

MIL-EXIM - Teletechnika Consortium



Saker Portable ground
surveillance system



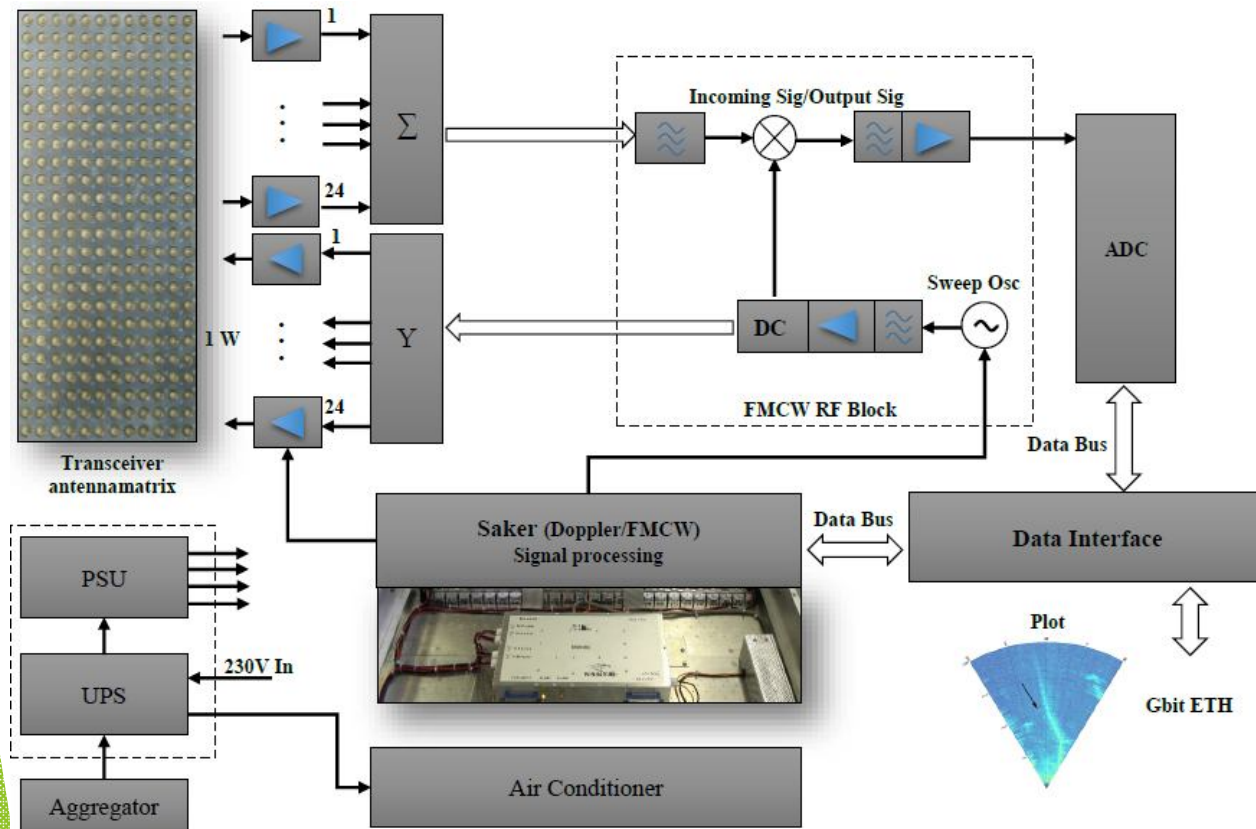
General description

SPSS - 1000 (Saker Portable Surveillance System)



- Short/medium/long range (4.5/9/18 km),
- Portable (62/27 kg)
- Without moving parts (scans 61 degree at 1 sec)
- Locate target on ground, near to ground or in the air
- Detects velocity, direction, coordinate, size and motion vector of the objects.
- It is capable to observe boarder, civil or military areas and buildings.
- Low power consumption, less than 60 Watts
- Only 2 interfaces: 100BASE-TX ETH and 10-36V supply

