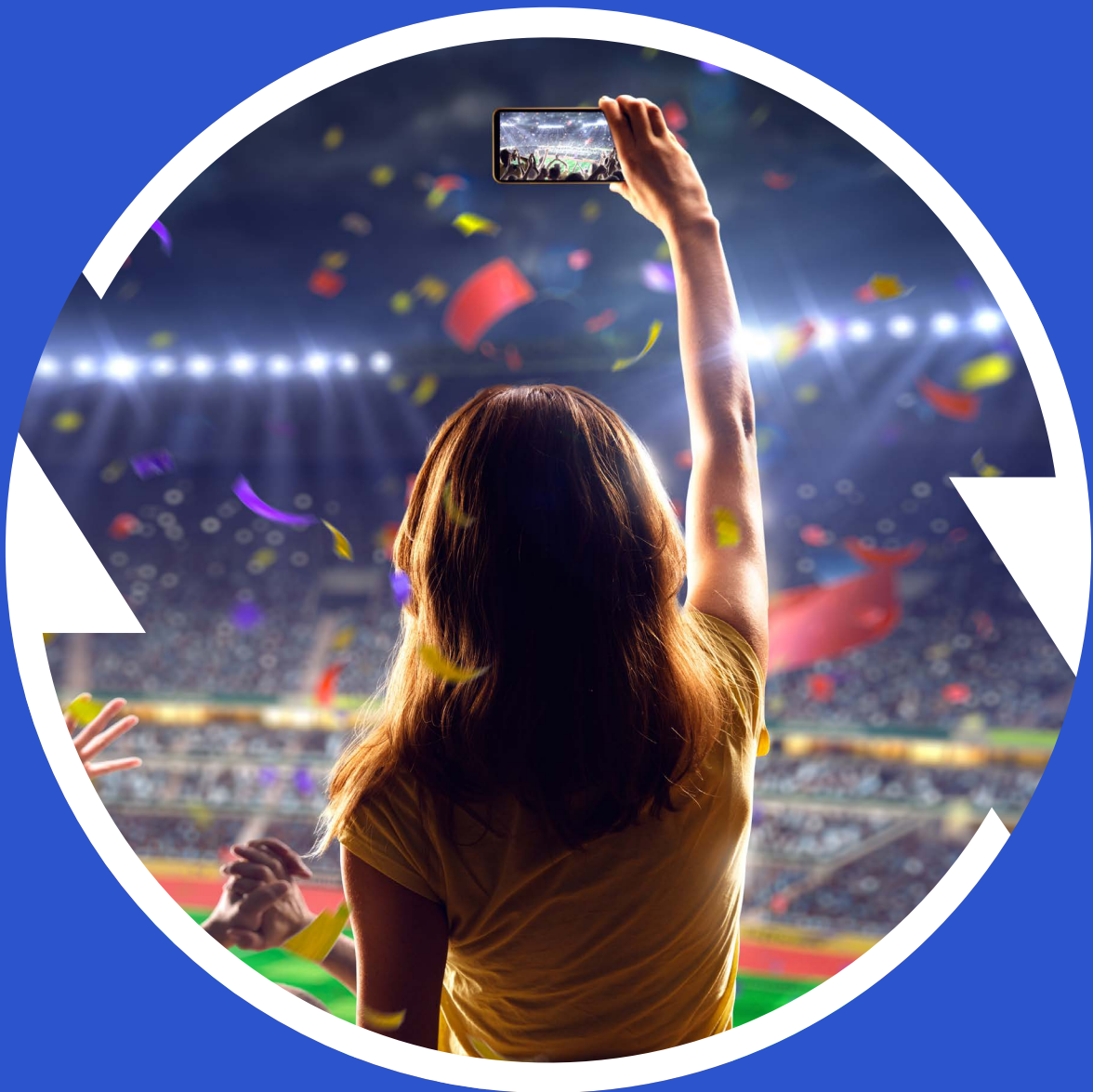


BROCHURE

Spirent Umetrix[®] Video | Streaming

Assuring Superior Quality of Experience
for Streaming Video Services



Mobile is Now a Video Distribution Business

Mobile data demand is exponentially growing, with video as the main driver. By 2022, mobile data traffic is expected to reach 77.5 exabytes per month worldwide at a compound annual growth rate of 46 percent.¹ The ecosystem for video content delivery is expanding, too, across wireless carriers, device and chipset manufacturers, and streaming service providers, who each have their own specialized needs to address:

- **Global carriers** are at the center of delivering streaming video content as strategically important to their business, yet at the same time, must balance network optimization and Quality of Experience (QoE)
- **Handset and chipset manufacturers** must deliver devices optimized for video delivery, while specialty device manufacturers are actively creating new video devices and services
- **Streaming service providers** need to deliver apps that perform across a wide variety of devices and carrier networks

Video delivery is complicated, and as organizations implement their video strategies, there are a myriad of challenges and questions that arise. These questions, and many others, can be answered through comprehensive testing methods, but there are several different ways to measure video performance. Rather than analyzing packets or frames for diagnostic testing, many performance evaluation methods use pixel comparisons of the source versus the delivered video to determine overall quality. This is a common standardized method, but unfortunately it is not applicable to most streaming applications. There's a better way.

