# **Audio Output Matrix**

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Release Note: This document can be shared with customers.

### **Android Audio Output Matrix**

The audio output format on Broadcom's Android STB dynamically changes based on several factors:

- Capability of A/V receiver or TV reported over HDMI EDID
- Surround sound setting in Android TV Settings
- Encoding of audio content
- Dolby features included in Broadcom STB
- The following tables summarize the output formats for Exoplayer based playback and Netflix playback.

# **Android P with ExoPlayer - No Dolby Support**

Surround			Audio Content				
sound setting	EDID	Output	Others	Dolby Digital	Dolby Digital Plus		
	Dolby Digital Dive	HDMI	PCM	DD passthrough	DD+ passthrough		
	Dolby Digital Plus	SPDIF	PCM	DD passthrough	no output		
	Dolby Digital	HDMI	PCM	DD passthrough	no output		
Auto	Dolby Digital	SPDIF	PCM	DD passthrough	no output		
Auto	No Dolby	HDMI	PCM	no output	no output		
	ForceAC3 set (default)	SPDIF	PCM	DD passthrough	no output		
	No Dolby	HDMI	PCM	no output	no output		
	ForceAC3 cleared	SPDIF	PCM	no output	no output		
	Dolby Digital Dlug	HDMI	PCM	DD passthrough	DD+ passthrough		
	Dolby Digital Plus	SPDIF	PCM	DD passthrough	no output		
Manual (with DD and	Dolby Digital	HDMI	PCM	DD passthrough	undefined		
DDP selected)		SPDIF	PCM	DD passthrough	undefined		
	No Dolby	HDMI	PCM	undefined	undefined		
	NO DOIDY	SPDIF	PCM	undefined	undefined		
	Dolby Digital Plus	HDMI	PCM	no output	no output		
	Doiby Digital Plus	SPDIF	PCM	no output	no output		
None	Dolby Digital	HDMI	PCM	no output	no output		
	Dolby Digital	SPDIF	PCM	no output	no output		
	No Dolby	HDMI	PCM	no output	no output		
	עטוטע טאי	SPDIF	PCM	no output	no output		

# Android P with ExoPlayer - Dolby MS10/MS11 Support

				Audio Con				
Surround sound	EDID	Output				Dolby	Comments	
setting			Others	false	true (default)	Digital Plus		
	Dolby	HDMI	PCM	DD passthrough	DD	DD+		
	Digital Plus	SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
	Dolby	HDMI	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
	Digital	SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
Auto	No Dolby ForceAC3	HDMI	PCM	no output	PCM	PCM	DD+ decoded by OMX Codec, DD decoded to PCM in HAL	
	set (default)	SPDIF	PCM	DD passthrough	DD	PCM	DD+ decoded by OMX Codec	
	No Dolby ForceAC3	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	cleared	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	Dolby Digital Plus	HDMI	PCM	DD passthrough	DD	DD+		
		SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
Manual (with DD	Dolby Digital	HDMI	PCM	DD passthrough	DD	Undefined		
and DDP selected)		SPDIF	PCM	DD passthrough	DD	Undefined		
,	No Dolby		HDMI	PCM	Undefined	Undefined	Undefined	
		SPDIF	PCM	Undefined	Undefined	Undefined		
	Dolby Digital Plus	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
		SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
None	Dolby Digital	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
		SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	No Dolby	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	NO DOIDY	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	

# **Android P with ExoPlayer - Dolby MS12 Support**

				Audio Con				
Surround sound	EDID	Output				Dolby	Comments	
setting			Others	false	true (default)	Digital Plus		
	Dolby Digital	HDMI	5.1 DD+	DD passthrough	5.1 DD+	5.1 DD+	re-encoded to DD+ in HAL	
	Plus	SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
	Dolby	HDMI	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
	Digital	SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
Auto	No Dolby ForceAC3	HDMI	PCM	no output	PCM	PCM	DD+ decoded by OMX Codec, DD decoded to PCM in HAL	
	set (default)	SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	DD+ decoded by OMX Codec, re-encoded to DD in HAL	
	No Dolby	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	ForceAC3 cleared	SPDIF	5.1 DD	5.1 DD	5.1 DD	5.1 DD	DD+/DD decoded by OMX Codec, re-encoded to DD in HAL	
	Dolby Digital Plus	HDMI	5.1 DD+	DD passthrough	5.1 DD+	5.1 DD+	re-encoded to DD+ in HAL	
		SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
Manual (with DD	Dolby Digital No Dolby	HDMI	5.1 DD	DD passthrough	5.1 DD	Undefined		
and DDP selected)		SPDIF	5.1 DD	DD passthrough	5.1 DD	Undefined		
Selected)		HDMI	PCM	Undefined	Undefined	Undefined		
		SPDIF	5.1 DD	Undefined	Undefined	Undefined		
	Dolby	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	Digital Plus	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
None	Dolby	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	Digital	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	No Dalber	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	No Dolby	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	

