



Future Soldier – Countering Emerging/Future Threats 3D RADAR MULTI-SENSOR

by



AUTHORITIES' CHALLENGES

- Increasing number of intrusions on critical infrastructures, prisons, border crossings, etc.
- “New intruders”; UAVs and drones – remotely operated with video camera, explosives, etc.
- Available sensor coverage too short and update rate too slow
- Many radar based systems are too big and too heavy
 - Not suitable for smaller vehicles – requires trailers or trucks to become mobile
 - Not flexible – reducing the ability to adapt to change in the threat environment



THE WEIBEL/CST SOLUTION

3D RADAR MULTI-SENSOR ALL WEATHER SURVEILLANCE

- World's smallest 3D radar for very low level air surveillance (CW/FMCW)
- Laser illuminator & camera (EO sensor package can be changed)
- Advanced radar dual waveform tracking
- Slew-to-cue command from radar (via platform C2) to EO for ID
- Separate control of radar & EO head
- Flexible EO head - up to 6 payloads (RF jammer)

- **SUPERIOR RANGE PERFORMANCE**
- **HIGH UPDATE RATE**
- **DETECTION/SURVEILLANCE, ID & "FIRE DIRECTION"**
- **COMPACT LIGHTWEIGHT - HIGH MOBILITY - HIGH ADAPTABILITY**
- **LESS SYSTEMS TO PROVIDE EXTENDED AREA COVERAGE**



APPLICATIONS & BENEFITS

APPLICATIONS – USES

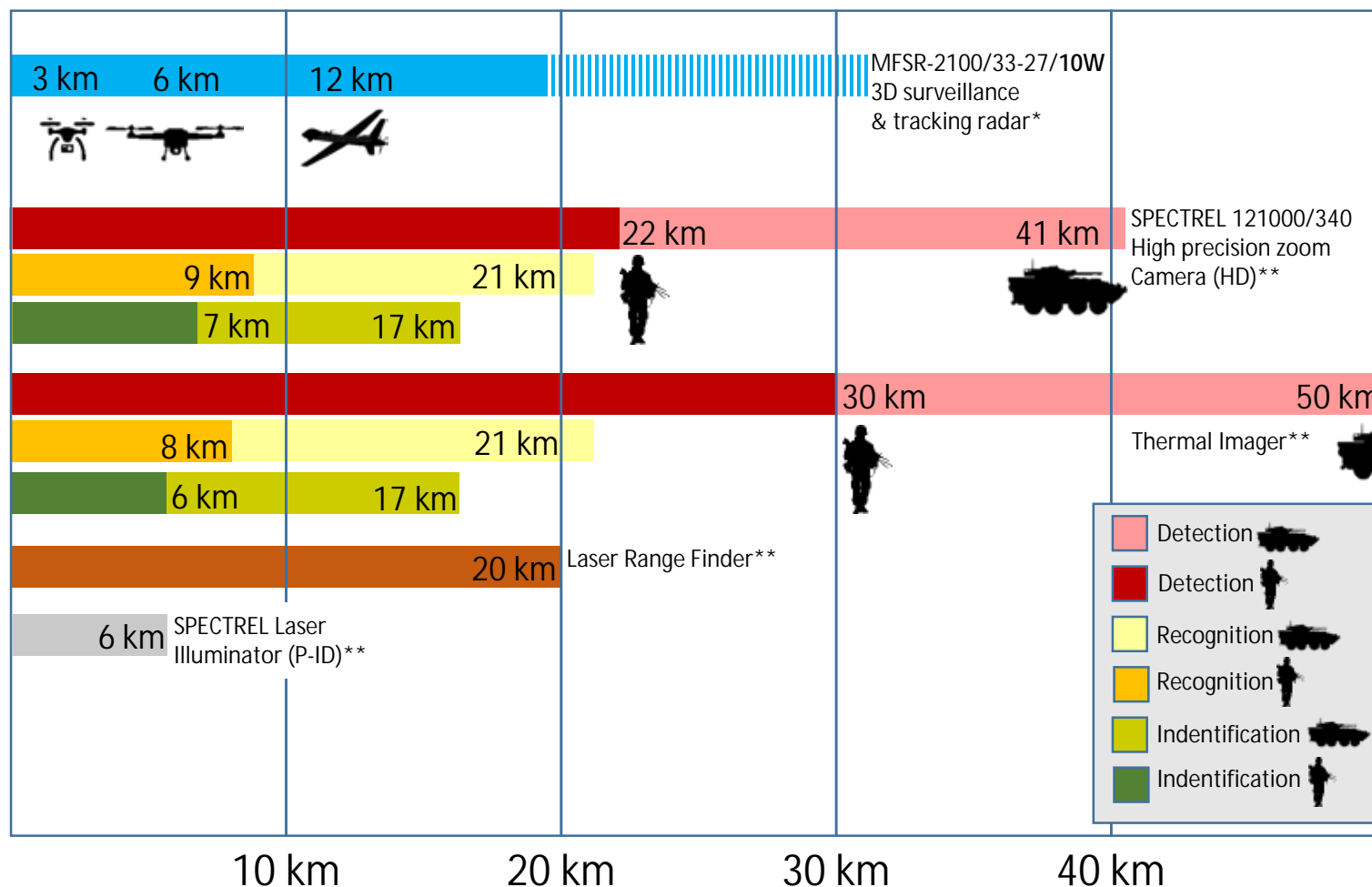
- Critical infrastructure protection (CIP) – homeland security
- Border protection – on land as well as along coast lines
- Camp perimeter protection; wide-area surveillance
- Intrusion detection & identification
- Situational awareness

