TRACKING RADARS

The MFTR & MSTS product family

Weibel's Doppler 3D tracking radars are designed for precise measurements of free-flying objects such as projectiles, artillery rounds, and rockets. The systems are highly effective for detailed debris tracking, range safety tests, missile tests, and space launches.

WEIBEL
DOPPLER RADARS

CAPABILITIES

Weibel's tracking radars are phased array X-band CW, MFCW and FMCW radar systems consisting of state of the art phased array Doppler radar antennas, high performance pedestals, real-time multi-object tracking processors and state of the art waveform generators, all controlled from the operator console.

RUGGEDIZED DESIGN

With the combination of ruggedized mechanical structures and robust electronic design, the system is highly reliable and resistant to blasts and vibrations.

SIMPLE OPERATION

All calibrations, planning and execution activities can be handled by a single operator from a local or remote console.

MAN-PORTABLE, MOBILE OR FIXED

Depending on the specific radar model, Weibel offers from small two-man portable systems to large trailer-, ship- or land-based systems.

ENHANCED WAVEFORM PROCESSING

Newly developed Range Doppler processing techniques allows detection and tracking of targets in high clutter environments. Enhancing the radar capability for simultaneous range and velocity tracking and improved target separation.

ADVANCED INTEGRATION

All system communication takes place using modern Ethernet network configurations. The systems also supports a multitude of physical connections and data protocols for target designation.

AVAILABLE DATA

The tracking radar systems measure velocity, range, azimuth angle, elevation angles, debris, spin acceleration, and micro Doppler to multiple targets in real time; supplying the operator with real-time TSPI data of any free-flying objects.

PROVEN CAPABILITIES

The system offers a unique proven capability of accurately tracking moving targets and ammunition, not only for testing purposes, but also for range safety applications.

Typical targets include:

- Small and medium calibre size projectiles
- Large-scale artillery rounds
- Rockets and missiles
- Aircraft, helicopters, fighter jets and drones
- Debris

Since 2017 Weibel has been a main supplier for the Range Radar Replacement Program (RRRP) and have delivered 10+ tracking radar to the US defence. Since 1988, Weibel has delivered several hundred tracking radar systems throughout the world.

INTELLIGENT SOFTWARE

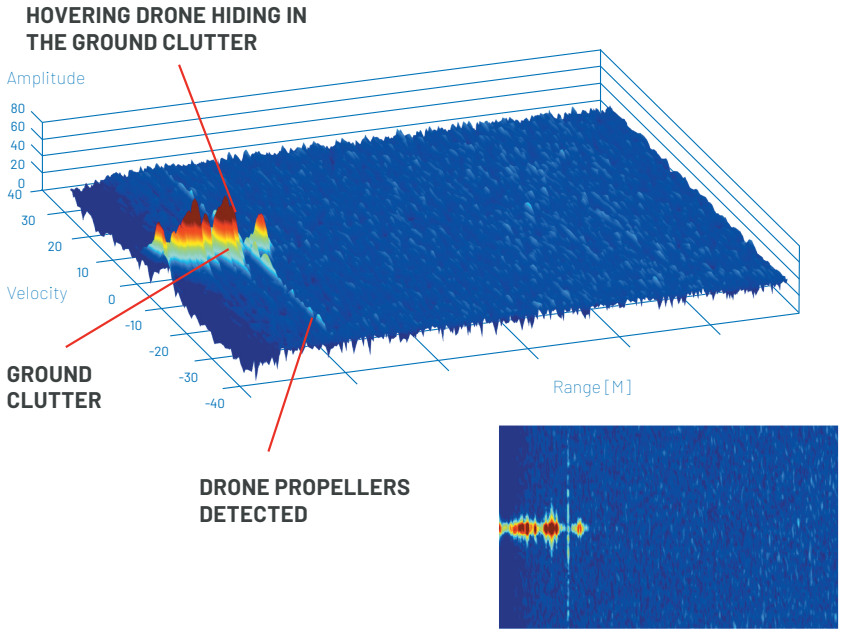
The intelligent user interface allows either manual or automated control of the system's antenna opening angles, waveforms, power output, servo modes and data-processing algorithms. It works either as a simple configuration for an inexperienced operator or as an advanced mission scenario created by a system specialist.

