jubilee	10556
JVC	11774, 11653, 11601, 11818, 10653, 12321, 12271, 11428, 13650, 11670, 12676, 14070, 10650, 10093, 10508

■ **Television (K to N)**

Kaisui	10037
Karcher	12125, 10714
Kathrein	10556
KDS	11498, 11687
Kendo	11037, 11585, 12676, 10037
Kennex	11037

Kioto	10556
Kiton	10037, 10668
KLL	10037
Kneissel	10037, 10556
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Proson	30713
Prosonic	32966
Pye	30539, 30646, 30675
Radionette	30741
Radiotone	30713
RCA	30522, 32213, 30571, 31769, 32532

RE-BL	32555
REC	30490
Red	32213
Red Star	30770
Richmond	31233
Roadstar	30713, 30730
Ronin	30872
Rotel	30623
Rowa	30872
Saba	30551, 31643, 32966
Saivod	30831
Salora	32966, 30741
Samsung	30199, 30573, 33195, 32069, 31635, 32942, 32369, 32329, 32489, 31044, 30490, 32107
Sanyo	32966, 30713, 31233
ScanMagic	30730
Schaub Lorenz	30770, 31643
Schneider	30539, 30646, 30831, 30713
Schontech	30713
Scott	31233
Seeltech	31643
SEG	30713, 30872
Semp	30503
Semp Toshiba	30503
Sharp	32250, 30630, 32966, 30675, 33313, 30713
Sherwood	30741, 30770, 32820, 33837
Shinsonic	30533
Sigmatek	32139
Silva Schneider	30831, 30741
SilverCrest	31643
Skantic	30713, 30539
Skymaster	30730

SM Electronic	30730
Smart	30713
Sonashi	30831
Soniq	30831
Sony	31516, 31633, 30533, 31033, 30864, 31070, 31548, 32861, 31536, 32839, 32180, 30772
Sound Color	31233
Soundwave	30713
Spectra	30872
SR Standard	30831
Sunkai	30770
Sunstech	30831, 32139, 32966
Superior	31643
Supratech	32139
SV2000	30675
Sylvania	30675, 30630
Symphonic	30675
Sytech	30831
Tandberg	30713
Targa	30741
Tascam	31818
Tatung	30770
TBoston	32139
Tchibo	30741
TCM	30741
Teac	30571, 30675, 30741, 31818, 32139, 34004
Technica	30713
Technical	32966
Technics	30490
Technika	30770, 30831
Technosonic	30730
TechnoStar	31643
Techwood	30713, 32966
Telefunken	30551, 32966

Teletech	30713
Tensai	30770
Theta Digital	30571
Thomson	30551, 30522, 30831
Thule Audio	30551
Tokai	31233
Tosaki	32006
Toshiba	30503, 33157, 33857, 32006, 32277, 32705, 31769, 32966, 32551
TRANS-continents	30831, 30872, 31233
Transonic	30730
Trent	31643
Trevi	30831
TruTech	30675
TVE	30713
United	30713, 30675, 30730, 31233, 31643
Universum	30713, 30741, 30591
Urban Concepts	30503
Venturer	31769
Vestel	30713
Vitek	30831
VIZIO	32563
Voxson	30730, 30831
Waitec	30730, 31233
Walker	32966
Waltham	30713
WB Electronics	32555
Welkin	30831
Wellington	30713
Weltstar	30713
Wharfedale	30713
Wilson	31233, 30831

Windsor	30713
Windy Sam	30573
Woxter	32139
Xbox	32083, 31708, 32202, 30522
Xiron	30713
XMS	30770
X-View	31233
Yamada	30872, 32139
Yamaha	30497, 32298, 30539, 30817, 30490, 31354, 33871, 30646, 33837
Yamakawa	30872
YBA	30872
Yukai	30730
Zenith	30741, 30591, 30503

■ **Blu-ray Disc**

Anthem	32820
Anthem Statement	32820
Cambridge Audio	32808
Denon	32258, 32748, 33851
Electrocompaniet	32545
Elite	32854
Funai	30675
Harman/Kardon	33228, 32927
Insignia	32596, 32428, 30675
Integra	32147, 32900, 32910, 33100, 33101, 33500, 33501
JVC	32365, 32612, 32855
Lexicon	32545
LG	31602, 32811, 30741

Magnavox	30675
Marantz	32414, 33444
Mitsubishi Electric	34004
Onkyo	32147, 32900, 33101, 33501, 32910, 33100, 33500
Oppo	32545
Panasonic	31641, 33862, 33580, 33641, 32859, 32523, 32710
Philips	32789, 32434, 32084
Pioneer	32442, 32847, 32854, 30142
RCA	32532
Samsung	30199, 33195
Sharp	32250, 33313
Sherwood	32820, 33837
Sony	31516, 32180, 30772
Sylvania	30675
Tascam	34004
Toshiba	32705, 33157, 33857, 32551
VIZIO	32563
Yamaha	32298, 33871, 33837