BENEFITS

- All-Weather – true day & night ops
- Small target detection (down to micro drone size target)
- 360° radar & EO coverage – update rate ≤ 1 sec.
- Laser illuminator for easy identification
- Early warning detection & identification
- Network capable or stand alone



Sensor Performance Examples



*Detection ranges at fast update rate and under ideal conditions

**Conditions for SSIP program: Contrast=30%, Overcast daylight, Sky ratio=3, Visibility 80 km, 50% probability, NFOV 0.3° (H).

Dimensions Man: 0.45m x 1.7m. Vehicle dimensions NATO target: 2.3m x 2.3m

Weibel/CST proprietary

ECCM FEATURES (OPTIONAL)

LOW PROBABILITY OF INTERCEPT (LPI)

- Low power output due to high duty cycle, e.g. 10W

FREQUENCY AGILITY

- Auto random frequency hopping within band
- More than 100 frequencies are digitally selected

LEAST JAMMED

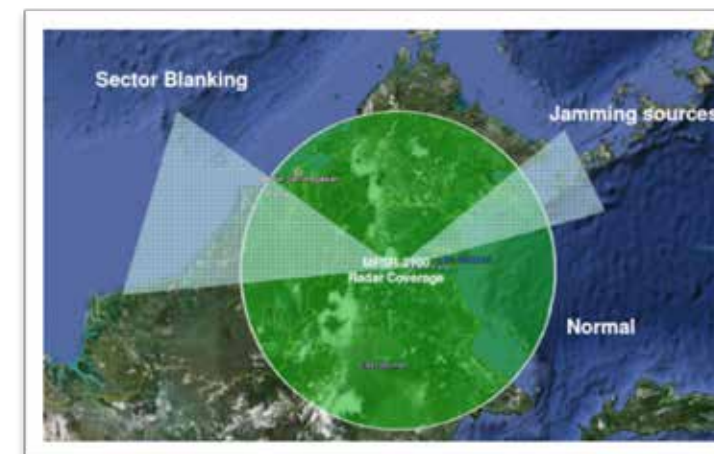
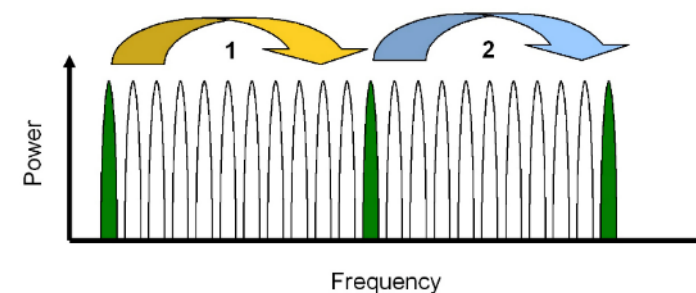
- Radar auto selects the least jammed frequencies

TRACK ON JAM

- Radar can track on jamming signal

SILENT MODE

- Built-in Emission Control (EMCON) – Radar Tx OFF
- Sector Blanking Mode
- Automatically or Manually by the operator



COMPACT DESIGN

- Compact lightweight design – weight pending on configuration
- Low power consumption; “plug-and-fight” capability
- Easy physical handling by three (3) operators

GROUND/VEHICLE INSTALLATION

- Easy installation on buildings, masts and vehicles
- Very mobile – direct mounting on vehicle – no need for trailer



INTERFACE OPTIONS

GUI/C2 OPEN PROTOCOL APPROACH

CST

- EO sensor – output to C2 platform.
- Pedestal incl./excl. rotary joint.

Weibel Scientific

- CW radar – output via rotary joint and RTP to C2 platform.

C2 provider (open for business)

- C2 platform;
 - Pedestal control,
 - Camera control (?),
 - Radar control (?),
 - Cue of EO sensor from radar data and vice versa
- Physical and graphic user interface, RTP housing etc.



SUMMARY

UNIQUE CAPABILITIES

- All-weather 3D surveillance & identification in one
- Continuous 360° surveillance with high update rate
- True day & night zoom camera with built-in laser illuminator
- Slew-to cue command from radar to EO head
- EO pan-tilt head for individual control in azimuth and elevation
- Accurate small target detection in 3D
- System flexibility; Up to 6 different payloads on the pedestal/EO pan-tilt
- Open for business/cooperation

“THE RMS TURNS ANY PLATFORM INTO A COUNTER DRONE SYSTEM”

