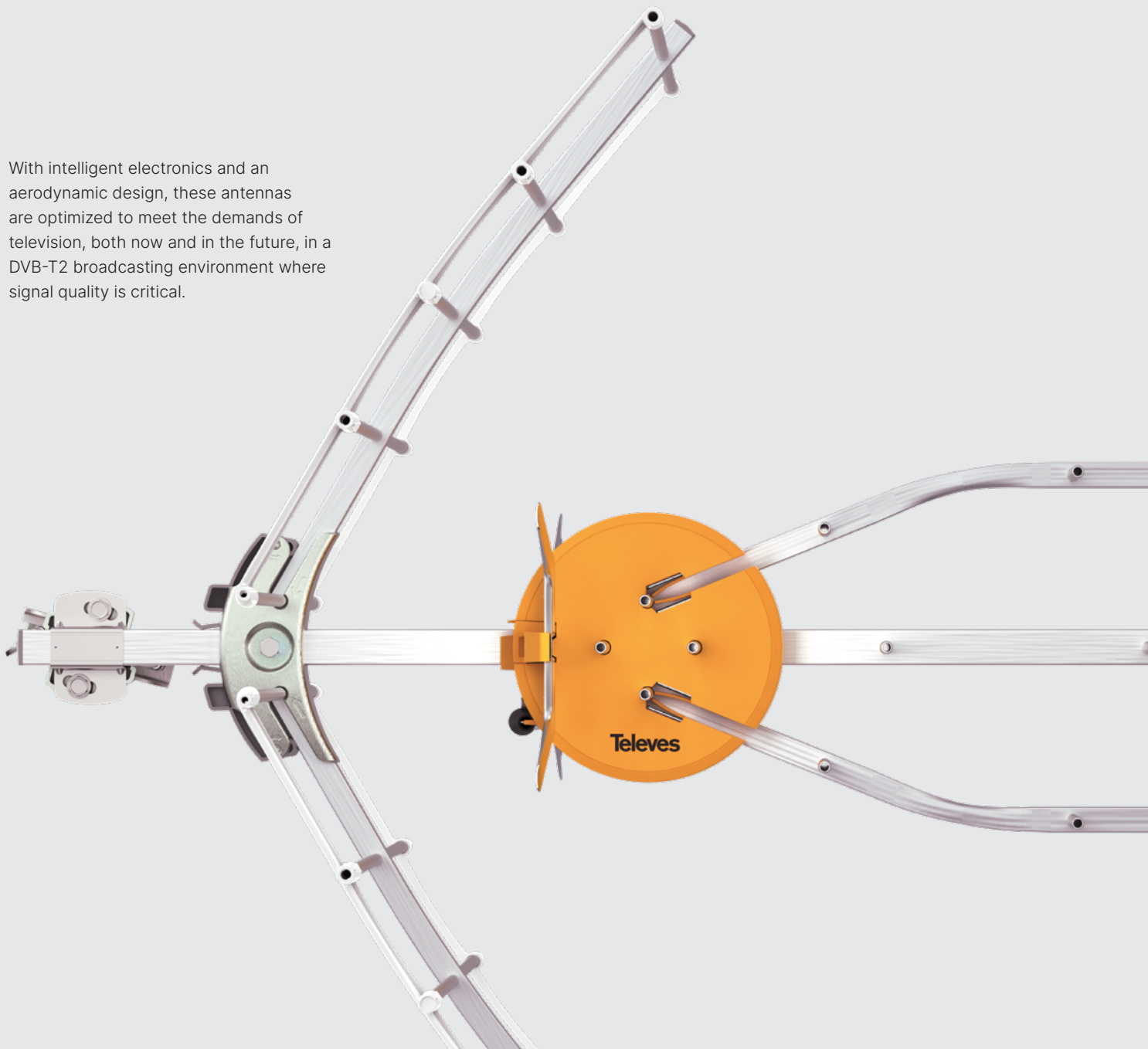


A6, A6 MIX, AND A9 SERIES

Intelligent antennas that are evolving
along with television

With intelligent electronics and an aerodynamic design, these antennas are optimized to meet the demands of television, both now and in the future, in a DVB-T2 broadcasting environment where signal quality is critical.



A6 and A9 Series: Intelligent antennas for the TV of today and tomorrow

This new line from Televes represents the latest technological evolution of our DTT antennas. By bringing together our expertise in the fields of electronics and mechanical design, we have achieved superior performance in real installation environments.

With DVB-T2 broadcasting, signal quality becomes even more important because of the higher density of the modulations. This makes transmission more sensitive to noise, and therefore more demanding in terms of Modulation Error Ratio (MER). Minimizing any reception interference is essential in order to achieve stable, reliable reception throughout the entire coverage area. This is exactly why we created these new antennas, which are designed to offer a cleaner signal from the very first point of reception.

The A6 series is for conventional reception. These antennas will operate reliably in any installation environment, whether located in the center of a major city or in a remote rural area. There are two models of antenna offered in this series: The A6 antenna is for UHF reception, while the A6 MIX is able to combine Band III (BIII) and UHF reception.

The A9 Series is a long-range, high-directivity antenna. It improves the coverage area by 35%, and it is suitable for use in locations far from the transmitter that suffer from reception problems.

When designing our new 5G mobile signal reception solutions, we applied the same focus on mechanical design and performance in the field that we used when developing our earlier lines of high-performance DTT antennas. These new antennas represent a natural expansion of our line of products into telecommunication scenarios where connection quality is essential, and the A6 data antenna was the first of these new solutions we developed. Both of these series share a common fundamental design, where the emphasis has been placed on mechanical stability, reliable performance, and quick and easy assembly. These new mobile signal reception solutions are being added as part of our ongoing technological evolution. They are all backed up by the same engineering know-how that we have always dedicated to the design of our DTT antennas, and maintaining a standardized design helps facilitate the work of the installers.



