

Spirent Umetrix[®] Video

Video Experience Evaluation System

Highlights

- Assure the video quality of new devices and services at launch
- Accelerate Fit4Launch program acceptance by pre-testing devices
- Assess the launch readiness of IR.94 video calling, HD streaming and Over-the-top (OTT) video services
- Evaluate video experience in the live network using real, unmodified devices
- Patented video frame analysis enables direct comparison of devices and services
- Camera-based and direct video capture modes enable use cases including video chat, streaming video and more
- Support for full reference video MOS testing using PEVQ (ITU J.247)
- NEW! Support for non-reference evaluation without the need for a source



Assuring the quality of experience (QoE) for streaming video and video calling for devices and services



As video services such as HD streaming, IR.94 video calling and OTT roll out, assuring user experience has never been more important or more challenging.

How can you know that complex video services and supporting mobile devices will deliver a great user experience? There's only one way: to measure the video experience in the live network using actual, unmodified smartphones and tablets. Umetrix Video (formerly Chromatic) enables service providers and device manufacturers to quantify and compare the video experience of services and devices in the live network for launch, optimization and benchmarking.

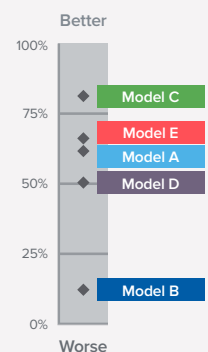
Use Cases for Devices and Services

1. **Mobile (LTE and 5G)**
Assure new devices, chipsets and video services deliver acceptable QoE before launch and as content and networks evolve; compare performance to competitors or for different devices and networks
2. **Home (Fixed 5G, Cable and Fiber)**
Assure media players, smart devices and set tops deliver acceptable QoE before launch; assure home video services deliver acceptable QoE before launch and compare performance to competitors
3. **Specialized Needs**
For new types of connected video devices (e.g., smart home, sports, transportation); other specialized video applications (e.g., telemedicine, mission critical video, V2X)

Go-no-go video experience report

Overall rank	Score
Video smoothness	●
Video frame rate	●
Impaired frames	●
Audio / video sync	●

IR.94 video chat frame rate across device models



Evaluate Video Experience In 3 Easy Steps (Example for Gross Error Detection (GED) or Full-Reference VMOS Analysis)



1. Upload a marker-imprinted video to Umetrix Video Server, Transmit Rig, YouTube or LTE Broadcast service.

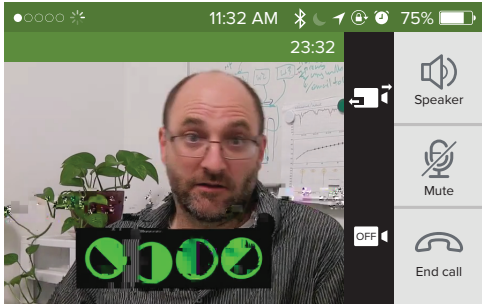
Evaluate Streaming Video and Video Chat in Live Networks



2. Play back video & capture at device using cameras.

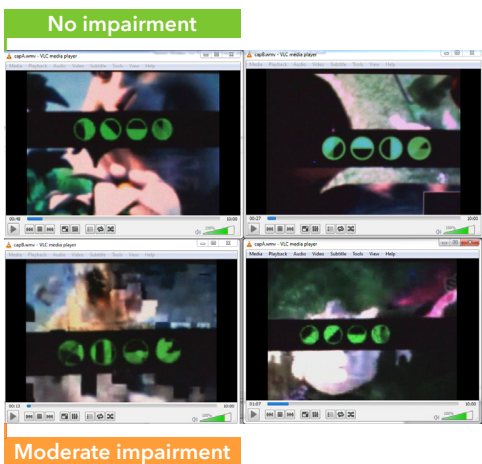
Use Real, Unmodified Devices (Smartphone, Tablet, etc.)

OR



Play back video & capture directly from device.

