DENON®

HDMI Diagnostics and Troubleshooting (Production in 2022/2023)

Introduction

How to operate

Cable Test

Limit mode

Log & EDID

Troubleshooting

HDMI Diagnostics and Troubleshooting

The objective of this guide is provide support for users experiencing HDMI connectivity issues.

The HDMI DIAGNOSTICS function supports the following two methods.

1. Using the front panel buttons and front display of the AVR
2. Using the Web UI (*)

This manual is a guide for operation method **1**.

See the separate Denon Web UI Advanced Setup manual for operation method **2**.

* After updating the AVR to the firmware released in March 2023, the HDMI DIAGNOSTICS function can be used from the Web UI.

1 The HDMI diagnostics feature is used to correct the following issues.

- No picture from connected TV.
- No audio from the AVR (Speaker).
- Intermittent picture or artifact (video snow, dots on the top of the picture).
- Intermittent audio or noise.

2 How to use.

- If the issues mentioned in 1 occur, press the button on the front panel of the AVR to enter HDMI DIAGNOSTICS mode.
- Use the buttons on the front panel or the included remote control to operate the HDMI DIAGNOSTICS function.
- Follow the guidance displayed in the front display to resolve issues using Auto Test in HDMI DIAGNOSTICS.
- Video Test and Audio Test in HDMI DIAGNOSTICS can be used to perform various tests manually according to the displayed error code.

3 What can be done with this feature?

- Find issues with the AVR's hardware (Self diagnostics).
- Diagnosis to determine if the cause of the problem is in the settings of external devices.
- Find issues with HDMI cable capabilities and connection.
- Restrict EDID or HDCP on the AVR to resolve issues caused by incompatibility with the AVR.

NOTE

- The HDMI DIAGNOSTICS feature is a tool to help troubleshoot and solve common HDMI issues. It is not guaranteed to fix all issues.
- This feature is for people with knowledge about HDMI and Audio Video equipment.

Compatible Models

The following Denon AVR products support the HDMI Diagnostics feature.

Production in 2022
AVR-S970H
AVR-X2800H/AVR-X2800H DAB
AVR-X3800H/AVC-X3800H
AVR-X4800H/AVC-X4800H
AVR-A1H/AVC-A1H

Production in 2023
AVR-S670H/AVC-S670H
AVR-S770H
AVR-X1800H/AVR-X1800H DAB
AVR-X6800H/AVC-X6800H
DRA-900H

How to operate

Starting HDMI DIAGNOSTICS Mode

1 Turn on the AVR.

If a malfunction occurs, HDMI DIAGNOSTICS mode can be started without turning off the power.

2 Press and hold the main unit's buttons [A] and [B] at least 3 seconds until “HDMI DIAGNOSTICS” appears on the front panel display.

Production in 2022	Button [A]	Button [B]
AVR-S970H	ZONE2 SOURCE	TUNER PRESET CH -
AVR-X2800H AVR-X2800H DAB		
AVR-X3800H		
AVC-X3800H	ZONE2 SOURCE	PURE DIRECT
AVR-X4800H AVC-X4800H AVR-A1H AVC-A1H	CURSOR UP	BACK

Production in 2023	Button [A]	Button [B]
AVR-S670H	TUNE -	TUNER PRESET CH +
AVC-S670H	CURSOR UP	CURSOR DOWN
AVR-S770H	ZONE2 SOURCE	TUNER PRESET CH -
AVR-X1800H AVR-X1800H DAB		
DRA-900H		
AVR-X6800H AVC-X6800H	CURSOR UP	BACK

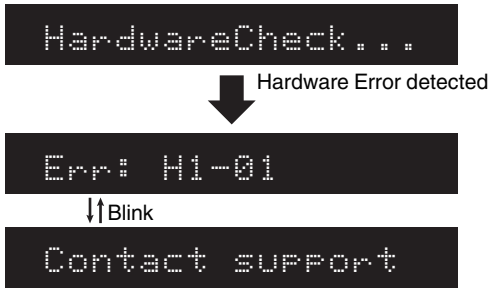
- Front panel display sample (e.g. AVR-X2800H)
  (For other display samples, refer to the "Display sample list". (☞ p. 49))

- HDMI DIAGNOSTICS mode cannot be entered from the Setup Menu or Setup Assistant. Close the menu first.

3 When starting the HDMI DIAGNOSTICS mode, the AVR will automatically start the Hardware Self Diagnostics Test to check whether hardware failure occurs.

If there are no errors, the AVR will show the HDMI Diagnostics menu on the front panel display.
If the hardware error is detected, the AVR will show an error code on the front panel display. (e.g. H1-01)
In this case, the AVR can not continue the HDMI Diagnostics mode. Please turn off the AVR and contact customer service in your area.
(For contact service, refer to “Customer Support” (☞ p. 9))

- Front panel display sample (e.g. AVR-X2800H)



HDMI DIAGNOSTICS Menu

When the Hardware Self-Diagnostics Test is passed, the AVR displays the HDMI DIAGNOSTICS Menu below.

1 Use △▽ to select the menu to be set or operated, then press ENTER.

- Front panel display sample (e.g.AVR-X2800H)
  (For other display samples, refer to the "Display sample list". (☞ p. 49))

Item	Description	page
1 Auto Test	The AVR assists you in identifying the cause of any HDMI issues using Video Test, Audio Test, Cable Test or the limit mode feature according to the guidance indicated on the front panel display. 5. Auto Test cannot run if the EDID Copy/Preset settings in Limitation Mode are not the default settings.	-
2 Video Test	Diagnose video-related issues. An error ID and link to the troubleshooting manual will be displayed if an error is detected. Follow the instructions in the manual to check the error.	26
3 Audio Test	Diagnose audio-related issues. If an error is detected, please refer to the flow of the corresponding error number in the “Trouble shooting Guide”. This cannot be selected if the currently selected input source is an audio type source.	26
4 Cable Test	Check HDMI-Cable integrity and signal (resolution) capability. If the cable test results indicate a problem with the HDMI cable, try one of the following solutions to resolve the issue. • Replace the HDMI cable. • If continuing to use the HDMI cable, set the Max Resolution in Limit Mode to a resolution that passes this test.	10
5 Limitation Mode (Limit Mode)	Set settings to limit the AVR's Video or Audio EDID. There are instances where limiting the AVR video or audio EDID will fix various issues. Please try each limit settings in accordance with the “Trouble shooting Guide”. If you want to clear the limit settings, please refer to “3.Initialization”. Settings other than Max Resolution can be configured for the input source assigned to the HDMI.	13
6 Log/EDID	Save logs or EDID information on a USB memory device or our server via the network. Please use it when receiving the requested by customer service.	25
7 Exit	Exit the HDMI Diagnostic mode	-

Control Keys for Navigation

You can operate each menu using the Cursors, Enter and Back buttons on the remote control or the main unit.

RC buttons	Main unit buttons (Production in 2022)		
	AVR-S970H	AVR-X2800H AVR-X2800H DAB AVR-X3800H	AVC-X3800H
Up	TUNE+	ZONE2 SOURCE	ZONE2 SOURCE
Down	TUNE -	ZONE2 ON/OFF	ZONE2 ON/OFF
Left	TUNER PRESET CH -	TUNER PRESET CH -	PURE DIRECT
Right	TUNER PRESET CH+	TUNER PRESET CH+	SOUND MODE
ENTER	DIMMER	DIMMER	DIMMER
BACK	STATUS	STATUS	STATUS

RC buttons	Main unit buttons (Production in 2023)			
	AVR-S670H	AVR-S770H	AVR-X1800H AVR-X1800H DAB	DRA-900H
Up	INFO	TUNE+	ZONE2 SOURCE	TUNER PRESET CH+
Down	BAND	TUNE -	ZONE2 ON/OFF	TUNER PRESET CH -
Left	TUNE -	TUNER PRESET CH -	TUNER PRESET CH -	ZONE2 ON/OFF
Right	TUNE +	TUNER PRESET CH+	TUNER PRESET CH+	ZONE2 SOURCE
ENTER	DIMMER	DIMMER	DIMMER	SPEAKERS
BACK	STATUS	STATUS	STATUS	STATUS

To exit HDMI DIAGNOSTICS Mode

To exit the HDMI Diagnostics mode, please select “7 Exit” or turn off the AVR.

NOTE

- The HDMI DIAGNOSTICS feature does not support ZONE2 related Video and Audio issues.

Initialization

The Limit setting in the HDMI DIAGNOSTICS menu is stored per input.
Please note that the limit mode settings backup memory will not be initialized (reset) using the initialization (reset) method described in the instruction manual.
There are two ways to reset the limit mode settings.

Reset option in HDMI DIAGNOSTICS mode

Limit mode settings that are made in the HDMI Diagnostics menu are reset to the factory default values.
However, settings other than HDMI Diagnostics (e.g. Speaker setup, Video Setup, Audio Setup) are not reset.

1 Select Limit Mode in the HDMI Diagnostics menu in Web UI and choose “Reset all settings.”

Factory Reset mode

All settings including the Limit mode setting of HDMI Diagnostics menu are reset to the factory default values. (except for Network setup)

1 Press the ⏻ to turn off the AVR.

2 While holding down buttons [A] and [B] simultaneously, press ⏻.

3 Release the buttons after confirming that the front panel display flashes at 1-second intervals.

Production in 2022	Button [A]	Button [B]
AVR-S970H	TUNER PRESET CH+	TUNE -
AVR-X2800H AVR-X2800H DAB AVR-X3800H AVC-X3800H	ZONE2 SOURCE	DIMMER
AVR-X4800H AVC-X4800H AVR-A1H AVC-A1H	SETUP	INFO

Production in 2023	Button [A]	Button [B]
AVR-S670H	TUNE +	BAND
AVC-S670H	ENTER	CURSOR LEFT
AVR-S770H	TUNER PRESET CH+	TUNE -
AVR-X1800H AVR-X1800H DAB	ZONE2 SOURCE	DIMMER
AVR-X6800H AVC-X6800H	SETUP	INFO
DRA-900H	TUNER PRESET CH -	SPEAKERS

Customer Support

If you need additional help in solving problems, contact the nearest HDMI DIAGNOSTICS customer service in your area.

For US & Canada

■ **Denon US & Canada**

https://support.denon.com/app/home

For Europe

■ **Denon UK**

https://support-uk.denon.com

■ **Denon Germany**

https://support-de.denon.com

■ **Denon Netherland**

https://support-nl.denon.com

■ **Denon France**

https://support-fr.denon.com

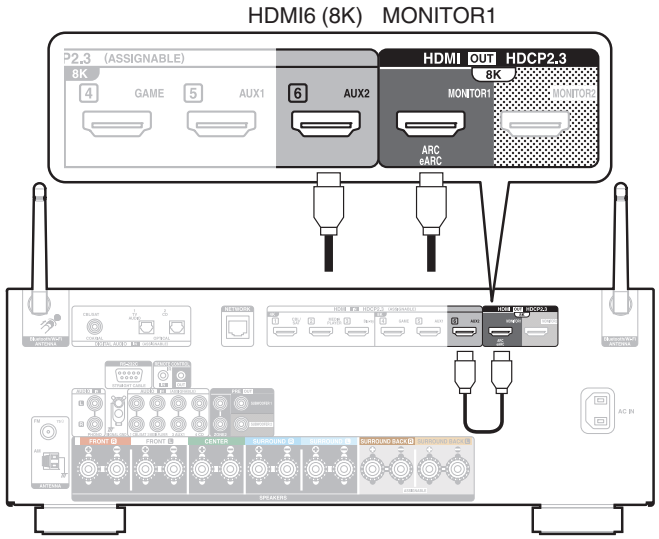
For the other region

■ **Denon**

http://www.denon.com

To check the HDMI Cable integrity, signal quality and resolution capability.

Procedure



1 Use △▽ to select “4 Cable Test” in the HDMI Diagnostics mode, then press ENTER.

- Front panel display sample (e.g.AVR-X2800H)
  (For other display samples, refer to the "Display sample list".
  (☞ p. 51))

2 Connect the HDMI cable to be tested to HDMI7(8K) / HDMI6(8K) and MONITOR*(1) OUT as shown in the figure, then select “Connect the cable between HDMI7(6) IN and MONITOR*(1) OUT, then press ENTER”.

* On models produced in 2023, TV is displayed instead of MONITOR.

Scrolling display

Production in 2022	HDMI IN for Cable Test
AVR-S970H AVR-X2800H AVR-X2800H DAB AVR-X3800H AVC-X3800H	HDMI 6 IN
AVR-X4800H AVC-X4800H AVR-A1H AVC-A1H	HDMI 7 IN

Production in 2023	HDMI IN for Cable Test
AVR-S670H AVC-S670H AVR-S770H AVR-X1800H AVR-X1800H DAB DRA-900H	HDMI 6 IN
AVR-X6800H AVC-X6800H	HDMI 7 IN

3 **Select “Start”, then press ENTER.**

4 **“Testing...” appears in the front panel display, and the test starts.**

5 **The AVR shows Cable test result on the front panel display.**

To perform the cable test again, select “Retry” and press ENTER.

