

Spirent Umetrix[®] Video

Video Experience Evaluation System (Chromatic)

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, LTE Broadcast and 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
- NEW! Support for full reference Video MOS testing using PEVQ (ITU J.247)



Assuring the successful launch of streaming video and video calling devices and services



As LTE Broadcast, 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 at launch? There's only one way: to measure the video experience in the live network using actual, unmodified smartphones and tablets. Umetrix Video enables service providers and device manufacturers to quantify and compare the video experience of new services and devices in the live network, assuring a great experience at launch.

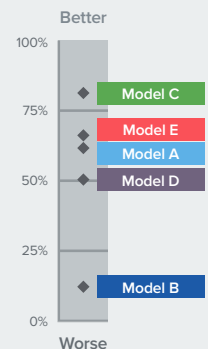
Go-no-go video experience report for LTE Broadcast

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

Use Cases

- 1. Go-no-go launch readiness evaluation of video services and supporting devices**
 Measure live network user experience to assess the launch readiness of streaming video and video chat services and devices for LTE Broadcast, IR.94 Video, and more.
- 2. Compare and rank new device models based on video experience**
 Measure live network user experience to assess the launch readiness of streaming video and video chat services including LTE Broadcast, IR.94 Video, and more.
- 3. Pre-testing for Fit4Launch program**
 Evaluate new device models and address video issues prior to Fit4Launch program submission, accelerating device acceptance.

IR.94 video chat frame rate across device models

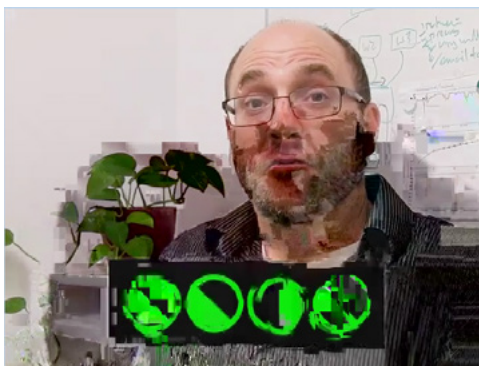


Evaluate Video Experience In 3 Easy Steps



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

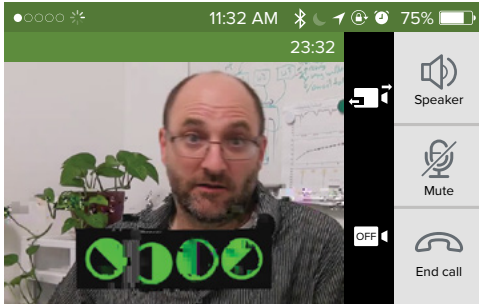
Evaluate Streaming Video and Video Chat in Live Networks



2. Play back video & capture at device using cameras

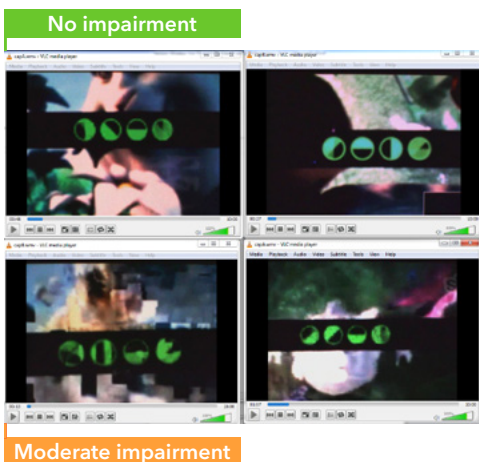
Use Real, Unmodified Devices (Smartphone, Tablet, etc.)

