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	Picture Settings	Advanced Picture	Submenu	Slider	Notes
1	Picture Mode				Picture Modes: Bright, Calibrated, Calibrated Dark, Game, Sports, Vivid.
2	Gaming		<ul style="list-style-type: none"> • Game Controller • Gaming/PC mode • Game HDR • HDMI Mode 		Submenu with 4 settings or 3 settings for FHD (Game HDR does to apply)
3	Ambient Light Sensor				
4	Backlight (SDR) OR Luminance (OLED SDR) OR Tone Mapping (HDR)			yes	1. Backlight displays with SDR content 2. Tone Mapping displays with HDR 3. Luminance displays with OLED
5	Brightness			yes	
6	Contrast			yes	
7	Color			yes	
8	Tint			yes	
9	Sharpness			yes	
10	Color Temperature				
11	Aspect Ratio				Change name form Picture Aspect

12	Advanced Picture				Submenu with 11 settings
13		Black Detail			
14		Super Resolution			
15		Edge Enhancement			
16		Active Pixel Tuning			Renamed of Local Contrast
17		Active Full Array™ OR Backlight Control OR (OLED) Peak Luminance			Active Full Array for panels with local dimming. Backlight Control for panels with global dimming.
18		Motion Control			Submenu for 3 settings
19			Judder Reduction	yes	
20			Motion Blur Reduction	yes	
21			Clear Action		
22		Reduce Noise			Submenu for 3 settings
23			Signal Noise		
24			Block Noise		
25			Contour Smoothing		
26		Gaming Low Latency			HD skus ONLY
27		Film Mode			
28		Gamma			
29		Enhanced Viewing Angle			
30		Calibration			Submenu with 7 settings (first 3 are reference only and not selectable)
31			Picture Mode		reference only: not selectable, grayed out
32			Color Temperature		reference only: not selectable, grayed out
33			Dynamic Range		reference only: not selectable, grayed out
34			Color Tuner	yes	Hue, Saturation, Brightness

35			White Balance Tuner	yes	2-point White Balance (Offset and Gain) 20-point White Balance
36			Reset Color Temperature		
37			Calibration Tests		
38			• SMPTE Test Pattern		
39			• Flat Test Pattern		
40			• Ramp Test Pattern		
41			• Uniformity Analyzer Test Pattern		
42	Input Settings				
43		Picture Size and Position			
44			Picture Size		Special widget
45			Picture Position		Special widget
46		HDMI Mode			formerly Full UHD Color
47		Full Color 4:4:4			HDMI Only
48		Color Space Range			HDMI only
49	Picture Mode Edit				submenu with 2 settings
50		Save Picture Mode			
51		Reset Picture Mode OR Delete Picture Mode			Reset Picture mode applies to preset picture modes. Delete Picture mode applies to custom picture modes

4.0.1 Picture Requirements

	Picture Requirements	Notes
1	Picture Mode is saved for the current input only.	
2	For HDMI inputs, picture mode settings are saved separately for Dolby Vision, HDR10/HDR10+ and HLG. In short, picture modes are saved by input and content for HDMI	
3	After the first adjustment(s) to a picture setting, upon exit of the picture submenu, display a pop up message warning of increased energy consumption. The notification displays only once. The notification is "Customizing the picture settings on the TV will change the energy consumption required to operate the TV. "	Notification verbiage as per legal.
4	For changes that apply to a preset picture mode, an asterisk is added to the picture mode	Changes to White Balance tuner adds asterisk to Color Temperature.

5	Some settings display a slider on the TV for the adjustment. If selected from the SmartCast app, then adjustments on the slider displayed on the TV are controlled by the SmartCast app so user can watch the changes on the TV.	
6	Not all picture settings are compatible with each other.	Table below details picture settings compatibility.
7	When HDMI with 4:4:4 is detected (Full Color 4:4:4 set to On), the TV dynamically updates the picture settings as required to display the content.	
8	HDR 4:2:2 supported for all picture settings.	

4.0.2 Picture Compatibility and Priority

	COMPATIBILITY & PRIORITY	MEMC	Game Low Latency	Clear Action Rate: LED Overdrive	Clear Action Rate: Backlight Timing	Active Full Array (Active LED zones)	Ambient Light Sensor AKA ABC
1	Backlight Boost	OK	OK	Backlight Boost	OK	OK	Backlight Boost
2	Ambient Light Sensor AKA ABC Auto Brightness (Backlight) Control	OK	OK	LED Overdrive	OK	OK	
3	Active Full Array (Active LED Zones)	OK	OK	OK	OK		
4	Clear Action Rate: Backlight Timing	OK	OK	OK			
5	Clear Action Rate: LED Overdrive	OK	OK				
6	Game Low Latency	Game Low Latency					

4.0.3 Picture Settings Not Supported by Content

	PICTURE SETTING *	Content: 4:4:4	Content: 120 Hz source (HDMI only)	NOTES
1	Motion Blur Reduction	X	X	Content over 60 hertz is not supported (not limited to 120 hertz)
2	Judder Reduction	X	X	Content over 60 hertz is not supported (not limited to 120 hertz)
3	Sharpness	X	X	Content is RGB and 120 hertz is not supported
4	Block Noise	X	X	Not supported
5	Signal Noise	X	X	Not supported

6	Film Mode	X	X	Not supported
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* Picture settings that do not apply for the content type includes an X with setting grayed out, not selectable and set to Off if applicable.

4.1 Picture Mode

	Picture Mode Settings	Description	Notes
1	Vivid (default, if exit OOBЕ to demo mode).		if demo mode then picture mode is Vivid. No change V series to Vivid default due to CEC energy use.
2	Bright (default if OOBЕ completed)	Bright based on calibrated except Color Temperature is 9300K (Normal). Reduce Judder & Motion set to 5 instead of 0.	OOBE completed then all inputs are assigned to the Bright picture mode (TV not in demo mode).
3	Calibrated	For bright rooms: default color temperature (warm) follows the D65 standard, set at 6500K.	Previously Calibrated was default.
4	Calibrated Dark	For dark rooms: default color temperature (warm) follows the D65 standard, set at 6500K.	
5	Game	Optimized for Computer as well.	Help text for Game includes also best picture mode for Computer sources.
6	Sports	Sports is optimized for viewing sports and based Calibrated except Contrast is higher and Brightness is lower. Reduce Judder & Motion set to 2 instead of 0. Clear Action is turned off.	
7	Custom	Up to 6 custom picture modes possible, saved globally.	

4.1.1 Picture Mode banks

	Picture mode bank name	Requirements	Add Text or Logo
1	Picture Mode	SDR content is blank after picture mode. SDR is NOT added.	Remains "Picture Mode"
2	Picture Mode HLG	The picture settings for Hybrid Log Gamma (HLG) content are shared with SDR with the following caveats: <ul style="list-style-type: none"> SDR and HLG interpret Backlight differently. Backlight is peak level for SDR but tone map for HLG. A perceptually acceptable backlight that applies to both is expected. For HLG, white is always white, no change (hence difference for Backlight). 	Picture Mode, text string "HLG"

		<ul style="list-style-type: none"> All the other picture settings are common and adjust the same way. 	
3	Picture Mode HDR10	Shared with HDR10+	Picture Mode, text string "HDR10"
4	Picture Mode HDR10+	Shared with HDR10	Picture Mode, text string "HDR10+"
5	Picture Mode Dolby Vision	Dolby Vision has dedicated picture mode bank	DV logo only

4.1.1.1 Dolby Vision not for D/VHD/VFD skus

Model	Dolby Vision 2020 (-H)	Dolby Vision 2021 (-J)	Dolby Vision 2022 (-K)	Dolby Vision 2023 (-L/-8)	Notes
D (HD or FHD)	n/a	NO	NO	n/a	Dolby Vision requires 4K content. No D/VHD/VFD skus for 2020.
V5/V6	yes	yes	yes	n/a	
M6/M7/M8/MQX	yes	yes	yes	yes	
P9/PX	yes	yes	yes	yes (VQP -8 models)	
OLED	yes	n/a	n/a	n/a	

4.1.2 Picture Modes Preset and Custom

	Picture mode Types	Requirements
1	Preset picture Modes	<ol style="list-style-type: none"> Changes made to a picture setting that apply to a picture mode are applied immediately but after the first change an asterisk is appended to the picture mode name, for example, Calibrated*. No limit to number of changes. To return to the default settings for the preset picture select Reset Picture Mode.
2	Custom picture mode	<ol style="list-style-type: none"> From a preset or changed picture mode (with asterisk), select Save Picture Mode to create a new picture mode. To save, a custom picture mode must be named. A changed preset picture mode is unchanged when Save Picture Mode is invoked. To revert the source picture mode to defaults use Reset to Picture Mode. A custom picture mode is saved globally for all inputs. A maximum of 6 unique custom picture modes can be saved for all inputs. Any changes to a custom picture mode enables the change globally (for all inputs). An attempt to create a seventh picture mode results in an error message displayed in a dialog box with OK button.

4.1.3 Color Tuner Adjustment Saved to Picture Mode

Color Tuner Adjustment	Requirement
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1	Color Tuner Hue, Saturation or Brightness	
2		Asterisk is appended to the Picture Mode setting with the adjustment (e.g. Calibrated*)
3		The asterisk is removed when Reset Picture Mode is invoked.
4		Adjustments to a picture mode are saved by input and dynamic range .

