



Dolby and the Future of Mobile Entertainment

Video Meets Mobile – The 5G Opportunity Conference

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Dolby Laboratories

Dolby's Current Mobile Customers



Video Services



Devices



Silicon



Carrier





FEEL EVERY DIMENSION™

With Dolby Atmos sound technology, you'll hear astonishing clarity, richness, detail, and depth.

Sound moves around you in three-dimensional space, so you feel like you're inside the action. The sounds of a tropical storm are as palpable as if it were raining in your living room.

Dolby Atmos for OTT & Mobile

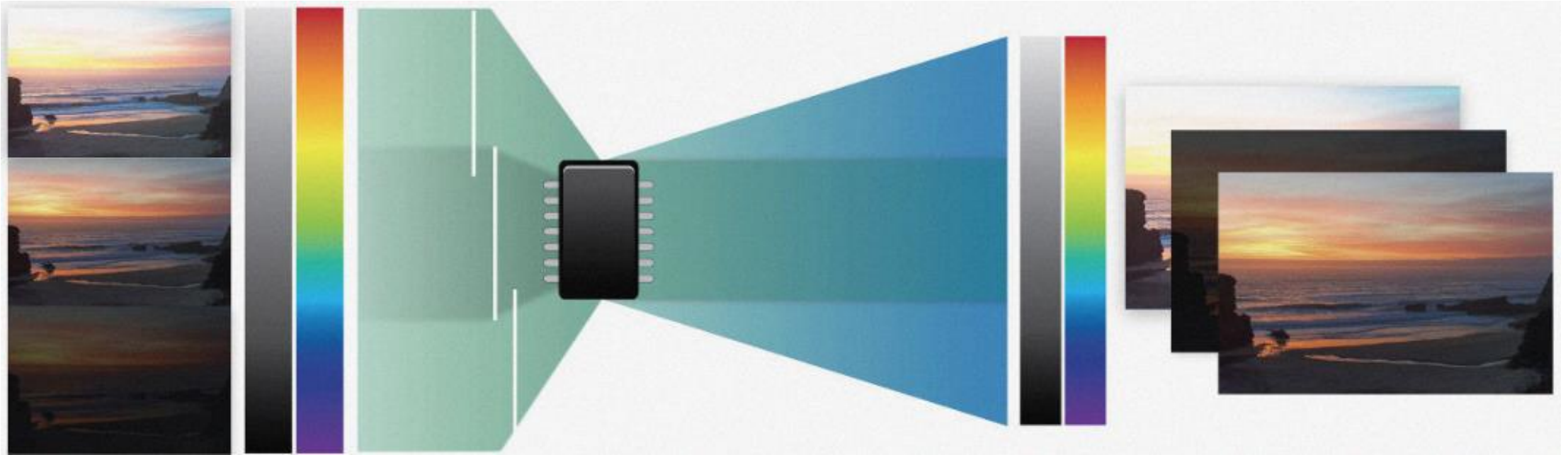


The first streaming service to
announce support for
Dolby Atmos delivery to the home.



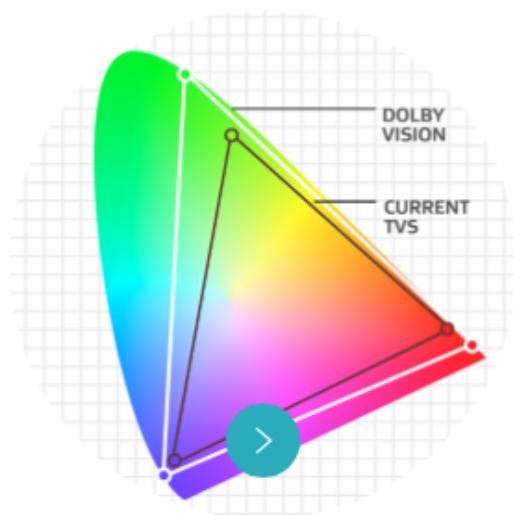
The new Fire HDX 8.9 tablet from
Amazon is the first tablet to
support Dolby Atmos movies
from Amazon Instant Video.

JPEG-HDR

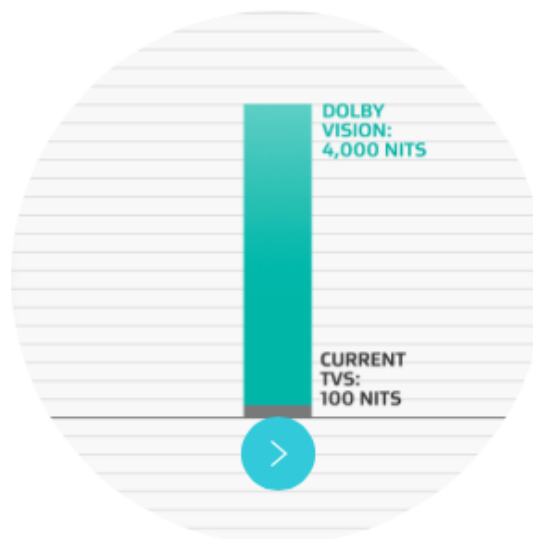




Dolby Vision



Color Unrestrained



Brightness Unbound



Contrast Unveiled

The Road to Better Video



Higher Spatial Resolution
(4K)

