

AIR SURVEILLANCE & TRACKING RADAR

MFSR-2100



The Weibel MFSR-2100 combines a very advanced phased array 3D surveillance radar with a highly accurate tracking radar in one radar with full dome coverage.

CAPABILITIES

The MFSR-2100 is a range of 3D air surveillance and tracking radars for medium to long-range surveillance and tracking. The MFSR-2100 enhances the capability of traditional air surveillance radars, especially in the detection and tracking of small targets flying at low altitudes – making it the ideal choice for fighting criminals as well as military threats.

MEDIUM AND LONG RANGE

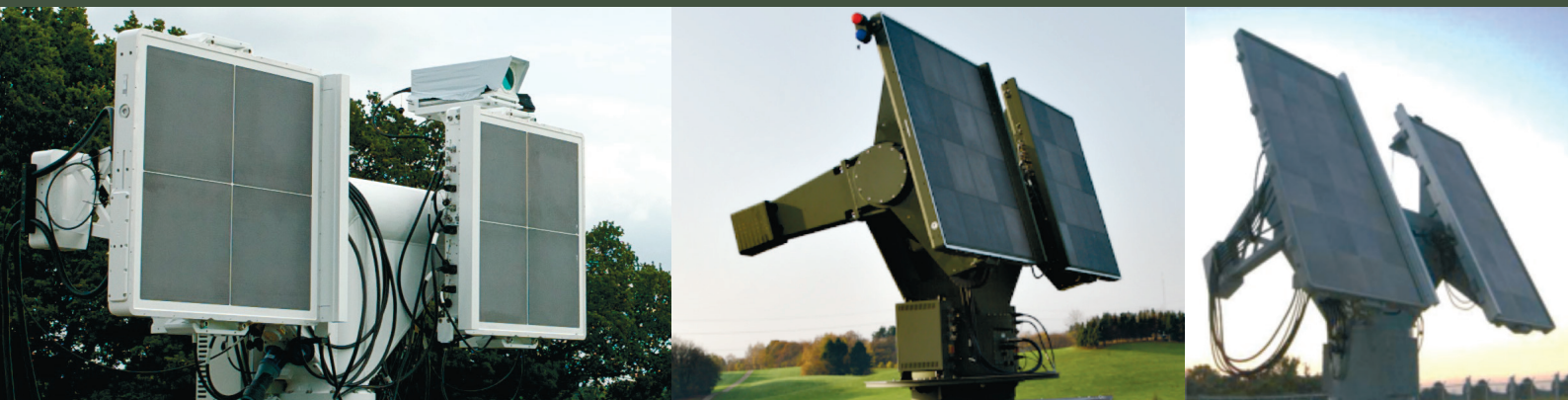
The MFSR-2100 radar is available in different sizes to match customer range requirements and budgets. Two medium-range and one long-range radar are available as standard.

ACCURATE TARGET DETECTION

The simultaneous use of X-band frequencies and FMCW/CW waveforms provides superior detection of small targets such as drug smuggling aircrafts and drones as well as fighters and helicopters. The CW waveform uniquely suppresses clutter and very low flying targets can no longer "hide below the radar".

FULL COVERAGE

The radar provides full dome coverage over the top, by mechanical steering of the radar antenna.



MULTI-PURPOSE OPERATION

The MFSR-2100 provides a unique combination of both surveillance and tracking radar. For detected targets, the radar enables switching into tracking mode either for fire direction of a weapon system or for intelligence collection of suspicious flight behavior.

EARLY WARNING DETECTION

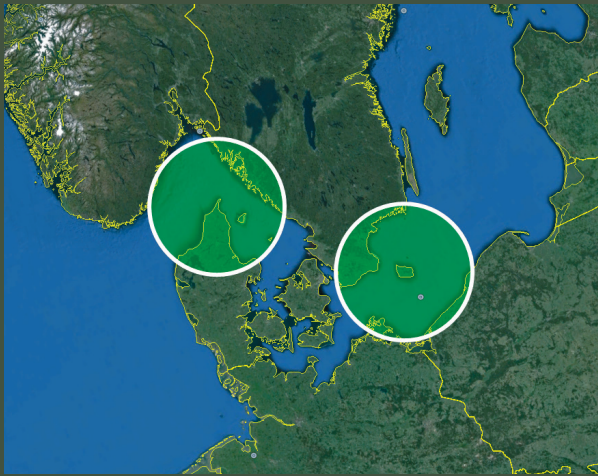
The MFSR-2100 provides early warning detection capability. Based on a set of rules the radar will switch to verification mode for all fast targets, enabling the creation of an early warning track output for use in C2/display system.

PATENTED TECHNOLOGY

Weibel's patented combination of FMCW and CW waveforms in one radar is the foundation for the MFSR-2100's unique performance and many satisfied customers.

The MFSR-2100 family of radars builds on proven technology with more than 150 radar systems delivered to more than 40 countries all over the world.