Use Any Direct Capture Adapter (HDMI, MHL, Miracast, Wi-Fi)

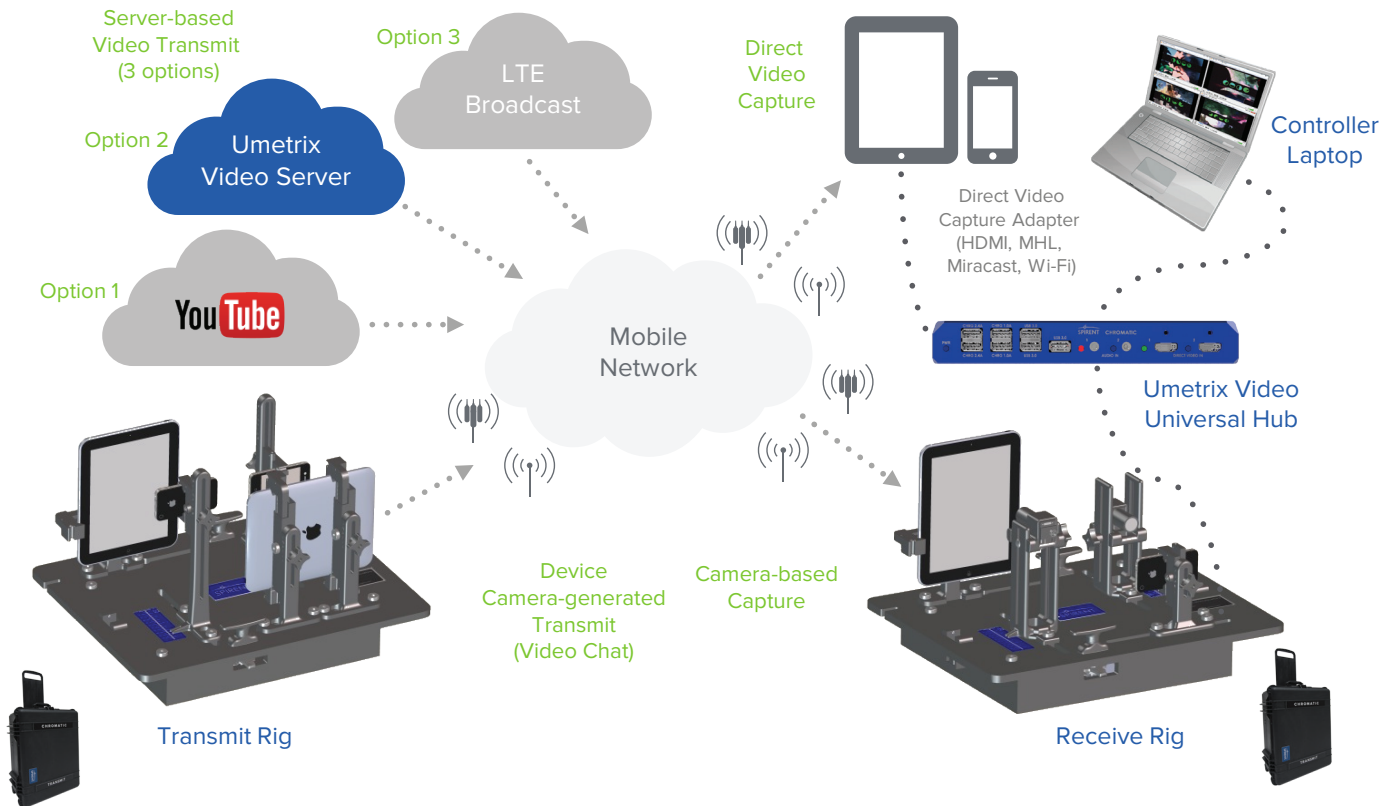


3. Analyze captured video to determine user experience.

Quantitative, Reliable Video Experience Metrics

Gross Error Detection (Frame Analysis)	or	Full Reference VMOS Analysis
Observed frame rate		PEVQ Video MOS
Frame Loss		POLQA Audio MOS
Frozen Frames		PSNR
Impaired Frames		Distortion Indicators
A/V Sync		Brightness, Contrast
Streaming start up & re-buffering time		Blockiness, Blur

System Overview



Umetrix Video Universal Hub – The Universal Hub supports two video capture modes: Direct Video capture and Camera capture. Dual HDMI video inputs capture and deliver Direct Video (from digital MHL, HDMI or Wi-Fi screen mirror adapters) to the controller laptop via two 3.0 USB outputs. Additional USB ports on the Hub enable camera capture, device charging and analog audio capture.