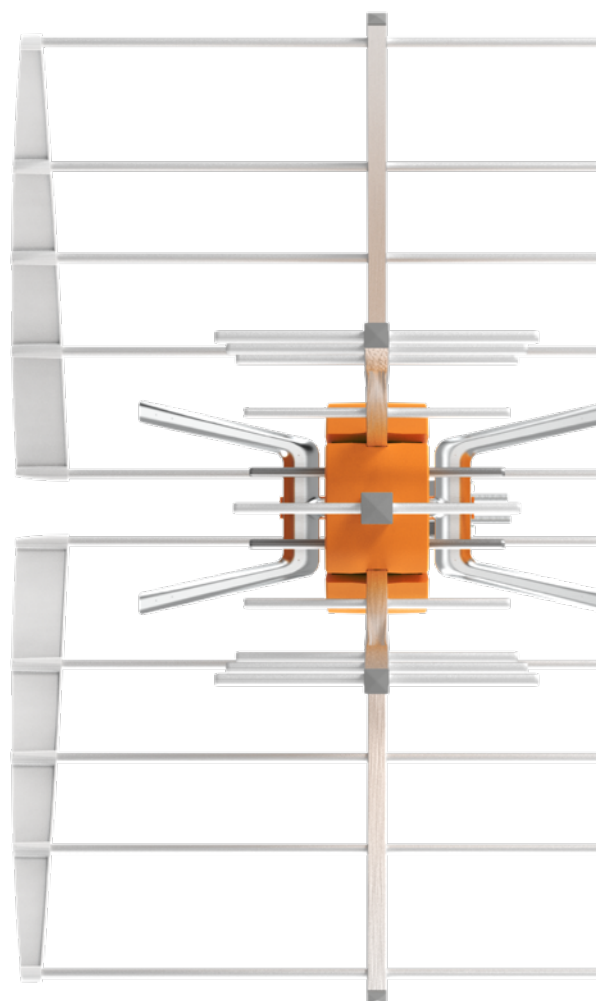
Intelligent and adaptive electronics

The Balanced Output Signal System (BOSS) features TForce® chip technology, and it presents two major advantages for ensuring that the best output signal is always achieved in terms of quality and level: **direct amplification at the dipole for minimizing the introduction of noise, and real-time automatic gain adjustment** based on the existing reception conditions.

Amplification is performed directly at the dipole, which is the closest point to the point of reception. The signal is then boosted before being sent through the cable, which minimizes added noise. This feature is especially relevant for **DVB-T2** broadcasting, which is more sensitive to noise because it uses a high-density constellation with closely spaced symbols (256-QAM COFDM versus 64-QAM with DVB-T). Reception quality

is what determines the actual reception limit, and when the MER is degraded, simply increasing the amplification level is not enough to maintain the signal quality.

The low noise figure offered by this series keeps **the signal stable and the signal quality high, which makes these antennas a perfect choice for UHD** and the latest generation of contents.



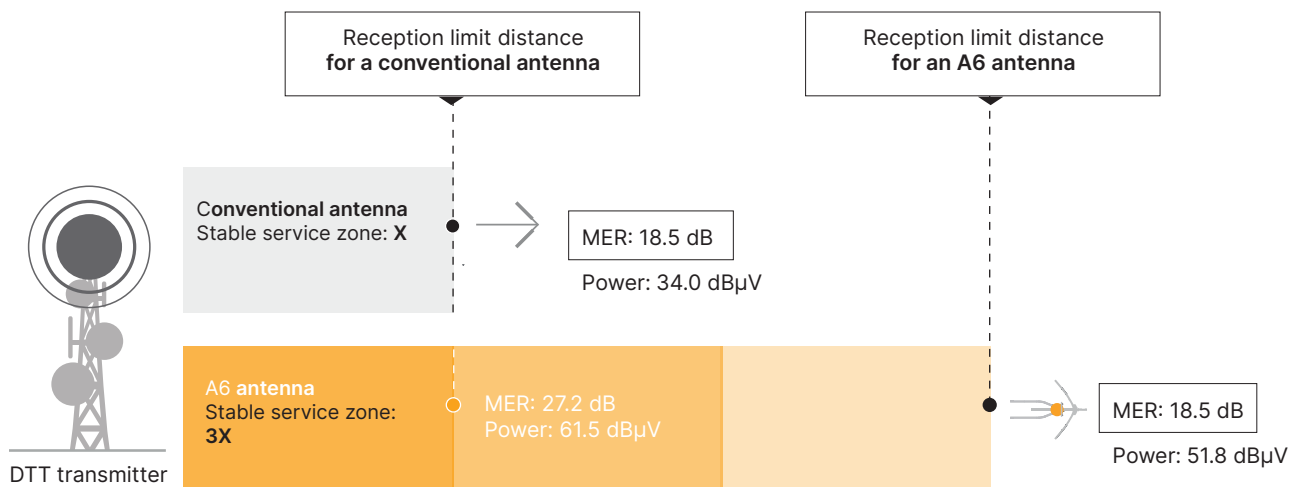
The A6 antenna has a better reception margin in the field, compared to a conventional antenna on the market

This series of antennas offers a significant increase in reception quality compared to conventional

solutions, and this quality can be the factor that determines whether or not the DTT signal is received in scenarios with DVB-T2 channels. The DVB-T2 standard increases the density of the constellation (up to 256-QAM) by reducing the intersymbol distance,

so it may require a **MER value up to 5-6 dB⁽¹⁾ higher** than the one supported by DVB-T (max. 64-QAM). In cases where the MER is degraded during reception, increasing the level is no longer sufficient to maintain the signal's stability:

Conventional antenna vs. A6 antenna with activated intelligence



The A6 antenna offers a better margin against signal degradation. At the point where a conventional antenna will start to pixelate (MER ≈ 18.5 dB), the A6 antenna will still maintain stable reception with up to 8.7 dB more MER (27.2 dB).

This increased quality margin makes it possible to significantly extend the reception zone, resulting in a range approximately three times greater, before the signal failure threshold.

(1) Estimated data based on the recommendations of leading European telecommunications organizations.

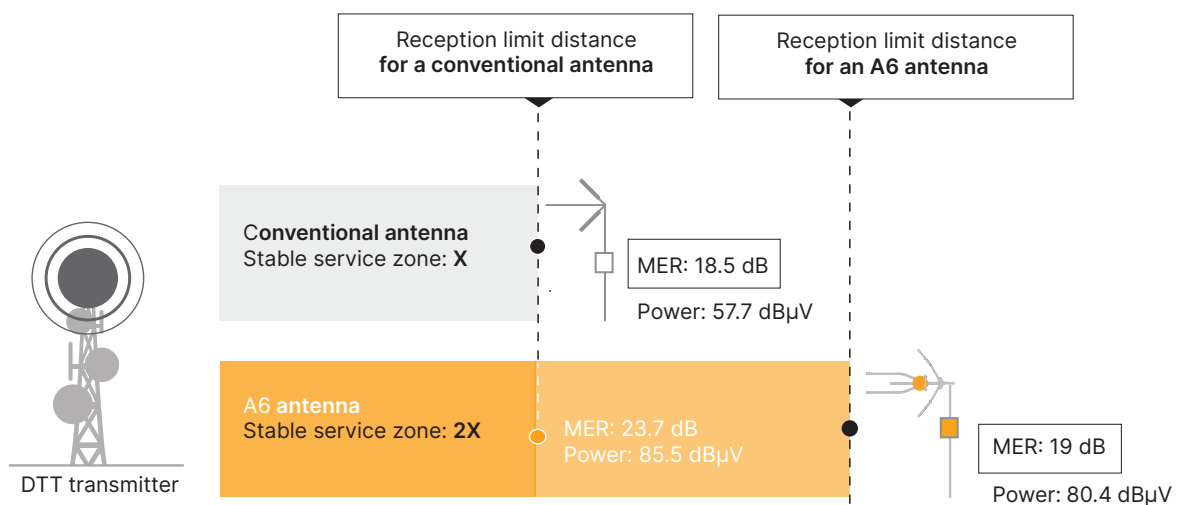


Apart from the signal level, it is the reception quality that will determine the actual reception limit. **When the MER is degraded at the source, increasing the signal level will no longer be enough to prevent reception failure.**

Our antennas increase the margin of signal quality without sacrificing the reception level, supporting between 5 and 9 dB⁽²⁾ of additional degradation before pixelation occurs.