4.1.5 Game Picture Mode if AMD VSIF detected

	Detection	Requirement
1	Automatic detection of AMD VSIF	Game Low Latency can be any setting.
2		Changes to Game Picture Mode
3		Changes Game Low Latency to On if needed (default is On for Game picture mode)
4		Changes Variable Refresh Rate to On if needed (default is On for Game picture mode)
5		User can change the setting for Game Low Latency and Variable Refresh Rate
6	AMD game VSIF no longer detected	Restore previous picture mode
7		Restore Game Low Latency to setting before detection
8		Restore Variable Refresh Rate to setting before detection

4.1.6 Game Picture Mode if Dolby Vision Game VSIF detected

	Detection	Requirement
1	Automatic detection of Dolby Vision game VSIF	Game Low Latency is Auto.
2		Changes to Game Picture Mode
3		Changes Game Low Latency to On if needed (default is On for Game picture mode)
4		Changes Variable Refresh Rate to On if needed (default is On for Game picture mode)
5		User can change the setting for Game Low Latency and Variable Refresh Rate
6	Dolby Vision game VSIF no longer detected	Restore previous picture mode
7		Restore Game Low Latency to setting before detection
8		Restore Variable Refresh Rate to setting before detection

4.2 Gaming (all skus except HD D skus D24h-J9, D32h-J9)

	Year	Model	Gaming menu header	Game Low Latency	VRR	VRR Range	AMD FreeSync logo	Game HDR	NOTES
1	2020	V5	X	X				X	
2	2020	M6	X	X				X	
3	2020	M7/M8	X	X	X		FreeSync	X	
4	2020	P9/PX	X	X	X		FreeSync Premium	X	
5	2020	OLED	X	X	X		FreeSync Premium	X	Cert July 2022
6									
7	2021	D HD		X*		n/a			HD skus: GLL supports ALLM but limited to HDMI1.4
8	2021	D FHD	X	X*	X**	40-60Hz 48 - 60 Hz (D32f-J04, D43f-J04)	D32f-J04, D43f-J04 support but no cert, no logo D24f4-J01, D32f4-J01, D24f-J09, D40f-J09 were cert, display FreeSync logo		FHD skus: GLL supports ALLM but limited to HDMI1.4 FHD skus: VRR is limited to 2K (4K not supported)
9	2021	V5	X	X	X	48-60Hz	no cert	X	
10	2021	V6	X	X	X	40-60Hz	FreeSync	X	
11	2021	M6	X	X	X	40-60Hz	FreeSync	X	
12	2021	M7	X	X	X	40-60Hz	FreeSync	X	
13	2021	P9	X	X	X	48-120Hz	FreeSync Premium Pro	X	P75Q9-J01 upgraded to Premium Pro P65Q9-J01 Cert upgraded to Premium Pro July 2022
14									
15	2022	D FHD	X	X	X	40-60Hz	FreeSync		see FHD note above
16	2022	V5	X	X	X	40-60Hz	FreeSync	X	including V755x-K04, V755M-K03
17	2022	MQ6	X	X	X	40-60Hz	FreeSync	X	

18	2022	M65QX M75QX	X	X	X	48-120Hz	FreeSync Premium Pro	X	
19	2022	M50QX M-K01	X	X	X	48 Hz - 240 Hz if 1080P 48 -120 Hz if 4K	FreeSync Premium	X	M50QXM-K01 support switching between 4K@120 Hz and 1080p@240 Hz. Intended for gaming.
20									
21	2023	M6	X	X	X	40-60Hz	FreeSync	X	M55Q6-L4 only
22	2023	M6	X	X	X	48 Hz - 120 Hz if 1080P 40 -60 Hz if 4K	FreeSync Premium	X	M65Q6-L4, M75Q6-L4
23									
24	2024					Resolution must be 4K 0 - 144HZ	FreeSync		n/a
25	2024					>= 20 Hz if 1080P >= 120 Hz if 4K	FreeSync Premium		n/a
26	2024	VQP				TV >= 48" (16:9) Avg Lum (100%) = 175 nits, (65%) = 250 nits, (10%) = 540 nits Min = .5 millinits Corner white = 300 nits	FreeSync Premium Pro	X	VQP65C-84, VQP75C- 84

4.2.1 INPUT Device Name

	Requirements	Notes
1	Gaming submenu is available for All inputs to support game controller with VIZIO Home.	If VIZIO Home is source then device is empty: the name is VIZIO HOME (not VIZIO HOME VIZIO HOME).
2	The first setting is a reference only listing of the input or the HDMI port and device name	Example is HDMI-2 PlayStation 5 (CEC provided name)
3	The input including HDMI port is grayed out, not selectable and cannot be highlighted.	Default highlight is for Game Controller
4	The HDMI device name is: <ul style="list-style-type: none"> CEC assigned name User defined device type from Input Name setting(e.g. Game or Xbox) User device name from Input Name setting Blank if name not defined 	If no device name then display is port only <ul style="list-style-type: none"> HDMI-2 is correct HDMI-2 HDMI-2 is incorrect.

4.2.2 Gaming Controller (2021 5583 excluded)

	Settings	Display	Supported Behavior	Notes
1	Paired Devices	list of paired devices	Select a device, then settings are <ul style="list-style-type: none"> checkbox with check checkbox unchecked 	<ul style="list-style-type: none"> Paired Devices header is grayed out and not selectable. A paired device is selected and connects: <ul style="list-style-type: none"> animation during connection after connected, checkbox is checked A device is selected and fails to pair then pop up displays "pairing unsuccessful" with notification and OK soft button Tasks also supported in Luna gaming app and status shared with TV.
2	More Devices	list of available devices	Select a device to display <ul style="list-style-type: none"> Pair 	<ul style="list-style-type: none"> More Devices header is grayed out and not selectable. A device is selected and press OK <ul style="list-style-type: none"> Pair is added on the right side animation during pair after paired and connected, moves to first setting under paired devices checkbox is checked A device is selected and fails to pair then pop up displays "pairing unsuccessful" with notification and OK soft button
3	Forget Devices	n/a	Opens up the Forget Devices submenu	

4.2.2.1 Forget Devices

	Forget Devices	Requirement
1	Selection of Forget Devices displays a submenu including:	1. Forget Devices in gray text and unselectable 2. List of paired devices (same as in previous menu) 3. First device is highlighted with "Forget" to the right
2	Press OK for the highlighted device displays a pop up	1. Do you want to forget NAMEPAIREDDEVICE? 2. Forget or Cancel buttons (highlighted)
3	Forget in pop up is confirmed	1. Selected device is unpaired and removed from the list of Paired devices (both instances).

4.2.2.2 Game Controller requirements

	Requirements	Notes
1	Game controller can play games on the VIZIO "free games" app.	
2	Game Controller can also navigate and select in the Home page and launched apps.	
3	TV can power on using a previously paired game controller.	

4	TV will automatically try to connect paired BT game controllers to TV when controllers sends connection request. • The status changes from Disconnect to Connect when paired controller automatically connects.	Device will make the choice to connect upon auto-connect request from the TV.
5	Idle mode / power saving mode support	If controller becomes idle after 5 minutes, it will enter to power saving mode
6	Notifications for the game controller include	<ul style="list-style-type: none"> • Game controller disconnects from the TV (out of range, turned off, dead battery, etc.) • Game controller has low battery (15%) • Pair to game controller fails • Connect to paired controller fails • Pair or connect more controllers than supported.
7	Connect up to 4 Bluetooth gaming controllers simultaneously (Wi-Fi BT chip MT7921A) <ul style="list-style-type: none"> • 5691-K and beyond • 5695s-K and beyond limited to 2 BT game controllers (MT7663) <ul style="list-style-type: none"> • 5691-H/J • 5695-H/J • OLED-H • 5583-K and beyond No support <ul style="list-style-type: none"> • 5583-J 	<ul style="list-style-type: none"> • Trying to connect to a fifth or for 2 BT controllers, to a third game controller fails and a notifications displays indicating maximum. • Controllers are listed in the order connected.
8	Allow to support with other BT devices: <ul style="list-style-type: none"> • 4 or 2 game controllers • 1 Bluetooth Remote • BT headphones <ul style="list-style-type: none"> ◦ 1 for Wi-Fi BT chip MT7663 ◦ 2 (TBD) for Wi-Fi BT chip MT7921A 	

4.2.2.3 Game Controllers Supported

	Devices	Series	Connectivity
1	Amazon Luna Controller	Luna	Wi-Fi 4 Dual Band + BLE5. Limited to skus supporting 4 controllers.
2	Xbox Wireless Controller	Xbox One Xbox Series Xbox Elite	Bluetooth 4.0
3	Playstation Wireless Controller	PS5 Dual Sense PS4 Gen2/Gen1	Bluetooth 5.1

4.2.2.4 Key Mapping for SmartCast Home or Launched Apps

	Amazon Luna Controller	Xbox Controller	Playstation Controller	Behavior
1	D-Pad	D-Pad	D-Pad	Navigation
2	Left Analog Stick	Left Analog Stick	Left Analog Stick	Navigation
3	Right Analog Stick	Right Analog Stick	Right Analog Stick	N/A
4	A	A	X	OK
5	B	B	Circle	Back
6	X	X	Square	N/A or OK
7	Y	Y	Triangle	N/A or Back
8	Left Bumper	Left Bumper	Left Bumper	Current: Left Future: Skip Left (ie jump to left most app on screen)
9	Right Bumper	Right Bumper	Right Bumper	Current: Right Future: Skip Right (ie jump to right most app on screen)
10	Left Trigger	Left Trigger	Left Trigger	Left
11	Right Trigger	Right Trigger	Right Trigger	Right
12	Menu	Menu	Menu	Settings
13	Home	Home	Home	Launch SmartCast Home
14	TBD	TBD	TBD	<ul style="list-style-type: none"> • Input • CC • Mute • Volume up/down

4.2.3 Gaming/PC Mode

	Setting	Behavior	Notes
1	Auto (default)	For Auto setting, the TV EDID reports Automatic Low Latency Mode (ALLM) support. If low latency mode is detected for the HDMI source, then automatically reduce latency by removing defined picture quality settings to reduce throughput delay and display a notification. When the low latency mode is no longer detected, then restore all picture quality settings.	The notification is: "Game detected, optimizing by reducing latency."
2	On (Default Game Picture mode)	Game Low latency applies to content while the source is selected and gray out of PQ settings apply.	If ALLM is detected then display the Freesync logo. For games and PC with mouse.
3	Off	Low latency is not enabled for PC or for games but if ALLM is detected, then low latency is enabled temporarily with no setting change. Help text updated to clarify behavior.	Select On to reduce video delay (lag). Select Off to disable video delay reduction for PC (for watching content),

4.2.3.1 Gaming/PC Mode Requirements

but for devices that support ALLM turn off this setting from the game console.