Receive Rig (Camera Capture) – The Receive Rig houses cameras, mounts and the audio hub—everything needed to capture video and audio from two devices with the Controller Laptop. Secured in a rugged Pelican™ case, the probe can be used for all types of mobile device form factors—smartphones or tablets—in both stationary and moving locations.

Umetrix Video Server – The Video Server is a hosted service for streaming video content with embedded specialized frame markers. Umetrix Video Servers connect to the mobile network at leading internet exchanges.

Controller Laptop – The Controller Laptop is a high-performance mobile workstation pre-loaded with the Umetrix Video application and associated drivers and software. The laptop has a quad-core processor, a solid state drive, and both USB 2.0 and 3.0 ports, all required to support high-bandwidth video capture and processing.

Transmit Rig (Video Chat Testing) – The Transmit Rig houses four device mounts, a device charger, and audio interface converters—everything needed to generate the transmitting end of video chat streams from two devices. Secured in a rugged Pelican™ case, the solution can be used for all types of mobile device form factors—smartphones or tablets—in both stationary and moving locations.

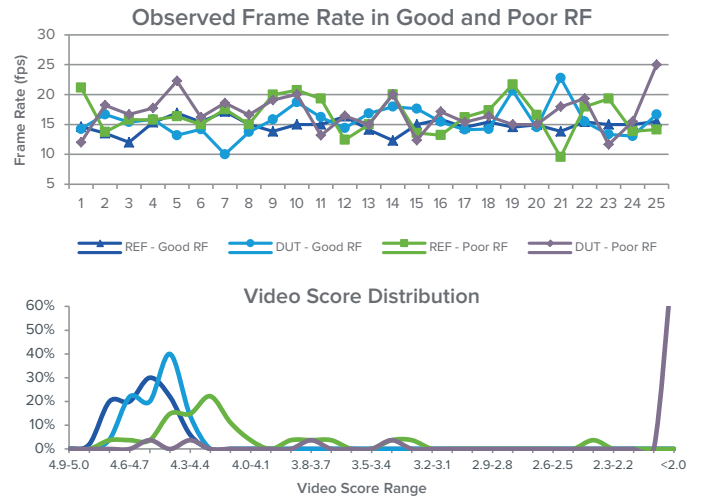
OTT Video Servers – Any video service such as YouTube, Sling or Netflix may be evaluated using the Umetrix Video Server to embed specialized frame markers or with the Umetrix Video non-reference solution.

Example Outputs

ospirent
Promise. Assured.

Video KPIs Summary

Video KPIs		
	Device A 1280x720p 24 FPS	Device B 1280x720p 24 FPS
PEVQ MOS		
-Mean	3.87	4.10
-Max	3.97	4.33
-Min	3.77	3.97
Blockiness		
-Mean	0.55	0.45
-Max	0.75	0.63
-Min	0.36	0.38
Bluriness		
-Mean	2.03	1.85
-Max	2.13	1.91
-Min	1.95	1.82
Jerkiness		
-Mean	0.13	0.01
-Max	0.27	0.06
-Min	0.00	0.00



Technical Specifications

Network technologies	<ul style="list-style-type: none"> • Live wireless networks • 5G, LTE, Wi-Fi, and more
Services	Video streaming, video chat, LTE broadcast
Devices	Smartphones, tablets, chipsets, HD screens, media players, smart devices, and more
Device operating systems	All (OS-agnostic)
Capture method	Camera or direct video (HDMI, MHL and Wi-Fi screen mirroring)
Capture duration	Up to several hours
Video streaming	<ul style="list-style-type: none"> • Protocol: HTTP, RTSP, HLS, and more • Resolution: up to UHD • Frame rate: up to 30 fps • Codecs: MP4, VP9, HEVC, and more
Video chat	IR.94, Skype, FaceTime, Hangout, Tango, Viber, and more
KPIs	<ul style="list-style-type: none"> • Video frame rate performance • Audio-video sync performance • Video freeze metrics • Video impairment metrics • Composite smoothness scores • PEVQ video MOS • POLQA audio MOS • Compression and buffering
Automation	Via socket client
Patent	U.S. Patent No. 8,614,731 B2

Contact Us

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