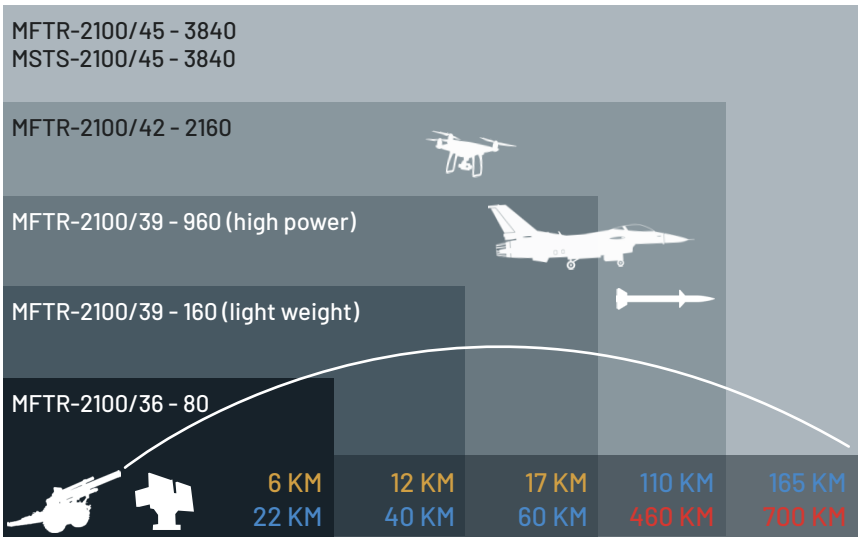
TRACKING RADAR SERIES						
MODEL TYPE	**MFTR-2100 36-80**	**MFTR-2100 39-160**	**MFTR-2100 39-960**	**MFTR-2100 42-2160**	**MFTR-2100 45-3840**	**MSTS 2100 45-3840**
Max Tracking Range[1]	100 km	160 km	250 km	460 km	700 km	700 km
Velocity Accuracy[2]	< 0.1 m/s					
Range Accuracy[2]	< 1 m					
Angle Accuracy[2]	< 1 mrad		< 0.3 mrad		< 0.15 mrad	
Antenna Gain	36 dB	39 dB	39 dB	42 dB	45 dB	45 dB
Transmit Power	80 W	160 W	960 W	2160 W	3840 W	3840 W
Target Velocity	+/- 10,000 m/s					
Pedestal Azimuth movement	+/- 185°		360° (Continuous rotation)			
Pedestal Elevation movement	-20 to +200°				-10 to +190°	
Angular Velocity	Up to 50°/sec				Up to 30°/ sec	Up to 60°/ sec
Additional Sensor stations	2			4		
Mounted	Tripod		Mobile or stationary			
Deployment	Two-man portable, less than one hour set-up time		Two-man operation, less than one hour set-up time			

1: Range calculations based on clear weather conditions at 10 degrees elevation using a single frequency and an observation time of 100 msec for a 1 m2 target
2: Accuracy calculated at half the maximum tracking distance

RANGE DOPPLER PROCESSING

- New development for the Weibel Radars
- Involves fast sweeping FMCW waveforms and advanced processing techniques
- Allows the radar to track and separate targets simultaneously in range and velocity
- Enhanced the tracking capabilities of slow moving targets such as drones
- Possibility to track target propeller movement or other Micro-Doppler phenomenon





Range for a -47dBm2 target, corresponding to a 5.56mm projectile.
Range for a -25dBm2 target, corresponding to a 155mm projectile.
Range for a 0dBm2 target, corresponding to a 1m2 RCS object.

Range calculations based on clear weather conditions at 10 degrees elevation using a single frequency and an observation time of 50 msec.

TAILORED TO YOUR NEEDS

The scalability of the tracking radar series enables our customers to select just the right solution for the job. From two-man portable to large trailer based systems; all are available as COTS items.