■ **DVD-R**

Accurian	30675
AEG	30675
Akai	30675
Aristona	30646
CyberHome	31023
Denon	30490
Dick Smith Electronics	30675
DSE	30675
Emerson	30675
Funai	30675

Go Video	30741
GPX	30741
Hitachi	31664
Humax	30646
Insignia	32095
Irradio	30646
JVC	30623, 32612
LG	30741
Loewe	30741
Magnavox	30675, 30646, 31506
Medion	30741
NEC	30741
Panasonic	30490, 31579, 33580, 32710, 32859, 32523
Philips	30646, 31340, 31506, 32334, 30539, 32056
Pioneer	30631
Pye	30646, 30675
RCA	30522
Samsung	31635, 32942, 33195, 32107, 30490, 32069, 32489
Schneider	30646
Sharp	33313, 30630, 30675, 30713
Silva Schneider	30741
Sony	31070, 31033, 32861, 31516, 31536, 32839, 32180, 31633
Sylvania	30675
Targa	30741
Tchibo	30741
TCM	30741
Thomson	30551
Toshiba	32277, 32551, 30503
Universum	30741
Yamaha	30646
Zenith	30741

■ **VCR**

DirecTV	20739
Humax	20739
Loewe	21062
Metz	21062
Optimus	21062
Panasonic	21062, 20616
Philips	20739
Quasar	21062
RCN	20739
ReplayTV	20616
Sonic Blue	20616
Sony	20636
TiVo	20739, 20636

■ **Cable Set Top Box (A to E)**

ABN	03322, 02897, 02979, 03340, 03407, 03849
Access Communications	01376, 00476
ACT	02950
Adams Cable TV	01376
ADB	02586, 01920, 01585, 01927, 01481, 01998, 02254, 02302, 02437, 03028
Akado	02043
Aland	02030, 02437
Alands Datakommunikation	02030, 02437
Alcom	02030, 02437
Alice	01585
Allegiance Communications	00476, 01376
Allen TV Cable	00476
Altibox	02437, 02030
Amino	01615, 01898, 01481, 02482, 01998, 02302, 03028
Anguang Network	03936
Anhui Network	03936
Arcadyan	02952
Arion	03336
Armstrong	01376, 00476
Arris	02187, 01982, 01998, 02378
Arvig Communication Systems	01376, 01982, 01998, 02345
Astound Broadband	01376, 01877, 00476, 02479, 04079
AT&T	00858
AT&T U-verse	00858
Atlantic Broadband	01877, 01376
ATMC	01376, 01982, 03028
Austar	00276
B tv	02681, 03442
Baja Broadband	00476, 01376
BBTV	02980
Beijing	04010
Belgacom TV	02047, 02132
Bell	01998
Bell Aliant	01998
Bell ExpressVu	01998
Bell Fibe TV	01998
Bend Broadband	01376, 00476, 02187
BesTV	04196
Bevcomm	01898, 00476
BGCTV	03278, 00476
BIG.BOX	03465
Blue Ridge Communications	01877
Bluewin	02271
Bouygues Telecom	03007
Boxer	03607
Bright ClouDigital	03961
Bright House	01877, 01376, 00476
British Telecom	02294
Broadstripe	00476, 01376
BSI	02979
BT	02294
BT Vision	02294
Buckeye Cable System	01376, 00476, 01877, 02187
C&M	03407, 03319, 02962, 02979
Cable America	01376, 01877
Cable Axion Digitel	01376, 00476
Cable HK	01374
Cable One	01376, 00476, 01877
Cablecom	01582
Cablecom Mexico	00476, 01376
Cablemas	01376, 01877
Cablevision	01877, 01376, 03336, 00476
Cabovisao	02436, 02493
Caiway	02015, 03607, 02762, 00660, 02447
Caiyun Digital	03961
CalTel Connections	02254, 02586
Canal Digital	02030
Canby Telcom	01481, 02302
Cass Cable	00476, 01376
CC9	02703, 02752, 03474
CCAP	01877
CCS	03322
Celrun	03442, 02682
CenturyLink	01998
Channel Master	03118
Charter	01877, 01376, 00476, 02187, 03560
Chengde Guangtong	03936
Chengdu Cable	03953
Chengdu Telecom	04196