6 **To exit the cable test, remove the tested HDMI cable, then use ▽ to select “Exit” and press ENTER.**

Test Item & Test Result

Test whether there are issues in the HDMI cable communication line and whether the line is compatible with the transfer domains of the resolutions in the table below.
After you finish the cable test, if you still have any issues, please try the following solution.

1 Replace the HDMI cable.

2 To use this cable in your system, please set the limit mode to the resolution that was passed in the following test.

Cable Test Item									Result (Front panel display)
Communication line	Video Resolution (RGB / 8bit)								
	8K (40Gbps)	8K (32Gbps)	8K (24Gbps)	4K (18Gbps)	4K (9Gbps)	1080p	720p	480p	
PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	CABLE TEST PASS-8K(40Gbps)
PASS	FAIL	PASS	PASS	PASS	PASS	PASS	PASS	PASS	8K(32Gbps) PASS / 8K(40Gbps) FAIL
PASS	FAIL	FAIL	PASS	PASS	PASS	PASS	PASS	PASS	8K(24Gbps) PASS / 8K(32Gbps) FAIL
PASS	FAIL	FAIL	FAIL	PASS	PASS	PASS	PASS	PASS	4K(18Gbps) PASS / 8K(24Gbps) FAIL
PASS	FAIL	FAIL	FAIL	FAIL	PASS	PASS	PASS	PASS	4K(9Gbps) PASS / 4K(18Gbps) FAIL
PASS	FAIL	FAIL	FAIL	FAIL	FAIL	PASS	PASS	PASS	1080p PASS / 4K(9Gbps) FAIL
PASS	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	PASS	PASS	720p PASS / 1080p FAIL
PASS	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	PASS	480p PASS / 720p FAIL
PASS	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	CABLE TEST FAIL
FAIL	---	---	---	---	---	---	---	---	CABLE TEST FAIL

To limit the Video/Audio output try the (EDID) or HDCP method to properly display picture on the TV and to correct sound issues.

Limit Mode Menu

The AVR has various options for Limit Mode.
These limit modes are stored for each Video input source.

- Front panel display sample (e.g.AVR-X2800H)
  (For other display samples, refer to the "Display sample list". (☞ p. 52))

Item	Description
1 Source Select (Source)	The input source can be changed from this menu.
2 EDID Copy/ Preset (EIDID)	With this setting, faults can be resolved by removing complexities in the EDID. The EDID of the TV connected to the AVR can be copied, or a fixed preset of the EDID can be used. • Normally, the AVR reads the video and audio format of the connected monitor's EDID, processes the EDID based on the compatibility of the AVR and various settings, and provides the EDID to the connected source device. This can be set for any input with HDMI assigned to it.
3 Max Resolution (MaxRes.)	Sets the video input/output resolution restrictions supported by the AVR. Input sources not assigned to the HDMI are displayed as “Audio” sources.
4 HDCP	This limits the HDCP version of the AVR to HDCP ver. 1.4. This can be set for any input with HDMI assigned to it.
5 HDR	This limits (disables) the HDR (HDR10, Hybrid Log-Gamma HDR10+, Dynamic HDR) capability of the AVR. This can be set for any input with HDMI assigned to it.

Item	Description
6 Deep Color (DeepC)	This limits (disables) Deep Color capability of the AVR. This can be set for any input with HDMI assigned to it.
7 Dolby Vision (DolbyV)	This limits the Dolby Vision capability information about the connected TV that is sent to the player by the AVR. This can be set for any input with HDMI assigned to it.
8 DTS:X*1	This limits (disables) DTS:X capability. This can be set for any input with HDMI assigned to it.
9 Dolby Atmos*1 (Atmos)	This limits (disables) Dolby Atmos capability. This can be set for any input with HDMI assigned to it.
10 PCM 2ch only*2 (PCM2ch)	This limits the audio input capability to PCM 2ch only. This can be set for any input with HDMI assigned to it. When PCM 2ch only is set, DTS:X and Dolby Atmos are also restricted.
11 Reset	Initializes the limit mode settings for each input source.
12 Exit	Exit Limit Mode and return to HDMI DIAGNOSTICS mode.
13 Reset all settings	Initializes all limit mode settings.

∗1 AVR-S670H, AVC-S670H, DRA-900H do not support "DTS:X" and "Dolby Atmos" settings.
∗2 DRA-900H does not support "PCM 2 ch only" setting.

Source Selection

You can switch inputs to check other video sources.

The input source encoder on the unit or remote control unit can be used to change the input source.

When the current input source is audio only, with no video assignment, “Audio” is displayed.

Setting

EDID Copy/Preset

Set the preset based on the monitor from which you wish to copy EDID or the video and audio format you wish to set.

Item	Descpription	Max Resolution/ Bandwidth	HDR10, HLG, HDR10+, Dynamic HDR, Dolby Vision	Deep Color	Audio Capability
Default (Default)	The AVR's normal EDID management method will be used.	-			
Copy M1	Copies EDID from the monitor connected to HDMI Monitor 1 and provides it to the source device.	Depend on the connected Monitor 1 (Due to the specifications of the AVR, the bandwidth is limited to 40Gbps even when the monitor is supported.)			
Copy M2[*1]	Copies EDID from the monitor connected to HDMI Monitor 2 and provides it to the source device.	Depend on the connected Monitor 2 (Due to the specifications of the AVR, the bandwidth is limited to 40Gbps even when the monitor is supported.)			
Copy Z2[*2]	Copies EDID from the monitor connected to ZONE2 HDMI and provides it to the source device.	Depend on the connected Zone 2 Monitor (Due to the specifications of the AVR, the bandwidth is limited to 18Gbps even when the monitor is supported.)			
P1-1080p PCM/ DOLBY/DTS[*3]	The AVR's EDID is fixed in the video and audio formats described on the right.	1080p	Not support	Not support	PCM, Dolby, DTS 5.1 (S/PDIF)
P2-1080p HD Audio[*4]		1080p	Not support	Not support	PCM,Dolby Digital, DTS, Multi Channel PCM. Dolby True HD, Dolby Digital+, Dolby Atmos DTS-HD, (DTS:X)
P3-4K9G PCM/ DOLBY/DTS[*3]		9Gbps	Not support	Not support	PCM, Dolby, DTS 5.1 (S/PDIF)
P4-4K9G HD Audio[*4]		9Gbps	Not support	Not support	PCM,Dolby Digital, DTS, Multi Channel PCM. Dolby True HD, Dolby Digital+, Dolby Atmos DTS-HD, (DTS:X)
P5-4K18G PCM/ DOLBY/DTS[*3]		18Gbps	Not support	Not support	PCM, Dolby, DTS 5.1 (S/PDIF)

Item	Descpription	Max Resolution/ Bandwidth	HDR10, HLG, HDR10+, Dynamic HDR, Dolby Vision	Deep Color	Audio Capability
P6-4K18G HD Audio*4	The AVR's EDID is fixed in the video and audio formats described on the right.	18Gbps	Not support	Not support	PCM,Dolby Digital, DTS, Multi Channel PCM. Dolby True HD, Dolby Digital+, Dolby Atmos DTS-HD, (DTS:X)
P7-8K24G PCM/ DOLBY/DTS*3		24Gbps	Not support	Not support	PCM, Dolby, DTS 5.1 (S/PDIF)
P8-8K24G HD Audio*4		24Gbps	Not support	Not support	PCM,Dolby Digital, DTS, Multi Channel PCM. Dolby True HD, Dolby Digital+, Dolby Atmos DTS-HD, (DTS:X)
P9-8K32G PCM/ DOLBY/DTS*3		32Gbps	Not support	Not support	PCM, Dolby Digital, DTS (S/PDIF)
PA-8K32G HD Audio*4		32Gbps	Not support	Not support	PCM,Dolby Digital, DTS, Multi Channel PCM. Dolby True HD, Dolby Digital+, Dolby Atmos DTS-HD, (DTS:X)
PB-8K40G PCM/ DOLBY/DTS*3		40Gbps	Not support	Not support	PCM, Dolby, DTS 5.1 (S/PDIF)
PC-8K40G HD Audio*4		40Gbps	Not support	Not support	PCM,Dolby Digital, DTS, Multi Channel PCM. Dolby True HD, Dolby Digital+, Dolby Atmos DTS-HD, (DTS:X)

*1 This item cannot be selected on models without HDMI OUT 2.
*2 This item cannot be selected on models without ZONE2 HDMI.
*3 DRA-900H only supports PCM.
*4 This item cannot be selected on DRA-900H.

- EDID settings are prioritized when the EDID Copy/Preset settings are not the default settings. Other Limit Mode settings cannot be changed.

Max Resolution

Max Resolution has 6 selectable items.

No Limit	No limit. The AVR works up to 8K(40Gbps).
4K18Gbps (Default):	This sets EDID information and max resolution of the video output from the AVR to up to 4K(18Gbps).
4K9Gbps:	This sets EDID information and max resolution of the video output from the AVR to up to 4K(9Gbps).
1080p:*	This sets EDID information and max resolution of the video output from the AVR to up to 1080p (60/50).
720p:	This sets EDID information and max resolution of the video output from the AVR to up to 720p, 1080i or 1080p 24. When 720p is set, the resolution may be 1080i for some playback devices or content.
480p:	This sets EDID information and max resolution of the video output from the AVR to up to 480p or 576p.

* “1080p” is the default setting for audio input sources such as Tuner, Phono and HEOS Music. “No Limit”, 4K18Gbps and 4K9Gbps cannot be set for these sources.

- When the Max Resolution settings are changed from the default values, “Custom” is displayed in the AVR Setup Menu – Video – 4K/8K Signal Format. The Max Resolution settings take priority when “Custom” is set.

[Relationship between Max Resolution setting and Support Resolution]

Support Resolution	Color Space	Pixel Depth	Max Resolution setting					
			No Limit (8K(40Gbps))	4K(18Gbps)	4K(9Gbps)	1080p	720p	480p
480i/p, 576i/p	RGB, YCbCr 4:4:4	24, 30, 36 bit	✔	✔	✔	✔	✔	✔
	YCbCr 4:2:2	36 bit	✔	✔	✔	✔	✔	✔
1080i 60/50	RGB, YCbCr 4:4:4	24, 30, 36 bit	✔	✔	✔	✔	✔	-
	YCbCr 4:2:2	36 bit	✔	✔	✔	✔	✔	-
720p 60/50	RGB, YCbCr 4:4:4	24, 30, 36 bit	✔	✔	✔	✔	✔	-
	YCbCr 4:2:2	36 bit	✔	✔	✔	✔	✔	-
1080p 24	RGB, YCbCr 4:4:4	24, 30, 36 bit	✔	✔	✔	✔	✔	-
	YCbCr 4:2:2	36 bit	✔	✔	✔	✔	✔	-
1080p 60/50	RGB, YCbCr 4:4:4	24, 30, 36 bit	✔	✔	✔	✔	-	-
	YCbCr 4:2:2	36 bit	✔	✔	✔	✔	-	-
4K24p, 4K30p, 4K25p, 1080p 120/100	RGB, YCbCr 4:4:4	24 bit	✔	✔	✔	-	-	-
		30, 36 bit	✔	✔	-	-	-	-
	YCbCr 4:2:2	36 bit	✔	✔	✔	-	-	-

(Continued on next page)

Support Resolution	Color Space	Pixel Depth	Max Resolution setting					
			No Limit (8K(40Gbps))	4K(18Gbps)	4K(9Gbps)	1080p	720p	480p
4K60p, 4K50p	YCbCr 4:2:0	24 bit	✔	✔	✔	-	-	-
		30, 36 bit	✔	✔	-	-	-	-
	RGB, YCbCr 4:4:4	24 bit	✔	✔	-	-	-	-
		30, 36 bit	✔	-	-	-	-	-
	YCbCr 4:2:2	36 bit	✔	✔	-	-	-	-
4K120p, 4K100p	YCbCr 4:2:0	24, 30, 36 bit	✔	-	-	-	-	-
	RGB, YCbCr 4:4:4	24, 30 bit	✔	-	-	-	-	-
	YCbCr 4:2:2	36 bit	✔	-	-	-	-	-
8K24p, 8K30p, 8K25p	YCbCr 4:2:0	24, 30, 36 bit	✔	-	-	-	-	-
	RGB, YCbCr 4:4:4	24, 30 bit	✔	-	-	-	-	-
	YCbCr 4:2:2	36 bit	✔	-	-	-	-	-
8K60p, 8K50p	YCbCr 4:2:0	24, 30 bit	✔	-	-	-	-	-

HDCP

The HDCP version of the AVR can be limited to HDCP ver. 1.4. Use this when video is not output due to the problem of compatibility of the player and TV HDCP versions.