VERY GOOD OR EXCELLENT STREAMING QUALITY*

Device B



98.7% of the time Device B delivered great video.

Device A



Device A didn't do as well, streaming great video only 43.8% of the time.

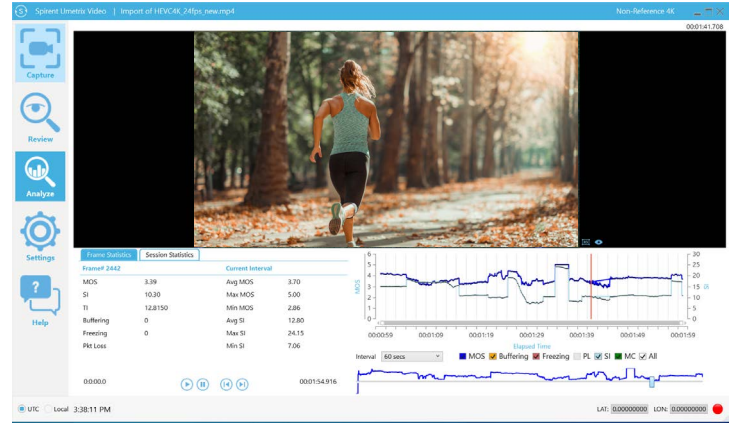
* In a study that combined data across 3 carriers, 4 services, and 2 markets

Comparison of video quality during identical live TV streaming on two high-end devices

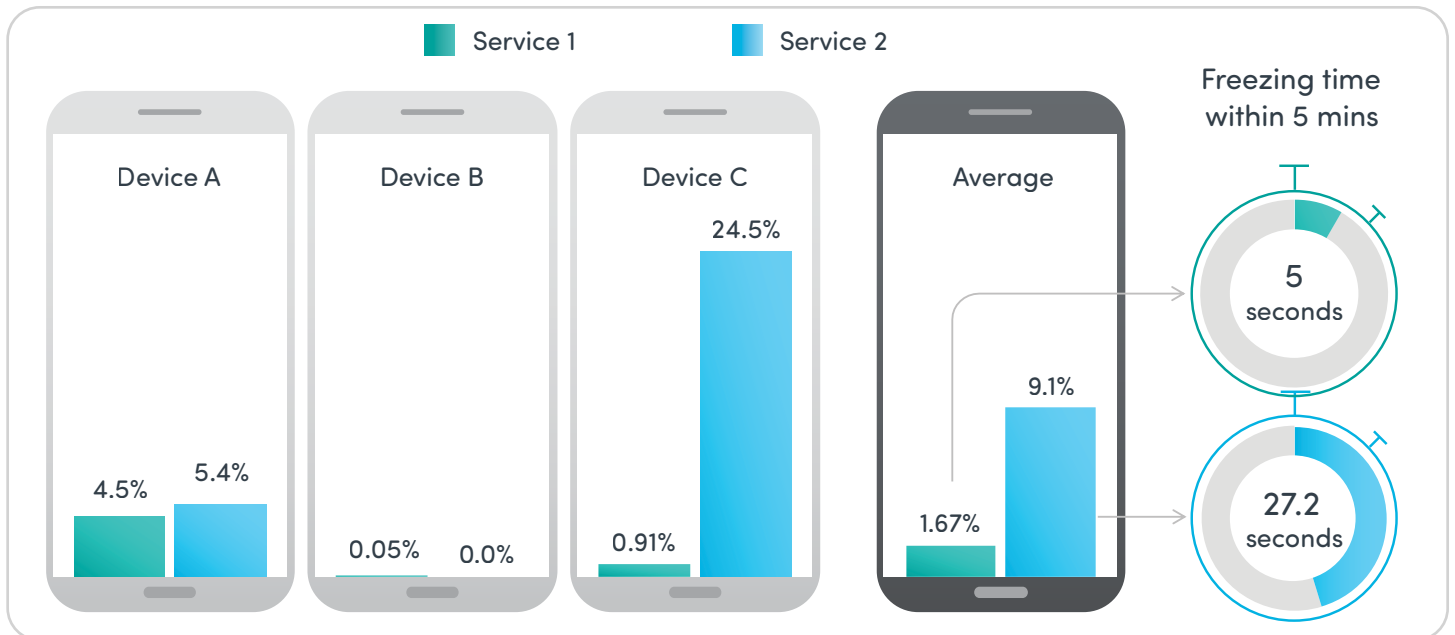
¹ <https://www.statista.com/statistics/271405/global-mobile-data-traffic-forecast/>

Spirent has developed a leading-edge methodology to evaluate video performance without the need for a reference source. The Umetrix® Video solution can “view pixels like a person” and score QoE according to a Video Mean Opinion Score (VMOS), as if hundreds of human viewers were watching and rating overall performance.