China Telecom	04196, 02913, 03937
China Unicom	04366, 04196
Chongqing Cable	03954
Chongqing Cable Networks	03954
CHT	03647, 01917
Chunghwa	03647, 01917
Cincinnati Bell	01877, 01376
Cisco	01877, 00858, 03028, 01982, 02132, 02345, 02589, 01883, 01998, 01582, 02047, 02378, 02563, 02401, 02742, 03265, 02271, 02947, 03452
Citycable	03451, 03477
CJ	03322, 02897, 02979, 03340, 03407, 03849
CJ Digital	02979, 02897, 03322, 03340, 03407, 03849
CJ HelloVision	03322, 02897, 02979, 03340, 03407, 03849
Claro	01376, 00476
ClubInternet	02132
CMA Communications	01376
CMB	03389, 02979, 03498
CMBTV	03498
CNS	02980, 02350
Cogeco	01376, 01982, 00476
Com Hem	00660, 02447, 02832, 02015
Comcast	01982, 01376, 00476, 01877, 03560, 02187
Comporium	01877, 03560, 02187
Consolidated Communications	01877, 01376, 01998, 02302, 03048
Coship	01991, 02950, 03278, 04162, 04408, 04196
Cosmic	02897
Cox	01877, 01376, 00476
CTS	02703, 03474
Daeryung	01877
Darty Box	02436
DASAN	02683
Delta	03607, 02015, 00660, 02447, 02762
DEN	02726
Deutsche Telekom	02132
Digeo	02187
Digi	02762, 03479
Digicable	03382, 02479
DigitAlb	02493
Director	00476
Dmg	03835
DNA	02832, 00660, 02030
Dom.ru TV	02493
Dream Satellite TV	02493
DSD	03340
DST	03389
Du	02401
DV	02979
Eagle Communications	01376, 02187
EastLink	01376, 00476
Echostar	02955, 03452
Elion	03916
Entertain	02132
Entone	02302, 03048
ER Telecom	02493
eTb	04281
Evolution	02479, 02746, 04079
Extra TV	02132

■ **Cable Set Top Box (F to J)**

Fastway	03382
FCTV	01782, 02703
Fidelity Communications	01376
Finnet	02030, 02832
First Media	03783
Freebox	01976
Frontier Communications	02378
Fujian Broadcast & TV Network Group	04195
Fujian Broadcast and TV	04195
Gangwon Broadcasting Network	03407
Gansu Cable	04236
GCI	01376
GCS	03322
GDCATV	02980, 03131, 03132
Gehua	03278, 00476
General Communications	01376
General Instrument	00276, 00476
Google	03666
Gospell	04205
Grande Communications	01877, 03560, 01376
Great Plains Communications	01376
Guangdong Cable	02980, 03131, 03132
Guangxi Broadcasting	02897, 03407, 03961
Guangxi Broadcasting Network	02897, 03407, 03961
Guangzhou Cable	02945
Guizhou Broadcasting Network	03946
Hana TV	02681, 03442
Hathw@y	02043, 02726
Hawaiian Telcom	03028
HBC	01376, 01877, 01982, 02979, 03322, 03340, 03849
HCN	02979, 03340
HD+	03607
HDT	03465
Hebei Broadcasting	04026, 03967
Hebei Broadcasting Network	04026, 03967
Hebei Digital TV	04205
Hello TV	03322
HelloD	02979
Henan Cable	04034
HickoryTech	01898, 02302
Hikari TV	03237
Himawari TV	01760
Homecast	02977, 02979, 03389
Hong Kong Cable	01374
Hrvatski Telekom	02132
HSHONG	03965, 03937, 04026
Huashu	04034
Huawei	02994, 03278, 03937, 01991, 02913, 04281, 01982
Humax	03607, 02762, 02043, 02447, 00660, 01981, 01983, 02620, 02832, 03560, 02165, 02683, 02701, 02889, 02715, 02962, 03051, 03053, 03075, 03319, 03849
Hunan Cable Net	04205
HYA	02989
Hyroad	02979

HyTV	02979, 03340
Hyundai Digital Technology	03465
HZRTV	02960
I-Cable	01374
i-CAN	01585, 02437
I-Digital	03319, 02979
IMBTVN	04106
INESA	03865
Innovative Systems	01898
Inotel	02437
Inter Mountain Cable	01877, 02479, 04079
Invitel	02437
InviTV	02437
iTSCOM	02703
ITV	02979, 03389, 04196, 03498
J:COM	01760, 02703, 03925, 01782, 02701, 02700, 02715, 02752, 03051, 03053
Jambox	02030
JBC	02979, 03322, 03340, 03849
JCN North	02703, 01760, 03474
Jerrold	00276, 00476
Jiangsu Cable Network	04022
Jilin Broadcasting	04009
Jilin Cable	04009
Jinan Radio and Television Network	04206
Jishi Media	04009
Jiuzhou	01991
JP PTT	01615
JXCN	03948