Auto (Default):	Automatically applies the HDCP version of this unit according to TV.
1.4:	Fixes the HDCP version of AVR to 1.4.
2.3:	Fixes the HDCP version of AVR to 2.3.

HDR / Deep Color / Dolby Vision / DTS:X / Dolby Atmos / PCM 2ch only

You can set a limit of each funcition of the AVR according to your situation.

No Limit (Default):	No limit.
Limit:	Limit (Disable) each function by changing EDID and HDCP setting information.

Reset

You can reset the limit mode settings to the factory default values.
Settings other than limit mode are not reset.

Current source *:**	Reset the limitation setting only for the current source.
All sources:	Reset the limitation setting for all sources.
Cancel:	Cancel this menu and go back to the limitation mode selection menu.

(*** is current source name)

- You can reset the default settings by setting “Factory Reset mode”. (☞ p. 8)

Please note that the Limit Mode setting will not be reset by performing the process described in “Resetting factory settings” in the owner’s manual.

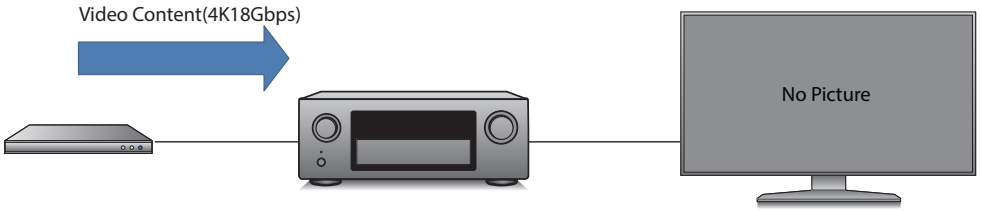
- You can easily check whether HDMI-related functions are limited for the currently selected input source in the AVR Setup Menu-General – Information – ZONE – MAIN ZONE (AVR-S660H/AVC-S660H: Information – Status).

“HDMI Limitation Mode – 4K Enhanced” is displayed when the 4K/8K Signal Format is set to “Enhanced” (4K18Gbps).
”4K Standard” is displayed when the 4K/8K Signal Format is set to "Standard” (4K9Gbps).
“HDMI Limitation Mode – On” is displayed when any of the settings are limited in the HDMI Diagnostics Limitation Mode.
This screen can be used to check restricted settings when “HDMI Limitation Mode – On” is set.
These are not displayed when there are no limitations.

Procedure (Max Resolution)

When the TV doesn't play a video's content (4K18Gbps), there are two approaches to this issue.

1. To change to a new HDMI cable.
2. To set the limit mode (Max Resolution). As a result, the player outputs a lower resolution.



1 Use △▽ to select “5 Limit Mode” in the HDMI DIAGNOSTICS mode, then press ENTER.

- Front panel display sample (e.g. AVR-X2800H)
  (For other display samples, refer to the "Display sample list".
  (☞ p. 53))

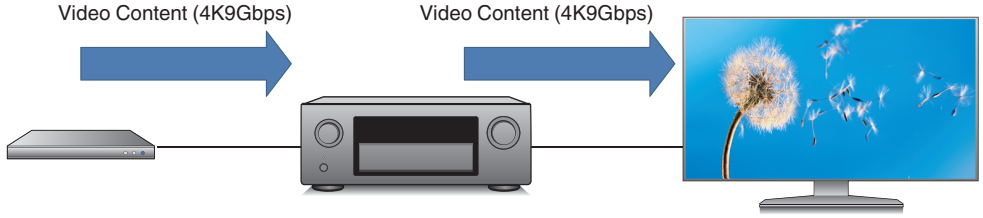
2 Use △▽ to select “3 MaxRes:***”, then press ENTER.

(“***” indicates the currently set backup information. In the example shown, “4K18G” is displayed.)

3 Select the maximum resolution to be set and press the ENTER button.

(In the example shown the setting is changed from “4K18Gbps” to “4K9Gbps”. “*” indicates the currently set backup information.)
The AVR limits the Input Resolution by changing the EDID.

4 Check whether the video is output.



5 **The video is displayed. Save the settings if necessary.**

To reflect the settings only on the current input source, select “Current source” and press the ENTER button.

To reflect the same settings on all input sources, select “All source” and press the ENTER button.

6 **The system returns to the Limit Mode selection menu and the changed setting content is displayed.**

Tips for Limit Mode Setup

The restriction modes may solve the issue when used in the following cases.
Use them according to the issue that is occurring.

2 EDID Copy/Preset

- The video may not be output correctly if the AVR's EDID is different to that of the television, or if the EDID is changed based on the AVR's compatibility or various settings.

It may be possible to output the video correctly by copying the EDID of the connected television or providing the specified EDID preset to the source device.

3 Max Resolution

- When your TV supports 8K (or 4K18Gbps) and the video's output is 8K (or 4K18Gbps) from the AVR, and if the HDMI Input/output cable can not support 8K (or 4K18Gbps), it may cause some issues (e.g. no Video output, no Audio, Video noise, or Video Blinking)
- When the AVR connects to a HDMI 2.0 compatible TV and a specific HDMI 2.0 incompatible player, there are some cases that the player works in DVI mode, the audio will not work and the video will be in RGB format.
- When a TV's EDID method are not standard or correct, a video will not be displayed.

There is a possibility that a video's output can properly be fixed by limiting the max video input/output resolution of the AVR.

4 HDCP

- When an HDCP1.4 compatible TV and HDCP2.2 or 2.3 compatible player are connected through the AVR, and Stream Type1 (HDCP 2.2 or 2.3 protected) content is attempted to be played, the AVR does not play the video and shows a caution popup. (This is correct behavior based on HDCP)
- When HDCP1.4 compatible TV and HDCP2.2 or 2.3 compatible player are connected through the AVR, and HDCP 1.4 content is played, there are some cases in which a player outputs HDCP 2.2/2.3 contents to the AVR.

By limiting the HDCP version of the AVR to ver. 1.4, there is a possibility that the player works with HDCP 1.4 and outputs video at a limited resolution.

5 HDR

- There are some cases in which a video's color is incorrect when connecting an HDR (HDR10, HDR10+, Hybrid Log-Gamma, Dynamic HDR) compatible projector or TV, and HDR content is played.

There is a possibility that the video's color can be corrected by limiting the HDR capability of the AVR.

6 Deep Color

- When connecting a deep color compatible TV and a player through the AVR, some HDMI cables may have performance limitations that could cause an issue (e.g. no Video output, no Audio, noise or Video Blinking)

There is a possibility that video and audio can be output properly by limiting (disabling) the deep color capability of AVR.

7 Dolby Vision

- There are some cases in which a video's color is incorrect when connecting an Dolby Vision compatible projector, and Dolby Vision content is played.

There is a possibility that the video's color can be corrected if the AVR doesn't send the connected projector's Dolby Vision capability information.

8 DTS:X

- When a DTS:X compatible AVR connects to a specific older DTS:X incompatible player, and it plays DTS-HD, there are some cases in which a player plays DTS Surround, not DTS-HD.

There is a possibility that the player will play DTS-HD correctly by limiting the DTS:X capability of AVR.

9 Dolby Atmos

- When a Dolby Atmos compatible AVR connects to a specific older Dolby Atmos incompatible player, and it plays Dolby TrueHD, there are some cases in which a player plays Dolby Digital, not Dolby TrueHD.

There is a possibility that the player will play Dolby TrueHD correctly by limiting Dolby Atmos capability of the AVR.

10 PCM 2ch only

- When the AVR connects to a specific source device, audio format or channel switching (e.g. Dolby Digital ->PCM, 2ch -> 5ch), or information from a source device is not correct, there are some cases in which the sound from the AVR drops out or becomes noise.

There is a possibility that audio output can properly be fixed by limiting the audio input of the AVR to PCM 2ch.

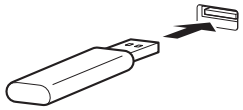
Save logs or EDID information on a USB memory device or our server via the network.
This menu is for developers. Please use it only when requested by customer service.
Use a USB memory device formatted to FAT32 format. Check the network connection in advance before saving a log on the network server.

Procedure

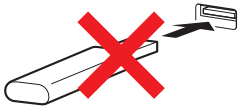
1 Use △▽ to select “6 Log/EDID” in the HDMI Diagnostics mode, then press ENTER.

- Front panel display sample (e.g. AVR-X2800H).
  (For other display samples, refer to the "Display sample list".
  (☞ p. 54))

2 When saving a log to a USB Memory Device, connect the USB Memory Device to the AVR, select “Start” and press the ENTER button.



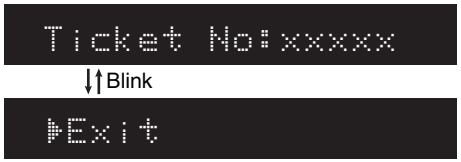
- When saving a log to the server via the network, select “Start” without connecting a USB.



3 When saving the log to the USB memory device is complete, “USB SUCCESS” is displayed on the front display.

(Example log file name: “logs-xxxxxxxxxx.tar.gz”)

- When saving the log via the network is complete, a 5-digit ticket number is displayed on the front panel display. Take a note of this number as you will need it when contacting the customer center.



4 Select “Exit” and press the ENTER button. Return to the HDMI DIAGNOSTICS menu.

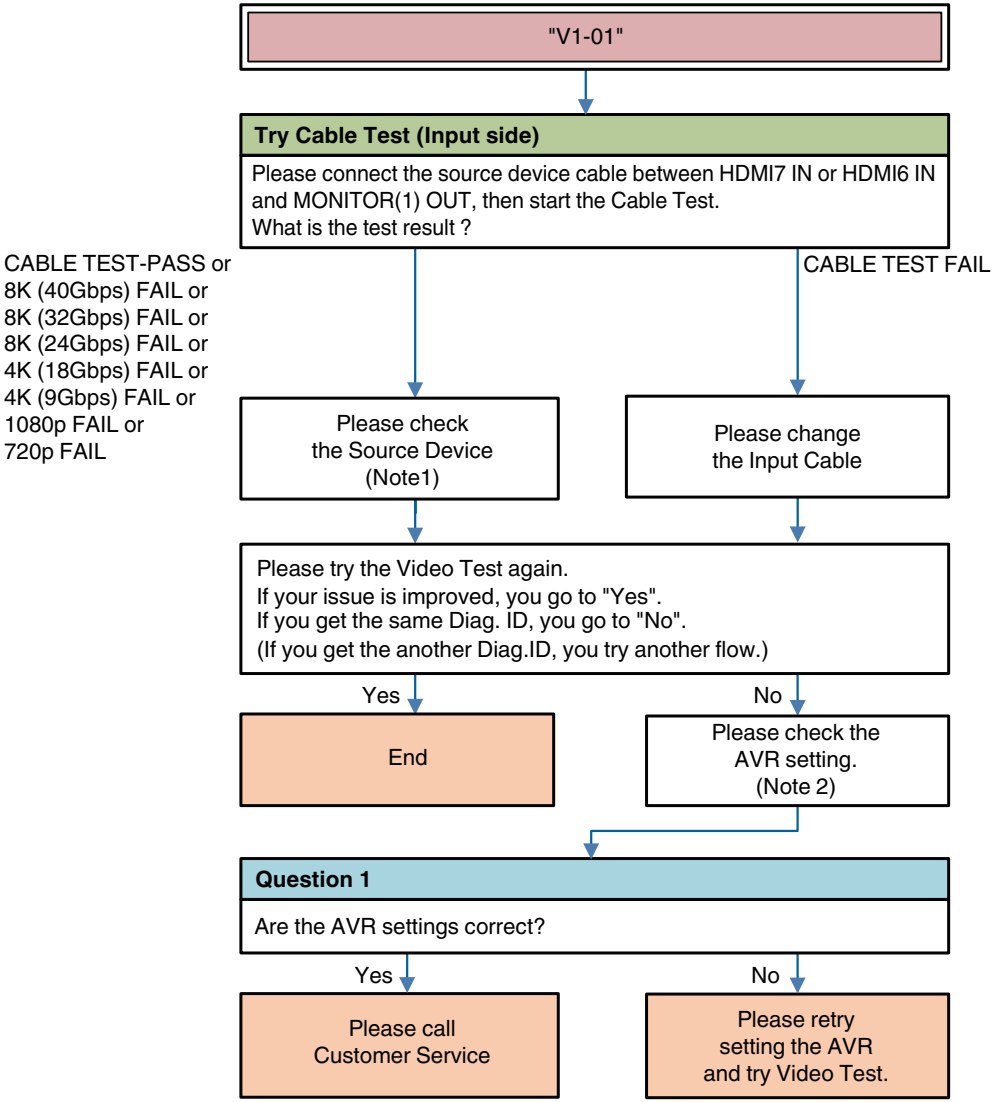
Trouble shooting Guide for HDMI Diagnostics (Video Test, Audio Test, Auto Test)

If an error ID is displayed when running tests from the Video Test/Audio Test/Auto Test menus, check in accordance with the flow of the appropriate error ID number.
If “PASS” is displayed even when the problem is not solved, refer to Audio/Video Flow “Other”. “Audio/video Flow Other” (☞ p. 41)

ID	Description
	Video RX
V1-01	Cannot detect the HDMI cable connected to the AVR input terminal (as detection of 5V from Source Device).
V1-02	Cannot detect the HDMI signal from the source device at the AVR input terminal (as TMDS Rx PLL UnLock).
V1-03	Cannot detect the HDMI signal from the source device at the AVR input terminal (TMDS Rx PLL Lock, but SCDT(CKDT) OFF).
V1-04	Missing Video Info, or receiving Info Error (AVI Info does not exist).
V1-05	HDMI signal has video timing Error (Timing is not correct).
V1-06	Copyright Protection certification Error with Source Device. (HDCP Error).
V1-07	HDCP2.2 or 2.3/Stream ID Type mismatch (ie. Stream ID = 1,but Monitor's HDCP = V1.4).
V1-08	Mismatch between input resolution and the resolution that is supported by monitor.
V1-09	Audio/Video MUTE command from Source Device is always ON.
V1-10	Quality of HDMI Signal(TMDS) is bad.
V1-11	FRL Link Training failed and Video signal format is limited to TMDS.