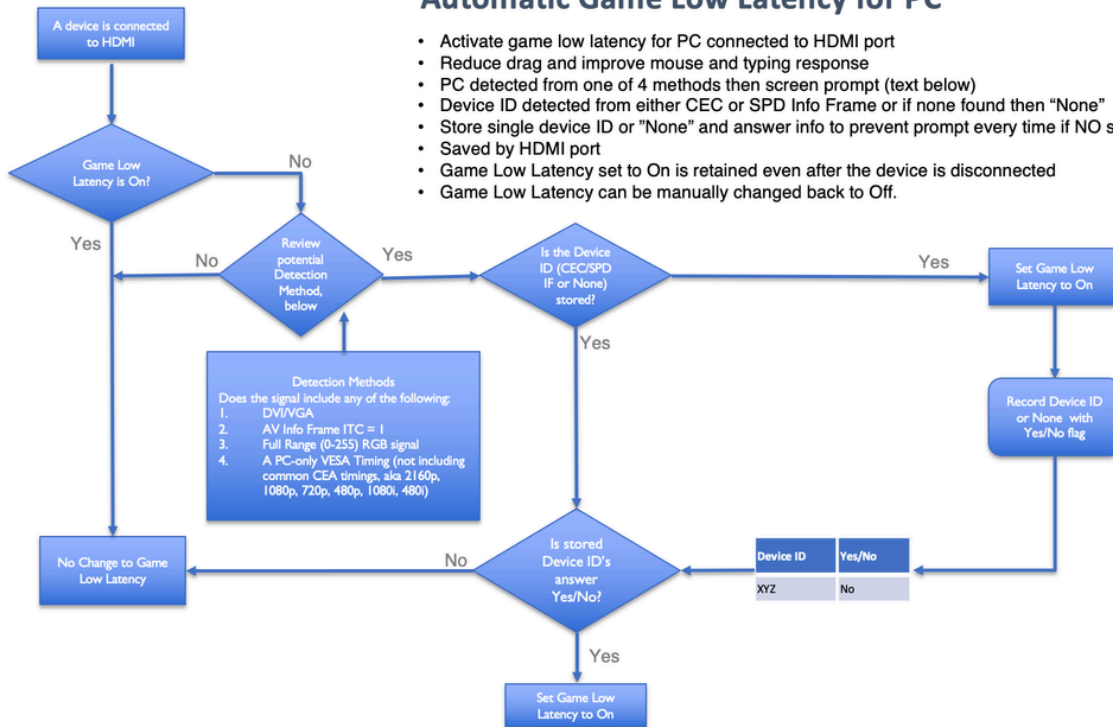
	Gaming/PC Mode Requirements	Notes
1	Gaming/PC Mode reduces throughput delays by not applying picture quality settings that delay the display.	
2	Picture Settings grayed out and not available <ul style="list-style-type: none">• Motion Blur Reduction• Judder Reduction• Signal Noise• Block Noise• Black Detail• Super Resolution• Contour Smoothing• Film Mode (60 Hz panel only)• Backlight Control - set to Off	Applies to: <ul style="list-style-type: none">• Auto setting when ALLM detect• On setting, all content, same as for "On" settings, gray out of picture settings always applies if Picture Mode set to Game. No display of grayed out settings in SmartCast mobile.
3	Gaming/PC Mode is for HDMI inputs only.	Gray out Gaming/PC mode for all inputs other than HDMI (including VIZIO Home).
4	Gaming/PC Mode applies to input signals from 24 Hz to 120 Hz.	

4.2.3.2 Automatic Low Latency for PC

	Automatic Low Latency for PC Requirements	Notes
1	If PC connected to HDMI port, to reduce drag and improve mouse response activate Game Low Latency and change setting to On.	
2	Detect PC using at least one of the following: <ol style="list-style-type: none">1. DVI/VGA detected2. AV Info Frame ITC = 13. Vesa Timing is detected as PC Mode (not a video format)4. Nvidia graphic board Vendor Name = NVIDIA\x00\x00 and Source code = 0x09 (PC general)	
3	If first time PC detected then automatically change the Gaming/PC Mode setting to On to enable low latency.	Pop up notification deleted.
4	Saved by HDMI port	
5	Gaming/PC Mode setting persistent even if device is disconnected.	
6	Gaming/PC Mode set to On by this feature can be changed to Off by user.	

Automatic Game Low Latency for PC

- Activate game low latency for PC connected to HDMI port
- Reduce drag and improve mouse and typing response
- PC detected from one of 4 methods then screen prompt (text below)
- Device ID detected from either CEC or SPD Info Frame or if none found then "None"
- Store single device ID or "None" and answer info to prevent prompt every time if NO selected.
- Saved by HDMI port
- Game Low Latency set to On is retained even after the device is disconnected
- Game Low Latency can be manually changed back to Off.



4.2.4 Variable Refresh Rate Requirements

	Variable Refresh Rate Requirements	Notes
1	VRR no longer requires a setting. ALLM is sufficient to automatically apply VRR and display the logo when detected.	
2	VRR is used to prevent tearing and reduce stuttering caused by misalignment with content's frame rate if lower than the TV's refresh rate.	
3	For supported models, FreeSync by AMD is used to support Variable Refresh Rate if AMD VSIF is detected in the content.	Non supported models are 5583 2021-J HD skus: <ul style="list-style-type: none"> • D24h-J09 • D32h-J09 • D32h-J04
4	VRR support is detected by source by rereading EDID. This is done to update the source device by forcing Hot Plug Detection (HPD). When the Variable Refresh Rate setting is changed, then the EDID data block on VRR is updated and then hot plug detect (HPD) must be asserted by the TV to signal the source device to read the EDID again.	The source device determines the TV Variable Refresh Rate capability by reading the TV's EDID.
5	When AMD FreeSync content displays then the Freesync logo displays.	
6	If VRR flag detected without AMD VSIF then non-FreeSync adaptive sync HDMI VRR applies to content.	
7	To certify AMD Freesync, Variable Refresh rate must apply to input signals from with a minimum 20 Hz range (e.g. 40 Hz to 60 HZ).	No AMD cert, then no Freesync logo display allowed.

For AMD Premium FreeSync, VRR must apply to input signals from highest is at least 2.5 times higher than the lowest.

4.2.4.1 Variable Refresh Rate FreeSync Detection and Logo

		EDID	FreeSync Detection	FreeSync Brand in UI	VRR Range	Average Luminance (100%)	VIZIO TV Series
1	VRR no FreeSync	VRR flag	n/a	n/a	n/a	n/a	2021 D FHD 2020 OLED
2	VRR with Xbox, others	MConstant	n/a	n/a	n/a	n/a	All VRR models
3	FreeSync	AMD VSDB v.1	AMD VSIF v.1	FreeSync logo at the start of content	Min 20Hz range 40 - 60Hz	n/a	2020 M7, M8 2021 Df, V6, M6, M7 2022 Df, V5, M6
4	FreeSync Premium	AMD VSDB v.2	AMD VSIF v.1 and v.2	FreeSync logo at the start of content	Min. Ratio of 2.5:1 (i.e. 48 - 120Hz)	n/a	2020 P9/PX 2021 P9 2022 MQX
5	FreeSync Premium Pro	AMD VSDB v.2	AMD VSIF v.1 and v.2	FreeSync logo at the start of content	Min. Ratio of 2.5:1 (i.e. 48 - 120Hz)	≥ 350 nits	2022 P9
6	Dolby Vision game VSIF	DV game VSIF	n/a	n/a	n/a	n/a	all GLL and DV supported models

4.2.4.2 Variable Refresh Rate Active

	VRR is active IF	Picture Settings grayed out and not available
1	Source detects TV EDID capability supports VRR and/or AMD VSIF v.1 or v.2 for FreeSync	
2	VRR is active: VRR metadata and/or AMD VSIF v.1 or v.2 is sent by the source (e.g. games). For most HDMI sources this setting has no effect because VRR is not detected.	
3	If a source device (such as Xbox) includes VRR and the MConstant bit, then MConstant bit must be detected as 0 from the source device to apply VRR. If detected from source device as 1 then VRR does not apply. If no MConstant detected from the source device, then use 0 as the value.	
4	If FreeSync is active, e.g. VRR is set to On and AMD VSIF v.1 or v.2 is detected, then display the FreeSync logo in the Gaming submenu when opened.	
5	If VRR flag detected without AMD VSIF then non-FreeSync adaptive sync HDMI VRR applies.	
6	For D FHD, Variable Refresh Rate is limited to 2K content (4K not supported by D series).	
7	Grayed out and turned off when VRR is set to On and active.	

8		Black detail
9		Active Pixel Tuning (previous name Local Contrast)
10		Signal noise
11		Contour smoothing
12		Judder reduction
13		Motion blur reduction
14		Clear action
15		Super Resolution
16		Enhanced Viewing Angle

4.2.4.3 Automatic Variable Refresh Rate if AMD VSIF detected

	Automatic Variable Refresh Rate Detection	Requirement
1	Automatic detection of AMD VSIF (Freesync)	Gaming/PC mode can be any setting.
2		Changes to Game Picture Mode
3		Changes Gaming/PC mode to On if needed (default is On for Game picture mode)
4		Variable Refresh Rate enabled.
5		User can change the setting for Gaming/PC mode.
6	AMD game VSIF no longer detected	Restore previous picture mode
7		Restore Gaming/PC mode to setting before detection
8		Variable Refresh Rate disabled.

4.2.4.4 Automatic Variable Refresh Rate if Dolby Vision Game VSIF detected

	Automatic Variable Refresh Rate Detection	Requirement
1	Automatic detection of Dolby Vision game VSIF	Gaming/PC mode is can be any setting
2		Changes to Game Picture Mode
3		Changes Gaming/PC mode to On if needed (default is On for Game picture mode)
4		Variable Refresh Rate enabled.
5		User can change the setting for Gaming/PC mode
6	Dolby Vision game VSIF no longer detected	Restore previous picture mode
7		Restore Gaming/PC mode to setting before detection
8		Variable Refresh Rate disabled.

4.2.4.5 Automatic Variable Refresh Rate to support Nvidia G-sync or 09h

	Variable Refresh Rate Detection	Requirement
1	Applies to 5695/5691/5583	G-sync is the Nvidia proprietary version of AMD Freesync.
2	Automatic detection of Nvidia G-Sync.	Detection of Nvidia G-Sync changes the following: <ul style="list-style-type: none"> • Game Picture Mode • Gaming/PC mode to On • Variable Refresh Rate enabled • User can change GLL and VRR to Off again is desired.
3	Nvidia G-Sync no longer detected	<ul style="list-style-type: none"> • Restore previous picture mode • Restore Gaming/PC mode to setting before detection - due to PC automatic detection this is likely ON. • Variable Refresh Rate disabled.
4	Detection of Nvidia InfoFrame 09h for the 30 series.	Detection of Nvidia InfoFrame 09h changes the following: <ul style="list-style-type: none"> • Game Picture Mode • Gaming/PC mode to On • Variable Refresh Rate enabled • HDMI mode changes <ul style="list-style-type: none"> ◦ 5691/5695/5695s: Enable 2.1 (required for 4K 120) ◦ 5583: Enable Auto (2.1 not supported) • HDMI port renamed to Nvidia graphics card name. • User can change GLL and VRR to Off again is desired. • If the Nvidia card is removed then restore to previous setting <ul style="list-style-type: none"> ◦ Picture mode ◦ Gaming/PC mode setting ◦ Variable Refresh Rate disabled ◦ HDMI port name

4.2.4.6 Gaming Latency Performance

	Gaming Latency by Panel	Gaming Latency Performance Requirements	Notes
1	Game mode latency HDMI 60 Hz panel	9 msec	
2	Game mode latency HDMI 120 Hz panel (LD)	6 msec	
3	Game mode latency HDMI 120 Hz panel (no LD)	5 msec	
4	Game mode latency HDMI 240 Hz panel (LD)	4 msec	

4.2.5 Game HDR (not for D/VHD/VFD skus)

	Game HDR Settings	Behavior	Notes
1	On	1. Tone Mapping is set to 50 and grayed out, reverts previous value when set to Off. 2. Game console controls tone mapping based on category and luminance values defined by VIZIO.	The Game HDR setting enables the tone mapping intended for gaming when the On setting is selected.