This translates into a **level of signal loss tolerance that is up to 4 times higher, as well as a longer effective reception distance.**

Conventional antenna + mast amplifier vs. A6 antenna with activated intelligence + Televes mast amplifier

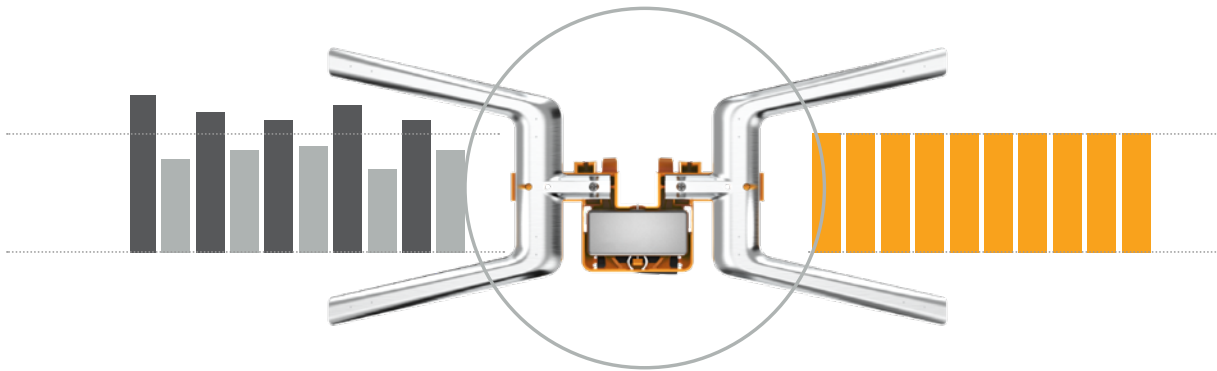


By incorporating a mast amplifier, the conventional solution is able to expand the reception zone by increasing the signal level. However, at the point where it reaches its service limit (MER ≈ 18.5 dB), the A6 solution combined with a Televes mast amplifier is able

to maintain an MER that is 5.2 dB higher MER (23.7 dB).

This makes it possible to double the reception range compared with an equivalent conventional solution.

(2) Comparative tests carried out under the same controlled laboratory conditions for all antennas evaluated.



The BOSS technology also continuously checks the signal level and automatically adjusts the gain in real time, to ensure that an optimal output level is being maintained at all times. This adaptability to a variety of reception conditions makes it possible for professionals and users to stop worrying about external factors:

- The distance to the transmitter (whether too close or too far)
- Adverse orographic conditions or weather

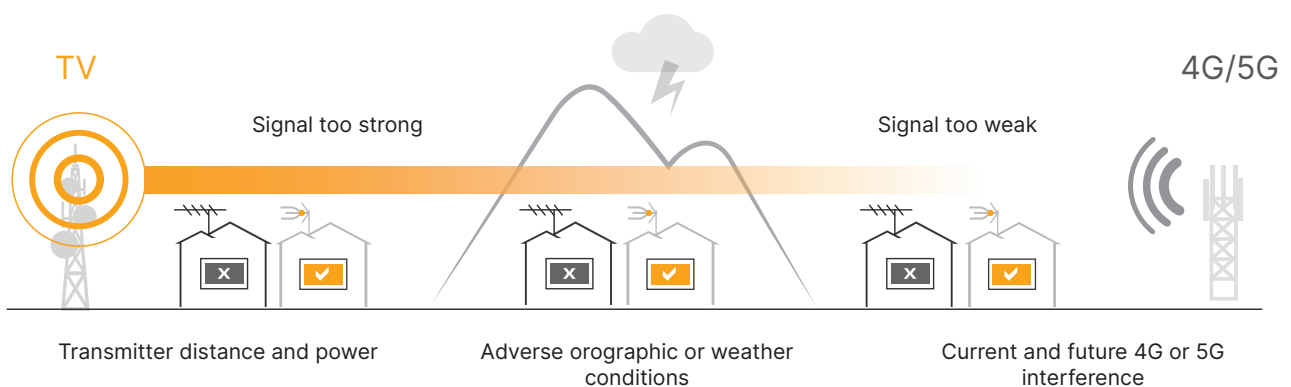
- Interference from current and future telephony systems (LTE/4G/5G)
- *Fading* effects, or other variations in the environment.

Thanks to its combination of technologies, the antenna is able to offer a **high dynamic range**. It can boost weak signals without losing quality, while also preventing saturation when reception levels are high. In addition, the highly selective Surface Acoustic Wave (SAW) filter eliminates external interference, even at the upper end of the TV

band, to ensure signal integrity and compliance with the European Union's Radio Equipment Directive (RED).

With these models, the antenna must be powered through the coaxial cable in order to activate the antenna's intelligence. If that power is not supplied, the antenna will not activate the BOSS Tech system and will operate in passive mode. In this case, even though the automatic amplification and adaptation will not be used, the TV signal will still be received in the manner of a conventional passive antenna.

With its ability to adapt to a variety of scenarios, BOSS can ensure the existence of a stable, high-quality signal:



Mechanically robust with an optimized design



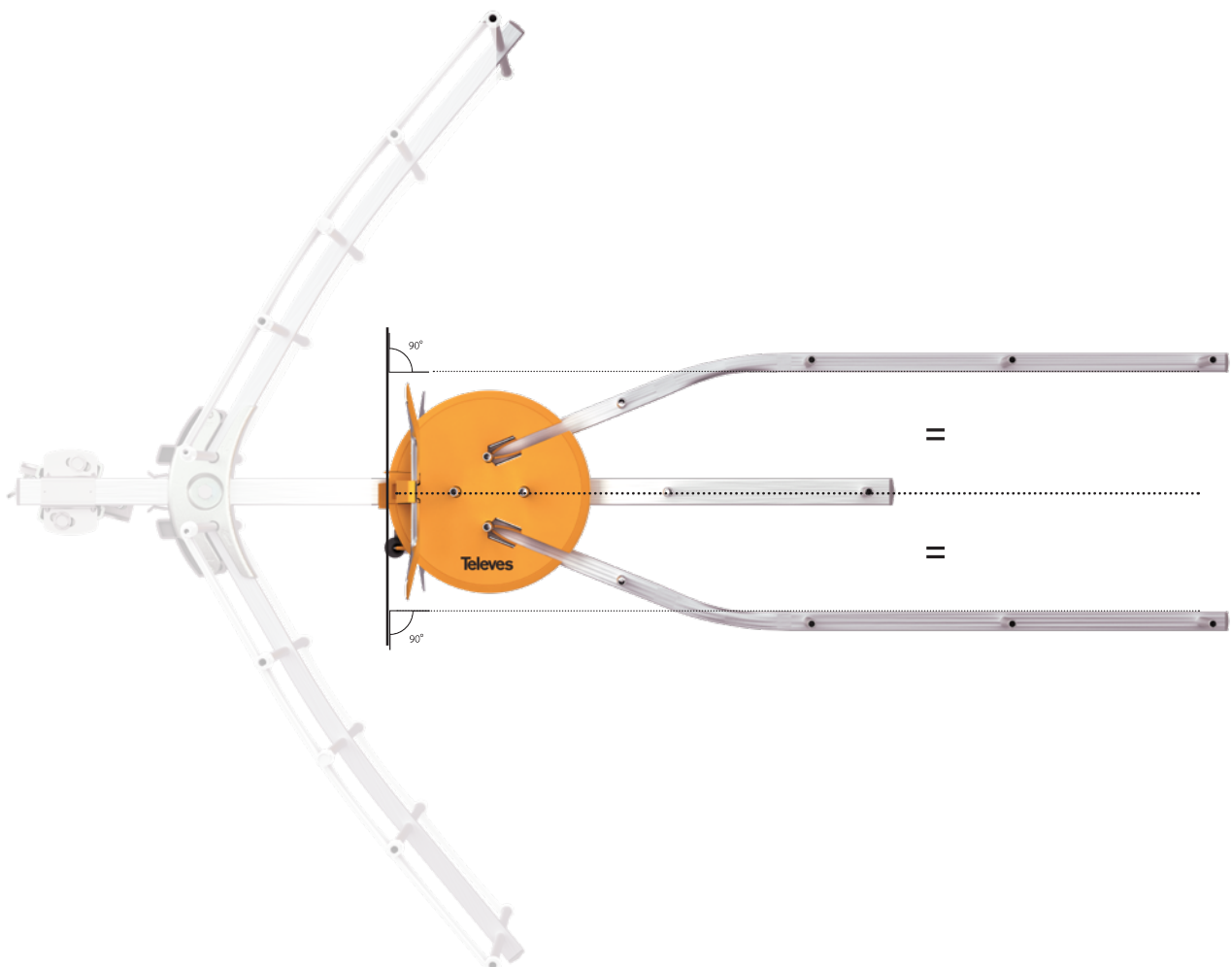
The A6 and A9 Series antennas are made with a combination of high-quality materials that are 100% highly corrosion resistant, for durability and reliability in any environment. The structure is made of high-quality aluminum, the mounting clamps are made of zamak with anti-corrosion coating, and the bolts and fasteners are made of stainless steel. The high-grade ABS plastics are coated with UV-blocking pigments and are resistant to saline environments, which ensures thermal and mechanical stability even under extreme conditions of heat or cold, or with exposure to sea air. This combination of materials **ensures high levels of resistance to oxidation and corrosion, and it gives the antenna a level of mechanical integrity that will allow it** to last for decades.

This new series combines a modern, aerodynamic, minimalist design with a careful structural reorganization of the antenna's elements, with the aim of improving signal reception efficiency and reducing the influence of wind. Our distinctive design is based on a combination of three Yagi antennas, and with this generation, the design has been perfected with a new structural arrangement: the semi-curved reflectors have been repositioned with respect to the dipole, while the three booms are aligned with each other along parallel planes that are perpendicular to the U-shaped dipole, which optimizes overall reception performance.

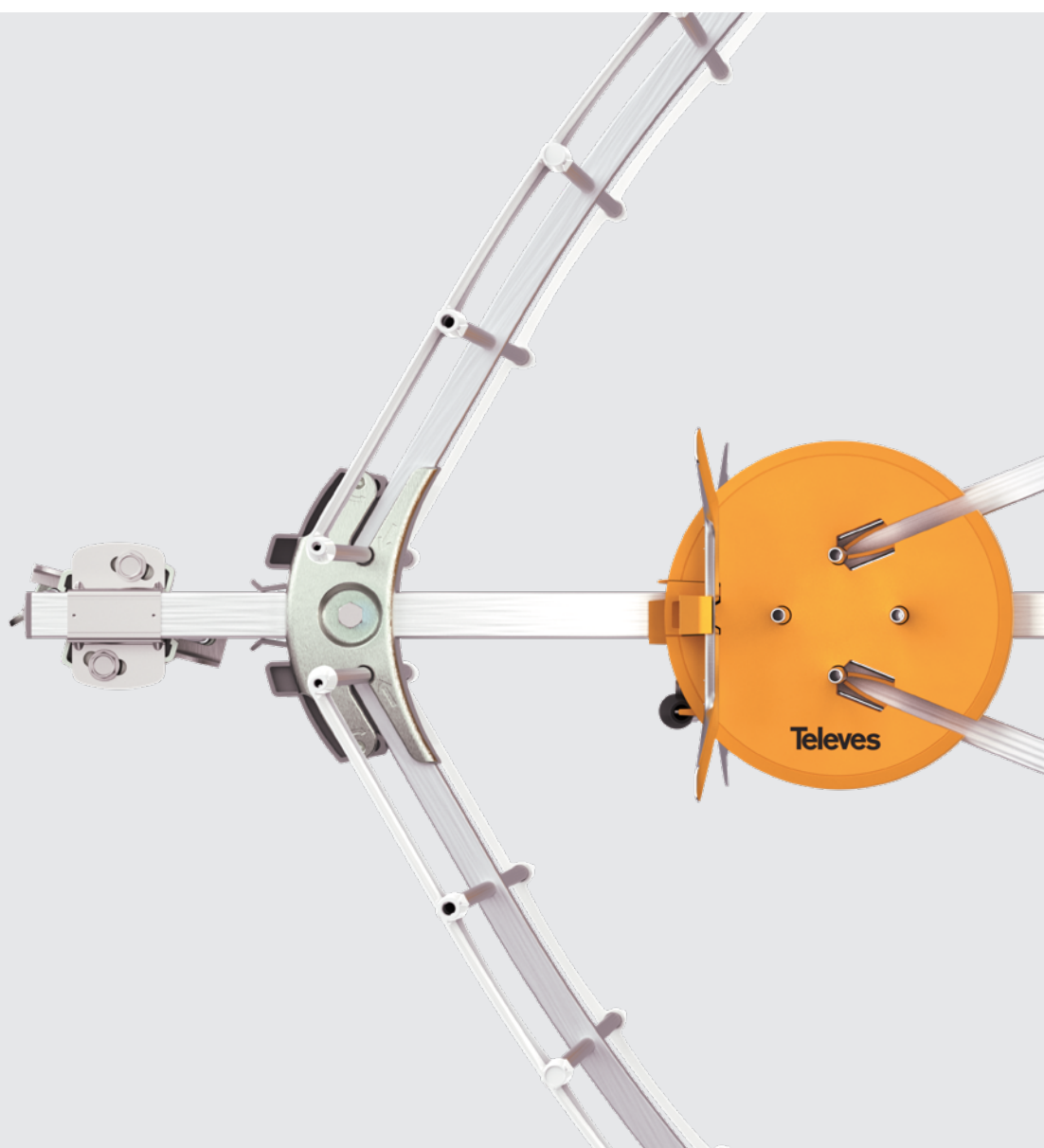
The assembly process has been entirely streamlined to simplify