TECHNICAL SPECIFICATIONS



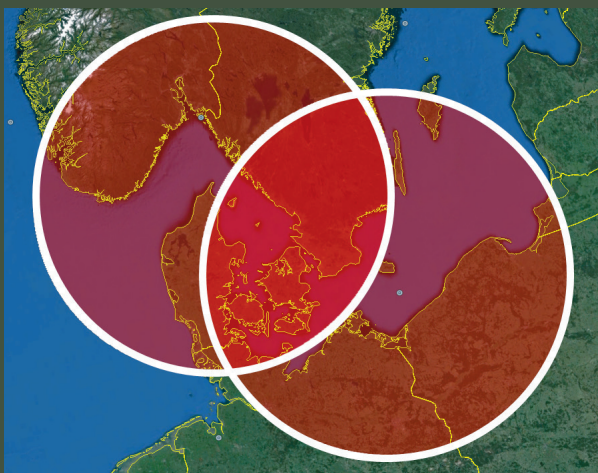
MFSR-2100/39

- Instrumented range: 150 nmi (275 km)
- Range for fighter*: 75 nmi (135 km)
- Antenna speed: 0 - 10 rpm
- Accuracy
 - Range**: 1 - 5 m
 - Azimuth/elevation: < 0.2 degree
 - Velocity: < 1 m/s
- Range resolution**: 15 - 200 m
- Coverage
 - Azimuth: 360 degrees (continuous)
 - Elevation: -10 to +190 degrees



MFSR-2100/45

- Instrumented range: 200 nmi (370 km)
- Range for fighter*: 150 nmi (275 km)
- Antenna speed: 0 - 10 rpm
- Accuracy
 - Range**: 1 - 5 m
 - Azimuth/elevation: < 0.1 degree
 - Velocity: < 1 m/s
- Range resolution**: < 15 - 200 m
- Coverage
 - Azimuth: 360 degrees (continuous)
 - Elevation: -10 to +190 degrees



MFSR-2100/48

- Instrumented range: 300 nmi (550 km)
- Range for fighter*: > 200 nmi (370 km)
- Antenna speed: 0 - 6 rpm
- Accuracy
 - Range** : 1 - 5 m
 - Azimuth/Elevation: < 0.1 degree
 - Velocity: < 1 m/s
- Range resolution**: 15 - 200 m (waveform dependent)
- Coverage
 - Azimuth: 360 degrees (continuous)
 - Elevation: -10 to +190 degrees

Range circles apply to a fighter with RCS of 2m²

*Fighter is RCS of 2m² at Pd = 80 % under ideal conditions.

**Waveform dependent.

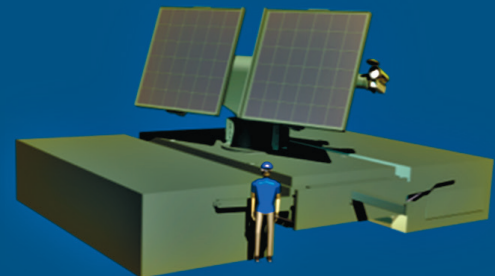
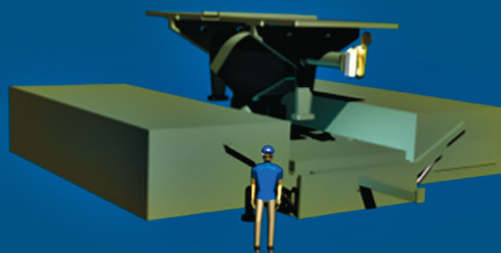
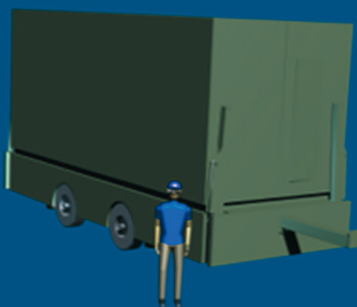
SWIFT AND RAPID RADAR DEPLOYMENT

The MFSR-2100 is the market's most scalable and mobile radar solution for air surveillance. The radar is simple to deploy – set-up and tear-down takes less than 1 hour by a two-man crew.

The trailer solution is equipped with an automatic hydraulic self-levelling system contributing to the simple deployment and high accuracy of target tracking in the radar.

The MFSR on a trailer is towable by a general purpose truck to obtain a high degree of mobility and flexibility in deployment. The truck may be equipped with a shelter (20 ft. container) for local operation or command and control of the radar.

During transportation, the radar may be covered by a tarp or by Weibel's clamshell solution. The clamshell solution is a remotely operable solution that provides the best cover for the MFSR.