ID	Description
	Video TX (Monitor1)
V2-01	Miscommunication with Monitor at output terminal (HPD always low).
V2-02	Miscommunication with Monitor at output terminal (4K60 output setting error).
V2-03	Miscommunication with Monitor at output terminal (HPD continuous assert error).
V2-04	Miscommunication with Monitor at output terminal (Rx Sense continuous assert error).
V2-05	Cannot get Monitor information (EDID from Monitor).
V2-06	Copyright protection certification error with Monitor.(HDCP Error).
V2-07	FRL Link Training failed and Video signal format is limited to TMDS.
	Video TX (Monitor2)
V3-01	Miscommunication with Monitor at output terminal (HPD always low).
V3-02	Miscommunication with Monitor at output terminal (4K60 output setting error).
V3-03	Miscommunication with Monitor at output terminal (HPD continuous assert error).
V3-04	Miscommunication with Monitor at output terminal (Rx Sense continuous assert error).
V3-05	Cannot get Monitor information (EDID from Monitor).
V3-06	Copyright protection certification error with Monitor.(HDCP Error).
V3-07	FRL Link Training failed and Video signal format is limited to TMDS.
	Audio RX
A1-01	Audio Packet doesn't come from Source (DVI).
A1-02	HDMI Rx Information is not correct.
A1-03	Information mismatch HDMI device and DSP device (N,CTS, Channel Status, Audio Info, Layout).
PASS	No errors detected. See Audio/Video Flow “Other” if the issue is not resolved.

Video Flow V1-01



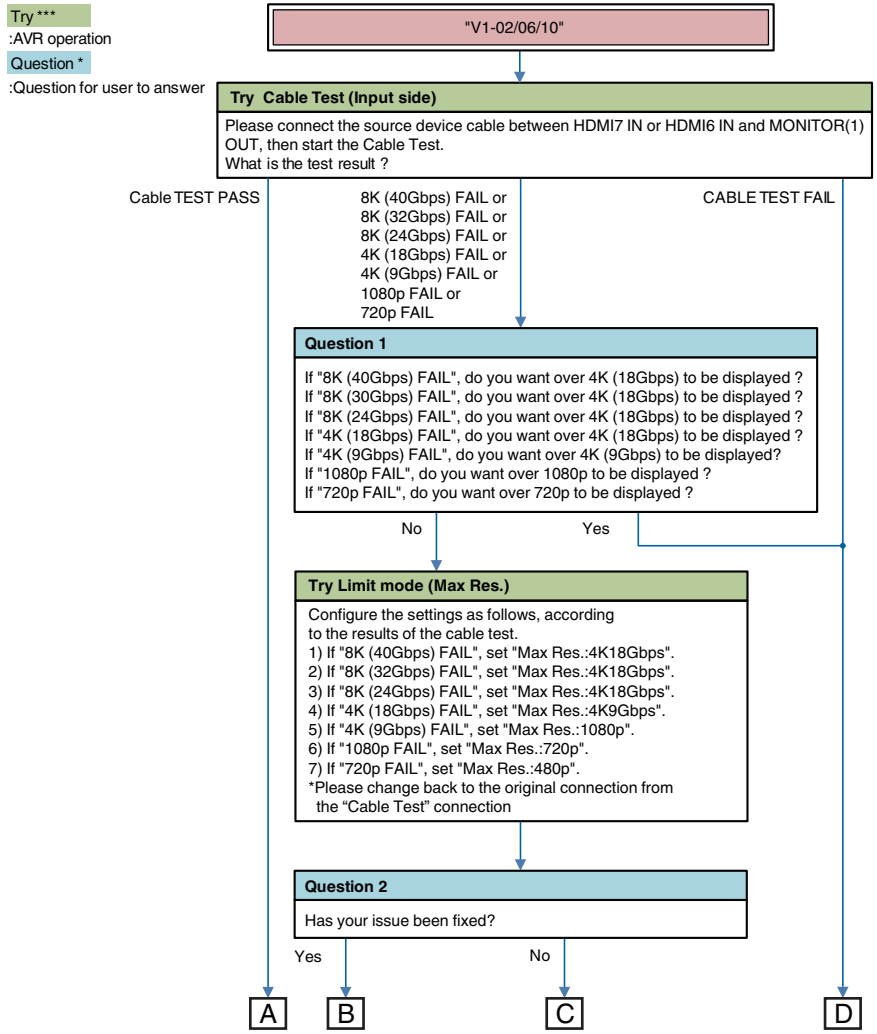
Description "V1-01": Cannot detect the HDMI cable connected to the AVR input terminal (as detection of 5V from Source Device).

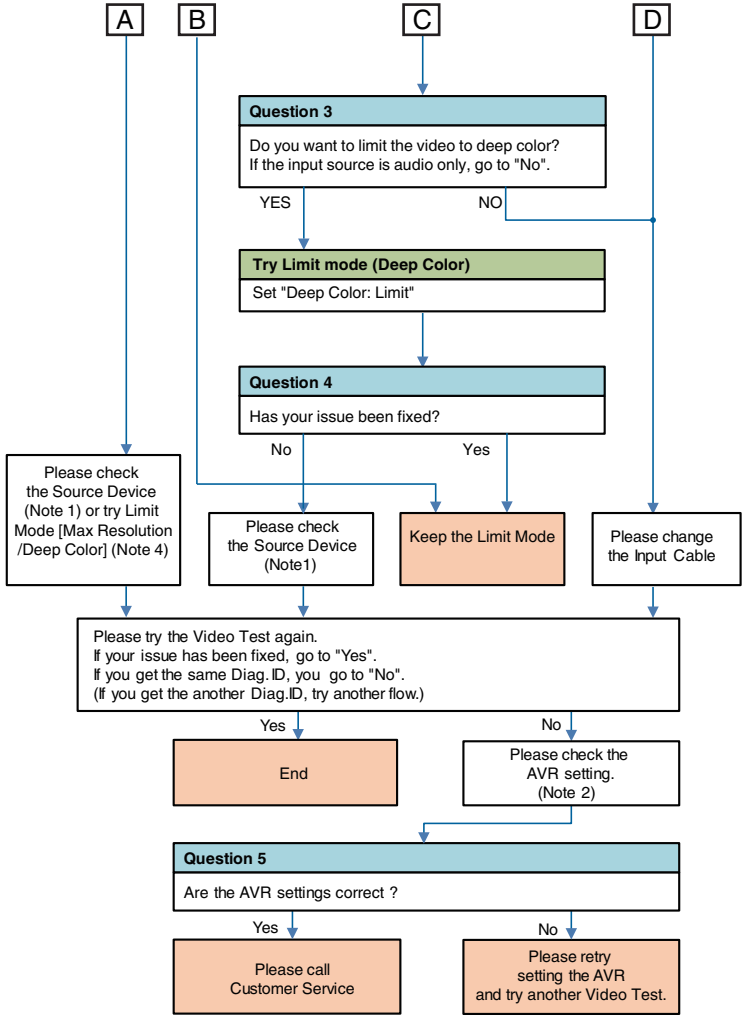
Try ***	:Item of AVR operation
Question *	:Item of Question to answer user

Note 1 : Source Device check item (For details (☞ p. 48))

Note 2 : AVR check item (For details (☞ p. 48))

Video Flow V1-02/06/10

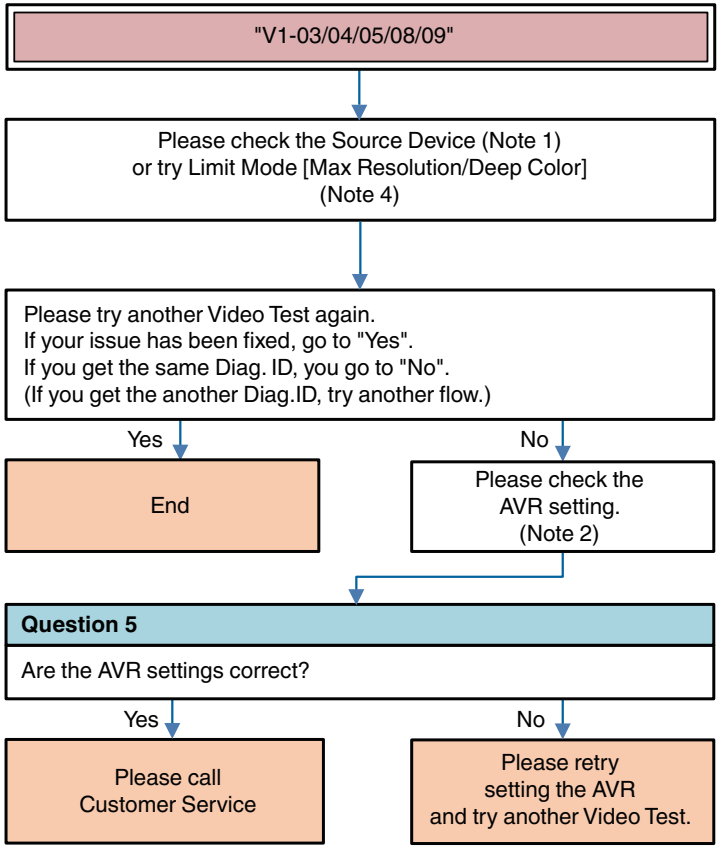




Description “V1-02”: Cannot detect the HDMI signal from the source device at the AVR input terminal (as TMDS Rx PLL UnLock).
Description “V1-06”: Copyright Protection certification Error with Source Device. (HDCP Error).
Description “V1-10”: Quality of HDMI Signal(TMDS) is bad.

Note 1 : Source Device check item (For details (☞ p. 48))
Note 2 : AVR check item (For details (☞ p. 48))
Note 4 : Try Limit Mode (For details (☞ p. 48))

Video Flow V1-03/04/05/08/09

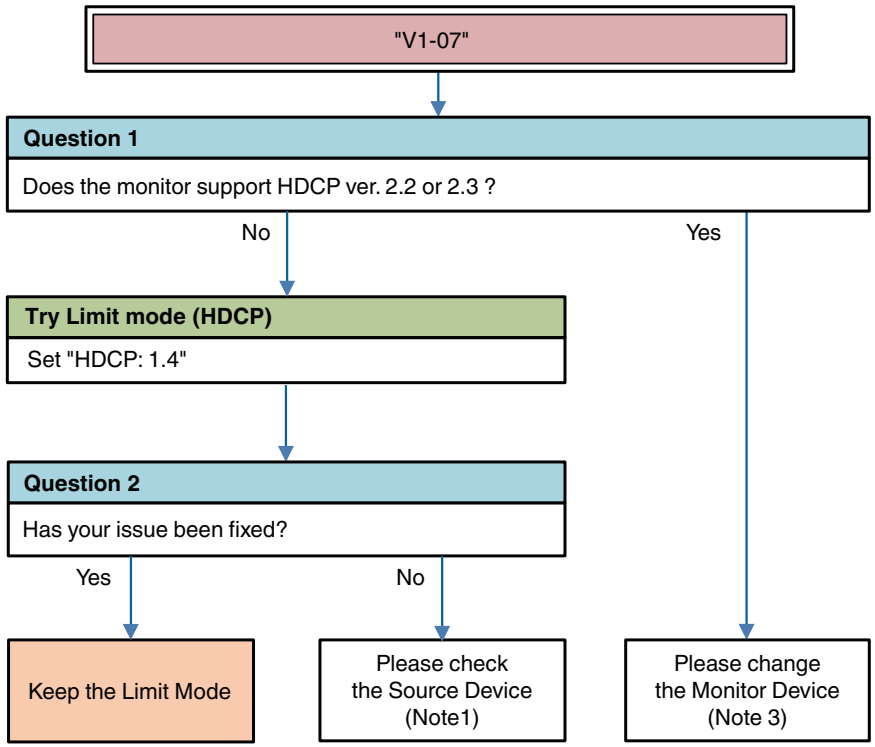


Description "V1-03": Cannot detect the HDMI signal from the source device at the AVR input terminal (TMDS Rx PLL Lock, but SCDT(CKDT) OFF).
Description "V1-04": Missing Video Info, or receiving Info Error (AVI Info does not exist).
Description "V1-05": HDMI signal has video timing Error (Timing is not correct).
Description "V1-08": Mismatch between input resolution and the resolution that is supported by monitor.
Description "V1-09": Audio/Video MUTE command from Source Device is always ON.