■ **Cable Set Top Box (K to N)**

Kabel Deutschland	03514, 01981, 01983, 02165, 03607, 02620
KabelBW	02889, 01981, 01983
KabelNoord	02015
Kaon	02493, 02889, 02746, 03407, 04409, 02682, 02979, 03389
kbro	02350, 03139
KCN-TV	02703
KCT	01760, 02703, 02752, 03474
KCTV	02979, 03340, 03389, 03849, 03322
KCTV JEJU	02979, 03340, 03389, 03849
KCTV-KJ	02979, 03340, 03389, 03849
KDMC	03319, 02979
Kiryung	03498
Kiss	02132, 02271
KoolConnect	01481
KPN	02952, 02437
Kreatel	02030
KT	02683, 03478
Lattelecom	02030
LG	03340, 02682, 03407, 02979, 03389, 03319
LG U+	02682
Linksys	02271
Lishui Huashu	04034
Longyan Broadcasting Cable & Tv	04195
Lumos Networks	01998, 03028
Magio Sat	02132
Magnet	01615
Maige TV	03937
Massillon Cable	00476, 01376
Matanuska Telephone Association	01481, 02254, 02482, 02586
Mediacom	01376, 00476, 01982, 01877
Mediastream	01376, 00476
Mega	02683
Mega TV	02683
Megacable	01376, 00476
Meo	02401
MetroCast Cablevision	01376, 01982, 00476
Mi-Connection	01877
Midcontinent Communications	01376, 00476, 01982
Mid-Hudson Cable	00476, 01376
Minerva Networks	03118
MIO	02275, 02802
mio TV	02275, 02802
Mitsubishi Electric	03274
MOD	03647, 01917
Motorola	01376, 00476, 02378, 02437, 01998, 02030, 00858, 01982, 02952, 00276, 01562, 02275, 03916, 01585, 04034, 02401
Movistar	01585, 03288
Moxi	02187
Moyo	03611
MTS	01998, 03611, 01615, 01481, 01898
MyLGTV	02682
NET	01883
NewWave Communications	00476, 01376, 02187
NIB	03322
Ningde Cable TV	04195
Noos	02436
Northland Communications	01376
Novus	01376, 00476
Now TV	02009, 02014
NTL	01060, 00276
NTT	03237, 03274
NTV Plus	02762
NU Telecom	01998, 03028
Numericable	02436

■ **Cable Set Top Box (O to S)**

O2	02586
OCN	03865
Oi TV	03452, 03454, 04165
Olleh TV	02683, 03478
Olleh-Skylife	02683, 03478
Ono	01562
Open IPTV	01615
Optimum	01877
Optimus Clix	02437
Optus	00276, 01060
Orange	02407
Oriental Cable Networks	03865
Pace	01376, 01060, 02620, 01982, 01877, 01998, 00858, 01582, 01883, 03454, 02294, 02401
Panasonic	02703, 02752, 03474, 01760, 01782, 01982
Parasat	03479
Paul Bunyan Communications	02254, 02586
PCCW	02009, 02057
Philips	01582, 02378, 03560, 02294
Pioneer	01782, 01877, 03925, 02700
Pioneer Telephone	02254, 02302
Portugal Telecom	02401
Premiere	02620
Primacom	02889
Primestar	02030
PrimeTel	03611, 02030, 02437
PrimeTV	02030
PT	02401

PTCI	01376
PX	03348
QooK TV	02683, 03478
Qook-Skylife	02683, 03478
Qrix	03465, 02979
QuickLine	02493
Qwerty	01898, 01481, 01615
Qwerty.TV	01898
RCN	01376, 00476, 03560
Reach Broadband	01376, 01877, 01982
Reliance	02556
RIO Media	02030
Rogers	01877, 01376
Rostelecom	03611
Sagem	02407, 02436, 03288
Sagemcom	03514, 02407, 02436, 03007, 03288
Samsung	03322, 02979, 03319, 01877, 02407, 02015, 03340, 03407, 03451, 03442, 03477, 02610, 02955, 01060, 02683, 03514, 03783, 02589, 02889, 02962, 03265, 03849, 03928, 01982, 01987
SaskTel	01998
SBN	03965
Scientific Atlanta	01877, 00858, 01982, 02401, 02345, 01987, 02047, 02436, 03028, 02378
SCTV	02493
SCV	02950

Seokyung	03340
Service Electric	01376, 00476, 01982
SetaBox	01917
Shaanxi Broadcasting	03965
Shanghai	03865
Shanghai OCN	03865
Shanxi Broadcasting Network	03965
Shaw	01376, 01877, 00476, 02187, 01982
Shenzhen Broadcasting	01991, 04162
Shenzhen Digital TV	01991, 04162
Shijiazhuang Broadcasting	04026
Shimanto CATV	02752
Sichuan Broadcasting	03953
SingTel	02275, 01998, 02802
Siti Digital	03664
SK Broadband	03442, 02681
SK Btv	02681, 03442
Sky Austria	02620, 02447, 02832
Sky Deutschland	02620, 02447, 02832
SkyCable	02950, 03521, 03527, 04177
SkyLife	02683, 03478
Skyworth	03298, 02960, 03278, 01991, 03521, 04177, 03946, 04162
Smartlabs	03611
Smile Content	02437
SMT	03527
SMtronics	03319
Sogetel	01998, 02482
Sonaecom	02437
Sonera	00660
Source Cable	01376, 00476
Starcat	02703, 01782

StarHub	01927, 00276
Stipte	01898
Stofa	02015
Suddenlink	01877, 01376, 01982, 03560, 00476
Supercable	00276
Supercanal	01376, 00476
Suwon Cable	03319
Suzhou Cable Network	04022
SVA	03865
Swisscom	02271
SXBCTV	03965