2	Off (default all picture modes including game).	1.Normal tone mapping based on HDR metadata.	
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4.2.5.1 Game HDR Requirements

	Game HDR Requirements	Notes
1	Tone Mapping specifically for gaming is also available based on HGIG.	The standard tone mapping for HDR is intended for movie content.
2	Game HDR is only available for HDMI ports and saved by input.	Gray out Game HDR if source is VIZIO HOME, COMP or WatchFree+
3	Game HDR is only for HDR content and is grayed out and set to off if content is not HDR.	

4.2.6 HDMI Mode

Same as Input Picture Settings > HDMI Mode. See [4.0 Picture | 1.13.2 HDMI Mode \(5691, 5695, 5695s\)](#)

4.2.7 Current Gaming Mode

	Current Gaming mode Requirements	Settings	Notes
1	System Info pertinent to gamer	<ul style="list-style-type: none"> Resolution: Frame Rate: HDR: Variable Refresh Rate: Audio Out: 	
2	Format same as for System Info: <ul style="list-style-type: none"> Single spaced Indented Colons follow the feature 		
3	Add an extra row of space		
4	Grayed and unelectable		Reference only
5	FreeSync logo displays right of the text if applicable for current content.		As per gaming table: 4.0 Picture 1.2 Gaming (all skus except HD D skus D24 h J9, D32h J9)

4.2.7.1 Variable Refresh Rate for HDMI Device Info

	Requirements	Notes
1	VRR in HDMI Device Info includes: <ul style="list-style-type: none"> QMS-VRR Gaming-VRR (i.e. HDMI Forum VRR) FreeSync No 	QMS-VRR support and indication is requirement for Dolby Vision SDK 5.2

4.3 Ambient Light Sensor (M7/8, P9/X, OLED)

	Ambient Light Sensor Requirement	Notes
1	Previously named Auto Brightness Control (ABC in the industry), Ambient Light Sensor configures the automatic brightness based on the room lighting.	
2	Ambient Light sensor to behave similar to a phone. This will require tuning.	
3	If Clear Action is enabled, Ambient Light Sensor is disabled, grayed out and not selectable.	
4	If content is HDR, HLG, or Dolby Vision, Ambient Light Sensor is disabled, grayed out and not selectable.	
5	Ambient light sensor does not apply to D, V or M6 skus.	

4.3.1 Ambient Light Sensor settings

	Ambient Light sensor settings	Description
1	Off	Default
2	Low	Results in a darker picture. Default for OLED.
3	Medium	
4	High	Results in a brighter picture.

4.4 Backlight, Tone Mapping or Luminance

	Backlight, Tone Mapping or Luminance Requirements	Notes
1	The setting is in the same location and appears to change backlight though that is not technically correct for Tone Mapping or Luminance.	
2	For HDR content, Tone Mapping is a comparable to Backlight.	
3	For OLED the equivalent to Backlight is Luminance.	Test Case ID:5854

4.4.1 Backlight (SDR)

	Backlight Requirement
1	A slider adjusts the backlight value, that is the LED panel brightness, with a range from 0 to 100.
2	<p>The default varies by picture mode and is based on the backlight level as described in the specification "Picture Modes spec v4.3.pdf" or the latest version.</p> <ul style="list-style-type: none"> Vivid: Max Luminance Calibrated: as defined Picture Modes spec v4.3.pdf Calibrated Dark: as defined Picture Modes spec v4.3.pdf Bright: 100 except for -08 (2024) 4K skus default is 79 Sports: as defined Picture Modes spec v4.3.pdf Game:100

3	If Ambient Light Sensor has been set, Backlight can not be adjusted and is grayed and not selectable.
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4.4.2 Luminance (OLED SDR)

	Luminance Requirement
1	A slider adjusts the Luminance value with a range from 0 to 100.
2	Default varies by picture mode as described in the specification "Picture Modes spec v4.3.pdf" or the latest version.

4.4.3 Tone Mapping (HDR)

	Tone Mapping Requirement
1	Tone Mapping applies to all HDR content including: <ul style="list-style-type: none"> • HDR10 • HDR10+ • Dolby Vision • HLG
2	A slider adjusts the Tone Mapping value with a range from 0 to 100.
3	Tone mapping brightens the screen by adjusting the mid-range of the tone mapping curve. Applies to LED and OLED panels.
4	For 5583 tone mapping applies to HDMI ports (not for VIZIO Home) but not supports for Novatek 2K.

4.4.3.1 Tone Mapping (HDR) Default by Picture mode

Picture Mode	Vivid	Bright	Calibrated	Calibrated Dark	Game	Sports
Tone mapping default	100	100 DV:70	50	50	100	60

4.5 Brightness

	Brightness Requirement
1	Brightness configures the black level of the picture.
2	A slider adjusts the Brightness value with a range from 0 to 100.
3	<p>The default Brightness setting value for SDR is</p> <ul style="list-style-type: none"> • 50: Bright (sku dependent), Calibrated, Calibrated Dark, Game • 48: Bright (sku dependent). • As per comment Picture Modes spec v4.3.pdf: Vivid, Sports <p>The default Brightness setting value for HDR is</p> <ul style="list-style-type: none"> • 48: Vivid, Bright (per sku) • 50: Bright, Calibrated, Calibrated Dark, Sports, Game

4.6 Contrast

	Contrast Requirement
1	Contrast configures the white level of the picture.
2	A slider adjusts the Contrast value with a range from 0 to 100.
3	The default Contrast setting value is 50. <ul style="list-style-type: none">• Except for<ul style="list-style-type: none">◦ SDR Vivid, SDR Sports: default is as per comment Picture Modes spec v4.3.pdf◦ HDR Game: 49

4.7 Color

	Color Requirement
1	Color configures the intensity of the picture colors.
2	A slider adjusts the Color value with a range from 0 to 100.
3	The default Color value is defined below.

4.7.1 Color Defaults by Picture Mode

Pic Mode	Vivid	Bright	Calibrated	Calibrated Dark	Game	Sports
Color SDR	per spec*	per spec*	50	50	70	per spec*
Color HDR	80	60/65	55 DV: 50	55 DV: 50	70	55

- Default is as as per comment Picture Modes spec v4.3.pdf

4.8 Tint

	Tint Requirement
1	Tint configures the hue of the picture.
2	A slider adjusts the Tint value with a range from - 50 to 50.
3	If, the tint slider must display a one for one value, this may require a reduced scale such as -32 to 32.
4	The default SDR Tint setting value is 0.
5	The default HDR Tint setting value is <ul style="list-style-type: none">• 0: Vivid, Bright, Calibrated Dark• 0: Calibrated, Sports• 0: Game

4.9 Sharpness

	Sharpness Requirement
1	Sharpness configures the edge and content sharpness of the picture.
2	A slider adjusts the Sharpness value with a range from 0 to 100.
3	<p>Default for SDR content for Vivid, Bright, Calibrated, Calibrated Dark, and Sports picture modes is defined as High Sharpness (from a normal viewing distance up the sharpness adjustment until the Spears & Munsil sharpness pattern looks harsh, then reduce the sharpness adjustment until it smooth out a bit). Default for Game picture mode is defined as Minimum Sharpness (set sharpness to the minimum level that provides for clear text display without any haloing or other edge artifacts). Refer to the specification "Picture Modes spec 4.1" or the latest version for details.</p> <ul style="list-style-type: none"> as per spec: Vivid, Calibrated, Calibrated Dark, Sports 30: Bright 40: Game
4	<p>Default for HDR content is</p> <ul style="list-style-type: none"> 30 for Vivid and Bright, 20 for Calibrated Dark 25 for Sports 0 for Calibrated, Game 5 for Game for the M65Q6-L and M75Q6-L skus.
5	Super resolution edge enhancement is not included into the sharpness.
6	If Full Color 4:4:4 is On, then Sharpness is disabled, is grayed out and not selectable.

4.10 Color Temperature

Color Temperature configures the white level warmth or coolness.

	Settings	Color Temperature	Description
1	Warm	6500K	Default Calibrated, Calibrated Dark,
2	Cool	15000K with taper to panel native or 10000K (OLED)	Default Vivid
3	Normal	9300K	Default Bright, Sports, Game

4.10.1 White Balance Tuner Saved to Color Temperature

	White Balance Tuner Description
1	Adjustments to White Balance Tuner are saved to Color Temperature.
2	If the White Balance Tuner is used to adjust Gain/Offset and/or 20 Point White Balance then an asterisk is appended to the Color Temperature setting with the adjustment (e.g. Normal*).
3	Adjustments to Gain/Offset and 20 Point White Balance per color temperature setting is global.
4	The asterisk is removed when Reset Color Temperature is invoked.

5	For example, changes in Gain for Normal Color Temperature will apply to all picture modes, for all inputs, where Normal Color Temperature is the current setting.
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4.11 Aspect Ratio

	Aspect Ratio Settings	Description
1	Normal (default)	No change to aspect ratio
2	Stretch (HD only)	if 16:9 signal is 4:3 image with black bars left & right, stretches to fill screen
3	Panoramic (SD only)	Stretches a 4:3 image to fill 16:9 screen with an algorithm so the center doesn't look stretched.
4	Wide	Stretches a 4:3 aspect ratio to fill 16:9 screen, If 16:9 image adds black bars top and bottom
5	Zoom	Expands image both horizontally and vertically by 14%

4.11.1 Aspect Ratio Requirements

	Aspect Ratio Requirement	Notes
1	<p>Depending on the current source, either Stretch or Panoramic is supported. If SD (480i/p) settings are:</p> <ul style="list-style-type: none"> • Normal • Panoramic • Wide • Zoom <p>If the source is 720p (1080i) settings are:</p> <ul style="list-style-type: none"> • Normal • Stretch • Wide • Zoom 	
2	Aspect Ratio is saved by input and dynamic range.	
3	The aspect ratio can change for a physical input if the content changes from HD to SD and vice versa.	
4	Aspect ratio is supported for WatchFree+ OTA channels only (no support for streaming content).	
5	<p>Normal is the only available aspect ratio and the Aspect Ratio setting with Normal selected displays but the setting is grayed out and not adjustable for the following conditions:</p> <ul style="list-style-type: none"> • 1080p and 4K • Current content is 120Hz (typically a PC) • Full screen graphics - as for some apps during selection or play • HDR, HLG or Dolby Vision content. • Streaming content • VIZIO Home • WatchFree streaming content (but supported for OTA content) 	No notification displays.

4.12 Advanced Picture

The following settings are intended for advanced users and professional color calibration.