Question * :Question for user to answer

Note 1 : Source Device check item (For details (☞ p. 48))
Note 2 : AVR check item (For details (☞ p. 48))
Note 4 : Try Limit Mode (For details (☞ p. 48))

Video Flow V1-07



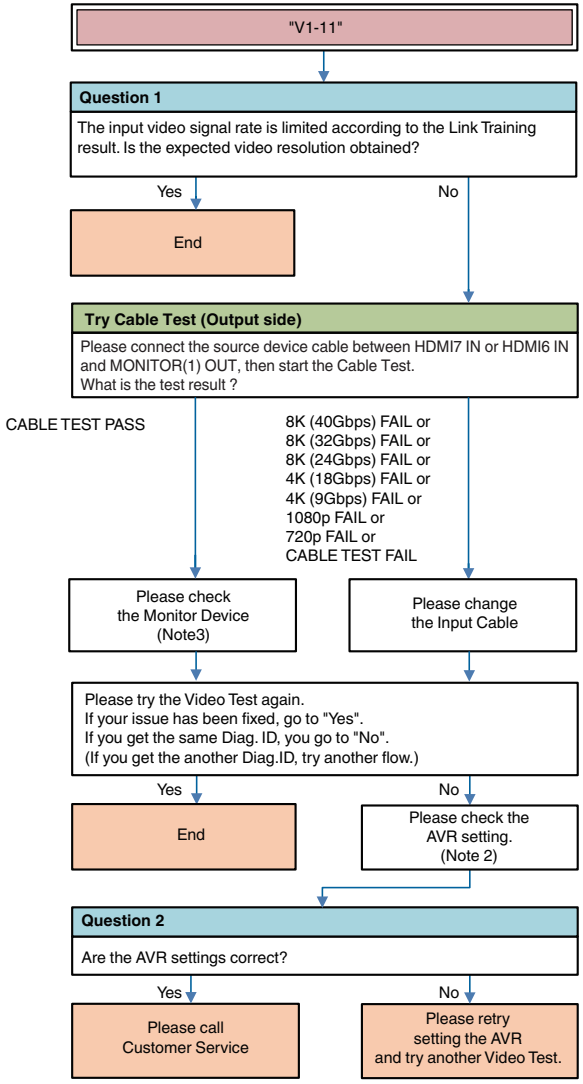
Description "V1-07": HDCP2.2 or 2.3/Stream ID Type mismatch (ie. Stream ID = 1, but Monitor's HDCP = V1.4).

Try ***	:AVR operation
Question *	:Question for user to answer

Note 1 : Source Device check item (For details (☞ p. 48))

Note 3 : Monitor Device check item (For details (☞ p. 48))

Video Flow V1-11



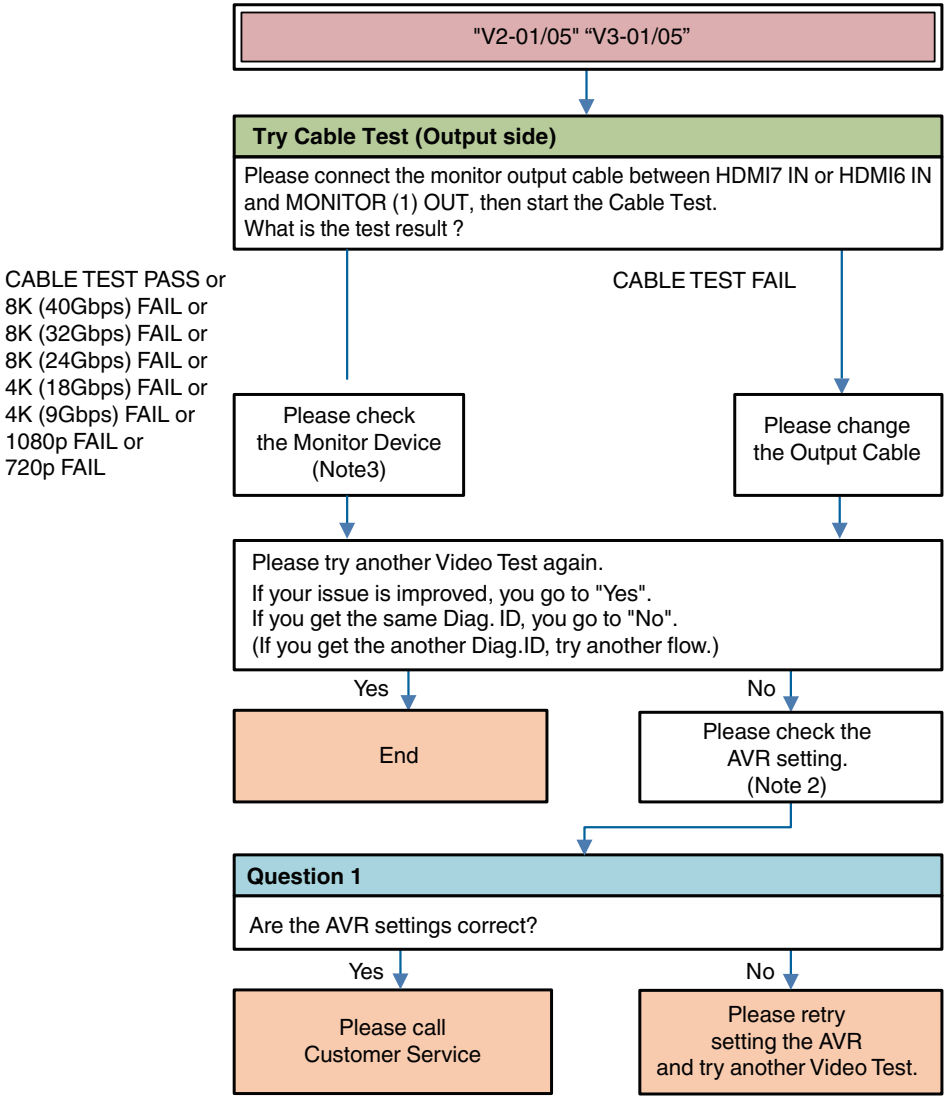
Description "V1-11": FRL Link Training failed and Video signal format is limited to TMDS.

Try ***	:AVR operation
Question *	:Question for user to answer

Note 2 : AVR check item (For details (☞ p. 48))

Note 3 : Monitor Device check item (For details (☞ p. 48))

Video Flow V2-01/05 V3-01/05

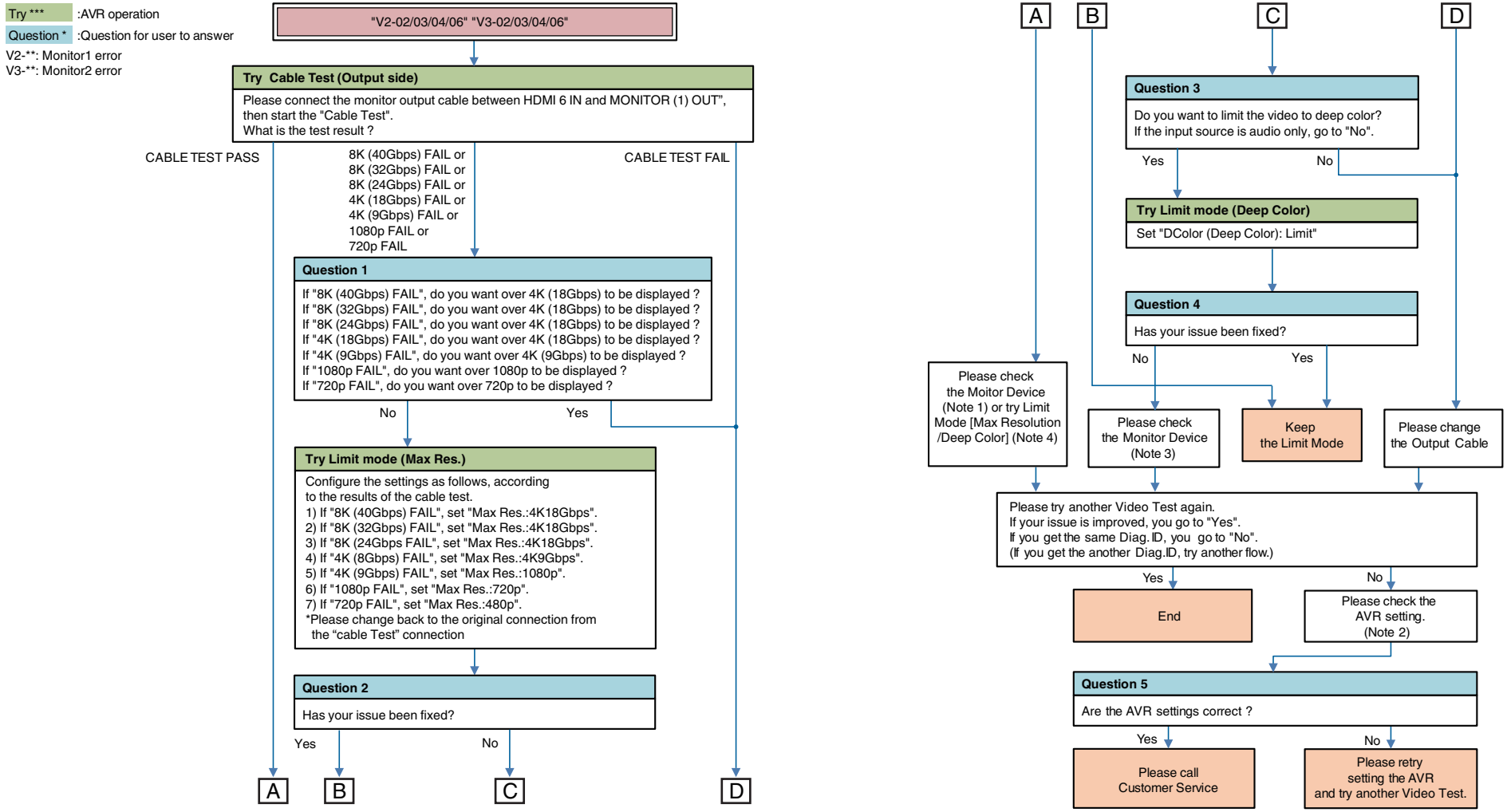


Description "V*-01": Miscommunication with Monitor at output terminal (HPD always low).
Description "V*-05": Cannot get Monitor information (EDID from Monitor).

Try ***	:AVR operation	V2-**	: Monitor1 error
Question *	:Question for user to answer	V3-**	: Monitor2 error

Note 2 : AVR check item (For details (☞ p. 48))
Note 3 : Monitor Device check item (For details (☞ p. 48))

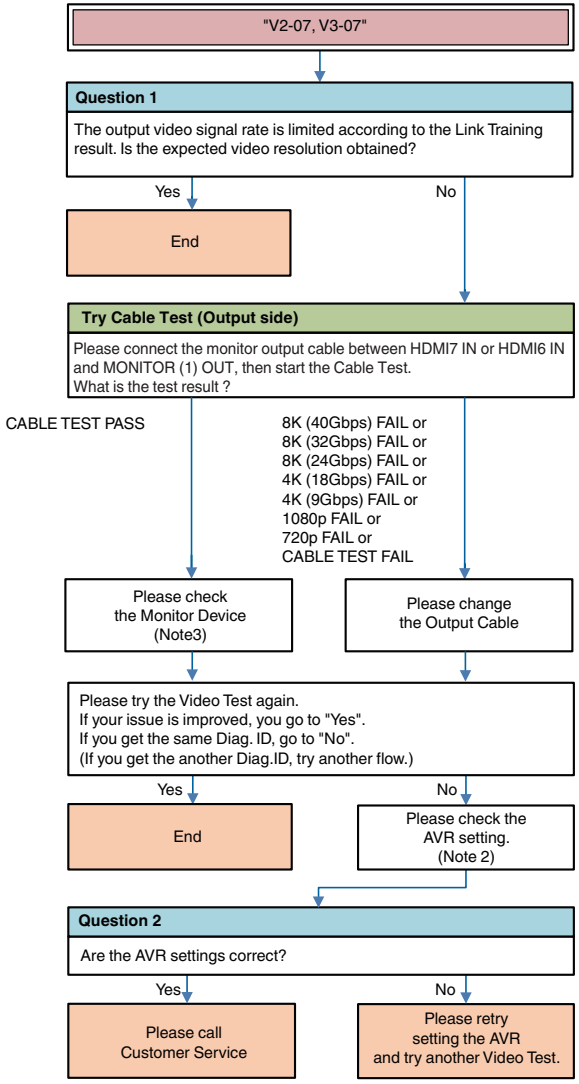
Video Flow V2-02/03/04/06 V3-02/03/04/06



Description "V*-02": Miscommunication with Monitor at output terminal (4K60 output setting error).
Description "V*-03": Miscommunication with Monitor at output terminal (HPD continuous assert error).
Description "V*-04": Miscommunication with Monitor at output terminal (Rx Sense continuous assert error).
Description "V*-06": Copyright protection certification error with Monitor.(HDCP Error).