Radar basic architecture



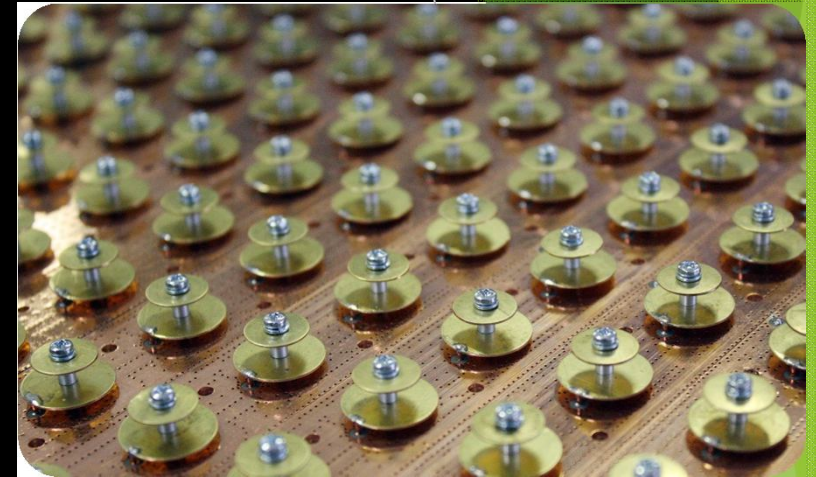
Main Parts:

- 1) Transmitter - receiver antenna array
- 2) Microwave unit
- 3) Signal processor
- 4) PSU Unit