4.12.1 Black Detail

	Black Detail Setting SDR & HDR	Black Detail Setting HDR DV
1	Off (default)	Off (default for Vivid and Calibrated Dark)
2	Low	Low
3	Medium (default for Bright and Calibrated)	Medium (default for Bright and Sports)
4	High (default for Vivid)	High

4.12.1.1 Black Detail Requirements

	Black Detail Requirements	Notes
1	Black Detail includes Black Detail with Contrast Enhancement.	The intent is to adjust the blacks to prevent black crush.
2	If DVI is the source and chip cannot support Black Detail then the setting is grayed out and not selectable	

4.12.2 Super Resolution (no D/VHD/FHD skus)

	Super Resolution Setting SDR	Super Resolution Setting HDR
1	Off (Calibrated, Calibrated Dark, Game)	Off (Calibrated, Game)
2	Low	Low (Calibrated Dark, Sports)
3	Medium (Vivid, Bright, Sports)	Medium (Vivid, Bright,)
4	High	High

4.12.2.1 Super Resolution Requirements

	Super Resolution Requirements	Notes
1	Super Resolution configures the resolution to enhance dim and blurred pictures resulting in a sharper picture for 1080P signal source and below.	
2	Super Resolution combines sharpness with de-jagging of the image.	Care is recommended as higher settings may introduce artifacts into the picture.
3	If the source is 4K the Super Resolution is grayed out and not available.	

4.12.3 Edge Enhancement

	Edge Enhancement Setting	Notes
1	Off (Game picture mode default)	
2	Low (default)	

3	Medium	
4	High	

4.12.3.1 Edge Enhancement Requirements

	Edge Enhancement Requirements	Notes
1	Edge Enhancement supports de-jagging of the image. Edge Enhancement increases the smoothness of edges.	
2	If Full Color 4:4:4 is On and content is 4:4:4, then Edge Enhancement is disabled, grayed out and not available.	

4.12.4 Active Pixel Tuning

	Active Pixel Tuning Setting SDR	Default SDR and HDR	Notes Previously Local Contrast
1	Off	Calibrated, Calibrated Dark, Game	
2	Low	Sports	
3	Medium	Vivid, Bright	
4	High		Tuning Active Pixel Tuning supports fine scale local contrast.

4.12.5 Active Full Array™ (LED panels only)

	Year	D	V5	V6	M6	M7	M8	MQX	P9	PX	OLED	CR
1	2020				X M6 only not M6X	X	X	n/a	X	X	X	n/a
2	2021					X	n/a	n/a	X	n/a	n/a	n/a
3	2022					n/a	n/a	X	n/a	X	n/a	X

n/a = sku does not exist for the year

4.12.5.1 Active Full Array Requirements

	Active Full Array Requirements	Notes
1	Active Full Array™ is local dimming.	
2	Previously named Active LED Zones (prior to that Xtreme Black Engine™ and Smart Dimming).	
3	Active Full Array does not apply to OLED (only for LED panels with local dimming).	

4.12.5.2 Active Full Array Peak Brightness

Active Full Array Setting	Peak Brightness	Local Dimming	Effect
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1	Off	Off	Off	
2	Low	Off	On	
3	Medium	On	On	Minimizes blooming
4	High	On	On	Maximizes panel peak brightness.

4.12.5.3 Active Full Array Defaults by Picture Mode

	Picture Mode	SDR content	HDR content
1	Vivid	High	High
2	Bright	Medium	Medium
3	Calibrated	Medium	Medium
4	Calibrated Dark	Low	Medium
5	Game	Medium	Medium
6	Sports	Medium	Medium

4.12.5.4 Backlight Control 2020 V5, 2021 D, V5, V6, M6

	Backlight Control Setting	Default SDR	Default HDR	Notes
1	On	Calibrated, Calibrated Dark, Sports	Calibrated Dark, Sports	Global dimming (backlight control) is On.
2	Off	Vivid, Bright and Game Picture mode	Vivid, Calibrated, Bright and Game Picture mode	Global dimming (backlight control) is Off.

4.12.5.4.1 Backlight Control Skus

	Year	D	V5	V6	M6	M7	M8	MQX	P9	PX	OLED	CR
1	2020	n/a	X	n/a	X M6X only not M6							
2	2021	X	X	X	X							
3	2022	X	X	n/a	X							

n/a = sku does not exist for the year

4.12.5.4.2 Backlight Control Requirements

	Backlight Control Requirements	Notes
1	Backlight Control (technically known as global dimming) configures global backlight control (DCR only)	

2	If Backlight Control is supported, then Active LED Zones is not supported.		Backlight Control does not apply to OLED (only for LED panels with global backlight).	
3	If DVI is the source and chip cannot support Black Detail then the setting is grayed out and not selectable			
12.5.5	Peak Luminance (OLED only)			
	Content	Peak Luminance Settings	Default	Notes
1	HDR Content	<ul style="list-style-type: none">• Low• Medium• High	Low	<ul style="list-style-type: none">• Low: 250 nits• Medium: 600 nits• High: 800 nits
2	SDR Content	<ul style="list-style-type: none">• Low• Medium• High	Low	<ul style="list-style-type: none">• Low: 250 nits• Medium: 385 nits• High: 500 nits (TCON maximum peak luminance allowed for SDR is 500 nits)

4.12.5.5.1 Peak Luminance Requirements

	Peak Luminance Requirements	Notes
1	Peak boosts the bright highlights of the overall picture.	
2	Highlights are a small part of the entire image, often about 10% of the picture.	

4.12.6 Motion Control

	Motion Control Requirements	Notes
1	Motion Control includes Judder Reduction, Motion Blur Reduction and Clear Action.	
2	Judder Reduction and Motion Blur Reduction use MEMC video processing to compensate for motion blur.	MEMC is built into 5695 chip.

SKU support.

	Year	D	V5	V6	M6	M7	M8	MQX/ VQP	P9	PX/	OLED	CR
1	Judder & Motion Blur Reduction											
2	2020	n/a		n/a					X	X	X	n/a
3	2021						n/a		X	X	n/a	
4	2022							X	n/a	X	n/a	
5	Clear Action											
6	2020	n/a		n/a	X M6 only not M6X	X	X		X	X		n/a

7	2021					X	n/a		X	X	n/a	
8	2022				X - 180			X - 720		X - 960		
9	2023							X - 360				
10	2024	no	n/a	n/a	no			n/a	n/a	n/a	n/a	n/a

n/a = sku does not exist for the year.

digits define the duty cycle for Clear Action

4.12.6.1 Judder Reduction

	Judder Reduction Requirements	Notes
1	Judder Reduction only applies to film dejudder (24 frame film content).	
2	Judder Reduction configures frame interpolation to reduce film judder when upconverting 24 or 30 Hz content to the 60 Hz panel or 24, 30, 60 Hz content to the 120 Hz panel.	Most common 120 Hz source is PC connected to HDMI or HDMI 1.4a device with EDID confirming 120 Hz.)
3	The Judder Reduction setting value can range from 0 to 10.	
4	The default Judder Reduction is <ul style="list-style-type: none"> • 7 Vivid • 6 Bright • 0 Calibrated Dark, Game • 2 Calibrated, Sports 	
5	Judder Reduction is a set and forget setting: If On is selected then Judder Reduction applies if applicable as per the table below. No gray out of Judder Reduction. If Judder Reduction is NA in the tables below, then Judder Reduction has no effect.	

4.12.6.1.1 MEMC and Film Mode Support 120 Hz TV for 60 Hz and 50 Hz Rate Reduction

Original Signal	Pull down	Input Signal	Motion Blur Reduction	Judder Reduct	Film Mode	Action
24	-	24	N/A	On	Note 1	5:5 pulldown to 120
24	-	24	N/A	On	Note 1	MEMC to 120
24	2:1:1:1	30	N/A	Off	Note 1	Reverse then 5:5 pulldown to 120
24	2:1:1:1	30	N/A	On	Note 1	Reverse then MEMC to 120
24	3:2	60	N/A	Off	Note 1	Reverse then 5:5 pulldown to 120
24	3:2	60	N/A	On	Note 1	Reverse then MEMC to 120
30	-	30	N/A	Off	Note 1	4:4 pulldown to 120
30	-	30	N/A	On	Note 1	MEMC to 120
30	2:2	60	N/A	Off	Note 1	Reverse then 4:4 pulldown to 120
30	2:2	60	N/A	On	Note 1	Reverse then MEMC to 120
60	-	60	Off	N/A	Note 1	2:2 pulldown to 120

60	-	60	On	N/A	Note 1	MEMC to 120
120	-	120	N/A	N/A	Note 1	Display Input Directly
25	-	25	N/A	Off	Note 1	4:4 pulldown to 100
25	-	25	N/A	On	Note 1	MEMC to 100
25	2:2	50	N/A	Off	Note 1	Reverse then 4:4 pulldown to 100
25	2:2	50	N/A	On	Note 1	Reverse then MEMC to 100
50	-	50	Off	N/A	Note 1	2:2 pulldown to 100
50	-	50	On	N/A	Note 1	MEMC to 120
100	-	100	N/A	N/A	Note 1	Display Input Directly

Note 1: Film Mode may be overloaded to disable cadence detection if switched "Off".

4.12.6.1.2 MEMC and Film Mode Support 60 Hz TV for 60 Hz and 50 Hz Rate Reduction

Original Signal	Pull down	Input Signal	JudderReduct	Film Mode	Action	Notes
24	-	24	Off	On	Update LCD at 48, BL at 192	Film Mode only for native 24 Hz
24	-	24	Off	Off	3:2 pulldown to 60	
24	-	24	On	Note 1	MEMC to 60	MEMC has priority over Film Mode
24	2:1:1:1	30	Off	Note 1	Reverse to 24 then 2:3 pulldown to 60	
24	2:1:1:1	30	On	Note 1	Reverse to 24 then MEMC to 60	
24	3:2	60	Off	Note 1	Display Input Directly	
24	3:2	60	On	Note 1	Reverse to 24 then MEMC to 60	
30	-	30	Off	Note 1	2:2 pulldown to 60	
30	-	30	On	Note 1	MEMC 30 to 60	
30	2:2	60	Off	Note 1	Display Input Directly	
30	2:2	60	On	Note 1	Reverse to 30 then MEMC to 60	
60	-	60	N/A	Note 1	Display Input Directly	

25	-	25	Off	Note 1	2:2 pulldown to 100	
25	-	25	On	Note 1	MEMC to 50	
25	2:2	50	Off	Note 1	Reverse to 25 then 2:2 pulldown to 20	
25	2:2	50	On	Note 1	Reverse to 25 then MEMC to 60	
50	-	50	Off	Note 1	Display Input Directly	

Note 1: Film Mode may be overloaded to disable cadence detection if switched "Off".

