SVP Broadcast Microwave is a company engaged in the design and manufacture of Microwave radio links for Security applications with a large trajectory and experience. This company was founded in 1992 in Spain and currently has its products operating in more than 50 countries.

The equipment and systems from SVP are being used by the Security departments all around the world. SVP has been established as a competitive company in the international market for over 25 years.

SVP is a company which dedicates a lot of its resources to be in the front line of technology and attend new challenges, this has been achieved with an excellent R&D department. The main objective of our company is to continuously improve the design of our own equipment, so that SVP can offer its clients the best solution and satisfy their current and future necessities.

SVP also believes in the importance of the customer. The reason why we created a customer service department is to offer both personalized and post-sale service. Our clients believe in SVP professionals as they know we will always support them to make the best decision and help them with the installation and operation problems that may appear.
From SVP we want to contribute to the development of Broadcast technology, with new ideas and using our talent to design the most innovative equipment, we also share with our clients the experience we have gained offering the best solutions in the actual market.
SVP Broadcast Microwave’s Helicopter Downlink system has been optimized to be used in many applications, such as fire extinguition and aerial surveillance. This solution provides the user with a digital broadcast-quality downlink, allowing the transmission of up to 5 sensors with a single video link.

The use of digital DVB-T2 modulation guarantees a secure, stable and high-quality connection. Saving, storing and processing of the images are error free and the quality of the contents are not degraded.

Employing HEVC compression and BISS-1, BISS-E, AES-128 and AES-256 encryption, makes SVP systems very robust and reliable. Moreover, the autotracking system is employed to provide constantly the highest signal level and to transmit the position of the aircraft’s GPS at long distances for the automatic pointing of the antennas.

The advantages of this system include:

- High power transmitters in different frequency bands
- DVB-T2 modulation.
- HEVC compression.
- AES-128 and AES-256 encryption.
- Up to 5 sensors simultaneous transmission.
- Highest video quality and lowest latency.
- Ranges up to 250 km with LOS.
- RTCA/DO-160 complaint (Environmental and EMC).
- Autotracking.
- KLV Metadata for Mission software.
- TS over IP for diffusion.
- Aircraft to Aircraft transmission.
ON BOARD EQUIPMENT

TRANSMITTER

On board the helicopter, the **TRANSMITTER** converts the video, audio, GPS and Metadata from the camera, to a microwave signal to be broadcasted through the antenna. Thanks to the Airborne LAU-K, the transmission of up to 5 camera sensors simultaneously is possible.

ANTENNA

The **ANTENNA** can be installed on an actuator arm to reduce the shadowing effect of the aircraft. Or can be mounted in the skid using Dart mount.

The use of a helicopter actuator arm improves the signal transmission by extending the antenna below the helicopter skids, away from the body of the airship.

REMOTE CONTROL

There is also a **REMOTE CONTROL** unit that can be installed in the cockpit to offer the pilot remote control of the most important parameters of the equipment.
RECEPTION EQUIPMENT

The RECEIVER is the unit responsible for the receiving of signals captured by the antenna and deliver them in the original format of video, audio, GPS and Metadata.

There are two types of receiving equipment:

**FIXED MOBILE RECEIVING SITE**

Mid range antenna systems with no need of steerable system.

It uses panel antennas to provide 360 degrees coverage with high gain.

Very long ranges with parabolic directional antennas mounted in a GPS based tracking system.

**HAND HELD PORTABLE RECEIVER**

Allows the user to receive and visualize the signals directly from the aircraft on a big portable screen.

The connection of the receiver to the computer for monitoring of the KLV Metadata is also possible.
THE BENEFITS

The advantages and benefits of the SVP system are important to the end users.

Among others, some of the main features of the system designed by SVP are:

- **Highest video quality**
- **4K or 5 HD video transmission**
- **Very long coverage ranges**
- **The best image stability**
- **Metadata for Mission software**
- **Not necessary expensive Autotracking Antenna systems**

SVP Broadcast Microwave has the ability to provide highly customized solutions based on the customers needs, emphasizing on flexibility, low maintenance and maximum longevity.

The proposed system is also designed, taking into account the limited space and power in an aircraft. Thanks to the latest components on the market and the advanced manufacturing techniques, the modular SVP system gets to pack a high power in a small space. The final result is the high reliability and robustness of our equipment.

KLV METADATA

*can be monitored by using Mission Software*
In addition, SVP gives importance to the compatibility between past, current and future equipment. In this way that allows our clients grow and adapt to new technologies in a progressive way and without losing compatibility with other systems.

All SVP systems count on a solid guarantee and a professional aftersales service and technical support.

