

March 9, 2013
SKY Perfect JSAT Corporation

Test of Live Broadcast of 4K Video — Live 4K video relay of J. League soccer match via satellite —

Today (March 9), SKY Perfect JSAT Corporation (Head office: Minato-ku, Tokyo; Representative Director, President and Chief Executive Officer: Shinji Takada; referred to as “SKY Perfect JSAT” below) conducted a test live satellite broadcast of 4K video of a J. League soccer match.

Today’s test involved the transmission of a 2013 J. League match between FC Tokyo and Kashiwa Reysol at Ajinomoto Stadium (Chofu, Tokyo) via the SKY Perfect JSAT satellite to Odaiba Cinema Mediage (Minato-ku, Tokyo) for a public viewing. This was our second live broadcast of 4K video, following a test conducted on October 20 last year.*

With these two successful test broadcasts, SKY Perfect JSAT has confidence in the further spread of the new world of visual expression made available by 4K. For the latest test, we aimed for a more realistic soccer broadcast by increasing the number of cameras from five to seven and using 4K super-slow video. This broadcast demonstrated the appeal of 4K video, which is able to convey the full beauty of the setting and a sense of depth and presence to conventional Hi-Vision images, vividly bringing to life the instantaneous changes in motion and in players’ expressions that are unique to the world of soccer.

Due to the rapidly changing environment surrounding 4K, the Ministry of Internal Affairs and Communications’ Investigative Commission on the Advancement of Broadcast Services is examining initiatives towards the early spread of Super Hi-Vision (4K/8K) broadcast services. Transmission using satellites enables broadcasts that require high transmission speeds, such as real-time 4K video from any location, for example transmission from a vehicle-borne station. This will offer a powerful solution for markets that demand live broadcasts with high picture quality, such as theater broadcasts of sporting and other events.

SKY Perfect JSAT will continue to develop new technologies utilizing the broad coverage and powerful capacity for simultaneous distribution offered by its communications satellite, and will work together with all involved parties to develop and expand Japan’s 4K market.

* Click on the link below for details of the test broadcast on October 20, 2012.

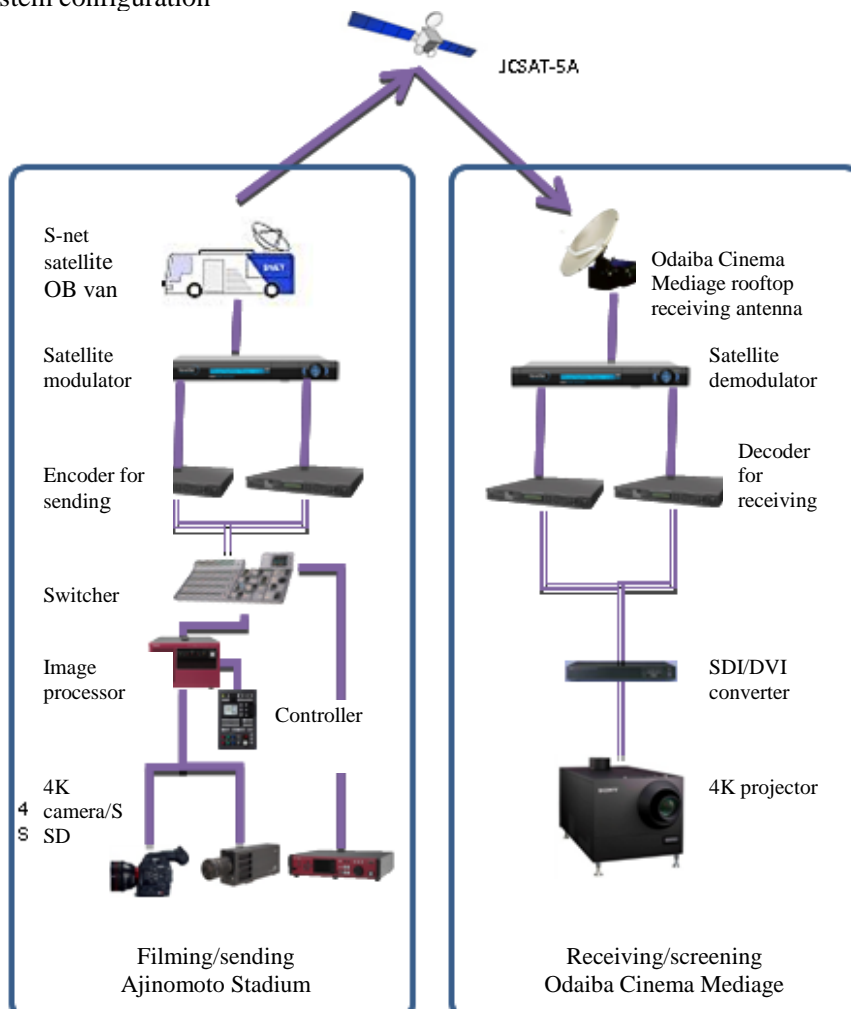
http://www.sptvjsat.com/wp-content/uploads/1212120_4Klive_EN.pdf