4.12.6.2 Motion Blur Reduction

	Motion Blur Reduction Requirements	Notes
1	Motion Blur Reduction configures frame interpolation to reduce blur when upconverting 60 Hz content to the 120 Hz panel.	
2	Judder Reduction and Motion Blur Reduction use MEMC video processing to compensate for motion blur.	
3	The Motion Blur Reduction setting value can range from 0 to 10.	
4	The default Motion Blur Reduction setting is: <ul style="list-style-type: none"> • 7 Vivid • 6 Bright • 0 Calibrated Dark, Game • 2 Calibrated, Sports 	
5	Applies only to 120 Hz panels.	Motion Blur Reduction is not included for 60 Hz panels and is not available and does not display.
6	Motion Blur Reduction is a set and forget setting: If On is selected then Motion Blur Reduction applies if applicable as per the table above. No gray out of Motion Blur Reduction. If Motion Blur Reduction is NA in the tables below, then Motion Blur Reduction has no effect.	

4.12.6.3 Clear Action M7/M8/P9/PX and 2020 M6 (no M6x, no OLED)

	Clear Action Settings	Default	Notes
1	Off	Default including Game picture mode in support of computers	
2	On	Clear Action reduces blur in scenes with fast action.	

4.12.6.3.1 Clear Action Requirements

	Clear Action Requirements	Notes
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1	For 60 HZ panel, Clear Action only applies to a signal of 60 Hz. Backlight timing is changed to de-blur with the effect that motion blur is reduced but flicker may be present.	
2	If signal is a 24 Hz source (e.g. film), then Clear Action does not apply.s not supported.	
3	If the panel is 60 Hz or 120 Hz then Clear Action activates overdrive for all signal sources.	For P9 and PX series this is 960 which means it has duty cycle of 1ms backlight strobing M8 and M7 have 360 which would mean 2.8ms M6 has 180 with no Clear Action support V5 includes scanning backlight to give 120Hz motion rate but no support Clear Action.
4	The effect is to turn down the duty cycle, which results in less blur but reduces backlight brightness.	
5	To compensate for the reduction, the LED drive is increased to raise the backlight.	A by-product is the Backlight range is reduced.
6	For OLED, a setting change for Clear Action enables or disables Crystal Motion OLED (CMO).	

4.12.7 Reduce Noise

4.12.7.1 Signal Noise

	Signal Noise Setting	Default	Notes
1	Off	Game	
2	Low	Calibrated, Calibrated Dark, Sports	
3	Medium	Vivid, Bright	
4	High		

	Signal Noise Requirements	Notes
1	Signal Noise configures video noise reduction.	
2	Signal Noise is not available i for HDMI content with SDR 4:4:4 or HDR 4:4:4 (available with HDR 4:2:2 and Dolby Vision).	Most common 120 Hz source is PC connected to HDMI or HDMI 1.4a device with EDID confirming 120 Hz.
3	If Full Color 4:4:4 is On, then Signal Noise is disabled, not available and grayed out	

4.12.7.2 Block Noise

	Block Noise Setting	Default	Notes
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1	Off	Game	
2	Low	Calibrated, Calibrated Dark, Sports	
3	Medium	Vivid, Bright	
4	High		

	Block Noise Requirements	Notes
1	Block Noise configures the MPEG compression level. Block Noise includes UltraClear Noise Reduction (UCNR).	
2	Block Noise is not available if the current HDMI content is SDR 4:4:4 or HDR4:4:4 (available with HDR 4:2:2 and Dolby Vision).	.
3	If Full Color 4:4:4 is On, then Block Noise is disabled, grayed out and not available	

4.12.7.3 Contour Smoothing (no D/VHD/VFD skus)

	Contour Smoothing Setting	Default	Notes
1	Off	Calibrated, Calibrated Dark, Game	
2	Low (default)	Sports	
3	Medium	Vivid, Bright	
4	High		Contour Smoothing removes visible contour noise while retaining the complex detail in the digital image.

4.2.8 Gaming/PC Mode(HD skus -J 2021 only)

	Game/PC Mode HD skus requirements	Notes
1	For HD skus Game/PC Mode is the only setting for Game support and is located in Advanced menu before film mode.	For description and behavior refer to 4.0 Picture 4.2.3 Gaming/PC Mode

4.12.9 Film Mode

	Film Mode Settings	Behavior	Notes
1	On (default)	<ul style="list-style-type: none"> Film Mode detects the content and if no MEMC, optimizes movie content. TV has 60 Hz panel MEMC turned off or not supported 24 Hz content If Film Mode set to On, then update LCD at 48 Hz and flashing backlight at 192 Hz 	
2	Off (default game)	Normal tone mapping based on HDR metadata. <ul style="list-style-type: none"> If Film Mode set to Off, then 3:2 pulldown and then updating the LCD at 60 Hz and flashing backlight at 	

	480 Hz.	
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4.12.9.1 Film Mode Requirements

	Film Mode Requirements	Notes
1	P9/PX/OLED series: Film Mode is available for 120 Hz panel for detection of film content only. Not disabled nor gray out with MEMC or Game Low Latency.	
2	Film Mode is not available (disabled and grayed out) and does not display if TV has a 60 Hz panel and the following occurs: <ul style="list-style-type: none"> MEMC enabled Game Low Latency enabled. 	When Game Low Latency is turned off, Film Mode is restored to On.
3	If DVI is the source and chip cannot support Film Mode then the setting is grayed out and not available.	

4.12.10 Gamma

	Gamma Settings	Notes
1	1.8	
2	2.0	
3	2.1 (Normal) (default)	
4	2.2 (default for Calibrated Dark picture mode only)	
5	2.4	

4.12.11 Enhanced Viewing Angle

	Enhanced Viewing Angle Settings	Default SDR	Default HDR	Notes
1	On	Vivid, Bright, Calibrated, Calibrated Dark, Sports	Calibrated Dark, Sports	
2	Off	Game	Vivid, Bright, Calibrated, Game	

4.12.11.1 Enhanced Viewing Angle requirements

	Enhanced Viewing Angle Requirements	Notes
1	The Enhanced Viewing Angle is a global setting that improves the viewing angle but with the cost of reduces horizontal resolution.	
2	VRR takes precedence so if setting is On and VRR metadata detected and VRR active then Enhanced Viewing Angle is Off, grayed out and unavailable.	When VRR is no longer active, the Enhanced Viewing Angle is reinstated to the current setting.
3	As per the table below: <ul style="list-style-type: none"> Enhanced Viewing Angle is included for M7/M8 but no user setting for 65"/70"/75". M6/V6/V5, no Enhanced Viewing Angle support with the exceptions of <ul style="list-style-type: none"> M6: M506x-H9, M43Q6-J04, M50Q6-J01, M65Q6-j09 	

<ul style="list-style-type: none"> ◦ V6: V436-J04, V506-J09, V656-J09 ◦ V5: V505-H9, V655-H9, V655x-H9, V435-J01, V505-J01, V505-J09, V655-J09 • D series – no Enhanced Viewing Angle support • OLED - Enhanced Viewing Angle does not apply and is not supported. 	
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4.12.11.2 Enhanced Viewing Angle Support by SKU

	Series	Panel Freq.	Cell Domain	VRR setting Off	VRR setting ON, VRR not detected or not active	VRR setting On, VRR detected & active	SKU 2020	SKU 2021	SKU 2022
1	PX	120Hz	8 domain	Default On (user controllable)	Default On (user controllable)	Off (grayed out)	P65QX-H1 P75QX-H1 P85QX-H1	N/A	
2	P9	120Hz	8 domain	Default On (user controllable)	Default On (user controllable)	Off (grayed out)	P65Q9-H1 P75Q9-H1	P65Q9-J01	
3	P9	120Hz	8 domain (65")	Default Off NO user setting	Default Off NO user setting	Off NO user setting		P75Q9-J1	
4	MQX	120Hz		Default On (user controllable)	Default On (user controllable)	Off (grayed out)			M55QX M-K01
5	MQX	120Hz		Default Off NO user setting	Default Off NO user setting	Off NO user setting			M50QX M-K01
6	M8	60Hz	8 domain (65")	Default Off NO user setting	Default Off NO user setting	Off NO user setting	M65Q8-H1	N/A	
7	M8	60Hz	4 domain (55")	Default On (user control)	Default On (user control)	Off (grayed out)	M55Q8-H1	N/A	

8	M7	60Hz	8 doma in (65")	Default Off NO user setting	Default Off NO user setting	Off NO user setting	M65Q7- H1	M65Q7- J1 M70Q7- J3 M75Q7- J3	
9	M7	60Hz	4 doma in 43"/5 0"/55"	Default On No user setting	Default On NO user setting	On NO user setting		M50Q7- J01 M58Q7- J01	
10	M7	60Hz	4 doma in 43"/5 0"/55"	On (user control)	Default On (user control)	Off (grayed out)	M55Q7 M50Q7 M50Q7	M55Q7- J1	
11	M6	60hz		No Enhanced Viewing Angle	No Enhanced Viewing Angle	N/A	M556-H1 M556-H4 M656-H4 M586x- H1	M55Q6- J1 M65Q6- J9	
12	M6	60hz		Default On	Default On	Off (grayed out)	M506x- H9	M43Q6- J04 M50Q6- J01 M65Q6- J09	
13	V6	60Hz		No Enhanced Viewing Angle	No Enhanced Viewing Angle	N/A	N/A	many	
14	V6	60Hz		Default On	Default On	Off (grayed out)	N/A	V436-J04 V506-J09 V656-J09	
15	V5	60Hz		No Enhanced Viewing Angle	No Enhanced Viewing Angle	N/A	many	many	
16	V5	60Hz		Default On	Default On	Off (grayed out)	V505-H9 V655-H9 V655x- H9	V435-J01 V505-J01 V505-J09 V655-J09	V505M- K09
17	D	60 Hz		No Enhanced Viewing Angle	No Enhanced Viewing Angle	N/A	all	all	

18	OLED	120 Hz	No Enhanced Viewing	No Enhanced Viewing Angle	N/A	OLED65-H1 OLED55-	N/A	
4.12.12	Color Calibration Submenu Settings		Includes			Notes		
1	Picture Mode Reference					Grayed out and not selectable		
2	Color Temperature					Grayed out and not selectable		
3	Dynamic Range		<ul style="list-style-type: none"> • SDR • HDR10/HDR10+ • HLG • Dolby Vision 			Grayed out and not selectable		
4	Color Tuner		<ul style="list-style-type: none"> • RGB Enabled • RGBCMY Hue • RGBCMY Saturation • RGBCMY Brightness 					
5	White Balance Tuner		<ul style="list-style-type: none"> • 2-point White Balance (that is, RGB Offset & RGB Gain) • 20 Point white Balance 					
6	Reset Color Temperature							
7	Calibration Test		<ul style="list-style-type: none"> • SMPTE test pattern • Flat Test Pattern • Ramp Test Pattern • Uniformity Analyzer test pattern 					

4.12.12.0 Color Calibration requirements

	Color Calibration Submenu Requirements	Notes
1	Color Calibration is intended for professional calibration for <ul style="list-style-type: none"> • fine tuning of colors (Hue, Saturation and Brightness) saved by the current picture mode by input • Gain/Offset, 20 Point White Balance and 1D LUT, saved by Color Temperature. 	
2	The current picture mode, color temperature and dynamic range are displayed as a reference because the baseline colors for the color tuner are dictated by these.	<p>In practice, Calibrated would be the selected picture mode before color calibration is started.</p> <p>Color temperature is defined by picture mode.</p> <p>Dynamic range is defined by content.</p>

4.12.12.1 Color Tuner

	Color Tuner Requirements	Notes
1	The Color Tuner allows the user to configure or view the display settings for color.	