More Pixels



Higher Temporal Resolution
(Framerate)

Faster Pixels



Larger Luminance Range
(HDR) &
Color Palette (WCG)

Better Pixels



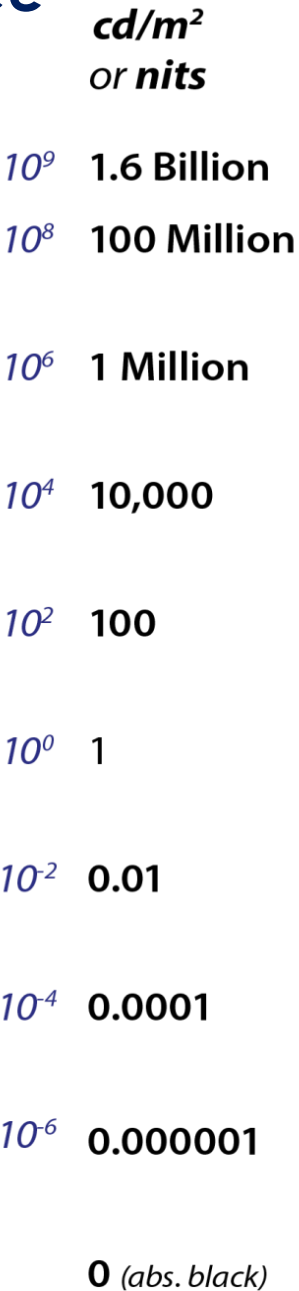
More and Faster Pixels “4K”

SYSTEM CATEGORY	SYSTEM NOMENCLATURE	LUMA OR R' G' B' SAMPLES PER LINE	LINES PER FRAME	FRAME RATE (HZ)
<p>(4K)</p> <p>UHDTV-1</p> <p>~8 Megapixels (3840 x 2160)</p>	3840 x 2160/24/P	3840	2160	24
	3840 x 2160/25/P	3840	2160	25
	3840 x 2160/30/P	3840	2160	30
	3840 x 2160/50/P	3840	2160	50
	3840 x 2160/60/P	3840	2160	60
	3840 x 2160/100P	3840	2160	100
	3840 x 2160/120/P	3840	2160	120
				LEGACY
	3840 x 2160/29.97/P	3840	2160	30/1.001
	3840 x 2160/23.98/P	3840	2160	24/1.001
	3840 x 2160/59.94/P	3840	2160	60/1.001
	3840 x 2160/119.88/P	3840	2160	120/1.001

Better Pixels: HDR & WCG



Luminance Levels



Real World



Human Visual System



Future TV



Current TV



Cinema

Day Vision

Night Vision

Visual Adaptation



TV Standard
100 Nits Max
(Current TVs
100~500 Nits)

Cinema
Standard
48 Nits Max
(i.e. 14 FL)

Real World Luminance Examples

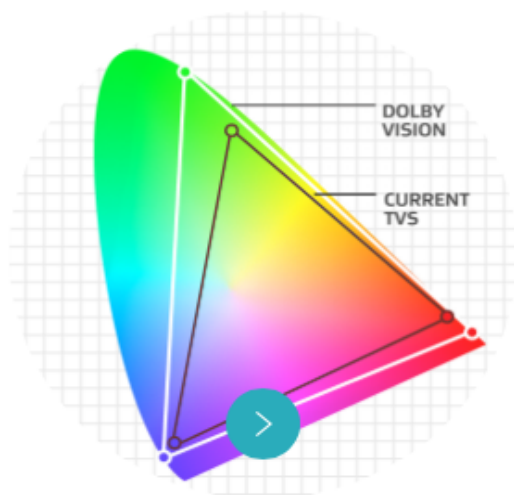


Courtesy: Timo Kunkel, Dolby Labs

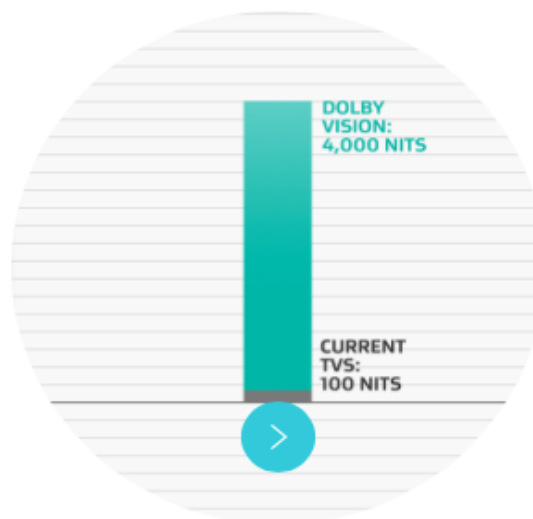
Bandwidth Bang for the Buck

	UHD Technology	Typical UHD Upgrade	Uncompressed Bandwidth Cost	Compressed Bandwidth Cost
More Pixels	Resolution	HD->4K	400%	120%-180% (HEVC)
Faster Pixels	Framerate	24/30->48/60/120fps	200-400%	120%-240% (HEVC)
Better Pixels	High Dynamic Range	SDR->HDR 10/12bit	125%-150%	110%-125% (DV 110%)
Better Pixels	Wide Color Gamut	REC-709->REC-2020	100% (requires HDR to avoid contouring)	100%

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