<For reference>

■ Outline of the experiment

- Date of the experiment
March 9, 2013 13:30–16:00
- Contents
2013 J. League FC Tokyo vs. Kashiwa Reysol
- Uplink
Ajinomoto Stadium, satellite OB van (Chofu, Tokyo), 1.3 m antenna
- Downlink
Odaiba Cinema Mediage (Daiba, Minato-ku, Tokyo), 1.4 m antenna
- Satellite
JCSAT-5A satellite
- Frequency bandwidth
35.8 MHz
- Modulation scheme/FEC rate
32 APSK, FEC 3/4
- Information Rate
Up to 120 Mbps
- Video compression/encoding method
H.264 | MPEG-4 AVC
- Video resolution (horizontal × vertical)/scanning method
3840 × 2160 / 59.94 p

System configuration



For this experiment, we enlisted cooperation from the following organizations.

■Cooperation in moving pictures

Japan Professional Football League

■Filming devices

- Canon Inc.
EOS-C500 Digital cinema camera
CN-E30-300 EF cinema lens
- Sony Corporation
PEM-F55 CineAlta camera
PVM-X300 30-inch industrial-use 4K monitor
- FOR-A Company Limited
FT-ONE Full 4K variable frame rate camera
- ASTRODESIGN, Inc.
HB-7513, RB-7513 4K camera control unit (C500 RAW Developing Device)
AH-4413, AP-4414, AM-4412 4K camera system
HR-7512-A 4K/8K SSD recorder
SR-8422 Super high-vision SSD recorder
GG-167 4K 4K frame memory board
DM-3409 4K 9.6-inch LCD monitor
WM-3207 17-inch 4K waveform monitor
DM-3432 4K 32-inch liquid crystal monitor
- NIXUS/Nikko Telecommunications Co., Ltd.
CG-STORE Visual generator filing system
- Corporation TELECAM
3G optical transmission device
- Canare Electric Co., Ltd.
EO3G-100, OE3G-101 3G-SDI / HD-SDI / SD-SDI optical converter
- PFU Limited
QG70 IP Transmitter
- Kyodo Television Ltd.
Relay vehicle KR-advance
Sony MVS-7000X Multi-format switcher
Sony SR-R1000 SRMASTER storage unit

■Transmission devices

<Sender's equipment>

- ASTRODESIGN, Inc.
CX-5528A-F MPEG-2 TS multiplexer for relay transmission
- Rikei Corporation
NS1000 Satellite modulator
- Fujitsu Limited
IP-9610 Video transmission device (H.264 encoder)

<Receiver's equipment>

- ASTRODESIGN, Inc.
SD-8203 4K-compatible HD-SDI/DVI converter
- Rikei Corporation
NS2000 Satellite demodulator
- Fujitsu Limited
IP-9610 Video transmission device (H.264 decoder)

■Screening Equipment

- Sony Corporation
SRX-T420 Data projector
LKRI-005 HDCP DVI board