installation and significantly reduce time spent in the field.

- The A6 and A6 MIX models can be assembled without tools in just 30 or 60 seconds, respectively, which minimizes the amount of time required for installation.
- The A9 also includes an auxiliary bracket that facilitates secure attachment to the mast, and this increases safety and convenience compared to larger antennas that are more difficult to handle and install.



A6 Series: a compact and versatile antenna for everyday use



Real-time adaptation

The only intelligent antenna that can maintain the quality of the TV service by adjusting its performance, based on the existing reception conditions.

Always the best output level

Our patented Balanced Output Signal System (BOSS) automatically adapts the antenna's gain, to ensure that the output signal always remains at an optimal level.

Minimal noise, for an optimal C/N ratio

The built-in TForce® technology boosts the amplification at the point closest to the point of reception, where maximum signal quality is achieved.

Expanded reception margin

The antenna's extremely high dynamic margin makes it possible to receive very weak signals, while also preventing saturation when signals are very strong.



Complies with the European Union's Radio Equipment Directive (RED)

Its high-selectivity SAW filter eliminates interference, even for the last channel on the TV band.

4G/5G protection

It rejects current and future mobile phone signals, to prevent interference with the television signal.

Independent adjustment of Band III and UHF (Mix models only)

The A6 MIX antenna has two TForce® chips that allow separate adjustment of Band III (BIII) and UHF, so that both bands can remain at the optimal level, without

either level having an effect on the other. Other elements also allow the BIII reception to be changed to vertical polarization.

Aerodynamic design for optimized reception

The semi-curved UHF reflectors have been repositioned with regard to the axis of the antenna, along with three booms positioned on planes parallel to each other and perpendicular to the U-shaped dipole. This has all resulted from meticulous study during the design phase, with the aim of improving the frequency response of the radiating array.

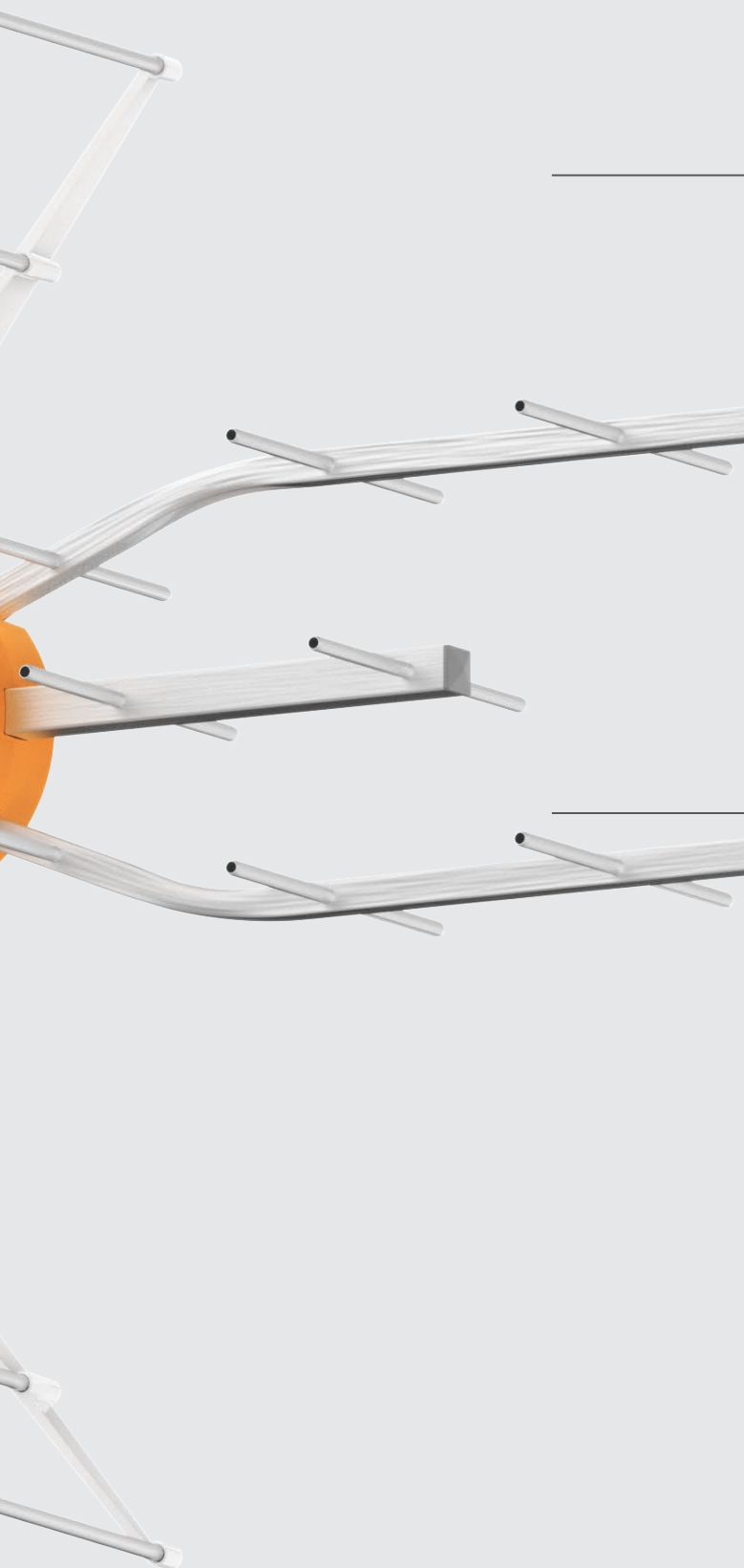
Highly corrosion-resistant

Made of aluminum, with treated zamak attachment elements and stainless steel bolts and fasteners, for decades of durability.