■ **Cable Set Top Box (T to Z)**

TalkTalk	02994
Tbaytel	03028
Tbroad	03319
TCC	04409, 04408
TCN	03340, 02703
T-Com	02132
TDC	02271
TDS Telecom	03028
Technicolor	01982, 02994, 03288
TechniSat	03316
Tele2	00660, 02447
Telecentro	00476, 01376
TeleColumbus	02889
Telefonica	01585, 03028, 03288, 02586
Telekom Deutschland	02132
Telenet	01920, 03451, 03477
Telewest	01987
Telia	02030
Telmex	01376
TELUS	03028
TFN	03127, 03139
T-Home	02132

Thomson	01582, 01981, 01982, 01983, 03007, 02407
T-Hrvatski Telekom	02132
Tianjin Broadcast & TV Network	04010
Tianjin Broadcasting	04010
Time Warner	01877, 01376, 00476, 02187
TiVo	03560, 03265
ToongTV	03322
Top	03766
TopTV	01991
TP	02407
Trans PX	00276
True Visions	03075, 02762
TVB	01615
TVS Cable	01376, 01877, 01982
U+	02682
U+ tvG	02682
UCATV	02703, 01760
Unitymedia	02955, 02610, 03451, 03477
UPC	01582, 03451, 03477, 00660, 01060
UPC Cablecom	01582, 03451, 03477
US Electronics	00276
U-verse	00858
Vector	02030
VeeTV	03231
Verizon	02378
Viasat	02030
Videotron	01877, 02947
Viken Fibernett	02030, 02437
Virgin Media	01987, 02563, 01060, 03265, 00276
Visionetics	01374
Vivo	03288

Vodafone	02401
Volia	02493
Volia Cable	02493
Voo	02742
VTR	01376
wasu	04034
Wave Broadband	01376, 00476, 02479, 04079
Wavevision	01376, 01877, 01982
Wbox	02832
WEHCO Video	01376
Welho	02832
WellAV	03479
Westman Communications	01376, 00476, 02187
WideOpenWest	01376, 01877, 02187
Windjammer Cable	00476, 01376, 01877
WNC	03118
WOW!	01877, 01376, 00476, 02187, 02479
Xfinity	01376, 01982, 00476, 01877, 03560, 02187
Xuyi Radio & TV	02897
YBN	03322
YCV	02703, 01760
Youview	02994
Yunnan Broadcasting	03961
Yuxing	02014
Zhong Hua Dian Xin	01917
Ziggo	02589, 03607, 02015, 02762, 00660, 02401, 02447
Zinwell	03139
Zito Media	01376, 01982
ZTE	04196

■ **Satellite Set top Box**

@sat	01300
@Sky	01334
1.Sky	03538
Acoustic Solutions	01284
ADB	02553, 00887, 01887
AEG	02738, 02813
Agora	01284
Airis	02813, 03012
Airtel	02248
Akai	02938
Akira	02738
Akta	01986
Akura	01626
Alba	01284, 02034, 02568
Allvision	01334
Altech UEC	02059, 02097, 03517
Amiko	04197
Amstrad	00847, 01662, 01175, 01693, 02467
AMTC	02738, 02813
Ansonic	02418
Aonvision	02279
Apro	01672
Argos	02568
Arion	03374, 04348
Arnion	01300
Arris	00869
AS	01284
ASA	00740
ASCI	01334
ASDA	01284
AssCom	00853
Astrell	01986, 02418
Astro	00173, 01838, 02627, 00658, 03838, 01099, 01100, 02026

Atevio	02928
Atlanta	02418, 03320
Atom	02289
Audiola	03012, 02418
Audioline	01672
Aurora	00879
Austar	00879
Austriasat	01195, 01197, 02957, 03374, 01561, 01631, 02631
Auvisio	02932, 02738, 02813
Avanit	00299, 01631
Awa	02418
Axil	02418, 01413, 01777, 02738, 03424
Axitronic	01626
AZ America	01631
AZBox	02719
B.net	01672
B@ytronic	00740
Beijing	03299
Bell	00775
Bell ExpressVu	00775
Bell Fibe TV	00775
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Wards	70032, 70000, 70157
Yamaha	70036, 70032, 70490
Zonda	70157

■ **Cassette Deck**

Aiwa	40029

Arcam	40076
Audiolab	40029, 40229
Carver	40029
Denon	40076
Epworth	40029
Grundig	40029
Harman/Kardon	40029
Inkel	40070
JVC	40244
Kenwood	40070
Magnavox	40029
Marantz	40029
Myryad	40029
Onkyo	42157
Optimus	40027
Panasonic	40229
Philips	40029, 40229
Pioneer	40027
Polk Audio	40029
Radiola	40029
RCA	40027
Revox	40029
Sansui	40029
Sony	40243, 40170
Tascam	73095
Technics	40229
Thorens	40029
Universum	40029
Victor	40244
Wards	40027, 40029
Yamaha	40097

