

ASR-NG® : FUTURE PROOF TECHNOLOGY FOR SAFE SKIES

Great Challenges Require Powerful & Customized Solutions

Key Features

ASR-NG® SPECIFICATIONS	
PSR Specifications	
Operational Frequency Range	2.7 – 2.9 GHz
Instrumented range ASR-NG	80 NM (Option: 60NM, 120NM)
Detection range (RCS =1 m ² , Pd=90%, SW1, PFA =10 ⁻⁶ , linear pol)	80 NM
Minimum detection range	0.2 NM
Target Cross section	1...10 000 m ²
Scan Rate	12...15 rpm
Height coverage	32 000 ft
Elevation coverage	-1°....+40° standard, mechanically adjustable
Number of elevation beams	2 (Tx: Composite Beam; Rx Cossec ² Beam, Pencil Beam)
Plot accuracy	
- Range	<30 m bias <60 m rms
- Azimuth	<0,02 deg bias <0,1 deg rms
Resolution (same target size)	
- Range (same azimuth)	<120 m (Probability of resolution=80%, for S/N>30dB)
- Azimuth (same range)	<2.9 deg (double 3dB beam width at max. gain beam direction) (Probability of resolution=80%, for S/N>30dB)
Number of operational frequencies	2 simultaneously used operational frequencies
Subclutter visibility	≥60 dB (long pulse range, PD =80%, PFA ≤10 ⁻⁶ , Sw1 target, radial velocity 20..700 knots)
Polarisation	linear and circular
Processing channels	Dual channel architecture fully independent channels with intra channel data fusion
Weather channel	Six level intensity classification according to U.S. National Weather Service. Format ASTERIX CAT 008
Number of tracks (sensotracker)	up to 800
Number of false tracks (sensotracker)	1 track per minute (within specified clutter conditions, maps adapted to radar environment)
Function Monitoring	Online test with internal signals and external targets Long term noise monitoring
Mean Time Between Critical Failure (MTBCF)	better than 35000 h
Mean Time to Repair (MTTR)	< 25 minutes, average
Operational Availability	greater than 99%

ASR-NG® SPECIFICATIONS

MSSR 2000I DR Specifications

Type	MSSR 2000 I DR 500W
Modes	Mode 1, 2, 3/A, C Mode 4 Mode S enhanced surveillance, Mode S Clustering Mode 5 Level 1 and Level 2 AIMS 03-1000A Certified ADS-B
T _x Frequency	1030±0.01 MHz
R _x Frequency	1090±12 MHz
Rmin	0,125 NM
Instrumented Range	150 NM
Coverage	> 70.000 ft
Elevation range	-5 ° up to + 50 °
Transmitter	Independent Sum and Omega, Solid State
P _{out}	>500 W (typ. 1000W max)
R _x	3 Channels, half angle Phase-Monopulse
Target Load	> 1000 Tracks / Scan
Range Accuracy SSR	≤ 30 m
Range accuracy mode S	≤ 15 m
Range resolution SSR	≤ 75 m
Range resolution Mode S	= 0 m
Azimuth accuracy	≤ 0,05°
Azimuth resolution SSR	≤ 0,72°
Azimuth resolution Mode S	= 0 °

Quality makes the final cut : from meeting operational needs to providing customized solutions in the attempt to offer compelling reasons for consumers to purchase our product

<p>Meeting Operational Needs</p>	<ul style="list-style-type: none"> • Low risk, fully compliant system solution incorporating a modern field proven radar system that meets or exceeds the PSR/SSR operational requirements. • Fully dual redundant radar system and comprehensive BITE ensuring highest level of system availability and reliability
<p>Radar and ATC Experience</p>	<ul style="list-style-type: none"> • Cassidian Team highly experienced in the delivery and support of complex radar systems and Project Management. • Cassidian has installed, supported or upgraded hundreds of military X, C, S and L Band radars including ATC radars and MSSR at installations around the world.
<p>Superior Performance</p>	<ul style="list-style-type: none"> • Superior detection and tracking performance in all clutter environments including wind farms and adverse weather. • >90% probability of detection of a 1sqm Swerling 1 target at 80 nm at 32,000 ft (PSR) and >99% probability of detection within operational coverage using the standard -90 dBm tangential sensitivity of the MSSR 2000 I receiver (SSR). • All Mode SSR including Mode 1, 2, 3/A ,C, 4,5 S Elementary and Enhanced Surveillance certified interrogator. • Advanced signal and plot processing coupled with sophisticated tracking technologies leading to a false track rate of close to zero. • Small target detection and track including UAV's, gliders, ultra light planes.
<p>Experienced Team</p>	<ul style="list-style-type: none"> • Strong integrated ATC/ATM team with unequalled combined experience delivering ATM system solutions and services • In depth experience successfully managing civil ATC contracts. • Highly applicable, qualified, resident, system integration and support experience around the world.
<p>Project Commitment</p>	<ul style="list-style-type: none"> • Established, proven processes ensure project success. Continual process improvement including obsolescence management and avoidance. • Leveraging an active full rate production line for on time delivery and low risk schedule.
<p>Low Cost Of Ownership and Fix Price In-Service Support</p>	<ul style="list-style-type: none"> • Field Proven Reliability, Maintainability, Availability. • Proven, established product sustainment approach that provides path to high Ao and extended service life for PSR/SSR. • Upfront fix price logistic support contracts can be negotiated to support predictability of complete Life Cycle Costs and allow decision for most efficient Logistic Support Concept.

From Key Features to Benefits

KEY FEATURES	BENEFITS
Wind Farm/Turbine Mitigation	<p>The ASR-NG® implements highly sophisticated algorithms to suppress false targets in windfarm areas but more importantly ensures actual aircraft plots are not classified as wind turbine reflections and permit tracking of even the smallest or slowest targets over windfarms.</p> <p>Reflections created by wind farms can also be an issue for an MSSR. The MSSR 2000 I will operate in Mode S providing a significant mitigation to this issue compared to standard SSR operation, as targets are only selectively interrogated. Mode S reflection due to obstacles such as wind farms seldom if ever occur as the interrogation is only transmitted into the direction of the target rather than all around.</p>
BITE	<p>Fault detection and isolation is provided down to LRU level. Excessive diagnostic functions for failure localisation and performance monitoring.</p> <p>BITE provides more than 1000 status indications in order to derive the health status of each unit/subsystem/system and to support sophisticated redundancy management.</p>
System Redundancy	<p>High degree of redundancy to provide a maximum level of system availability. Redundancy management scheme provides continued operation even in case of multiple failures within the target channels</p>
Bird Detection Channel	<p>Detection of bird migration based on image processing and pattern recognition. Format ASTERIX CAT 008</p>