Stands up to the passage of time

Also uses parts made of fiberglass and ABS plastics, enhanced with UV pigments to ensure thermal stability and prevent degradation.





Quick, tool-free assembly experience

The mechanical design was focused on ease of installation, and this has resulted in a tool-free assembly process that can be completed in record time (30 seconds for the A6 and 60 seconds for the A6 MIX).



A6



A6 MIX

Two operating modes combined in one antenna

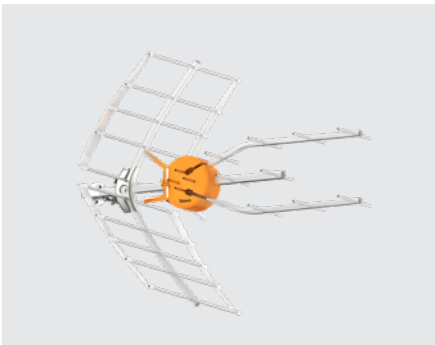
Power supplied through the coaxial cable activates the intelligent BOSS Tech system to ensure optimum performance. If that power is not supplied, the antenna operates in passive mode.

A6 Series: the entire line of products and their technical performance data

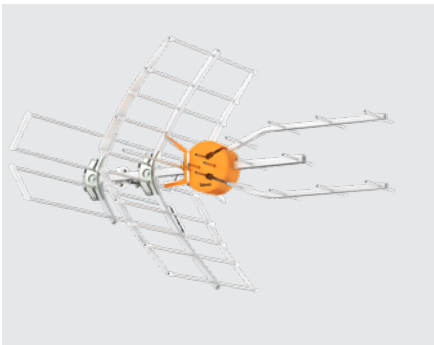
All models at a glance

Ref.	Series	Bands	Power supply	Packaging
140601	A6	UHF	Not included	Individual
140605	A6	UHF	Not included	Set of 8 units
140607	A6	UHF	Included: 24V	Set of 8 units
140501	A6 MIX	Band III + UHF	Not included	Individual

A6



A6 MIX



Power Supply

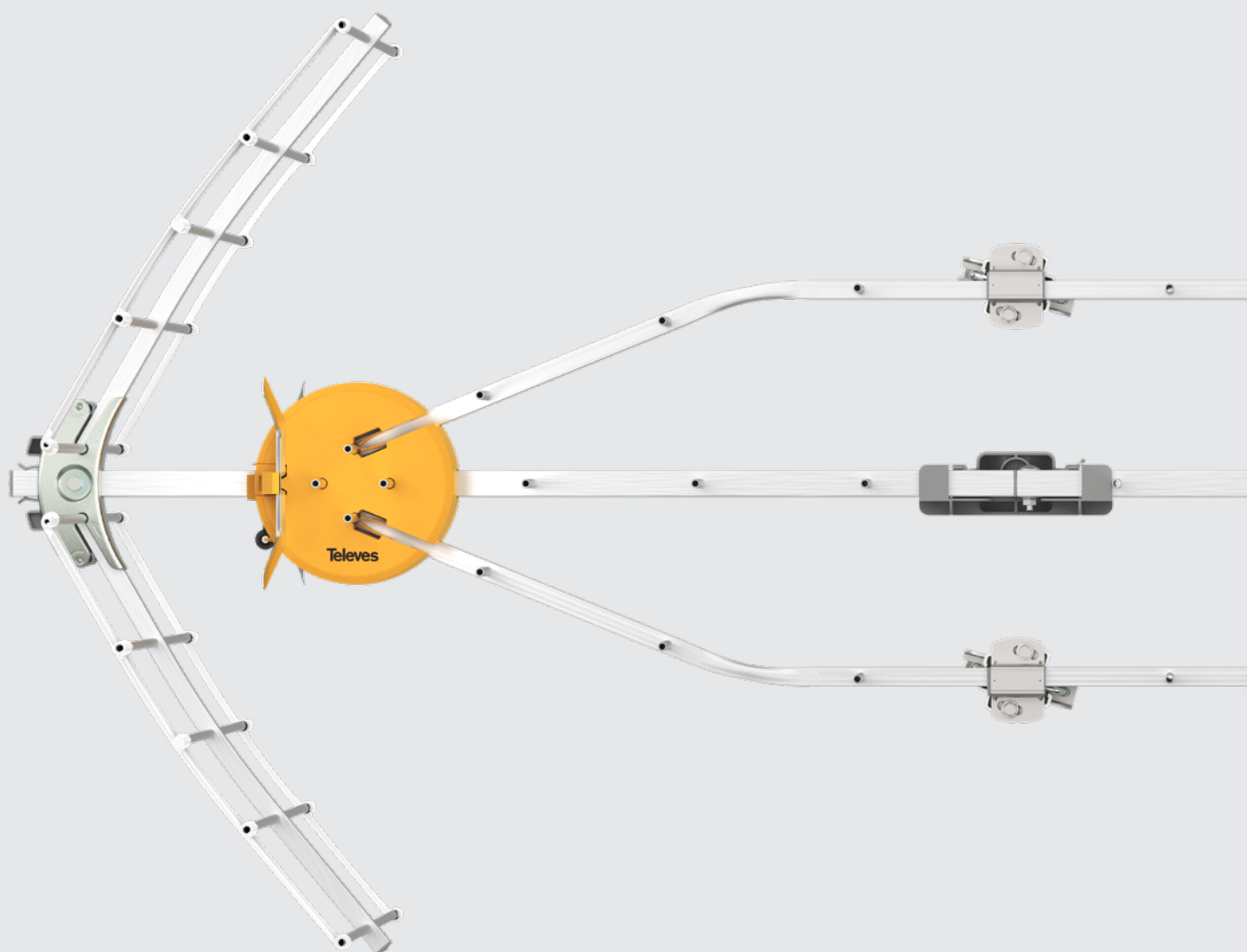




Technical specifications

		A6	A6 MIX	
Bands		UHF	VHF (Band III)	UHF
Frequency margin	MHz	470 ... 694	174 ... 230	470 ... 694
Channels		21 ... 48	5 ... 12	21 ... 48
BOSS mode		ON	ON	ON
Gain	dBi	40	34	40
Output level		Auto	Auto	Auto
Power supply	Vdc	12 ... 24	12	
Max. current	mA	40	70	
Beamwidth	°	30	65	40
D/A ratio	dB	>20	>20	
Wind load (@130 km/h)	N	103.87	120.38	
Wind load (@150 km/h)	N	142.85	165.53	
Mast diameter	mm	20 ... 50	20 ... 50	
Dimensions	mm	694 × 897 × 554	697 × 985 × 866	

A9 Series: a long-range antenna for demanding reception conditions



Coverage area extended by up to 35%.

