



S-BAND A.T.C.RADAR ANTENNA SYSTEM



Nautisat S-Band A.T.C. radar antenna system is a modern off-set antenna that benefits of the most advanced techniques and software in the design. The profile reflector and the feed/polarizer system are designed with a Nautisat proprietary software.

The reflector off-set profile is most innovative and it can generate side lobes of very low level.

The reflector is equipped with tilting mechanism with graduated scale.

NAUTISAT srl

Via Montenero, 60 I-00012 Guidonia Montecelio RM **SEDE LEGALE** Via Chiusi 76, 00139 Roma
p.iva 06767281006 R.E.A. 988947 www.nautisat.com nautisat@nautisat.com Tel. +390774 572583 Fax
+390774572586

The pedestal with two drive motors is designed to support the primary antenna and a large open array antenna for the secondary radar.

An RF six channels rotary joint and multi-channel slip ring permit the signal flowing the moving parts and the fixed parts.

An encoder box codify the azimuth position.

The antenna structure and surface are made in aluminum alloy.

The pedestal is made in welded and galvanized steel with polyurethane paint.

Nautisat ensure high repeatability in production and high performance and reliability.



CHARACTERISTICS

High gain

Main and auxiliary radiating beams

Instantaneous polarization switching

Weather channel (optional)

Elevation coverage to 45°

Meets ICAO (International Civil Aviation Organization) environmental specifications

Tilt mechanism for adjust the beam elevation angle

Dual drive motor gear box with electromechanical clutch

Dual encoder box

Six channel RF rotary joint
 Multi-channel sleep ring for signals and power
 Interlock stow pins
 Great dimensions ball-bearing with oil lubrication
 Operational without need of a radome
 Antenna dimensions: W:5390 x D:4534 x H:3150 mm
 Antenna weight: 1100 kg
 Pedestal dimensions: W1105 x D1105 x H1840 mm
 Pedestal weight : 1030 kg

SPECIFICATIONS

MAIN BEAM

PARAMETER	VALUE
Operating band frequencies	2.7 – 2.9 GHz
Coverage	
Azimuth	360°
Elevation	Up to 45° in the elevation plan
Operation speed	Up to 15RPM
Polarization	Horizontally linear, circular (L/R)
Antenna reflector loss	0,10 dB
Feed and polarizer loss	0,05 dB
VSWR over the entire band	1,35 : 1
Presence of the radome	yes
Antenna gain	35 ± 1 dB
Horizontal beam width at -3 dB	1,39° ± 10%
Vertical beam width at -3 dB	5° ± 10%
Side lobes level	≤ 25 dB ± 1 dB
Slope on the horizon, at -3dB from the main peak beam	4 to dB / deg
Tilt angle	-2° to +5° manually controlled
ICR	20 dB

AUX BEAM

PARAMETER	VALUE
Antenna gain	35 dB ± 1 dB
Horizontal beam width at -3 dB	1,39° ± 10%
Vertical beam width at -3 dB	5° ± 10%
Side lobes level	≤ 25 dB ± 1 dB
Slope on the horizon, at -3dB from the main peak beam	6 to dB / deg.
Squint angle between Main and Aux beams	3° ± 0,5°

MAIN ENVIRONMENTAL SAFE CONDITIONS

PARAMETER	VALUE	
Temperature range	-40°C ÷ + 70°C	
Humidity	Up to 100%	
Operative in rain conditions	4 ÷ 102 mm per hour	
Solar radiation	≤ 360 BTU / hr / ft ² (1135 Watts / m ²)	
Wind conditions	Operating	Survival
Without ice	133 KNTS	178 KTNS
With ice	93 KNTS	124 KNTS

ANTENNA PATTERN

VERTICAL BEAM PATTERN

The antenna pattern slope on the horizon is very high to illuminate the ground with the lowest possible gain in order to reduce both ground clutter and vertical lobes to avoid passive



INTERFERENCES

The main and auxiliary feed are positioned overlapping and are each constituted by an illuminator horn in series with the polarizer