2	The adjustments are saved to the currently selected picture mode for the current input.	
3	Color Tuner also supports enable and disable of the primary colors red, green, blue	Used by professionals during color calibration.
4	The adjustments included in the Color Tuner table are: <ul style="list-style-type: none"> Hue, Saturation and Brightness. 	

4.12.12.1.1 Red, Green, Blue Enabled

	Red, Green, Blue Enabled Requirements	Notes
1	The Red, Green or Blue setting enables and disables the red, green or blue color displayed on the TV for testing purposes.	If all three colors are disabled, the screen is blank, so if two colors are disabled, the third color can not be disabled.
2	By default, the color is enabled.	
3	Primary color is persistent across inputs.	
4	Changing inputs does not change the setting if turned off.	
5	To turn on the Red, Green or Blue color: <ul style="list-style-type: none"> Change setting enabled DC or AC cycle. 	

4.12.12.1.2 Red, Green, Blue, Cyan, Magenta, Yellow Hue

	Red, Green, Blue, Cyan, Magenta, Yellow Hue Requirements	Notes
1	The Red, Green, Blue, Cyan, Magenta or Yellow Hue setting configures the hue.	
2	The Hue range for all 6 colors spans from -50 to 50, and the default value is 0.	

4.12.12.1.3 Red, Green, Blue, Cyan, Magenta, Yellow Saturation

	Red, Green, Blue, Cyan, Magenta, Yellow Saturation Requirements	Notes
1	The Red, Green, Blue, Cyan, Magenta or Yellow Saturation setting configures the saturation.	
2	The Saturation range for all 6 colors spans from -50 to 50, and the default value is 0.	

4.12.12.1.4 Red, Green, Blue, Cyan, Magenta and Yellow Brightness

	Red, Green, Blue, Cyan, Magenta, Yellow Brightness Requirements	Notes
1	The Red, Green, Blue, Cyan, Magenta or Yellow Brightness setting configures the brightness for the color.	
2	The Brightness range for all 6 colors spans from -50 to 50, and the default value is 0.	

4.12.12.2 White Balance Tuner

	White Balance Tuner Requirements	Notes
1	The White Balance Tuner allows the user to configure or view the display settings for white balance for <ul style="list-style-type: none"> Gain Offset 21 point white balance. 	
2	Changes to White Balance Tuner are saved by Color Temperature.	

4.12.12.2.1 Red, Green, Blue Offset

	Red, Green, Blue Offset Requirements	Notes
1	Red, Green, Blue Offset configures the color offset.	
2	The Offset range is actually 256 but supported values spans from -100 to 100 truncating the end limits.	
3	The default setting is 0.	

4.12.12.2.2 Red, Green, Blue Gain

	Red, Green, Blue Gain Requirements	Notes
1	Red, Green, Blue Gain configures the color gain.	
2	The gain range is actually 256 but supported values spans from -100 to 100 truncating the end limits.	
3	The default setting is 0.	

4.12.12.2.3 21 Point White Balance

	21 Point White Balance Requirements	Notes
1	21 Point White Balance adjusts for the currently selected color temperature.	
2	The 21 Point White Balance Setting is the Gain percentage for the respective color (red, green, or blue).	
3	The Gain percentage values for red, green, and blue: <ul style="list-style-type: none"> 5% (default) 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 	

	<ul style="list-style-type: none"> • 60% • 65% • 70% • 75% • 80% • 85% • 90% • 95% • 100% 	
4	For each Gain setting, (e.g. 5%), the Red, Green, and Blue values can be adjusted with a hue setting value range from -50 to 50 and default of 0.	

4.12.12.3 Reset Color Temperature

	Reset Color Temperature Requirements	Notes
1	A White Balance Tuner adjustment is saved to the current Color Temperature and Reset Color Temperature is available.	The Reset Color Temperature setting is not available if there are no White Balance tuner adjustments for the current color temperature and is grayed out.
2	The selected color temperature setting is reset to the defaults globally. Since color temperature is saved globally, the reset of the color temperature setting is reflected in all picture modes for all inputs with the setting.	
3	When reset is completed, the color temperature reset is annunciated on the TV.	

4.12.12.4 Calibration Tests

	Calibration Tests Settings	Notes
1	SMPTE Test Pattern	
2	Flat Test Pattern	
3	Ramp Test Pattern	
4	Uniformity Analyzer Test Pattern	

4.12.12.4.0 Calibration Tests Requirements

	Calibration Tests Requirements	Notes
1	The four test patterns are collectively known as the calibration tests, and are used to tune picture settings.	
2	If the current dynamic range does not support the calibration test then it is grayed out (e.g Dolby Vision).	
3	Selection of Calibration Tests opens the Color Tuner on the last used Calibration test or if non, the first one.	

4	When a test pattern is highlighted and the OK key is pressed, then the Test Patterns displays.	
5	All test patterns are created on demand: An image is not stored. If a test pattern is selected from the SmartCast app, the test pattern is immediately generated and displays on the TV screen.	Though not selectable from the Color Tuner, Dolby Vision test patterns are also generated and display on the TV screen when selected from the SpectralCal app loaded on a PC.
6	Only one test can be displayed at a time. If a calibration test is on and a second test is selected, the first calibration test is turned off.	
7	<p>The calibration tests are persistence until turned off. To remove a test pattern:</p> <ul style="list-style-type: none"> • Turn the setting to Off • Select another test pattern • Change the input • Change the channel (if underlying source is tuner) • Press the MENU key 	
8	To change or use a test pattern, press the BACK key to redisplay the sidebar with the Test Pattern selection. The Test Pattern remains onscreen for the currently selected dynamic range.	
9	If the current input has no source or the UHD input is the current source, the requested calibration test displays.	
10	A calibration test cannot display over a graphical input including SmartCast TV, app content selection/streaming, or USB media. The calibration tests are grayed out in sidebar and if selected from the color tuner an error notification displays.	"To display the test pattern connect a source to the input and try again."

4.12.12.4.1 SMPTE Test Pattern

	SMPTE Test Pattern Requirements	Settings
1	The SMPTE Test Pattern is an industry standard color bar including vertical bars of white, yellow, cyan, green, magenta, red, blue and black.	
2	Once enabled, the SMPTE Test Pattern becomes full-screen.	
3	If requested by SmartCast app, test not annunciated.	
4	The settings is:	Off (default)

4.12.12.4.2 Flat Test Pattern

	Flat Test Pattern Requirements	Settings
1	The Flat Test Pattern is full screen gray selected from 0% (off) to 100%.	
2	By default, the Flat Test Pattern setting value is set to off.	
3	The values for the test pattern include	<ul style="list-style-type: none"> • Off (0%, default) • 10% • 20% • 30% • 40%

		<ul style="list-style-type: none"> • 50% • 60% • 70% • 80% • 90% • 100%.
4	The percentage of the selected flat test pattern is annunciated on the screen throughout the test.	
5	Definitions of the color fills: <ul style="list-style-type: none"> • White opaque 1920 X 1080 fill with settings of 10% to 100% RGB • 100% RGB is 255, 255, 255 • 10% RGB is 25, 25, 25. 	

4.12.12.4.3 Ramp Test Pattern

	Ramp Test Pattern Requirements	Notes
1	For the Ramp Test Pattern, the 1920 X 1080 display is divided into 21 vertical bars of fill progressing from the color selected to black.	
2	If requested by SmartCast app, test not annunciated.	
3	The colors that can be selected are:	<ul style="list-style-type: none"> • Off • White • Red • Green

4.12.12.4.4 Uniformity Analyzer Test Pattern

	UA Test Pattern Requirements	Notes
1	The Uniformity Analyzer test pattern is a 1920x1080 fill at 80% white with a 200x100 box at 40% white screen center.	
2	If requested by SmartCast app, test not annunciated.	
3	The settings is:	Off (default)

4.13 Input Picture Settings

	Input Picture submenu settings	Notes
1	Picture Size & Position <ul style="list-style-type: none"> • Picture Size • Picture Position 	Picture Size and Position can be adjusted for sources that are not one for one pixels (such as UHD). This can be useful for a tuner source and some cable/satellite boxes. Grayed out for 120 Hz content, no signal source, cast streaming, UHD or 4:4:4 content if Full Color 4:4:4 is enabled.
2	HDMI Mode	HDMI ports only, grayed out for other inputs.
3	Full Color 4:4:4	HDMI ports only, grayed out for other inputs.
4	Color Space Range	HDMI ports only, grayed out for other inputs.

4.13.0 Input Picture Settings

4.13.1 Picture Size and Position

	Picture Size & Position Submenu requirements	Notes
1	Picture Size and Position benefits content that does not have a 1:1 pixel ratio on the TV.	<ul style="list-style-type: none">• 480i• 480p• 720p• 1080i/p (for 4K models only)
2	Picture Size and Position submenu is grayed out and not available if: <ul style="list-style-type: none">• Content is 120 Hz. (PC connected to HDMI is most common 120 Hz source)• Input has no signal source• Cast streaming• Source is UHD with 4K or source is HD/FHD with 1080i/p or 4K.• 4:4:4 content and Full Color 4:4:4 is enabled.	<p>Inputs not supported:</p> <ul style="list-style-type: none">• VIZIO Home• WatchFree+• antenna• HDMI-X with UHD content• AirPlay <p>Input supported</p> <ul style="list-style-type: none">• HDM-X (only with 480i, 480p, 720p content)

4.13.1.1 Picture Size

	Picture Size requirements	Notes
1	Picture Size configures the picture size of the current input.	To change Picture Size for another input, exit settings, change input and the select Picture Size again.
2	Picture Size is saved by input globally for all Picture Modes.	Changes do not create a picture mode.
3	Picture size can be configured from a range of -50 to 50 with default of 0 for both horizontal and vertical size.	
4	Vertical Picture Size. <ul style="list-style-type: none">• As the value is increased from the SmartCast app or using the IR remote, the vertical size of the display is increased and the adjustment is annunciated on the TV.• As the value decreased from the SmartCast app or using the IR remote, first the picture position is restored to default, then the vertical size of the display is decreased and the adjustment is annunciated on the TV.	
5	Horizontal Picture Size. <ul style="list-style-type: none">• As the value is adjusted right from the SmartCast app or using the IR remote, the horizontal display size is increased and the adjustment is annunciated on the TV.• As the value is adjusted left from the SmartCast app or using the IR remote, first the picture position is restored to default, then the horizontal display size is decreased and the adjustment is annunciated on the TV.	

