# GAP FILLING TRACKING RADAR

## GFTR-2100

The unique technology in the GFTR-2100 offers precise data and discrimination at very long ranges extending the engagement envelope against ballistic missiles. These advanced capabilities can close gaps in the existing sensor grid against ballistic missiles – when hitting bulls eye is mission critical.

WEIBEL
DOPPLER RADARS

# WHY THE GFTR-2100?

GFTR-2100 is one of the most advanced radars in the world, with more functions at a better price and capabilities tailored to strengthen ballistic missile defense systems.

## EXTENDED ENGAGEMENT AREA

GFTR-2100 measures accurately at very long ranges, allowing the ballistic missile defense to protect much larger areas. Higher precision over greater distances means that the range of the radar will not limit the range of engaging missiles, as is the case with existing radars.

## DISCRIMINATION

The GFTR-2100 can simultaneously track and discriminate objects in the target cluster when a missile separates from the booster and the carrier splits into one or more warheads. Accurate discrimination increases the probability of hitting the wa the first time.

## IDENTIFICATION

Radar imaging using the advanced technology helps identify the type of incoming missile. This increases the discrimination capability and thus the likelihood of hitting the right object in one strike.

## FLEXIBLE AND MOBILE

The GFTR-2100 is the most scalable and mobile radar solution for ballistic missile defense in the market. The radar can easily be scaled up, is simple to deploy and works both on land and at sea. The radar is mobile and can be deployed to a new position in less than 48 hours. US Navy, for example, has one radar that is moved between 8 ships around the world. Also, the GFTR-2100 can be operated fully on remote.

## DEBRIS TRACKING

Due to the accurate long distance tracking ability of the GFTR-2100, it is possible to predict the debris area and reduce collateral damage from fallout. Data from the GFTR-2100 makes it possible to track and collect debris.

## RAPID RADAR DEPLOYMENT

The GFTR-2100 is simple to deploy; it is easy to set up and tear down, and it can be powered up within minutes. This significantly reduces strategic vulnerability.

# TECHNICAL SPECIFICATIONS

**GFTR-2100/48**

- Range: 1,400 km*
- Target velocity: +/- 10,000 m/s
- Measuring accuracy at 750 km
  - Range: <0.5 m
  - Angle: <0.1 mrad
  - Velocity: <0.1 m/s
- Range resolution: 1 m
- Velocity resolution: 1 m/s
- Beam width: 0.67 degree
- Antenna movement
  - Azimuth: 360 degrees (continuous)
  - Elevation: -10 to +190 degrees

**GFTR-2100/51**

- Range: 2,200 km*
- Target velocity: +/- 10,000 m/s
- Measuring accuracy at 1,000 km
  - Range: <0.5 m
  - Angle: <0.1 mrad
  - Velocity: <0.1 m/s
- Range resolution: 1 m
- Velocity resolution: 1 m/s
- Beam width: 0.5 degree
- Antenna movement
  - Azimuth: 360 degrees (continuous)
  - Elevation: -10 to +190 degrees

**GFTR-2100/54**

- Range: 4,000 km*
- Target velocity: +/- 10,000 m/s
- Measuring accuracy at 3,000 km
  - Range: <0.5 m
  - Angle: <0.1 mrad
  - Velocity: <0.1 m/s
- Range resolution: 1 m
- Velocity resolution: 1 m/s
- Beam width: 0.33 degree
- Antenna movement
  - Azimuth: 360 degrees (continuous)
  - Elevation: -10 to +190 degrees

*1 $m^2$ target, 100 msec dwell, no atmospheric loss, 15 dB detection level.

# PROVEN TECHNOLOGY

The GFTR-2100 radar is based on proven technology that Weibel has delivered to NASA since 2005 and to US Navy since 1999, among others.

More than 40 countries, including the US Department of Defense, currently use Weibel radars when testing and deploying weapon systems. As capability provider to US Navy SSP for more than a decade, Weibel has measured on more ballistic missiles than any other radar supplier in the world.

The Weibel GFTR-2100 radar is the first radar in the world to combine advanced Doppler and pulse technology in one radar, offering high-precision tracking and unique discrimination capabilities to ballistic missile defense.

In 2015, Weibel entered into a strategic partnership with Lockheed Martin, the world's largest supplier to the defense industry. The partnership aims to integrate Weibel's unique radar technology with Lockheed Martin's ballistic missile defense systems.

# 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."

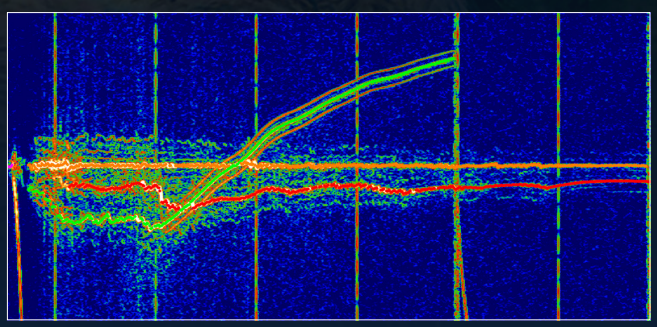
Steve Williams, Regional President at Lockheed Martin

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

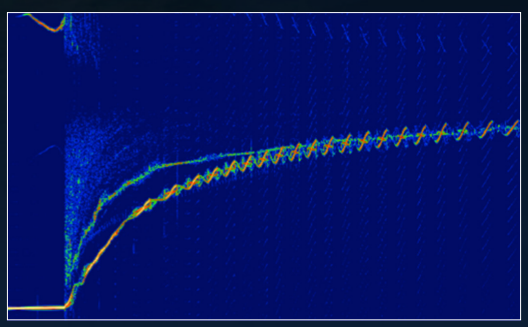
Bengt Löfgren, SAAB Bofors Test Center

"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



Crossing multi object tracking



Impact, kill assessment and debris tracking

# 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

WEIBEL
DOPPLER RADARS