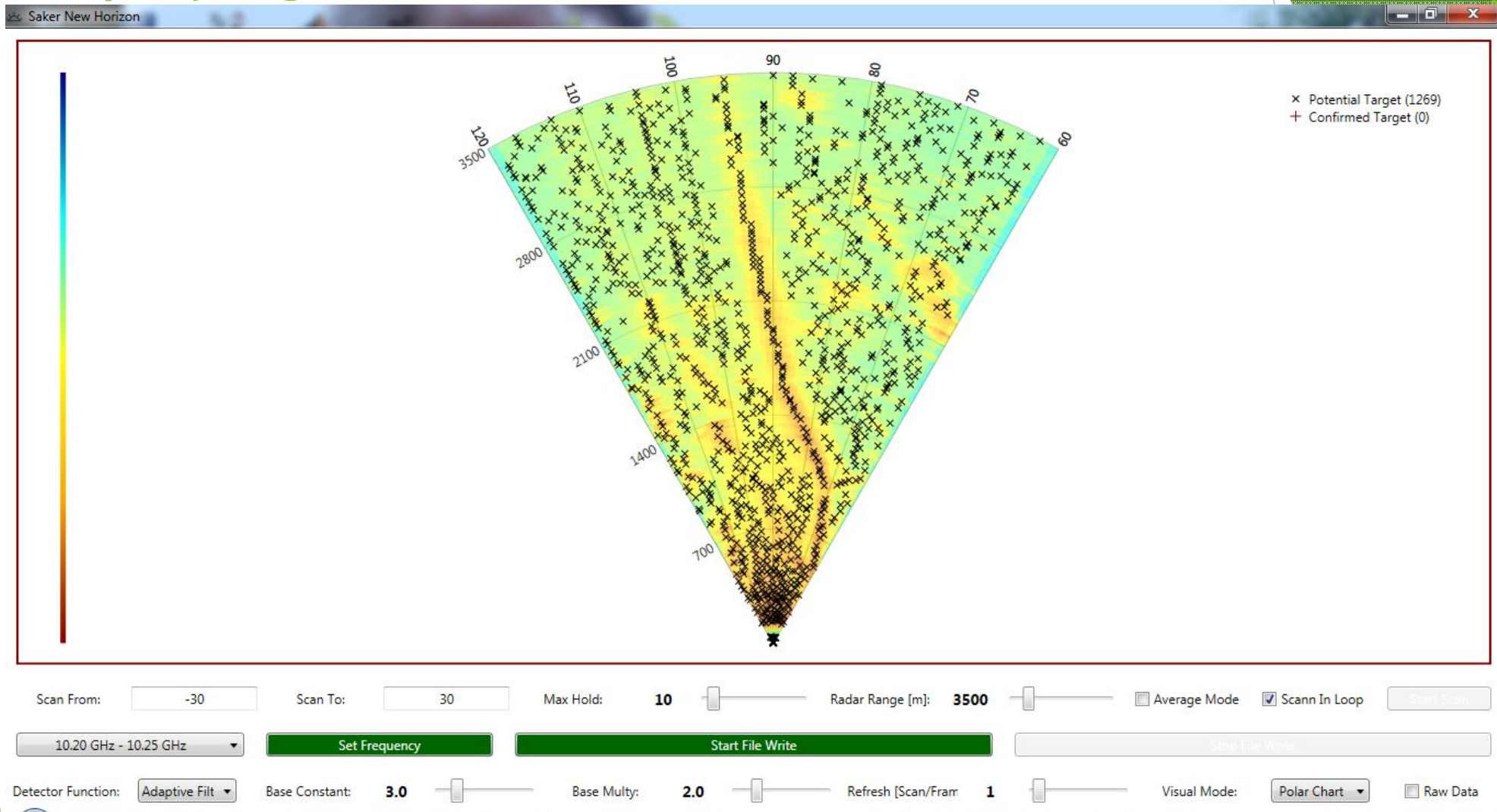
Operational parameters

	Min	Options	Max
Working frequency	9.8 GHz	50/85/100/170 MHz sweep and frequency hopping	10.45 GHz
Output Power	1 W	(10/50 W with impulse operation - optional)	50 W
Range of operation	150 m	User defined	18 km
Radial velocity detection	0.1 km/h	Continuous	≤ 150 km/h

Accuracy (target separation)	In azimuth: < 3°
Accuracy (target separation)	In Range: < 15m
Maximum Target Per Scan	> 100 potential targets
Target Capacity	10.000 targets can be controlled at the same time 1.000 individual targets can be tracked continuously
Sensitivity (single person ~ 0.5 - 1 m ² rcs)	Detectable about 6-8 km