■ **Receiver**

Integra	52503
Onkyo	52503

■ **Audio - Accessory**

Apple	81115
Jamo	82228
Onkyo	81993, 82990, 82351, 82352, 82353
Polk Audio	82228

■ **IPTV**

ADB	02586, 01585, 01481, 01998, 02254, 02302, 02437, 03028
Aland	02030, 02437
Alands Datakommunikation	02030, 02437
Alcom	02030, 02437
Altibox	02437, 02030
Amino	01615, 01898, 01481, 02482, 01998, 02302, 03028
Arcadyan	02952
Arkwest	02482, 01481, 01998, 02302
Arris	01998, 02378
Arvig Communication Systems	01998, 02345
AT&T	00858
AT&T U-verse	00858
ATMC	03028
B tv	02681, 03442
BBTV	02980
BEK Communications	02254, 02302
Belgacom TV	02047, 02132
Bell	01998
Bell Aliant	01998
Bell ExpressVu	01998
Bell Fibe TV	01998
BesTV	04196
Bluewin	02271
Bouygues Telecom	03007
British Telecom	02294
BT	02294
BT Vision	02294
Cabovisao	02436
CalTel Connections	02586
Canal Digital	02030
Canby Telcom	01481, 02302
Celrun	03442
CenturyLink	01998
Channel Master	03118
China Telecom	04196, 02913, 03937
China Unicom	04366, 04196
CHT	03647, 01917
Chunghwa	03647, 01917
Cisco	00858, 03028, 02132, 02345, 02047, 02378, 01998, 02271, 03452
ClubInternet	02132
CNS	02980
Consolidated Communications	01998, 02302, 03048
Coship	04196
Deutsche Telekom	02132
DNA	02030
Du	02401
Echostar	03452
Elion	03916
Entertain	02132
Entone	02302, 03048
eTb	04281
Evertek	02302
Finnet	02030
Freebox	01976
Frontier Communications	02378
GDCATV	02980
Google	03666
Guangdong Cable	02980
Guangxi Broadcasting	02897
Guangxi Broadcasting Network	02897
Hana TV	02681
Hathw@y	02043
Hikari TV	03237
HSHONG	03937
Huawei	02994, 03937, 02913, 04281
i-CAN	02437
Innovative Systems	01898
Inotel	02437
Invitel	02437
InviTV	02437
ITV	04196
Jambox	02030
JP PTT	01615
Kaon	04409, 02682
kbro	03139
Kiss	02132, 02271
KoolConnect	01481
KPN	02952, 02437
Kreatel	02030
KT	02683
LG	02682
LG U+	02682
Linksys	02271
Lumos Networks	01998, 03028
Magio Sat	02132
Magnet	01615
Maige TV	03937
Matanuska Telephone Association	01481, 02254, 02482, 02586
Mega TV	02683
Meo	02401

MHTC	01481, 01998, 02254, 02302, 02482
Minerva Networks	03118
MIO	02275, 02802
mio TV	02275, 02802
Mitsubishi Electric	03274
MM&G Enterprises	01481, 01998, 02302, 02482
MOD	03647, 01917
Motorola	02378, 02437, 01998, 02030, 00858, 02952, 02275, 03916, 01585, 02401
Movistar	01585, 03288
Moyo	03611
MTS	01998, 03611, 01615, 01481, 01898
MyLGTV	02682
Now TV	02009, 02014
NTT	03237, 03274
NU Telecom	01998, 03028
Numericable	02436
Oi TV	03452, 03454, 04165
Open IPTV	01615
Optimus Clix	02437
Orange	02407
Pace	01998, 00858, 03454, 02294, 02401
PCCW	02009, 02057
Philips	02378
Pioneer Telephone	02254, 02302
Portugal Telecom	02401
Primestar	02030
PrimeTel	02030, 02437, 03611
PrimeTV	02030

PT	02401
Qwerty	01898, 01481, 01615
Qwerty.TV	01898
Reliance	02556
RIO Media	02030
Rostelecom	03611
Sagem	02407, 03288
Sagemcom	02436, 02407, 03007
Samsung	02407
SaskTel	01998
Scientific Atlanta	00858, 02345, 02047, 02401, 03028, 02378
SetaBox	01917
SingTel	02275, 01998, 02802
SK Broadband	03442, 02681
SK Btv	02681, 03442
Sky Austria	02620
Sky Deutschland	02620
Smartlabs	03611
Smile Content	02437
Sogetel	01998
Sonaecom	02437
SureWest	01998, 01481, 02254, 02482, 02586
Swisscom	02271
TalkTalk	02994
TCC	04409
TDC	02271
Technicolor	02994
Telefonica	01585, 03028, 03288
Telekom Deutschland	02132
Telia	02030
TELUS	03028
TeNeT	01898

T-Home	02132
Thomson	03007, 02407
TVB	01615
U+ tvG	02682
U-verse	00858
Verizon	02378
Viasat	02030
Viken Fibernett	02030, 02437
Vivo	03288
Vodafone	02401
WNC	03118
Youview	02994
Yuxing	02014
Zinwell	03139
ZTE	04196

■ **IPTV PVR Combination**

ADB	01585, 02254, 02437
Altibox	02437
Amino	01615, 01898
Arcadyan	02952
Arris	01998, 02378
AT&T	00858
AT&T U-verse	00858
ATMC	03028
BBTV	02980
Belgacom TV	02047, 02132
Bell	01998
Bell Aliant	01998
Bell ExpressVu	01998
Bell Fibe TV	01998
Bluewin	02271
Bouygues Telecom	03007
British Telecom	02294
BT	02294
BT Vision	02294
Cabovisao	02436
Canal Digital	02030

