

Near-field Warning Radar

Introduction

1 Equipment Summary

1.1 Function

The Near-field Warning Radar System is mainly used to monitor and find near-field soldier, crowd, motor vehicles, tanks, military carriers, helicopters and ships, and other moving targets. It's widely used in boundary monitoring, airfield monitoring, important special border illegal invade monitoring and so on. In military fields, the equipment is called Battlefield Detection Radar.

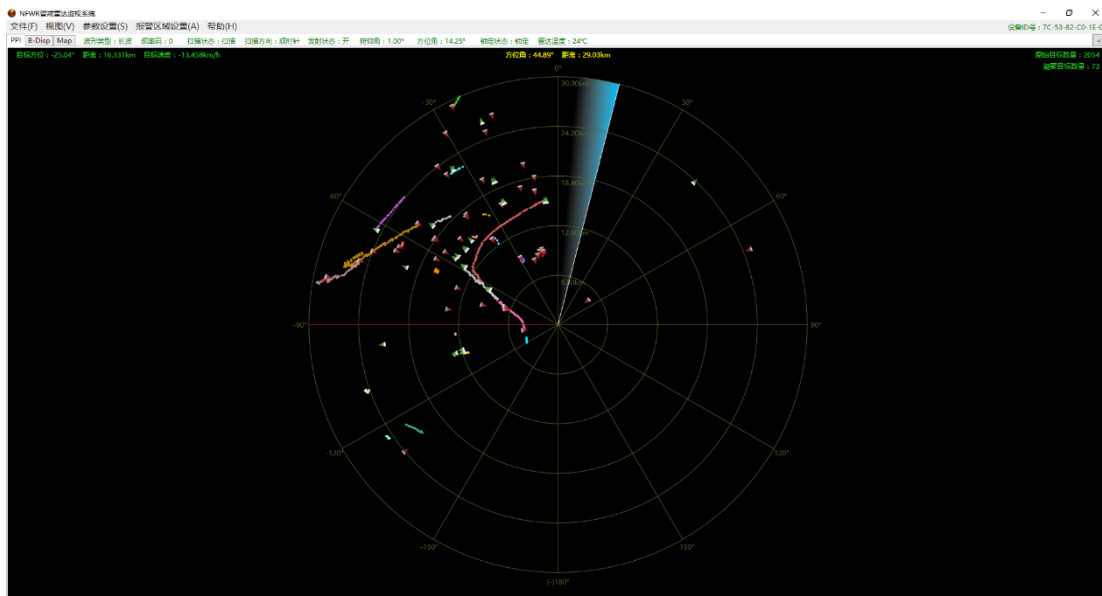
The equipment can detect the near and far field targets. Fig.1-1 shows the Rader's appearance. Fig.1-2 shows the display interface.

The equipment's main functions are:

- Finding ground, sea level or low altitude moving targets.
- Determining found target's coordinate place.
- Shows PPI picture, B-Disp picture and digit map.



Fig.1-1 Near-field Warning Radar



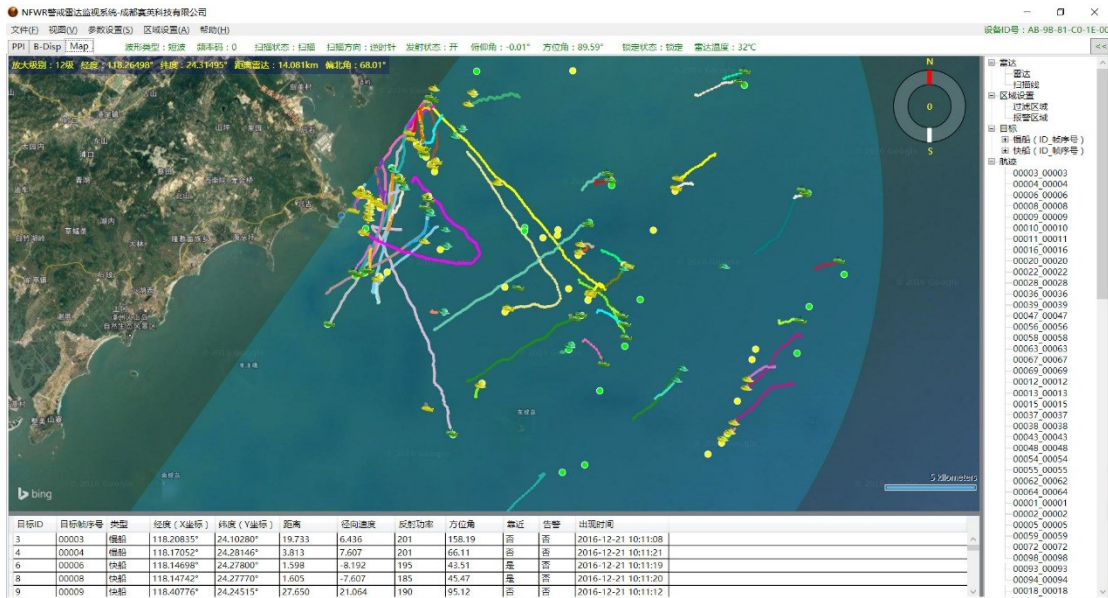
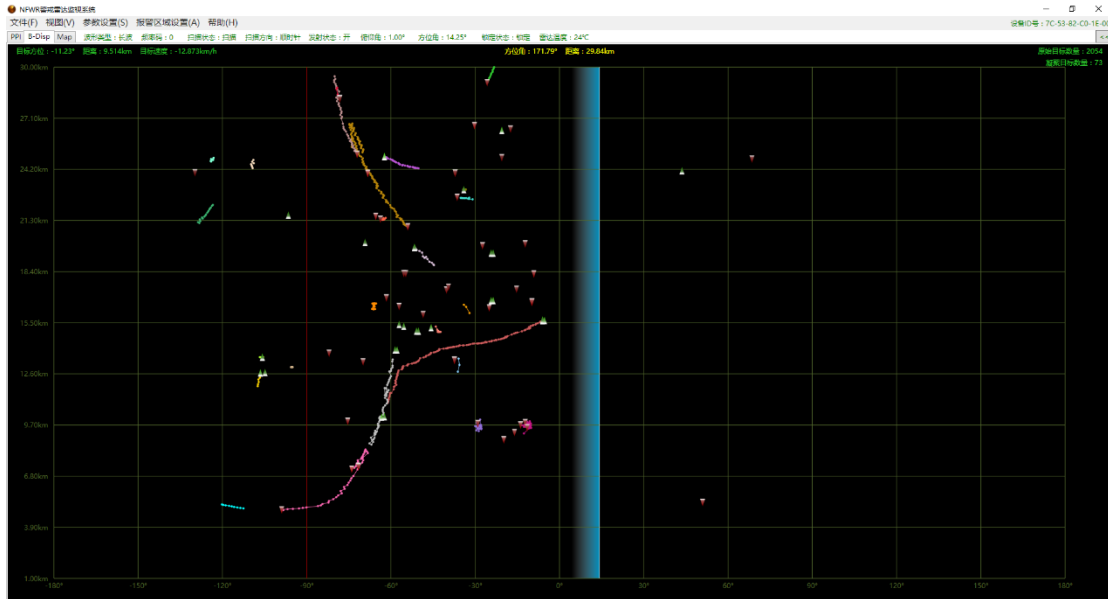