All Weibel's radar systems are guided by a building block production principle, which makes after-sales upgrades easy to handle. For instance, you can easily order a range upgrade for a smaller system, exchange low power antennas for a high power version, upgrade your radar with a trailer, or change optical sensors. All of this falls within the day-to-day job of our after-sales support group.

Long-term support is a cornerstone in the Weibel mentality – we provide logistic and operational support for older as well as new systems. Obsolescence management and in-life support are Weibel virtues that ensure a system evolution tailored to your needs.

WHAT OUR CLIENTS SAY

"Thank you for your gracious offer to meet with me on short notice and show me your impressive facilities. Today, I saw what people have told me for years; Weibel is a finely tuned machine, focused on quality and innovative engineering. I would have to add that it is well-led and has an impressive work force."

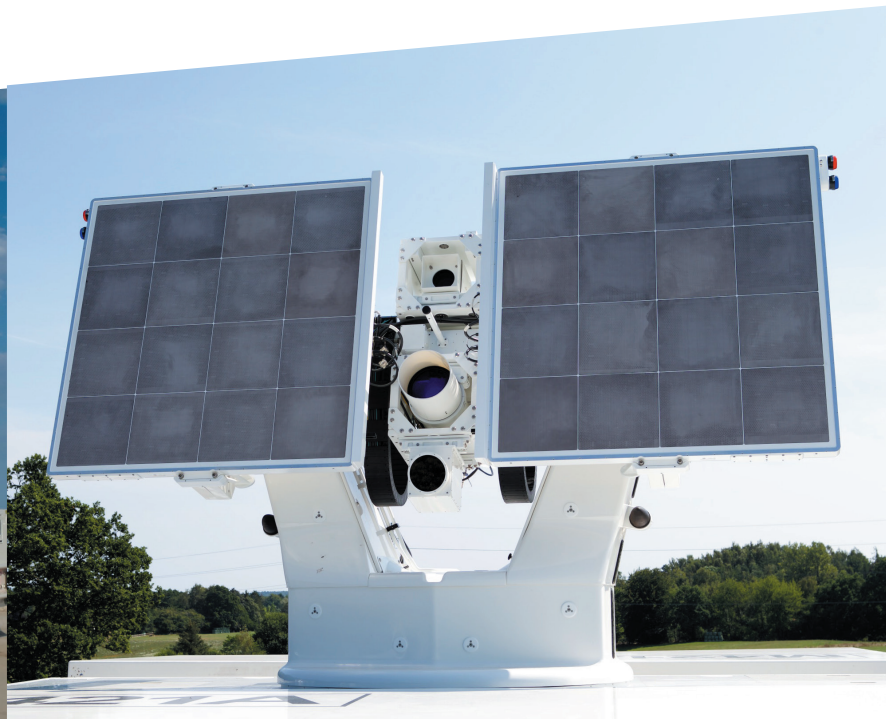
Steve Williams, Regional President at Lockheed Martin

"It's been a pleasure working with the Weibel team. It's difficult to imagine a better after-sales service than that provided by Weibel."

Bengt Löfgren, SAAB Bofors Test Center

"We are pleased to inform Weibel Scientific that in accordance to our Quality Management System and having reviewed the company data, your results are as follows: Quality Index: 100%, Delivery Index: 100%."

Santos Roman Jimenez, Quality Manager at General Dynamics



OUR RADARS

"As appointed CEO of Weibel, my ambition is to bring Weibel to the next level. Weibel produces the world's best and most advanced radars. From being the market leader in the instrumentation radar market we are currently entering the surveillance radar market where an even bigger market can utilize Weibel's superior technology. To achieve this, we will continue to exceed our customers' needs."

Peter Røpke,
CEO & President

ABOUT WEIBEL SCIENTIFIC

Danish Weibel Scientific is the global leader in the market for advanced Doppler radar systems. For more than 40 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 5,000 radars to more than 40 countries.

As a key approach to ensuring high-quality logistics support, Weibel designs and builds all critical units in-house. In-house design and manufacturing mean that with the exception of standard components, Weibel is independent of sub-suppliers for the manufacturing of both prime equipment and spares. In this way, we are able to offer fast and guaranteed through-life support.

Read more at weibelradars.com

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DOPPLER RADARS