CenturyLink	01998
CHT	03647
Chunghwa	03647
Cisco	03028, 02132, 00858, 02047, 02345, 02271, 02378, 03452
ClubInternet	02132
CNS	02980
Consolidated Communications	01998
Deutsche Telekom	02132
Du	02401
Echostar	03452
Elion	03916
Entertain	02132
Entone	03048
Freebox	01976
Frontier Communications	02378
GDCATV	02980
Glashart Media	01615, 01898
Google	03666
Guangdong Cable	02980
Hikari TV	03237
Huawei	02994
i-CAN	02437
Innovative Systems	01898
Invitel	02437
InviTV	02437
Kaon	04409
kbro	03139
Kiss	02132, 02271
KPN	02952, 02437
Linksys	02271
Lumos Networks	01998
Magio Sat	02132
Magnet	01615
Meo	02401
MetroNet	01998

Minerva Networks	03118
Mitsubishi Electric	03274
MOD	03647
Motorola	01998, 02437, 02378, 02952, 00858, 03916, 01585, 02030, 02401
Movistar	01585
MTS	01998, 01615, 01481, 01898
NTT	03237, 03274
Numericable	02436
Oi TV	03452, 03454, 04165
Orange	02407
Pace	00858, 01998, 03454, 02294, 02401
Philips	02378
Portugal Telecom	02401
PrimeTel	02437
PT	02401
Qwerty	01898
Sagem	02407, 03288
Sagemcom	02436, 03007, 02407
Samsung	02407
SaskTel	01998
Scientific Atlanta	00858, 02047, 02401, 02345, 03028, 02378
Sky Austria	02620
Sky Deutschland	02620
SureWest	01998
Swisscom	02271
TalkTalk	02994
TCC	04409
TDC	02271
Telefonica	01585, 03028, 03288

Telekom Deutschland	02132
TELUS	03028
T-Home	02132
Thomson	03007
U-verse	00858
Verizon	02378
Vodafone	02401
WNC	03118
Youview	02994
Zinwell	03139

■ **SAT_PVR Combination**

@sat	01300
ADB	02553
AEG	02738, 02813
Airtel	02248
Altech UEC	02097, 03517
Amiko	04197
Amstrad	01662, 01175, 02467, 01693
Arion	04348
Astro	03838
Atevio	02928
Atlanta	03320
Austriasat	01195, 01197, 02957, 02631
Auvisio	02932, 02738, 02813
Avanit	00299
Axil	03424
AZ America	01631
AZBox	02719
B@ytronic	00740
Bell	00775
Bell ExpressVu	00775
Bell Fibe TV	00775
Bell Satellite TV	00775
BENsat	02957
Boca	02797, 02308, 02813

Botech	02738, 03749
Boxer	01957
BSkyB	01175, 01662
Bush	02034
Canal Digitaal	02631, 02466, 02957
Canal Digital	02553
Canal+	02657
CanalSat	02657
CityCom	02957
Clarke-Tech	03320
Claro	03790
CMX	02932
Comag	02797, 02813, 02308
Coship	03790
Cyfrowy Polsat	02527
DCR	03517
Deutsche Telekabel	01195, 01197
Digenius	00740
Digi	01195, 01197
Digihome	02034
DigiQuest	01300
Digital	02308
DigitAlb	01195, 01197
DigitalBox	02540, 03240
Digiturk	03517, 02097
Dilog	01957
DirecTV	01377, 01442, 00099
Dish Mexico	00775
Dish Network	00775
DishHD	04090
Dishpro	00775
DNA	01957
DragonSat	02928
Dream Multimedia	01237, 01923
D-Smart	02231
DSTV	02059, 02060

DTK Deutsche Telekabel	01195, 01197
Dyon	02738, 02813
Easy-One	03240
Echostar	00775, 02527
Edision	01631
Elta	02738
Engel	03749
Etisalat	02443
Eurosky	00740
FaVal	03422
Ferguson	02638
Finnet	01957
Foxtel	01356
Freesat	01692, 02928, 03266
Freesat+	02443, 03266
Fuji Onkyo	01631
Galaxy Innovations	02799, 04197
General Satellite	03064
Gi	02799, 04197
GigaBlue	03663
Globo	02957
Golden Media	04197
GoldMaster	02928
Goodmans	02034
Grundig	02738, 03424
GVT	03789
Handan	01957
HD Box	02928
HD+	02797, 03095
Hirschmann	00740
Hitachi	02034
Hughes Network Systems	01442
Humax	02443, 01176, 01377, 03517, 01427, 01808, 02231, 02408, 02754