Note 1 : Source Device check item (For details (☞ p. 48))
Note 2 : AVR check item (For details (☞ p. 48))
Note 3 : Monitor Device check item (For details (☞ p. 48))
Note 4 : Try Limit Mode (For details (☞ p. 48))

Video Flow V2-07 V3-07

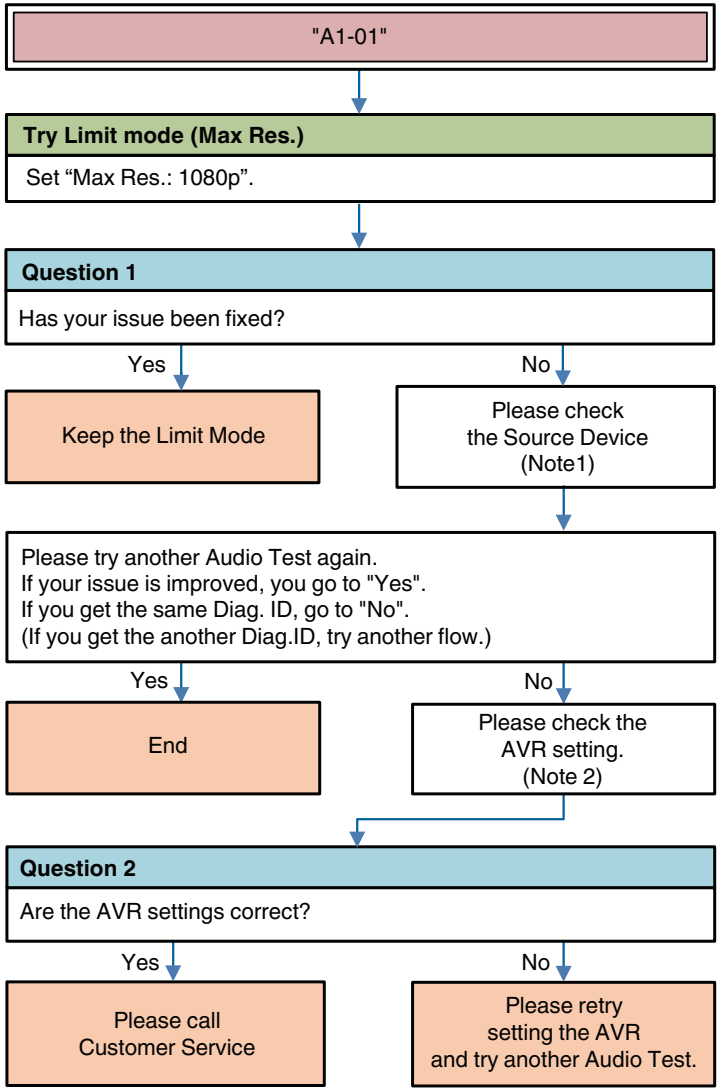


Description "V2-07": FRL Link Training failed and Video signal format is limited to TMDS.
Description "V3-07": FRL Link Training failed and Video signal format is limited to TMDS.

Try ***	:AVR operation	V2-**	: Monitor1 error
Question *	:Question for user to answer	V3-**	: Monitor2 error

Note 2 : AVR check item (For details (☞ p. 48))
Note 3 : Monitor Device check item (For details (☞ p. 48))

Audio Flow A1-01



Description “A1-01”: Audio Packet doesn't come from Source (DVI).

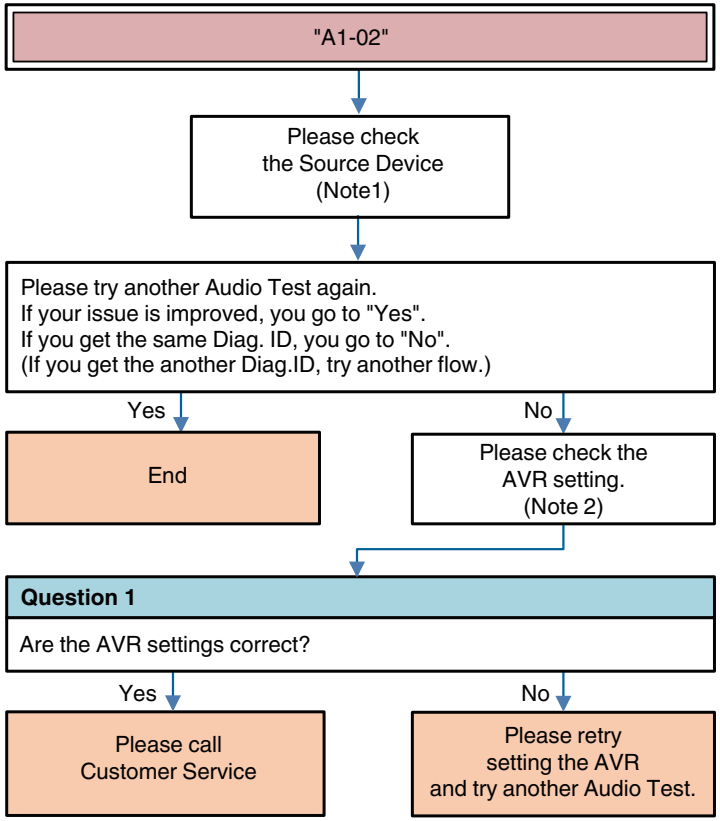
Try *** :AVR operation

Question * :Question for user to answer

Note 1 : Source Device check item (For details (☞ p. 48))

Note 2 : AVR check item (For details (☞ p. 48))

Audio Flow A1-02



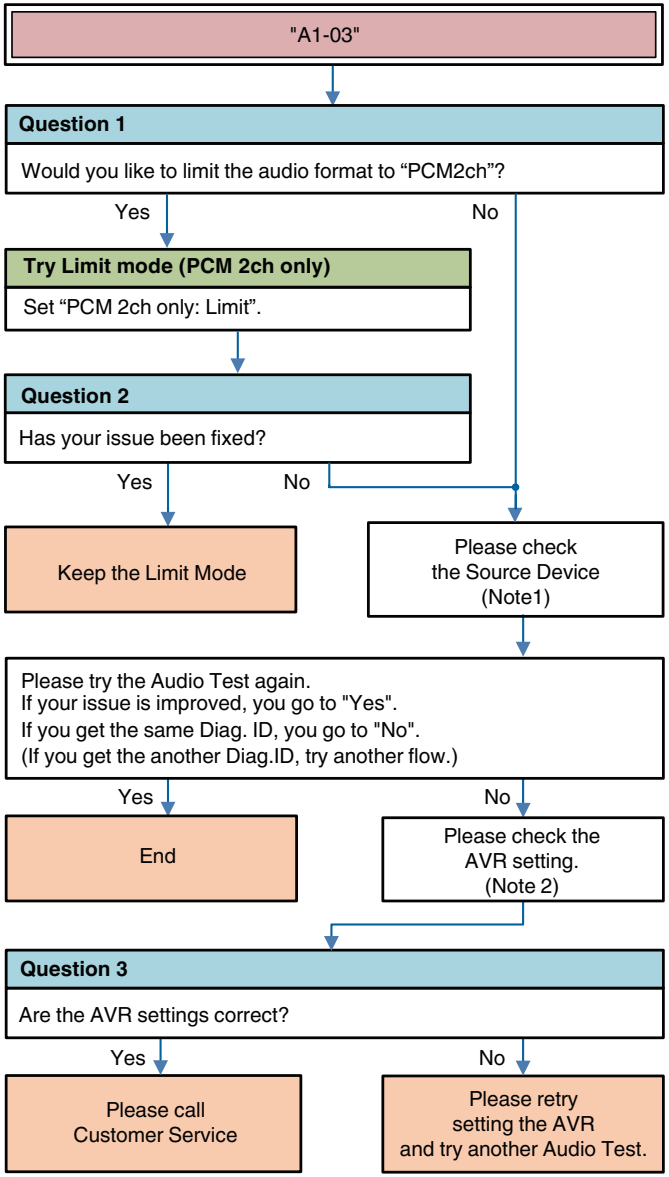
Description "A1-02": HDMI Rx Information is not correct.

Question * :Question for user to answer

Note 1 : Source Device check item (For details (☞ p. 48))

Note 2 : AVR check item (For details (☞ p. 48))

Audio Flow A1-03



Description “A1-03”: Information mismatch HDMI device and DSP device (N, CTS, Channel Status, Audio Info, Layout).

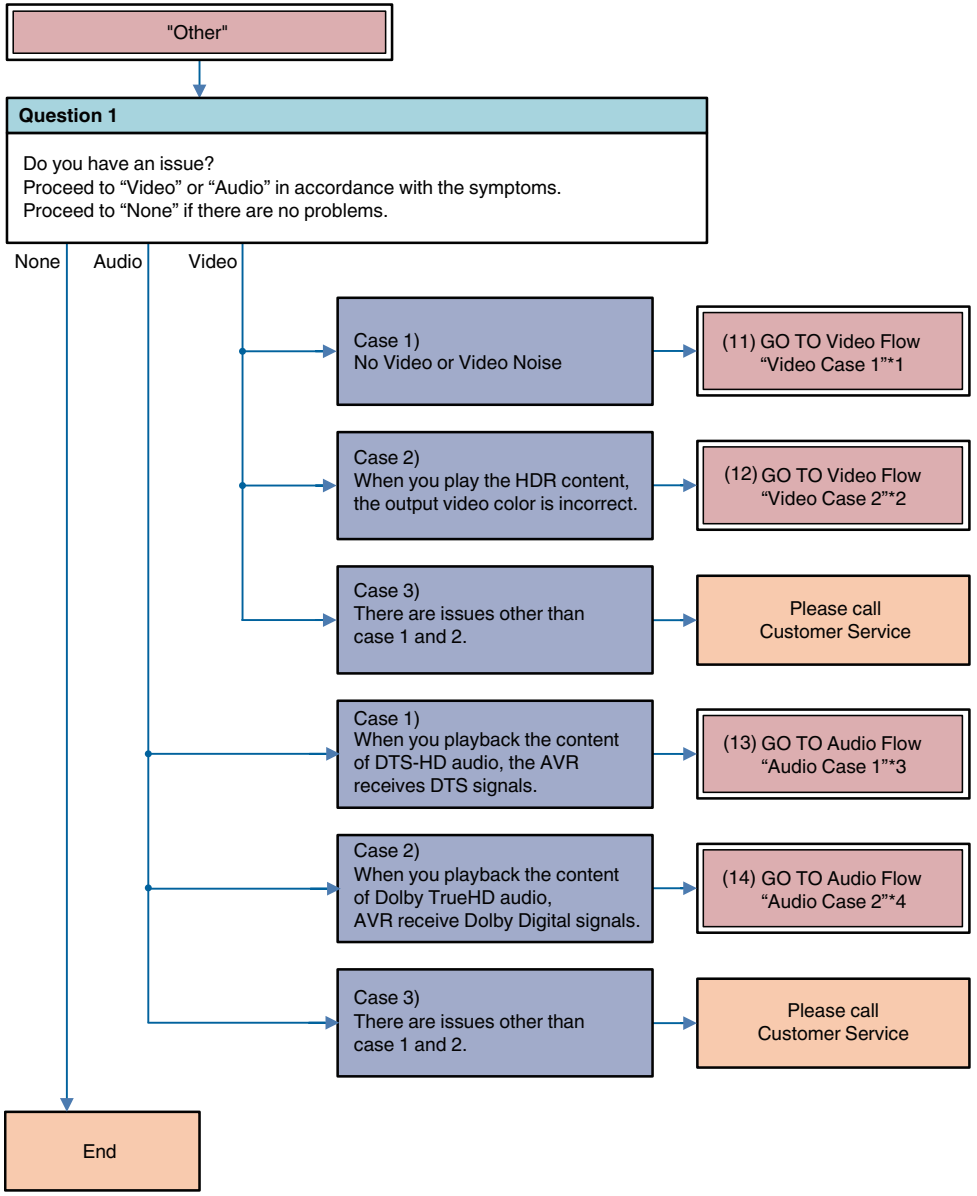
Try *** :AVR operation

Question * :Question for user to answer

Note 1 : Source Device check item (For details (☞ p. 48))