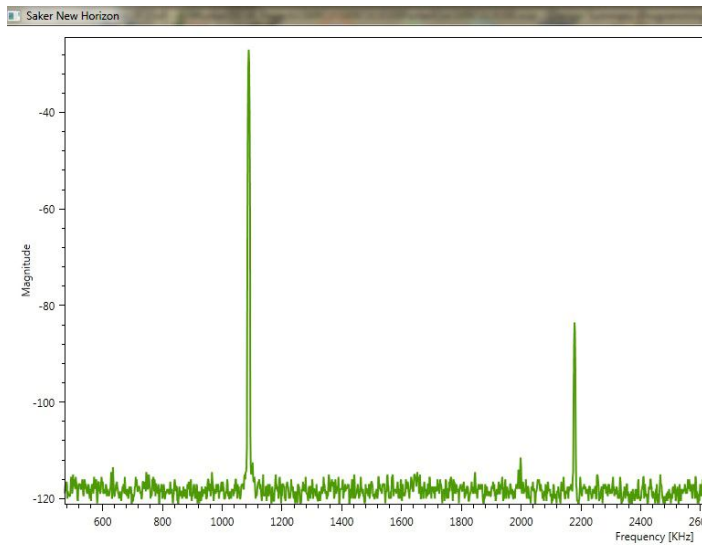


Displaying Unit Built-in service startup

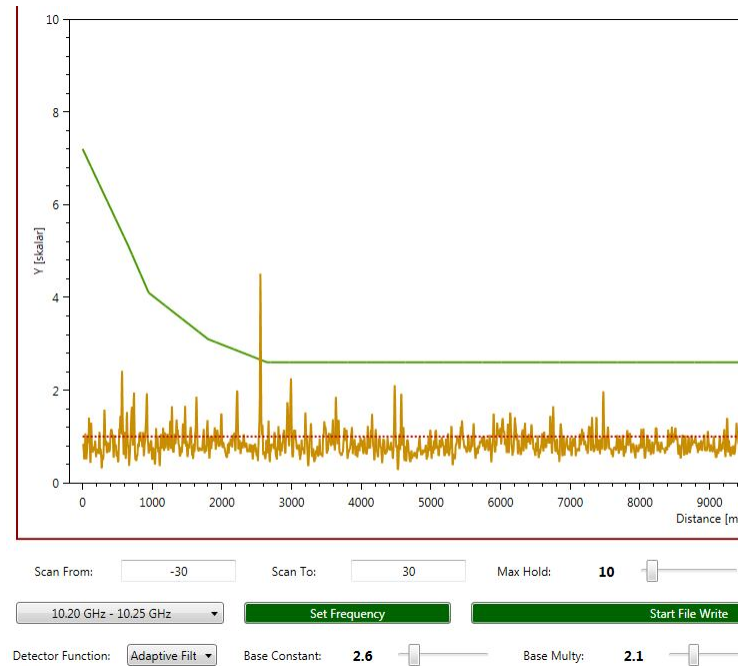


Below the surface

Radar works as a spectrum analyzer and more

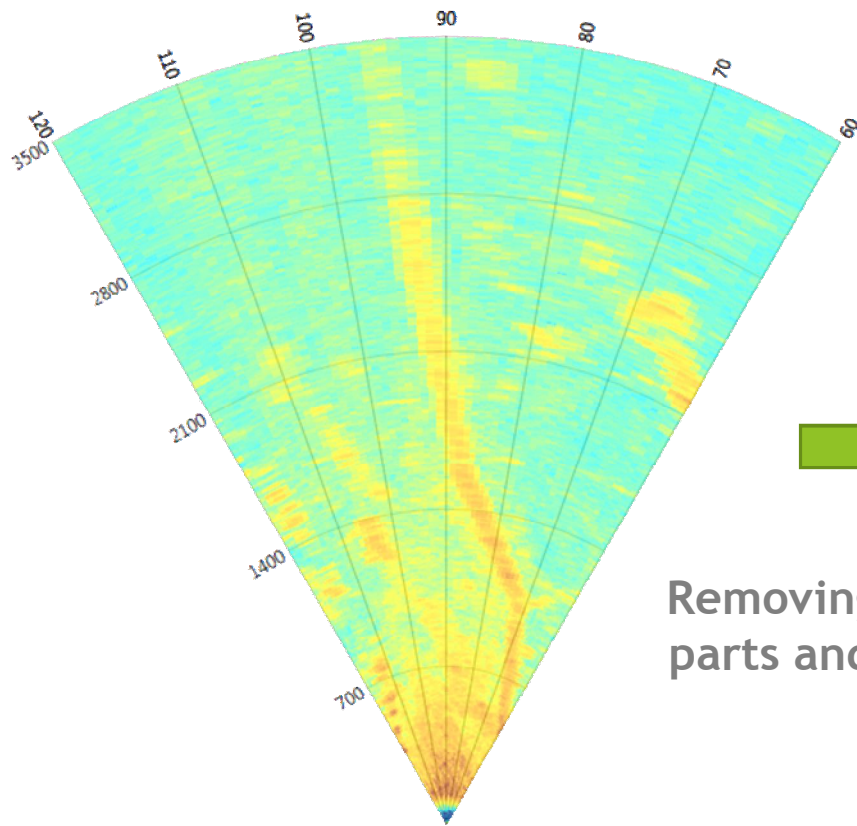


7 term Blackman - Harris function

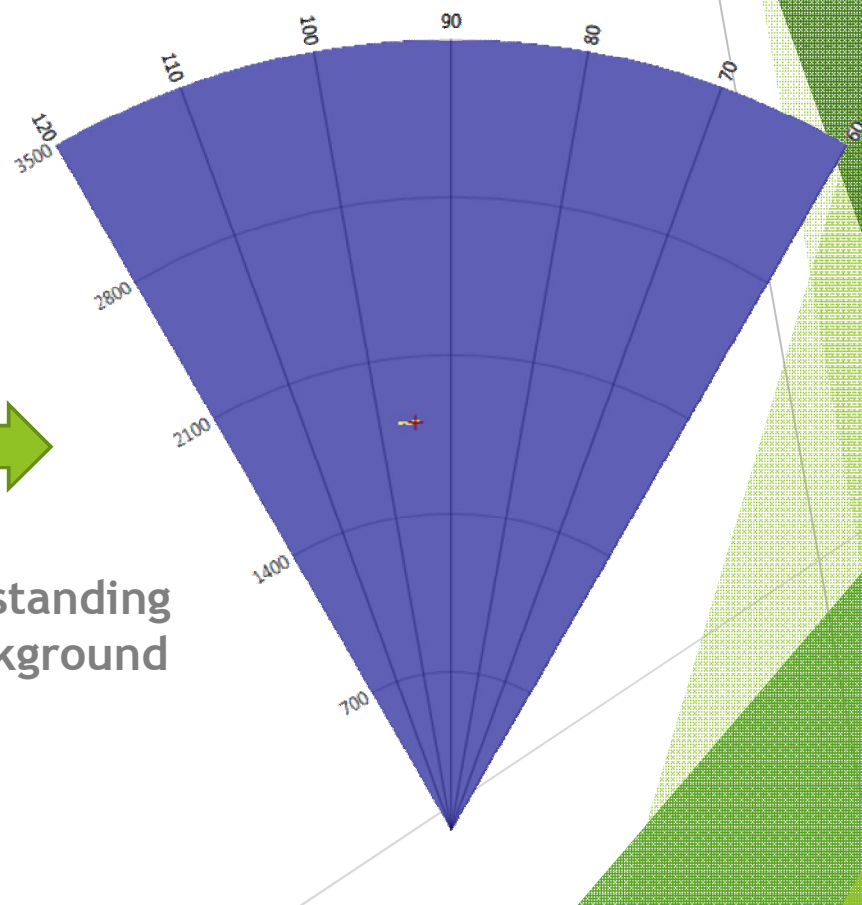


Clutter filtering

Raw data and detection



Removing all standing parts and background



Saker User Interface

Saker Controller

File View Help

Primary Map

Target parameters

Secondary Map

Setup panel

Target_01
N47,077519 E19,115278
Size: 2 m² (Small)
Speed: 10 Km/h
Course: 34 °
Distance: 2791 m
Angle: -6,2 °
Friend Target

Radar Setup

Auto Position: ☐

Lat:

Lng:

Bearing [°]:

Scann From [°]:

Scann To [°]:

Map Source One:

Map Source Two:

Radar Range:

Averaging:

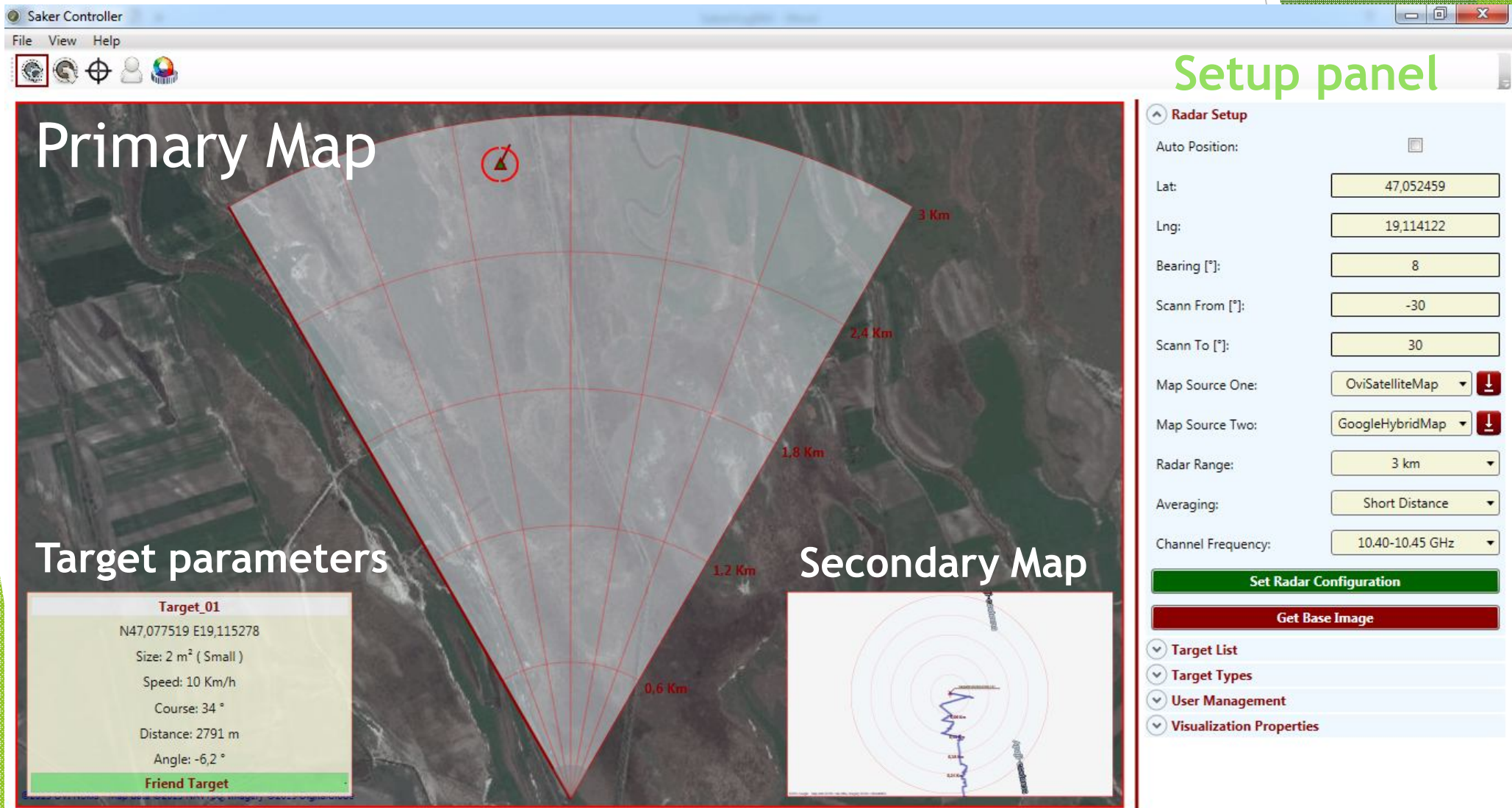
Channel Frequency:

☒ Target List

☒ Target Types

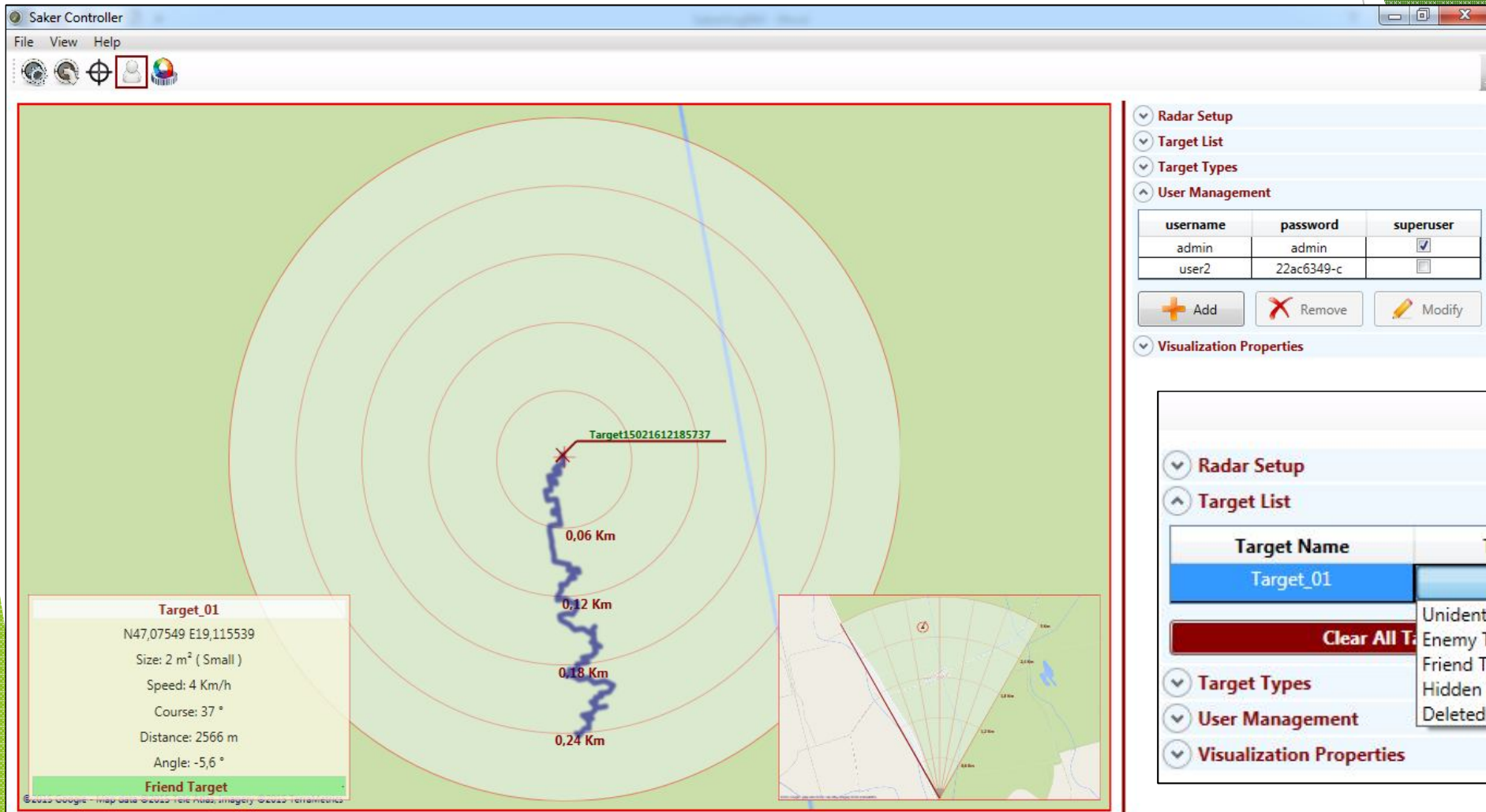
☒ User Management

☒ Visualization Properties



Secondary Map

Tracking, user management, target classification



Changing Map and frequency

Defining hopping pattern

Saker Controller

File View Help

Target15021612185737

5:03

3 Km

2,4 Km

1,8 Km

1,2 Km

0,6 Km

Saker Primary Area

Number Of Unidentified Target	0
Number Of Enemy Target	0
Number Of Friend Target	1
Number Of Hidden Target	0

OpenStreetMap - Map data © OpenStreetMap contributors

Radars

Auto Positioning ☐

Lat: 9.80-9.85 GHz

Lng: 9.85-9.90 GHz

Bearing [°]: 9.90-9.95 GHz

Scann From ☒ 10.00-10.05 GHz

Scann To [°]: 10.05-10.10 GHz

Map Source 10.10-10.15 GHz

Map Source 10.15-10.20 GHz

Radars Range ☒ 10.20-10.25 GHz

Averaging: 10.25-10.30 GHz

Channel Frequency 10.30-10.35 GHz

10.35-10.40 GHz

10.40-10.45 GHz

☒ 10.45-10.50 GHz

Select Frequencies

Target List

Target Types

User Management

Visualization Properties

Thanks for the attention!

Saker is always watching

