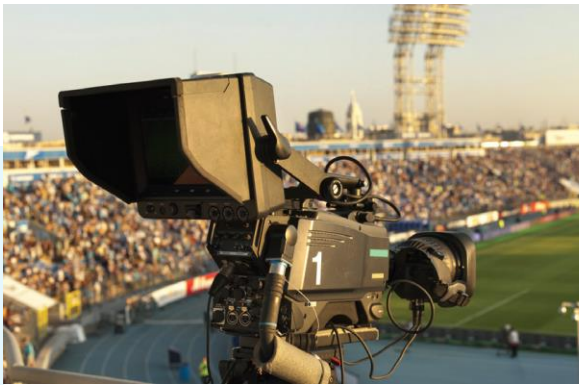
NovelSat
Making Space in Space

Case Study

4K UHD Satellite Broadcast

EBU Upgrades to NovelSat NS3 for Live 4K Broadcasts



> **"With NovelSat equipment installed in several hundred sites within the worldwide Eurovision network footprint, EBU was able to increase throughput of its satellite transponders by 30%."**
>
> Paolo Pusteria
> Head of Procurement & Network Partnerships, EBU

EBU

Challenge

In the European Broadcasting Union (EBU) global footprint, there is growing demand for satellite bandwidth to support transmission of video content and specifically more HD programming. As the EBU rolls out live 4K UHDTV (Ultra High Definition TV) broadcasts, increasing satellite bandwidth demand raises the cost of introducing global innovation.

Goal

Optimize existing satellite spectrum to deliver more effectively high quality live HD and 4K UHDTV broadcasts.

Background

The EBU operates the world's largest satellite and fiber live video network. It is the world's foremost alliance of public service media organizations and operates EUROVISION, the media industry's premier distributor and producer of high-end live sport and news, as well as entertainment, culture and music content.

NovelSat technologies have successfully supported live EBU satellite transmissions of the London 2012 Olympic Games, Euro-Cup 2012, NBA, Formula One and other major events. In 2014 the EBU upgraded its European satellite network with modulating equipment using NovelSat NS3™ third generation satellite technology. This upgrade was performed to support the world's first live 4K broadcast of a full-length sporting event – World Cup games, including the final. This upgrade effectively makes the EBU satellite network the fastest, most advanced and robust in the world.

Worldwide, the growing demand for 4K UHDTV is driven by live sporting events where increased clarity and frame rate create a smoother, more realistic experience and instant replay with game changing sharpness. While 4K is a pleasure to view, the increased pixel count (3480x2160 vs. 1920 x 1080 for 1080p) can tax satellite bandwidth. That is one of the key reasons that the EBU chose the spectral efficiency of NovelSat equipment.

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Solution

EBU upgraded a significant part of its vast European satellite network to NovelSat NS1000 and NS2000 Satellite Modulators and Demodulators powered by NovelSat NS3 technology. Compared with solutions based on industry standard technology, NovelSat NS3, a high-end efficiency satellite transmission software package, typically increases the data rate for a given bandwidth by more than 30%.

Using NovelSat NS1000 Modulators, the EBU successfully distributed high-quality live HD signals of all 64 games from 12 different stadiums to their rights holders. Using the same NovelSat equipment, the EBU broadcast 3 full live World Cup 2014 games from Brazil in 4K Ultra HD quality, including the Final between Germany and Argentina.

In addition to reducing the cost of delivering HD and 4K broadcast video by satellite, NovelSat NS3 technology goes further to improve signal quality through superior resilience to channel impairments such as phase noise, non-linearity, jamming and interference and other factors.

Technology

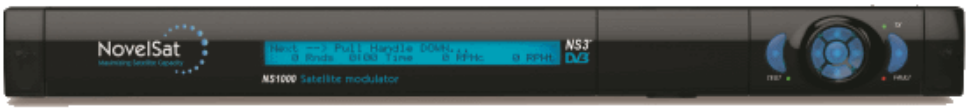
NovelSat NS1000 Satellite Modulators and NovelSat NS2000 Satellite Demodulators support all major satellite transmission industry standards, including DVB-S and DVB-S2. However, to support the load that hours of a live 4K feed requires, the EBU chose the NovelSat NS3 high-end efficiency satellite transmission software package. NovelSat NS3 typically delivers more than 30% more capacity per MHz of bandwidth compared with industry standard DVB-S2 technology.

All NovelSat satellite transmission products are built around NovelSat SMOS (Satellite Modem Operating System), a unified satellite communications platform that ensures optimal interoperability, throughput and scalability of capacity, software-upgradable high-end features and waveforms. The NovelSat NS1000 Modulator and NS2000 Demodulator power the satellite industry's most scalable point-to-point transmission applications, enabling applications from 64Kbps to 425Mbps on a single carrier. It is this high-end spectral efficiency that makes delivering live 4K content a profitable business prospect.

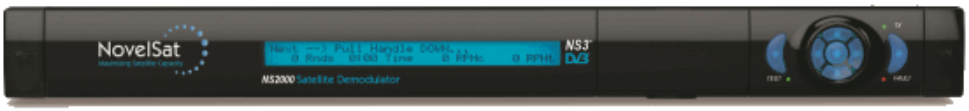
Summary

The deployment of NovelSat NS3 technology around the globe enables the EBU to deliver more video services over its available bandwidth. With NovelSat, the EBU can transmit more revenue generating live HD and UHD content without increasing transmission costs.

NovelSat NS1000 Satellite Modulators and NS2000 Satellite Demodulators, with their superior spectral efficiency, scalability and high-end software-definable feature set, are now used for the transmission of EBU events, including all major European sports broadcasts and newsgathering, which demand the highest video image quality.



NovelSat NS2000 Satellite Demodulator



NovelSat NS1000 Satellite Modulator

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