Note 2 : AVR check item (For details (☞ p. 48))

Audio/video Flow Other



Go to Video Flow “Video Case 1”, please check this. (☞ p. 42)

Go to Video Flow “Video Case 2” please check this. (☞ p. 45)

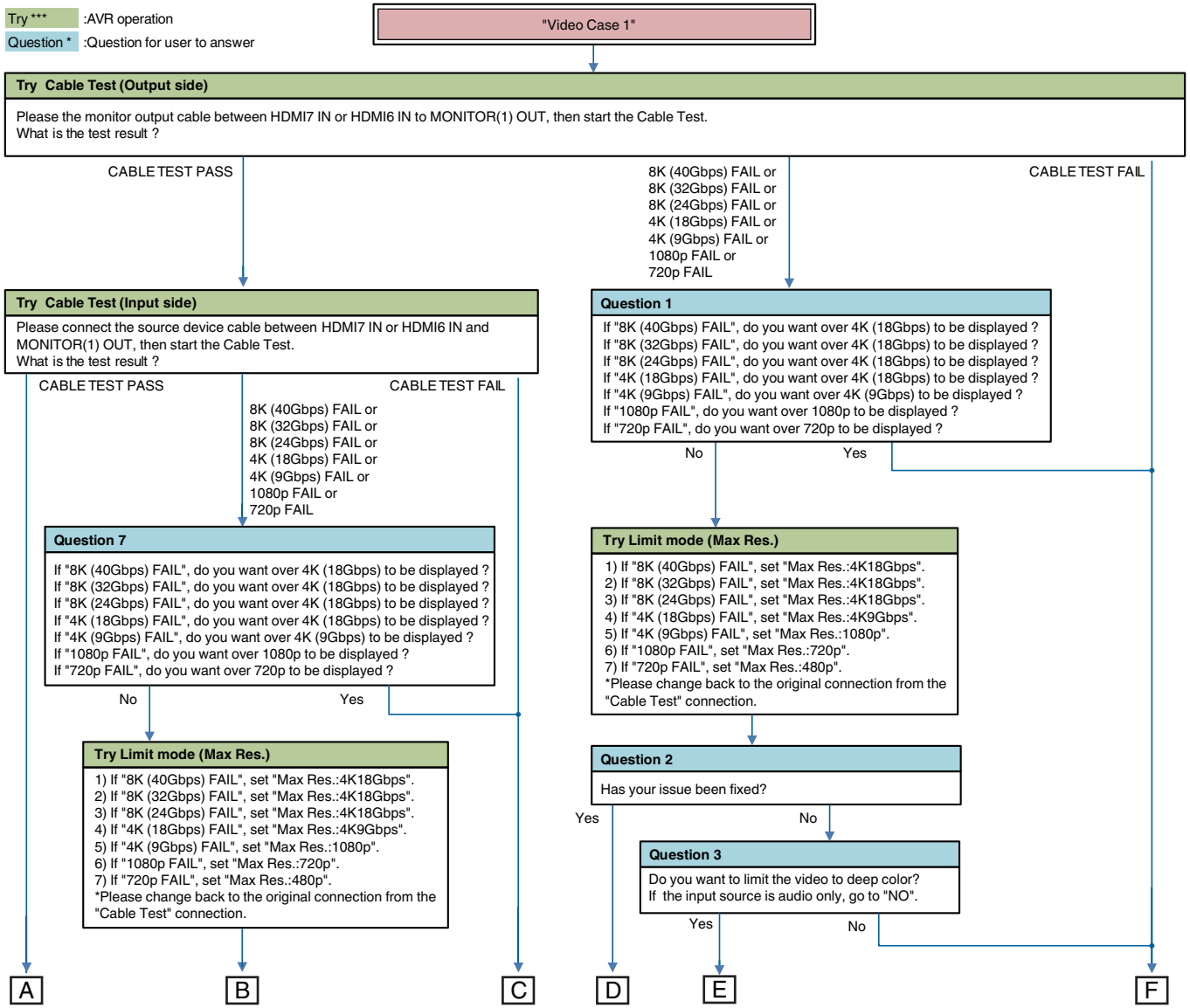
Please call Customer Service

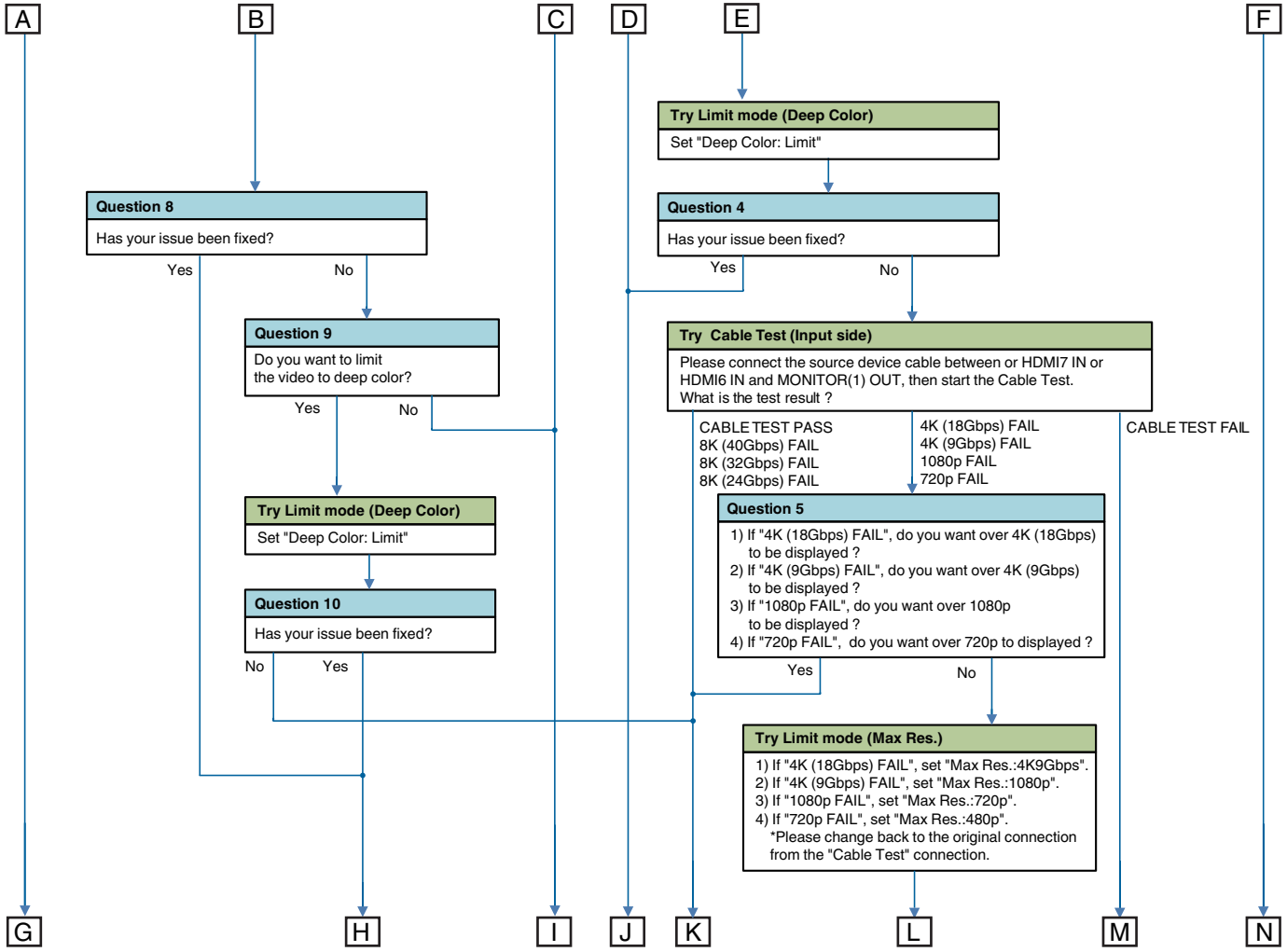
Go to Audio Flow “Audio Case 1” please check this. (☞ p. 46)

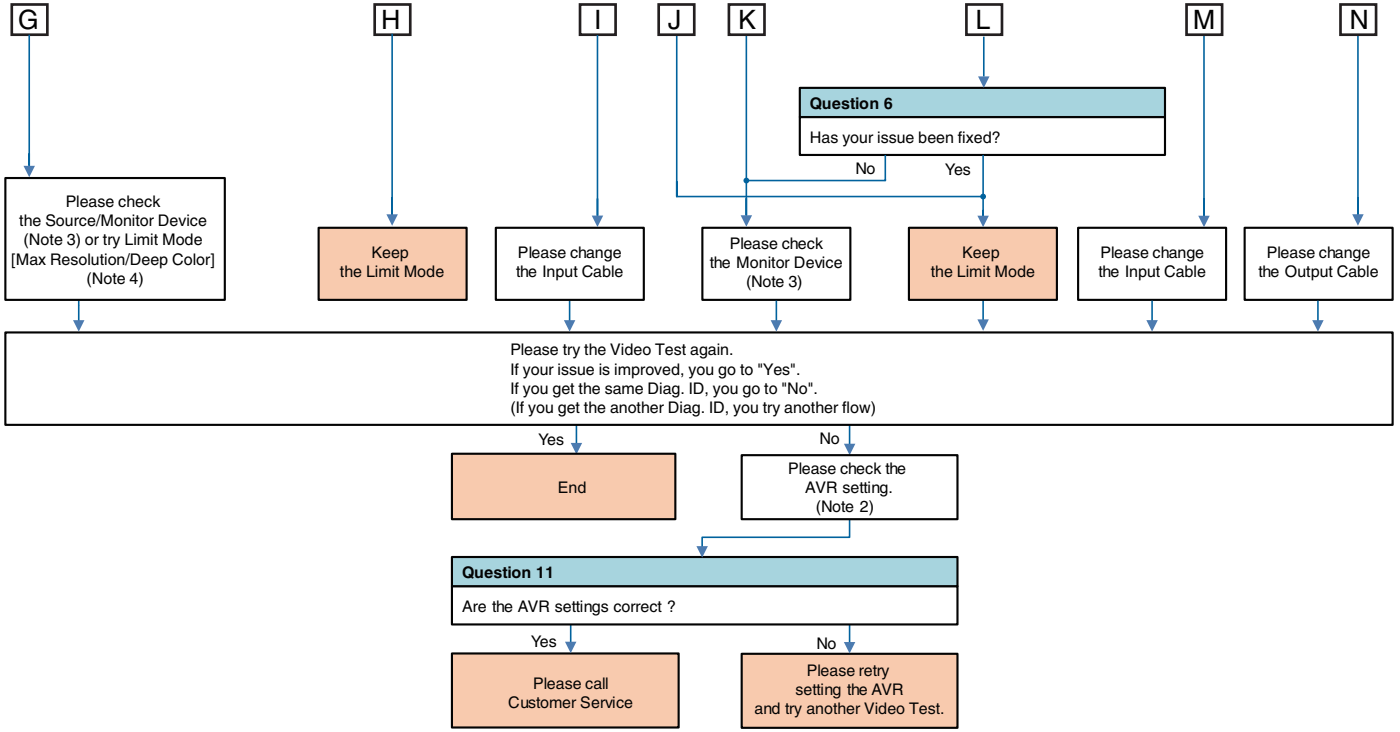
Go to Audio Flow “Audio Case 2” please check this. (☞ p. 47)