Increased reception range compared to conventional models, to facilitate reception in areas far from the transmitter without sacrificing signal quality.

Real-time adaptation

The only intelligent antenna that maintains TV service quality by adjusting its performance, based on the existing reception conditions.

Always the best output level

Our patented Balanced Output Signal System (BOSS) automatically adjusts the antenna's gain to maintain an optimal output signal.

Minimal noise, for an optimal C/N ratio

Built-in TForce® technology boosts amplification at the point closest to the point of reception, where the signal retains its maximum quality.



Expanded reception margin

The antenna's extremely high dynamic margin makes it possible to receive very weak signals, while also preventing saturation when signals are very strong

Complies with the European Union's Radio Equipment Directive (RED)

Its high-selectivity SAW filter eliminates interference, even for the last channel on the TV band

4G/5G protection

It rejects current and future mobile phone signals, to prevent interference with the television signal

Aerodynamic design for optimized reception

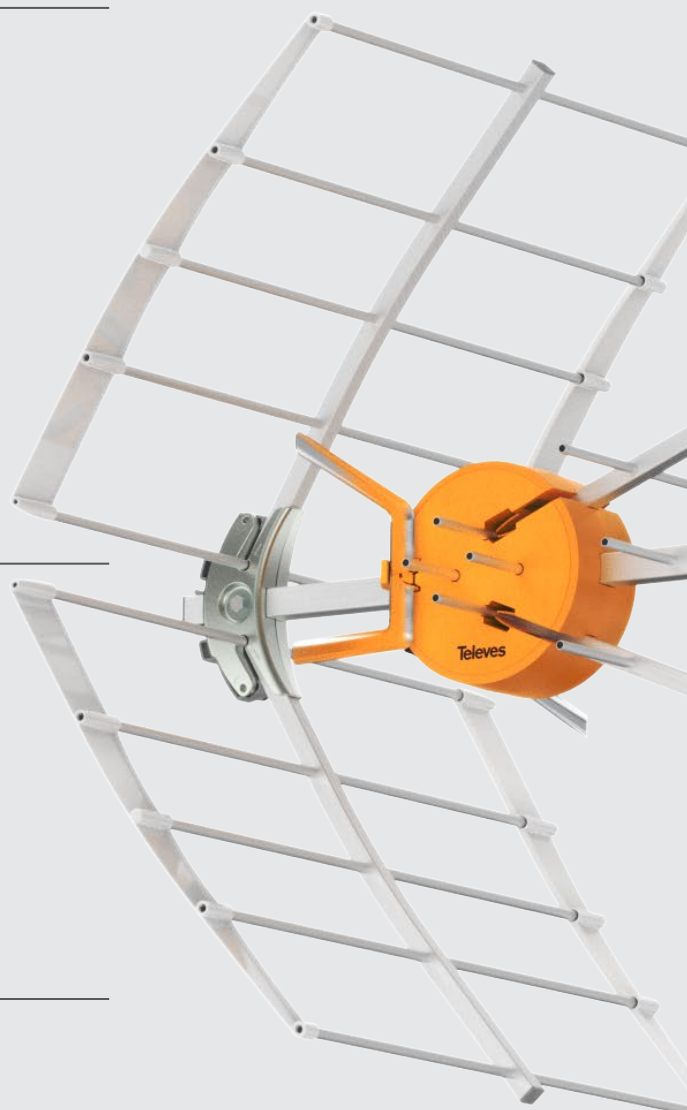
The semi-curved reflectors have been repositioned with regard to the axis of the antenna, along with three booms positioned on planes parallel to each other and perpendicular to the U-shaped dipole. This has all resulted from meticulous study during the design phase, with the aim of improving the frequency response of the radiating array.

Highly corrosion-resistant

Made of aluminum, with treated zamak attachment elements and stainless steel bolts and fasteners, for decades of durability

Stands up to the passage of time

Also uses parts made of fiberglass and ABS plastics, enhanced with UV pigments to ensure thermal stability and prevent degradation