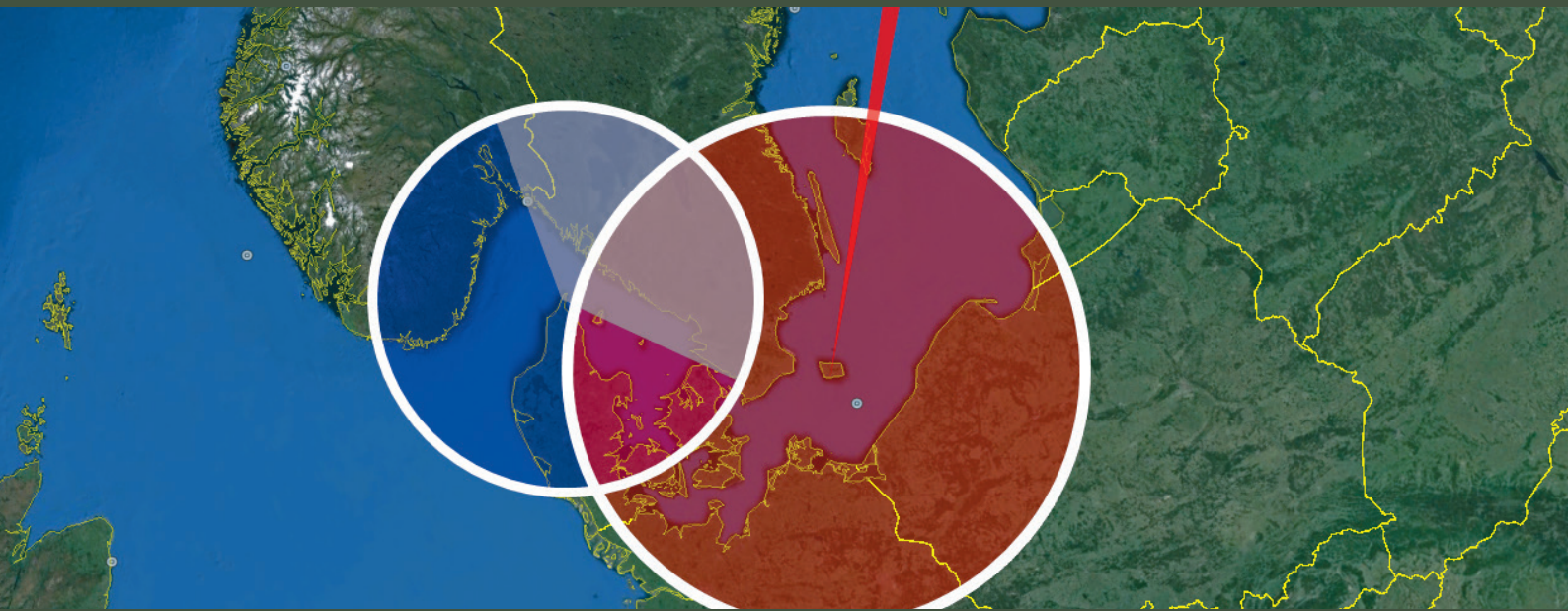
MFSR-2100/48 dB with clamshell cover.

APPLICATION

- Airspace surveillance
- Detection of asymmetric threats
- Monitoring of UAV/drones
- Ground based air defense (GBAD)
- Fire direction
- Military ATC

BENEFITS

- Small target detection (UAV/turboprop/fighter)
- Low altitude detection
- Surveillance and fire director in one radar
- Full dome coverage
- Automatic remote operation
- Trailer-based mobile solution available
- Integration with IFF for identification



45 dB radar conducting sector blanking, and 48 dB radar conducting tracking.

FEATURES

ECCM

A strong focus on ECCM is a fundamental design criteria in all Weibel's radars and the MFSR-2100 radar includes the following inherent ECCM capabilities:

- Frequency diversity
- Frequency agility
- Jamming analysis – least jammed
- Silent mode/sector control
- Side lobe suppression

REMOTE OPERATIONS

- Fully remote operation capable
- > 60 days of continuous remote operation

AFFORDABILITY

- Modular design
- Based on COTS product line
- Short delivery schedule

RELIABILITY

- Proven and fielded technology
- MTBCF: > 3,000 hours
- Graceful degradation

SERVICE & SUPPORTABILITY

All parts of the radar are designed, manufactured and tested by Weibel, ensuring full control of quality and spare parts. Weibel offers full obsolescence management and guarantees 20 years of in-life support.

OUR RADARS

"Too many times, we have seen how overcomplicated systems fail. From the very beginning, our focus was to make the construction of our tracking radars as simple and durable as possible to withstand many years of wear and tear.

We can proudly say that we have succeeded; we have come up with the most effective and easy-to-use radar in the world."

Peder R. Pedersen
President & CEO



ABOUT WEIBEL SCIENTIFIC

Danish Weibel Scientific is the global leader in the market for advanced Doppler radar systems. For more than 35 years, we have sold cutting-edge radars around the world for use in space, aerospace, defense and missile defense systems. We have delivered more than 4,000 radars to more than 40 countries, and our radars have secured safety for NASA astronauts since 2005.

In 2015, Weibel entered into a strategic partnership with Lockheed Martin, the world's largest supplier to the defense industry. The partnership is a seal of approval for Weibel's advanced and innovative radar technology to contribute to missile defense all over the world.

www.weibel.dk