OR



Play back video & capture directly from device

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

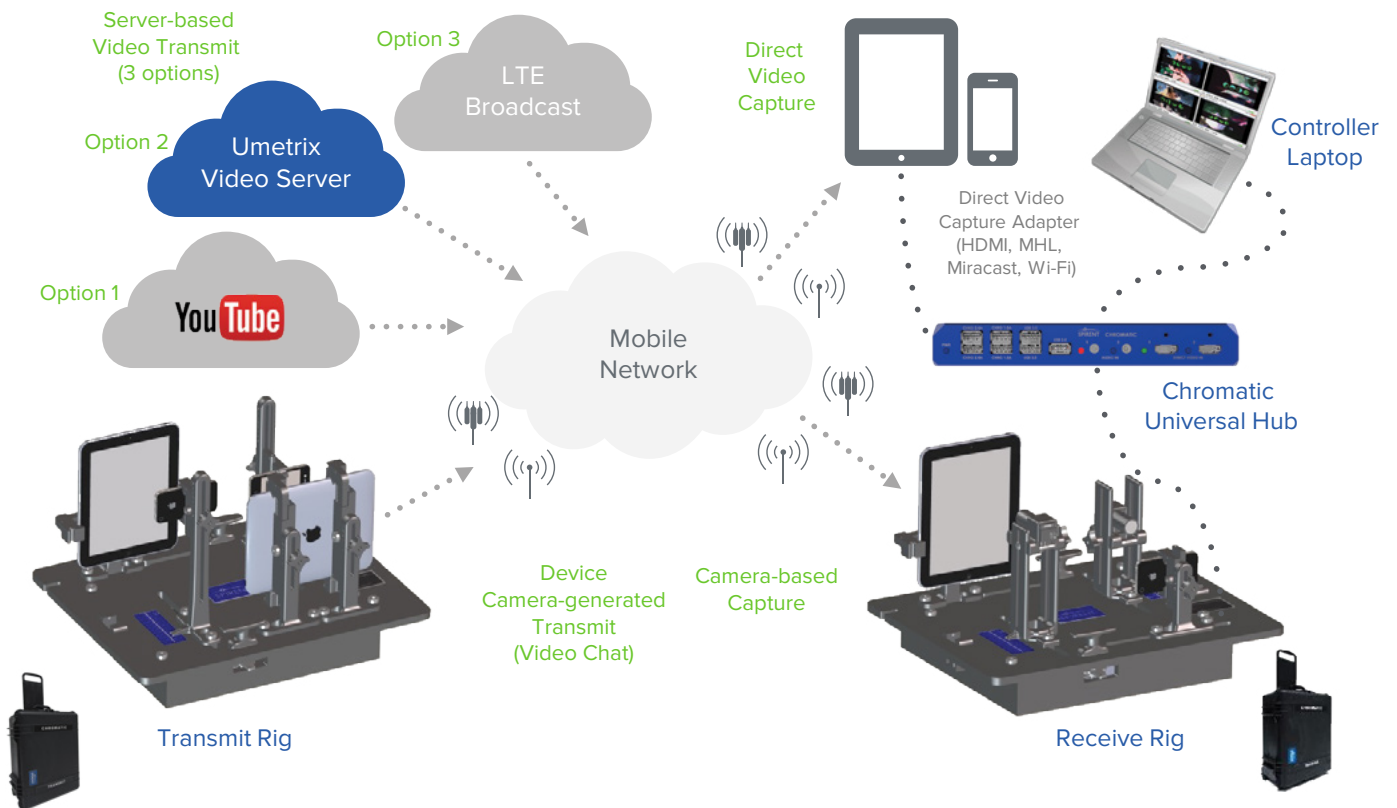


3. Analyze captured video to determine user experience

Quantitative, Reliable Video Experience Metrics

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



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

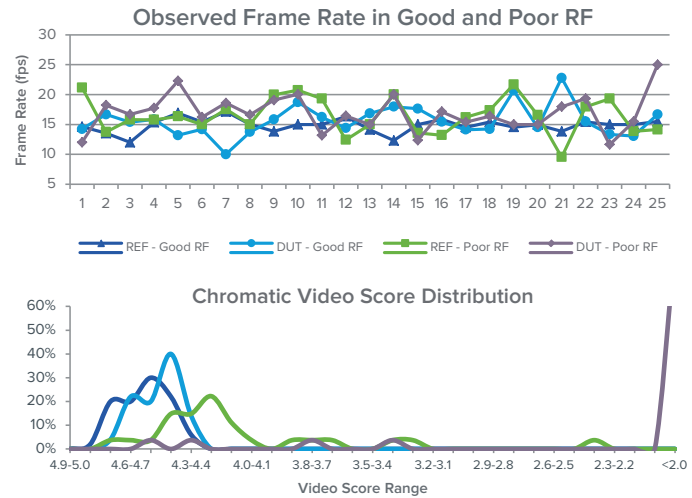
Controller Laptop—The controller laptop is a high-performance mobile workstation pre-loaded with the Umetrix Video application and associated drivers and software. The laptop has a quad-core processor, a solid state drive, and both USB 2.0 and 3.0 ports, all required to support high-bandwidth video capture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

Third-Party Video Servers—Any video service such as YouTube or LTE Broadcast may be used with the Umetrix Video system provided the streamed video content has been encoded with Chromatic frame markers.

Example Outputs

SPIRENT 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
Smoothness		
.Mean	0.65	0.45
.Max	0.75	0.63
.Min	0.36	0.38
Sharpness		
.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 • LTE, Wi-Fi, UMTS, CDMA2000, and more
Services	Video streaming, video chat, LTE broadcast
Devices	Smartphones, tablets, chipsets, HD screens
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
Automation	Via socket client
Patent	U.S. Patent No. 8,614,731 B2

Contact Us

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