## **Android P with Netflix - No Dolby Support**

Surround	EDID	Output	Netflix available audio source				
sound setting			2.0 HE-AAC	2.0 DD+	5.1 DD+	Atmos	
	Dolby Digital Plus	HDMI	PCM	-	DD+ 5.1 passthrough	-	
	Doiby Digital Flus	SPDIF	PCM	-	no output	-	
Auto	Dolby Digital	HDMI	PCM	-	-	-	
Auto	Doiby Digital	SPDIF	PCM	-	-	-	
	No Dolby	HDMI	PCM	-	-	-	
	No Bolby	SPDIF	PCM	-	-	-	
		HDMI	PCM	-	DD+ 5.1 passthrough	-	
Manual	Dolby Digital Plus	SPDIF		-		-	
(with DD and DDP			PCM		no output		
selected)	Dolby Digital	HDMI	PCM	ı	undefined	-	
		SPDIF	PCM	ı	undefined	ı	
	No Dolby	HDMI	PCM	-	undefined	-	
		SPDIF	PCM	-	undefined	-	
	Dolby Digital Plus	HDMI	PCM	ı	-	-	
	Doiby Digital Plus	SPDIF	PCM	-	-	-	
None	Dolby Digital	HDMI	PCM	-	-	-	
None		SPDIF	PCM	-	-	-	
	No Dolby	HDMI	PCM	-	-	-	
	No Dolby	SPDIF	PCM	-	-	-	

## **Android P with Netflix - Dolby MS10/MS11 Support**

Surround		Output	Netflix available audio source				
sound setting	EDID		2.0 HE-AAC	2.0 DD+	5.1 DD+	Atmos	
	D    D: ::   D	HDMI	PCM	PCM	DD+ 5.1 passthrough	-	
	Dolby Digital Plus	SPDIF	PCM	PCM	DD5.1 MS10/11	-	
Auto	Dolby Digital	HDMI	PCM	PCM	DD5.1 MS10/11	-	
Auto	Doiby Digital	SPDIF	PCM	PCM	DD5.1 MS10/11	-	
	No Dolby	HDMI	PCM	PCM	-	-	
	No Bolby	SPDIF	PCM	PCM	-	-	
	Dolby Digital Plus	HDMI	PCM	PCM	DD+ 5.1 passthrough	-	
		SPDIF	PCM	PCM	DD5.1 MS10/11	-	
Manual (with DD and	Dolby Digital	HDMI	PCM	PCM	undefined	-	
DDP selected)		SPDIF	PCM	PCM	undefined	-	
,	No Dolby	HDMI	РСМ	PCM	undefined	-	
		SPDIF	PCM	PCM	undefined	-	
	Dolby Digital Plus	HDMI	PCM	PCM	PCM	-	
		SPDIF	PCM	PCM	PCM	-	
None	Dolby Digital	HDMI	PCM	PCM	РСМ	-	
ivone		SPDIF	PCM	PCM	РСМ	-	
	No Dolby	HDMI	PCM	PCM	РСМ	-	
	No Dolby	SPDIF	PCM	PCM	РСМ	-	

# **Android P with Netflix - Dolby MS12 Support**

Surround	EDID	Outunt	Netflix available audio source				
sound setting		Output	2.0 HE-AAC	2.0 DD+	5.1 DD+	Atmos	
	Atmos	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	Atmos	
	Airios	SPDIF	5.1 DD	5.1 DD	5.1 DD	5.1 DD	
	Dolby Digital Plus	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	-	
Auto	Doiby Digital Flus	SPDIF	5.1 DD	5.1 DD	5.1 DD	-	
Auto	Dolby Digital	HDMI	5.1 DD	5.1 DD	5.1 DD	-	
	Doiby Digital	SPDIF	5.1 DD	5.1 DD	5.1 DD	-	
	No Dolby	HDMI	PCM	PCM	1	-	
	No Dolby	SPDIF	5.1 DD	5.1 DD	-	-	
	Atmos	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	Atmos	
	Atmos	SPDIF	5.1 DD	5.1 DD	5.1 DD	5.1 DD	
	Dolby Digital Plus	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	Undefined	
Manual		SPDIF	5.1 DD	5.1 DD	5.1 DD	Undefined	
(with DD and DDP selected)	Dolby Digital	HDMI	5.1 DD	5.1 DD	Undefined	Undefined	
selected)		SPDIF	5.1 DD	5.1 DD	Undefined	Undefined	
	No Dolby	HDMI	PCM	PCM	Undefined	Undefined	
		SPDIF	5.1 DD	5.1 DD	Undefined	Undefined	
	A 4	HDMI	PCM	PCM	-	-	
	Atmos	SPDIF	PCM	PCM	-	-	
	Dolby Digital Plus	HDMI	PCM	PCM	-	-	
None		SPDIF	PCM	PCM	-	-	
	Dallay Digital	HDMI	PCM	PCM	-	-	
	Dolby Digital	SPDIF	PCM	PCM	-	-	
	No Dallay	HDMI	PCM	PCM	-	-	
	No Dolby	SPDIF	PCM	PCM	-	-	