4.13.1.2 Picture Position

	Picture Position requirements	Notes
1	Picture Position configures the picture size of the current input.	To change Picture Position for another input, exit settings, change input and the select Picture Position again.
2	Picture Position is saved by input globally for all Picture Modes.	Changes do not create a picture mode.
3	Picture Position can be configured from a range of -50 to 50 with default of 0 for both horizontal and vertical size.	

4.13.2 HDMI Mode (5691, 5695, 5695s, UHD skus only)

	HDMI Mode Setting	Default	Requirements	Notes
1	Auto (default for for 18G (4K60) ports)	<ul style="list-style-type: none"> 5691 (2020 - 2022) 5695 (2020) OLED HDMI 1/4 5695 (2021) HDMI 1/2 5695s HDMI 1/2/4 	<p>The Auto setting includes 2 methods of detection</p> <ul style="list-style-type: none"> HDMI 1.4 enabled initially and switches to HDMI 2.1 if HDCP 2.2 or 2.3 is detected or whitelisted devices below. HDMI 1.4 is detected <ul style="list-style-type: none"> If signal is invalid If HDCP i= 1.x If DVI with TMDS < 185 MHz If TDMS clock > 40 MHz (image is 800x600, 480P) 2.1 enabled with SPDIF discovery if CEC discovery to identify device. <ul style="list-style-type: none"> Xbox One Xbox Series X/S Playstation 4 Playstation 5 	<p>This setting is to solve the 3G/6G switch issue. Reverted back to HDCP instead of SCDS detection because the change in fielded skus resulted in issues.</p> <p>PC detection not enabled for FUR5.2 planned for future.</p>
2	Standard formerly 2.1 default for 48G (4K120) ports	<ul style="list-style-type: none"> OLED HDMI 2/3 5695 (2021) HDMI 3/4 5695s HDMI 3 	Allows direct selection of HDMI 2.1 EDID.	<p>4K 120 Hz Gaming Port</p> <p>HDMI 2.1 EDID using HF-VSDB EDID method</p>
3	Compatibility formerly 1.4		<p>HDMI 1.4 style EDID</p> <p>No HF-VSDB, No SCDS</p>	<p>This is fallback position for customer support use.</p> <p>Standard HDMI 1.4 EDID.</p>

4.13.2.1 HDMI Mode Requirements

	HDMI Mode Requirements	Notes
1	To change HDMI Mode, the HDMI port is source (HDMI-1, HDMI-2, HDMI-3, and (M/P skus) HDMI-4). Grayed out for all other inputs.	
2	The release of HDMI 2.0 changed and expanded the color subsampling with support of 4K at 60 hertz as follows:	Older devices based on HDMI 1.4 don't recognize the new standard and blank the TV.

	<ul style="list-style-type: none"> 4:2:0 (10 bit) HDMI 1 – 4 4:4:4 (8 bit) HDMI 1- 4 	Does not apply to FHD/HD skus.
3	HDMI 2.1 supersedes 2.0.	Does not apply to FHD/HD skus.
4	HDMI Mode is saved by input only, not saved by picture mode.	
5	When an HDMI Mode is selected, the TV must blank to change the HDMI color gamut if changing from Auto to 2.0/2.1 or 1.4. Before blanking, the TV displays a warning message “The TV is restarting to change HDMI Mode”. The screen is blanked while the color subsampling for the selected HDMI port is changed to avoid odd displays. NOTE: Technically the TV is blanked, not restarted. After completion, a notification displays (“HDMI Mode is SETTING.”)	Does not apply to FHD/HD skus.

4.13.2.2 HDMI Mode (5583 D/VHD/VFD only)

	HDMI Mode Setting	Requirements	Notes
1	Auto	Auto uses EDID with HF_SCDS (Sink Capabilities Data Structure).	<p>To define the EDID automatically using SCDS, first the HDMI port is selected (HDMI-1, HDMI-2).</p> <p>SCDS structure EDID is more reliable (nearly 100%) compared to HF-VSDB.</p> <p>SPDIF discovery of Xbox changes setting for HDMI port to Auto. This includes</p> <ul style="list-style-type: none"> Xbox One Xbox Series X/S Playstation 4 Playstation 5
2	Compatibility formerly 1.4 (default)	HDMI 1.4 EDID No HF-VSDB, No SCDS	<p>This is fallback position for customer support use.</p> <p>Standard HDMI 1.4 EDID.</p>

4.13.3 Full Color 4:4:4 (UHD only - no D/VHD/VFD skus)

	Full Color 4:4:4 Settings	Behavior	Kvalito Case Ref:
1	Off (default)	4:4:4 and RGB (if present) are down converted to 4:2:2 to allow adjustment of picture settings grayed out with 4:4:4.	Test Case ID: 21693, 22335, 22423 and 22520
2	On	<p>Upon detection of 4:4:4 content, the Full Color 4:4:4 setting allows display of 4:4:4 content with full color.</p> <p>4:4:4 and RGB (if present) are not down converted to 4:2:2.</p>	Test Case ID: 21693

4.13.2.1 Full Color 4:4:4 Requirements

	Full Color 4:4:4 Requirements	Notes
1	Applies to all HDMI inputs. Grayed out for all other source, no display if D (VHD/VFD) sku.	Full Color 4:4:4 is grayed out for all other inputs.

2	<p>When source is RGB and Full Color 4:4:4 setting is on, the following settings are disabled and grayed out:</p> <ul style="list-style-type: none"> • Color (RGB only) • Tint (RGB only) • Sharpness (RGB only) • Black Detail (RGB only) • Super Resolution • Edge Enhancement • Active Pixel Tuning • Local Contrast • Judder Reduction • Motion Blur Reduction • Signal Noise • Block Noise • Contour Smoothing • Film Mode 	<p>Confirmed the following are adjustable:</p> <ul style="list-style-type: none"> • Backlight • Contrast • Brightness
3	<p>When source is YCbCr 444 and Full Color 4:4:4 setting is on, the following settings are disabled and grayed out:</p> <ul style="list-style-type: none"> • Super Resolution (only for UHD signals) • Judder Reduction • Motion Blur Reduction • Signal Noise • Block Noise • Contour Smoothing • Film Mode 	<p>Confirmed the following are adjustable:</p> <ul style="list-style-type: none"> • Brightness • Contrast • Tint • Sharpness • Black detail • Edge Enhanceme • Local Contrast • Color • Super Resolution no gray out FHD, HD, SD.
4	<p>Full Color 4:4:4 is disabled and grayed out if the signal source is DV. When the source is no longer DV then Full Color 4:4:4 is again available and the previous setting, if On, restored.</p>	
5	<p>Full Color 4:4:4 is saved by input only, not by picture mode.</p>	

4.13.5 Color Space Range

	Color Space Range Settings	Definition	Notes
1	Auto (default)	Auto determines the source and correctly selects original HDMI input source as YCbCr or RGB and then proceeds as required.	
2	YCbCr	YCbCr is for an HDMI source with YCbCr color space that when converted to RGB was limited to 16 – 235 RGB. An algorithm is used to remap the YCbCr color space to the RGB 0 – 255.	Setting provided to force selection if Auto does provide desired support.
3	RGB	RGB setting is for an HDMI source with a full 0 – 255 color space, such as a PC.	Setting provided to force selection if Auto does provide

		desired support.
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4.13.5.1 Color Space Range Requirements

	Color Space Range Requirements	Notes
1	Color Space Range for all TV's has been based on REC 709. Quantum Dot TV's based on REC 2020.	Quantum Dot skus includes: M8, P9, PX, OLED
2	Color space is limited to REC709 if used for creation of the current content.	Color Space Range is grayed out for all other inputs.
3	The Color Space Range setting defines the color subsampling for content from an HDMI source.	
4	This setting only applies to HDMI inputs and is saved by input (not saved by picture mode).	
5	Color Space Range is available for HDMI for all types of content (SDR, HDR, Dolby Vision and HLG).	
6	Gray out the Color Space Range setting if: <ul style="list-style-type: none"> Platform cannot support color space for the HDMI content (for example, interlaced content) Content is Dolby Vision as Dolby handles automatically and cannot be adjusted. Source is not HDMI port. 	

4.14 Picture Mode Edit

	Picture Mode Edit Submenu Settings	Notes
1	Save Picture Mode	
2	Reset Picture Mode	Grayed out unless a preset picture mode is currently selected.
3	Delete Picture Mode	Grayed out unless a saved picture mode is currently selected.

4.14.1 Save Picture Mode

	Saved Picture Mode Requirements	Notes
1	Save Picture Mode is available for a preset picture mode or modified preset picture mode (picture mode with an asterisk).	The preset or modified picture mode becomes the basis of the custom picture mode.
2	When Save Picture mode is selected the following steps are taken: <ul style="list-style-type: none"> Naming of the saved picture mode with a maximum of 24 characters Resets the source picture mode to defaults (and removes the asterisk), if applicable. Saves the picture mode as a custom picture mode. 	

3	A custom picture mode cannot be saved again.	Save picture mode is grayed out if a custom picture mode selected.
4	A custom picture mode is saved globally for all inputs.	
5	A maximum of 6 unique custom picture modes can be saved for all inputs.	
6	An attempt to create a seventh picture mode results in an error message.	The dialog box message is "The maximum of six picture modes has been created." An OK key is included to close the dialog box.
7	Saved picture modes are saved by dynamic range: there are 6 global picture modes for each dynamic range.	Dynamic ranges: SDR, HDR10/HDR10+, HLG, Dolby Vision.

4.14.2 Reset Picture Mode

	Reset Picture Mode Requirements	Notes
1	Only a modified picture mode (preset picture mode with an asterisk) can be reset.	
2	To reset, the picture mode must first display on the TV.	
3	When the picture mode is reset, any changes in the picture settings can be seen and a notification displays.	
4	Alternatively, if all picture modes are reset simultaneously from the SmartCast app, the picture mode on the TV remains the current picture mode.	

4.14.3 Delete Picture Mode

	Delete Picture Mode Requirements	Notes
1	Only a custom picture mode can be deleted.	
2	To delete, the picture mode must first display on the TV.	
3	When the current picture mode is deleted then the picture mode is changed to Bright on screen and the change annunciated.	