Please call Customer Service

Other Video Case1

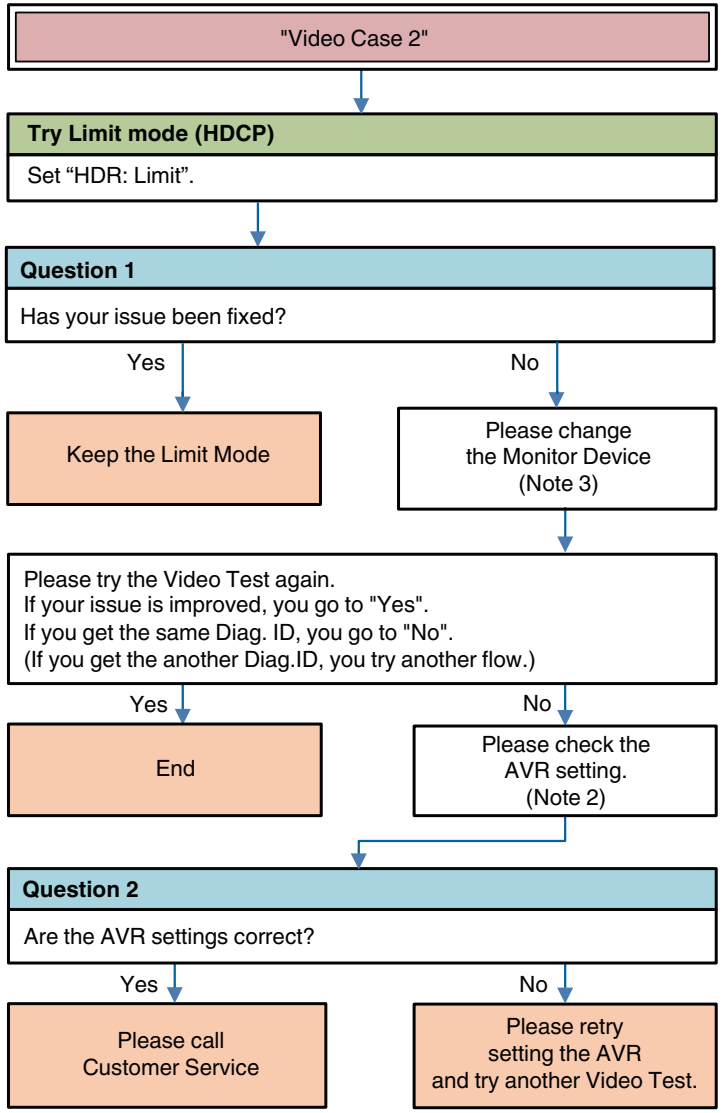



A
B
C
D
E
F
Try Limit mode (Deep Color)
Set "Deep Color: Limit"
Question 4
Has your issue been fixed?
Yes
No
Question 8
Has your issue been fixed?
Yes
No
Question 9
Do you want to limit
the video to deep color?
Yes
No
Try Cable Test (Input side)
Please connect the source device cable between or HDMI7 IN or
HDMI6 IN and MONITOR(1) OUT, then start the Cable Test.
What is the test result ?
CABLE TEST PASS
8K (40Gbps) FAIL
8K (32Gbps) FAIL
8K (24Gbps) FAIL
4K (18Gbps) FAIL
4K (9Gbps) FAIL
1080p FAIL
720p FAIL
CABLE TEST FAIL
Try Limit mode (Deep Color)
Set "Deep Color: Limit"
Question 5
1) If "4K (18Gbps) FAIL", do you want over 4K (18Gbps)
to be displayed ?
2) If "4K (9Gbps) FAIL", do you want over 4K (9Gbps)
to be displayed ?
3) If "1080p FAIL", do you want over 1080p
to be displayed ?
4) If "720p FAIL", do you want over 720p to displayed ?
Yes
No
Question 10
Has your issue been fixed?
No
Yes
Try Limit mode (Max Res.)
1) If "4K (18Gbps) FAIL", set "Max Res.:4K9Gbps".
2) If "4K (9Gbps) FAIL", set "Max Res.:1080p".
3) If "1080p FAIL", set "Max Res.:720p".
4) If "720p FAIL", set "Max Res.:480p".
*Please change back to the original connection
from the "Cable Test" connection.
G
H
I
J
K
L
M
N



Note 2 : AVR check item (For details (☞ p. 48))
Note 3 : Monitor Device check item (For details (☞ p. 48))
Note 4 : Try Limit Mode (For details (☞ p. 48))

Other Video Case2



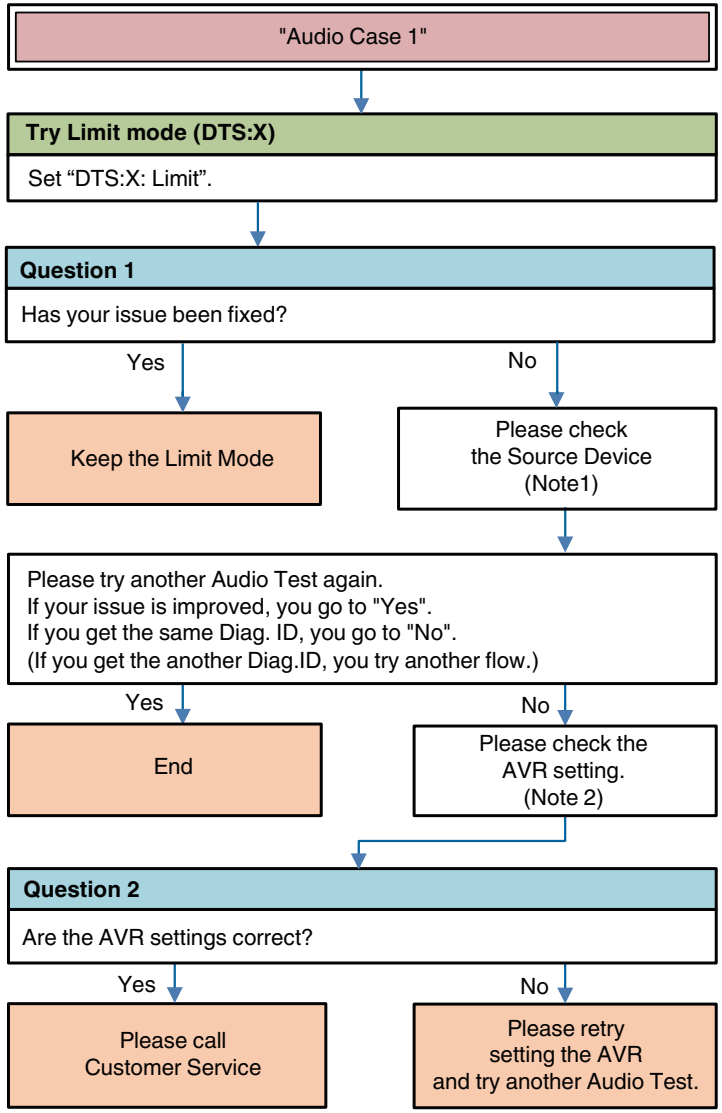
Try *** :AVR operation

Question * :Question for user to answer

Note 2 : AVR check item (For details (☞ p. 48))

Note 3 : Monitor Device check item (For details (☞ p. 48))

Other Audio Case1



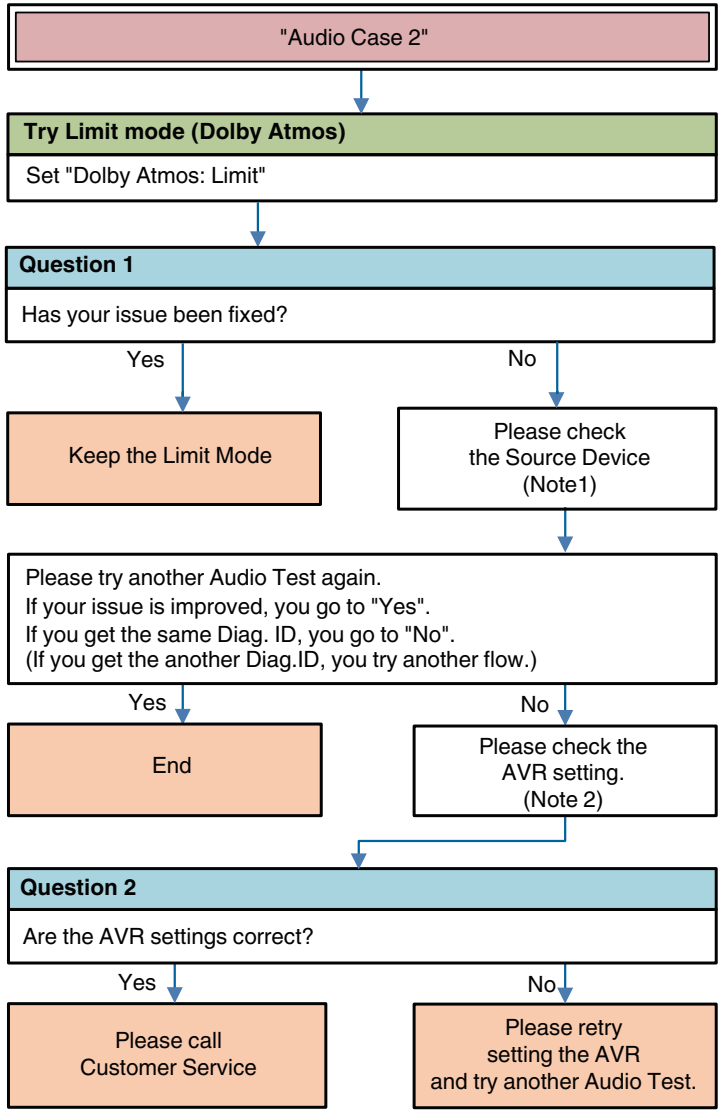
Try *** :AVR operation

Question * :Question for user to answer

Note 1 : Source Device check item (For details (☞ p. 48))

Note 2 : AVR check item (For details (☞ p. 48))

Other Audio Case2



Try *** :AVR operation

Question * :Question for user to answer

Note 1 : Source Device check item (For details (☞ p. 48))

Note 2 : AVR check item (For details (☞ p. 48))

Note1: Source Device check item
- (Try) AC Off/On
- (Try) Standby/Power On
- (Check or change) Video setting (Resolution, etc...)
- (Check or change) Output Terminal setting (case of Dual output source device)
- Video check (connect the HDMI cable from Source device to the Monitor directly without the AVR.)

Note 2: AVR check item
- Menu Setting
  Video → HDMI Setup → HDMI Audio Out
  Video → 4K/8K Signal Format
  Video → Output Settings → HDMI Video Output
  Video → Output Settings → HDMI Upscaler
  Video → TV Format
  Inputs → Input Assign
- Connection [Source device / AVR / Monitor device]

Note3: Monitor Device check item
- (Try) AC Off/On
- (Try) Standby/Power On
- (Check or change) HDCP Ver. setting
- (Check or change) EDID (4K/8K Limitation) setting
- (Check or change) limit of each HDMI input terminal
- Video check (connect the HDMI cable from Source device to the Monitor directly without AVR.)

Note 4: Try Limit Mode
- Max Resolution setting
  Set a lower resolution
  NoLimit → 4K18Gbps → 4K9Gbps → 1080p → 720p → 480p
- Deep Color setting
  Set a “Limit”

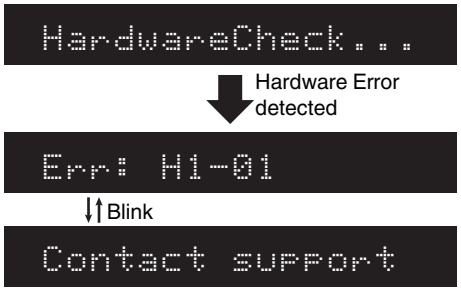
Appendix: Display sample list

Compatible Models

Production in 2022	
1 line display	**2 line display**
AVR-S970H AVR-X2800H/AVR-X2800H DAB AVR-X3800H/AVC-X3800H	AVR-X4800H/AVC-X4800H AVR-A1H/AVC-A1H
Production in 2023	
1 line display	**2 line display**
AVR-S670/AVC-S670H AVR-S770H AVR-X1800H/AVR-X1800H DAB DRA-900H	AVR-X6800H/AVC-X6800H

How to operate

“Starting HDMI DIAGNOSTICS Mode”(☞ p. 5)

1 line display	2 line display
	
	

“HDMI DIAGNOSTICS Menu”(☞ p. 6)

1 line display	2 line display
	

Cable Test

“Procedure”(☞ p. 10)

1 line display	2 line display
	
 Scrolling display	 Scrolling display (2nd line)
	
	
	
	

Limit mode

“Limit Mode Menu”(☞ p. 13)

1 line display	2 line display
	

“Procedure (Max Resolution)”(☞ p. 21)

1 line display	2 line display
5 Limit Mode	HDMI DIAGNOSTICS 5 Limit Mode
3 MaxRes:4K18G	LIMIT MODE 3 MaxRes:4K18G
▶*4K9Gbps	MAX RESOLUTION ▶*4K9Gbps
Save? ↓↑ Blink ▶Current source(Scrolling display	Save? ▶Current source(Scrolling display (2nd line)
3 MaxRes:4K9G	LIMIT MODE 3 MaxRes:4K9G

Log & EDID

“Procedure”(☞ p. 25)

1 line display	2 line display
6 Log/EDID	HDMI DIAGNOSTICS 6 Log/EDID
Log/EDID ↓↑Blink ▶Start	LOG/EDID ▶Start
USB SUCCESS ↓↑Blink ▶Exit	USB SUCCESS ▶Exit
Ticket No:xxxxx ↓↑Blink ▶Exit	Ticket No:XXXXX ▶Exit

DENON®

www.denon.com

3520 10866 00ASD