All these benefits result in a downlink system that will efficiently enable the end users to fulfill their duties and tasks in today’s dynamic world.
Up to 5 simultaneous videos transmission
SDI with KLV Metadata Embedded
GPS Position transmission
Total control of the mission from the ground
RTCA/DO-160 certified
HD VIDEO TRANSMISSION SYSTEM

VEHICLE RECEPTION SYSTEM

HD CAM
GPS
RTC
REMOTE CONTROL

HDT
HIGH POWER TRANSMITTER

AVS OMNI ANTENNA

CENTRAL RECEPTION SYSTEM (long range)

HAP
PARABOLIC ANTENNA

AM
MULTISECTOR ANTENNA

QPT
POSITIONER

HDR
DIVERSITY RECEIVER

MOBILE RECEPTION SYSTEM

MANO
HAND HELD RECEIVER
4K (UHD) VIDEO TRANSMISSION

CENTRAL RECEIVER

4K CAM ➔ AIRBORNE LAU-K

AIRBORNE LAU-K ➔ 4K VIDEO CODEC

GPS ➔ HDT

RTC ➔ AVS

HDT ➔ OMNI ANTENNA

AVS ➔ HDR

HDR ➔ 4K SDI - IP

AM ➔ 4K VIDEO CODEC

MULTISECTOR ANTENNA

DIVERSITY RECEIVER

4K SDI - IP

www.svpbm.com
5 HD VIDEOS TRANSMISSION SYSTEM

- SENSOR CAM
- GPS
- RTC REMOTE CONTROL

5 VIDEOS ➔ AIRBORNE LAU-K VIDEO CODEC ➔ HDT HIGH POWER TRANSMITTER ➔ AVS OMNI ANTENNA

CENTRAL RECEIVER

- AIRBORNE LAU-K VIDEO CODEC
- AM MULTISECTOR ANTENNA
- HDR DIVERSITY RECEIVER

www.svpbm.com
SELECTED SVP REFERENCES

[Company Logos]

- Services Aéreos Militares (SAM)
- Police
- Politie
- Frontex
- TeknoAviacion Deportiva SL (TEADE)
- L3 Aviation Products
- DGA
SELECTED SVP REFERENCES
SVP AVIATION & MARINE PRODUCT PORTFOLIO

AIRBORNE EQUIPMENT

**HDT-04 High Power Transmitter**
- Up to 10 Watts output power
- DVB-T2 and DVB-T
- AES-128 and AES-256 encryption
- GPS transmission
- One SDI with KLV Metadata transmission
- Power supply range: 12-36 DC
- ARINC 404 compatible
- RTCA/DO-160 compliant

**AIRBORNE LAU-K**
- HEVC rugerized codec
- Simultaneous transmission of 4 HD videos
- Web browser
- Configurable as Encoder or Decoder

**RTC-01 Remote control**
- To control HDT-04 transmitters
- RTCA/DO-160 compliant
- Installation system with DZUS

**AVS Airborne Antenna**
- Omnidirectional antenna
- To transmit signals from helicopters
- Available in different frequency bands and gains
- Low wind resistance
GROUND EQUIPMENT

**AC Patch Antennas**
- Circular Polarization
- Gain: 7 dBi (Patch) or 2.5 dBi (Hemispheric)
- Designed to be used in aerial links between the ground and the helicopter/aircraft or vice-versa

**HDR-10x Diversity receiver**
- DVB-T/T2 and ISDB-T with MRC Diversity
- NTT H.264 compression technology
- Highest video quality
- Lowest delay
- Transport Stream over IP
- HDMI
- AES-128 and AES-256 encryption
- Autotracking
- KLV Metadata
- Extended power supply range

**MANO Hand Held Receiver**
- DVB-T/T2 and ISDB-T with Diversity 2
- AES Encryption
- H.264 & MPEG-2 HD 422/420 Decoder
- Video over IP output
- KLV Metadata
- Autotracking
- 13.3" sun readable screen
- Powered by batteries or DC
**GROUND EQUIPMENT**

**DC Down-Converter**
- Frequency range: 1.3 to 10.5 GHz (in bands)
- Linearity, sensibility and gain guaranteed
- Very high IP3

**QPT-90 Parabolic Antenna Tracking**
- Frequency range: 1 – 10 GHz
- Polarization: Vertical or Horizontal
- Suitable for Mobile Vehicle and Central Reception applications with the Autotracking control of the HDR-108 receiver

**AM/AMS Sector Antennas**
Multisection antenna:
- 7 or 5 sector panel antennas (omnidirectional coverage)
- 1 up-down antenna (hemispherical coverage)

Bandpass filters and down-converters integrated inside
COMPARISON WITH OTHER SYSTEMS

This graph shows the differences between several systems which are employing different transmission standards and the advantages of DVB-T2 over DVB-T and ISDB-T.

As shown, the results in DVB-T2 are much better than in other standards with closest results to the Shannon limit.

SVP Broadcast Microwave employs DVB-T2 obtaining effective and reliable results and offering the clients the best solution possible.
QUALITY
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