Umetrix Video supports any video streaming service (e.g., mobile, home, 5G applications), analyzes the video content itself to detect artifacts, and performs scoring without prior view of the original video. This analysis is via Spirent’s content-trained non-reference algorithm, which uses machine learning on thousands of sample videos to understand the variations in different types of content (drama, animation, etc.). Content training is based on de facto industry standards that correlate to human perceptual scoring. The result: **faster and less expensive repeatable design validation, regression testing, and competitive benchmarking.**



Umetrix Video interactive viewer displays MOS, freezing and buffering through time



Comparison of buffering and freezing during live TV streaming across multiple devices, services, and networks

Launch, Optimize and Benchmark

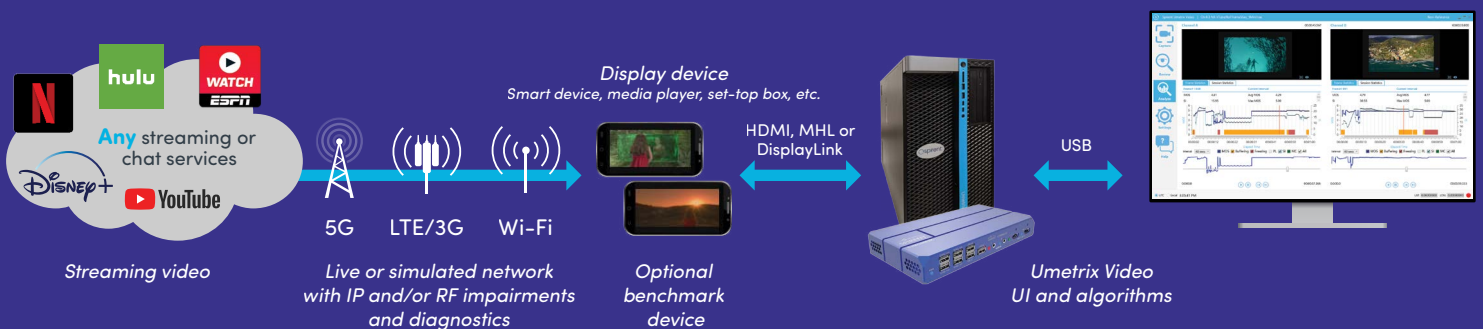
Umetrix Video can be used for video quality assessment across devices and services in both mobile and fixed applications.

	Mobile LTE and 5G	Home Fixed 5G, Cable and Fiber
Device	Assure new devices and chipsets deliver acceptable QoE before launch	Assure media players, smart devices and set tops deliver acceptable QoE before launch
Service	Assure video services deliver acceptable QoE before launch, and as content, devices and networks evolve Compare performance to competitors and over different devices and networks	Assure home video services deliver acceptable QoE before launch and compare performance to competitors

Spirent Umetrix Video facilitates faster and less expensive repeatable design validation, regression testing, and competitive benchmarking.

- Assess live streaming or chat services without specific reference test content
- Enables streaming video assessment of wireless service providers TV services in Fit4Launch
- Provides foundation for the ability to tune the algorithm for specific use cases and conditions (optional service)
- Currently supported capture resolutions: 480p, 720p, 1080p at 24, 30 and 60 FPS

Streaming Solution Overview



About Spirent

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks. We help bring clarity to increasingly complex technological and business challenges. Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled.

For more information visit:
www.spirent.com

Spirent Expertise

Others may know mobile or video individually, but Spirent is unique in our understanding of the reciprocal impact of mobile and video on each other.

Spirent is a trusted provider for over 25 years spanning multiple generations of mobile technologies. Our validated test solutions have been used throughout the world for certifying mobile devices on global carrier networks; over 90% of all mobile user equipment (UEs) have touched our solutions.

Spirent knows video. We have a strong history of delivering QoE assessments and years of experience with video quality assessment methodologies, algorithms, impairments, and root cause diagnostics. Spirent's overall video approach is algorithm-agnostic, allowing us to offer a variety of methodologies and algorithms to provide the right KPIs for each individual customer.

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Americas 1-800-SPIRENT

+1-800-774-7368 | sales@spirent.com

Europe and the Middle East

+44 (0) 1293 767979 | emeainfo@spirent.com

Asia and the Pacific

+86-10-8518-2539 | salesasia@spirent.com