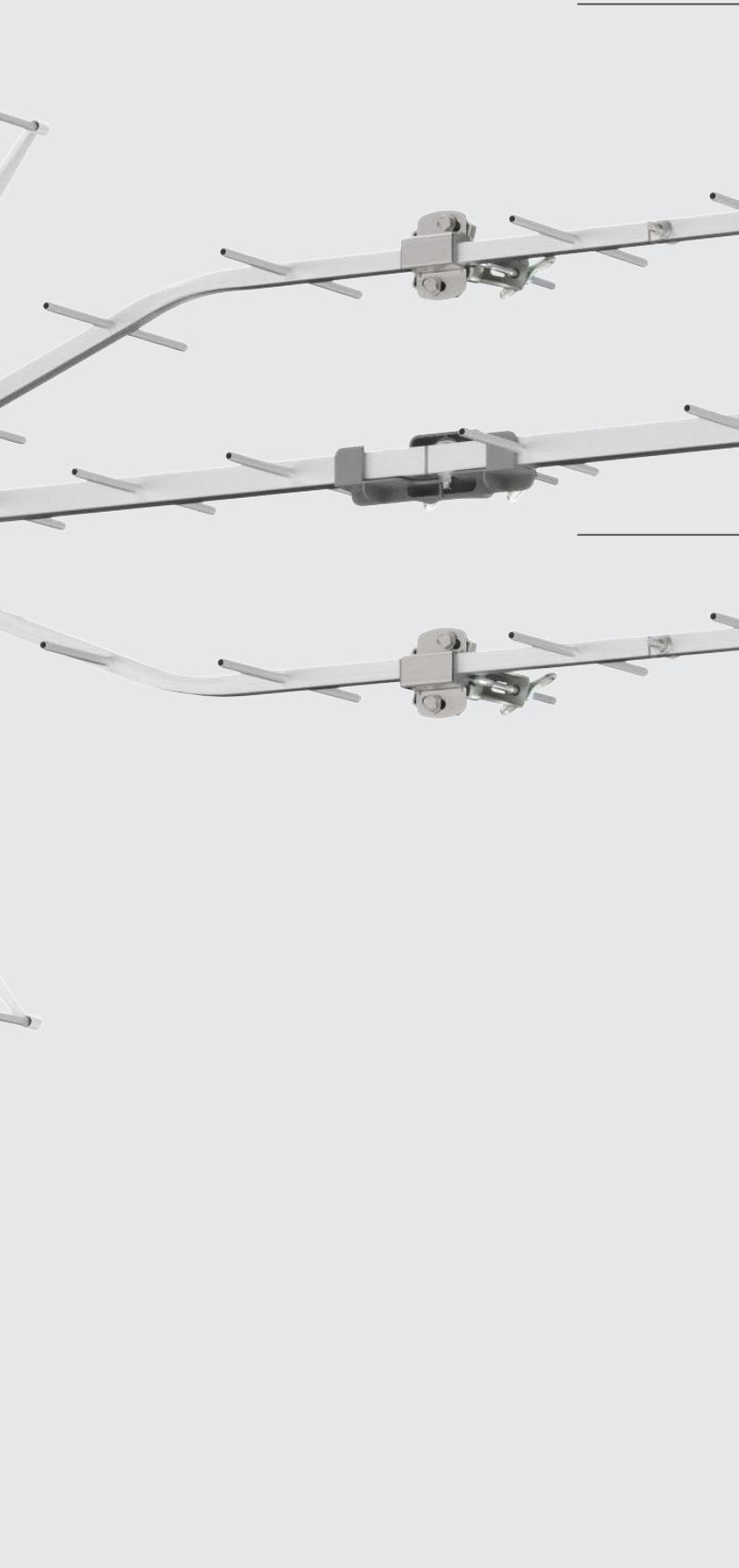


Specific assembly experience for large-sized antennas

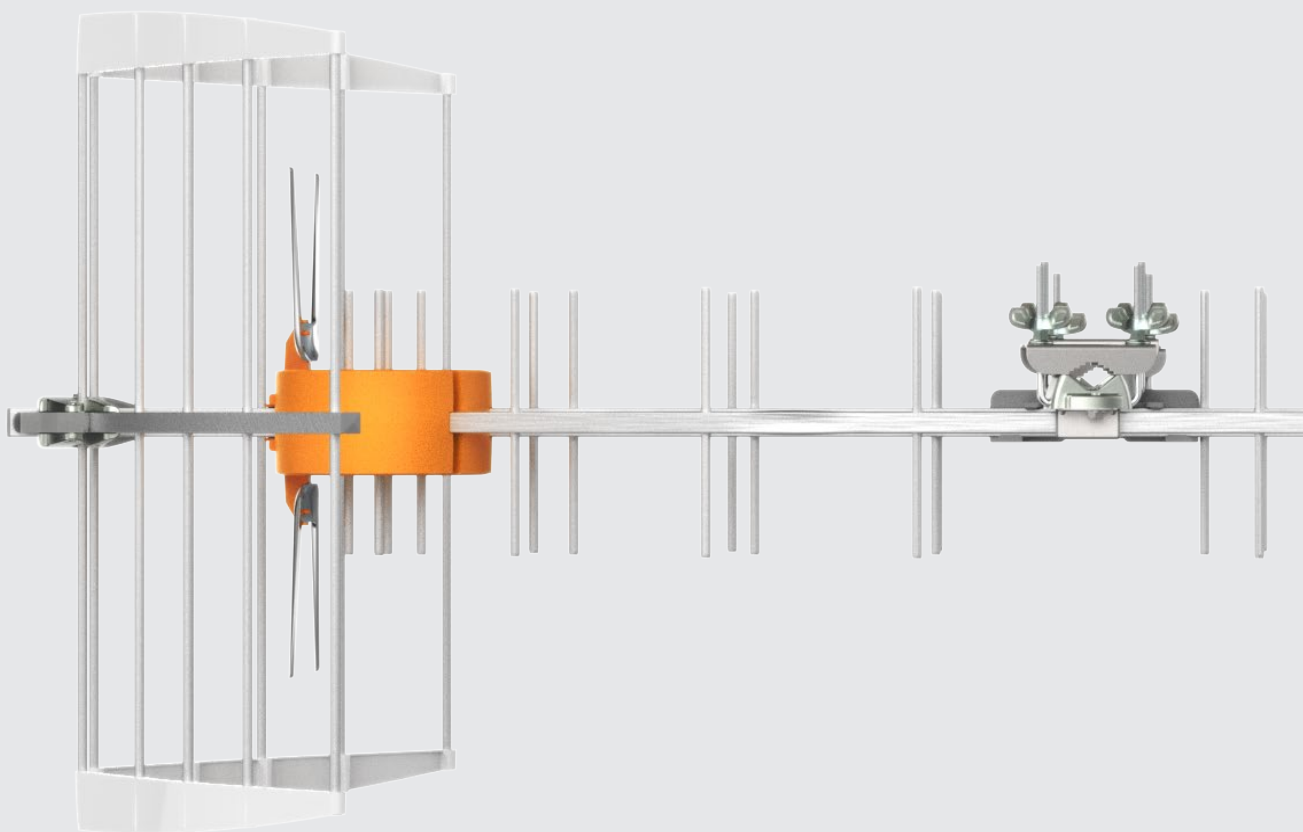
The mechanical design makes assembly simpler and improves manageability, streamlining the assembly of an antenna of this format.

Assisted installation for extra safety

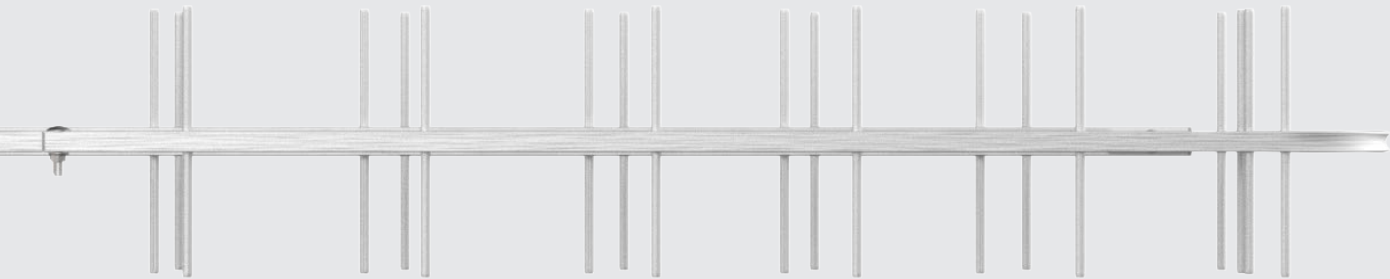
An auxiliary support is included, to stabilize the antenna while it is being attached to the mast, offering improved safety and convenience during installation. Although use of this support is optional, it provides an additional third attachment point and is especially useful for rooftop installations.



A9 Series: technical performance data



Ref.	Series	Bands	Power supply	Packaging
140901	A9	UHF	Not included	Individual



Technical specifications

A9		
Bands		UHF
Frequency margin	MHz	470 ... 694
Channels		21 ... 48
BOSS mode		ON
Gain	dBi	44
Output level		Auto
Power supply	Vdc	12 ... 24
Max. current	mA	40
Beamwidth	°	25
D/A ratio	dB	>25
Wind load (@130 km/h)	N	149.76
Wind load (@150 km/h)	N	205.92
Mast diameter	mm	20 ... 50
Dimensions	mm	897 × 1843 × 554