IceCrypt	04197, 02928
ID Sat	01334
Indovision	01989
iNETBOX	01237
Intv	04348
Inverto	03095
Jaeger	02797
JVC	00775
Kamosonic	02738
Kaon	01300
Kathrein	02569, 01561, 03658, 00658
Labgear	03424
LaSAT	00740
LinkBox	02957
LogiSat	02797, 02813
Luxor	01935
M vision	03562
M7	02631
Marusys	02799, 03543
Maspro	03099
Maximum	01334, 02813
Medion	02797, 00740
MegaSat	01631, 02813, 02034, 02738
Meo	02466
Mercury	03422
Micro	02797, 02813
Micro electronic	02308
Miraclebox	02928
Motorola	00869
Movistar	02527
Multichoice	02059, 02060
Mysat	02738
MySky Italia	02467
MySky New Zealand	01356, 02211
NEOTION	01334
Nova	02475
NTV Plus	01307, 01692, 02443

Octagon	02928
Openbox	02928
Opensat	02957, 02719
Opticum	02957, 02797, 02932
Orbitech	01195, 01197
Orton	02957
Pace	01682, 01175, 02754, 02475, 02231, 01356, 02467, 02631, 02657, 03790, 01662, 02097, 02211, 02059, 02060, 02466, 02895
Panasonic	03099
Philips	01442, 02466, 00099, 02631
Polsat	02527
Portugal Telecom	02466
PT	02466
Qwest	01377
Raduga TV	02957
RCA	01442
Rebox	02928
Ross	02540
SAB	04197
Sagem	01692, 02553, 01307
Sagemcom	03789, 01692
Samsung	03063, 01442, 01682, 01989, 02467, 01377, 03266, 01662, 03784, 03838, 01693
Sansui	01545
Sat Control	01300
Schwaiger	02308, 00740, 02957

SEG	02034
Set-One	03240
Sharp	02034, 01935
Shaw Direct	00869
Siemens	01657
SilverCrest	02308, 02932
Sky Austria	02754, 02443
Sky Brasil	01377
Sky Deutschland	02754, 02443
Sky Ireland	01175, 01662
Sky Italia	02467, 01693
Sky New Zealand	02211, 01356
SKY PerfecTV!	03099
Sky UK	01175, 01662
SkyCable	01631, 01957
Skylink	02957, 01545, 02443, 02928, 01195, 01197
Skymaster	02932, 01545
Skypex	00740
Skyplus	00740, 01175, 01334
Skytec	02928
Skyvision	02797
SkyWay	02928
Skyworth	01631
SL	00740
Smart	03095, 01631
Spiderbox	03562
Star Choice	00869
Starmax	02638
Stream System	01300
Strong	03424, 01300, 02813, 01682, 02278
Sunny	01300
TDS Telecom	00775
Teac	01957
Technicolor	03790

TechniSat	01197, 01195, 03440
Technotrend	01429
Techwood	02034
Telasat	02466
Telefonica	01692, 02527
TeleSAT	02631, 02466
Telestar	02540, 01195, 01197
TelkomVision	04310
TelSKY	02540
Telstra	01356
TELUS	00775
Thomson	01662, 01175, 01935, 01307, 02160
TiVo	01377, 01442
T-Mobile	02631, 02443, 01545
TNT SAT	01692
Topfield	01545, 02838
TPS	01307
Tricolor TV	03064
True Visions	03784
TV Cabo	02160
TV Vlaanderen	02631, 02466
TVA Digital	02895
TVonics	01906
UPC	02443
UPC Direct	02443
Vantage	02797
Vestel	02231, 03517
Via Embratel	02796
Viasat	01682, 01197, 01195
Vivo	02895, 01692, 02527
Vu+	03458, 02799, 03543
Wisi	00740, 02957

Xoro	02738, 02813, 03422
Xtreme	01300
Xtrend	03320
Zehnder	03422, 03424, 01777, 02034, 00740
Ziggo	02443
Zircon	02957

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Affinity	13870, 13717
Akai	12676, 13067, 12197
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Sharp	10818, 12676, 12360
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Shivaki	12197
Skyworth	12963
Soniq	12493, 13005
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Sony	12778, 10000
Soundwave	11037, 12673
SOVOS	12239
Supersonic	11753, 12104
Swisstec	12106, 12104
Sylvania	11886, 11864, 11394, 10171
Tauras	12197
Teac	10698, 11983, 13005
Technica	11037, 12426
Technical	12676
Technika	12426, 12197, 12106, 11983, 13005
Techwood	12676
Telefunken	12239, 10698, 12676
Teletech	11037
Tesco	12426
Tevion	12426
Thomson	12675, 10625, 13047
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UMC	12426, 12106
United	11037, 11983
VD-Tech	13067
Venturer	13005
Vestel	11037
Viewsonic	12049

Viore	13429, 12352, 12104, 13382, 13118
VisionPlus	12426
Walker	12676
Waltham	11037
Weltstar	11037
Westinghouse	11712
Wharfedale	11983
Xiahua	11753
Xiron	11983, 11037
Xoceco	11753
Xogego	11753
Xoro	13067
Zenith	10000, 10178
Xogego	11753
Xoro	13067
Zenith	10000, 10178

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Please contact an Onkyo distributor referring to Onkyo SUPPORT site.
http://www.intl.onkyo.com/support/

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