Fig. 1-2 The display interface of the warning radar

1.2 Main Specifications

1.2.1 Working model

ground model (near field and far field)

1.2.2 Radar working system of organization

Coherent pulse doppler radar, Moving target detection radar.

1.2.3 Radar working frequency range

Ku band

1.2.4 Maximum effective cover area

(Detection probability 90%, False-alarm probability 1×10^{-6})

- natural man (RCS=0.5m²) ≥ 7 km
- Light-duty truck (RCS=10m²) ≥ 15 km

1.2.5 Maximum radial detection velocity

≤ 70 km/h

1.2.6 Dead zone

short range model ≤ 200 m; far-range model ≤ 3000 m

1.2.7 Detection Precision

$\leq 1^\circ$ (design guarantee)

1.2.8 Detection Resolution

$\leq 1.4^\circ$ (design guarantee)

1.2.9 Antenna wave beam working mode

- a. Azimuth: 360° continual scan or any sector scan. Scan speed: 6°/s, 12°/s and 18°/s.
- b. Pitch: controlled range: $-15^\circ \sim +15^\circ$. Level is defined as 0° , downward as negative and upward as positive.

1.2.10 Antenna Parameter

Antenna type: parabolic antenna

Antenna gain: ≥ 35 dB (design guarantee)

wave beam width: azimuth $\leq 1.2 \pm 0.2^\circ$, pitch $\leq 3 \pm 0.3^\circ$ (design guarantee) .

1.2.11 Pulse Peak transmission Power

≥ 5 W (design guarantee)

1.2.12 **Outward communication interface**

Ethernet interface

1.2.13 **Power supply**

DC 24V (23~27V) Power supply,
Average power consume: <90W, Starting up instant current: <6A.

1.2.14 **Equipment weight**

≤32kg (Not include tripod)

1.3 **Product characteristic**

- Ku band Coherent Pulse Doppler Moving Target Detection Radar.
- Adopted innovate signal processing and data processing technology, including very short range dead Zone technology, ground clutter filter, low velocity small targets detection technology and target classify discriminate technology (improve model), so improved the clutter restrain ability and moving target detection ability.
- Carbon fiber is used in the antenna making and so the antenna strength is improved and the antenna weight is lightened.
- Module project technology is used in circuit to improve the reliable and maintainable.
- The specific structure of the radar revolving is adopted, so that the reliable is improved and the equipment's weight is lightened.
- The complete machine installation and removal is very easy, because the lock-latch structure is adopted, only in 5 minutes, the installation and removal can be accomplished.

1.4 **Cautions**

The equipment should be protected in the thunder if the equipment is set in high place.

The antenna shade is needed if the equipment is applied in the permanent position.

2 Parameter

Frequency	L-Band
Instrumented range	12Km
Polarisation	Vertical
Peak transmit power	200W
Azimuth	90°
Elevation	30°
Angle measurement accuracy	1°
Range resolution	15m
Max Altitude	1.4Km
Wide Area Coverage	Multiple units networked together
Target Size	0.01m ² Radar Cross Section@4km range
Classification	UAS, Aircraft, Bird, Helicopter
Update rate	4x/sec
H×W×D	1.45m×1.2m×0.3m
Weight	90Kg
Power consumption	200W(average)



Figure 1 NFWR

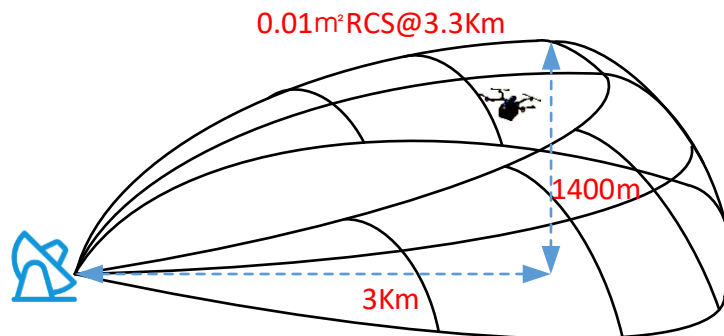


Figure 2 Coverage Diagram