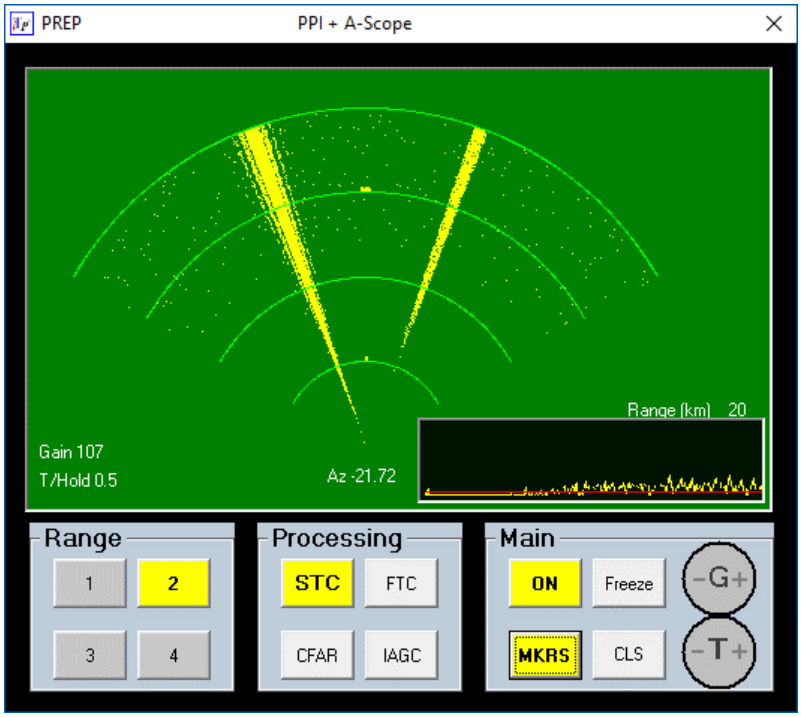
PREP

Primary RADAR Engineering Program

DATA SHEET



*i*nnovative Technology *P*rojects Ltd.

KEY FEATURES

PREP is a PC based training and simulation software, designed to assist with RADAR target simulation, teaching Radar to students and for use by Radar engineers.

All of the RADAR parameters are adjustable to allow the user to simulate a wide range of equipment from one programme.

PREP uses standard displays and signal processing techniques, which help familiarize Students with a generic pulsed radar system and introduce Electronic Warfare elements.

PREP runs on the latest Windows Operating System. The software is supplied with all manuals and exercises on a USB stick.

System Features

- Antenna control
- Transmitter control
- Synchronizer/Exciter control
- Receiver control
- Control & Display Unit
- Target control
- Noise Jammer - EW
- Chaff
- Blake Chart
- Azimuth Plot
- Elevation Plot
- 3D Plot
- Maximum Range Plot

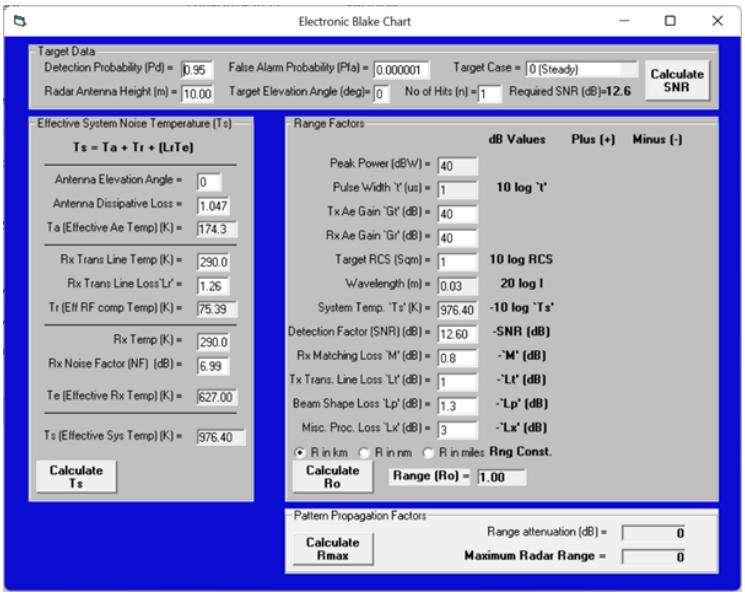


Figure 1 - Blake Chart

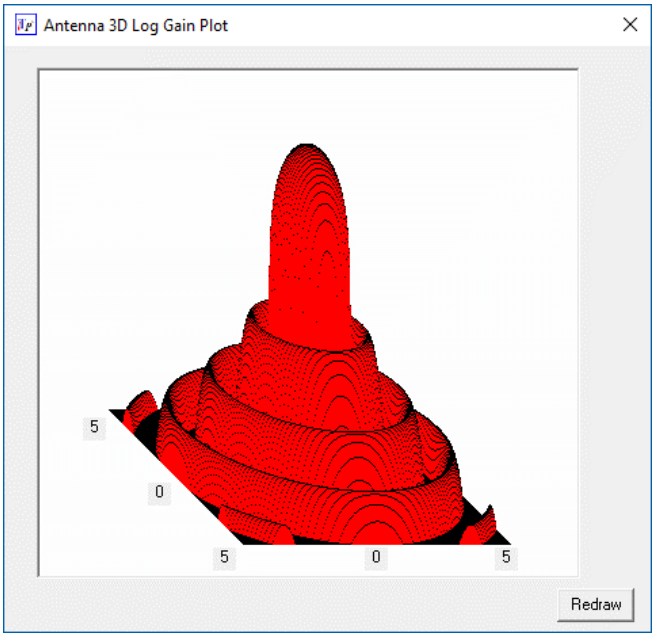


Figure 2 - Antenna 3D Plot

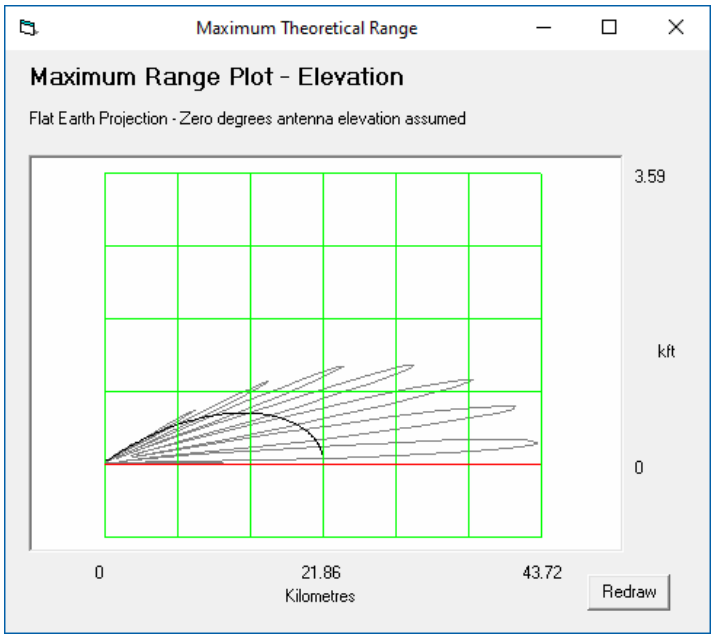


Figure 3 - Maximum Range Plot

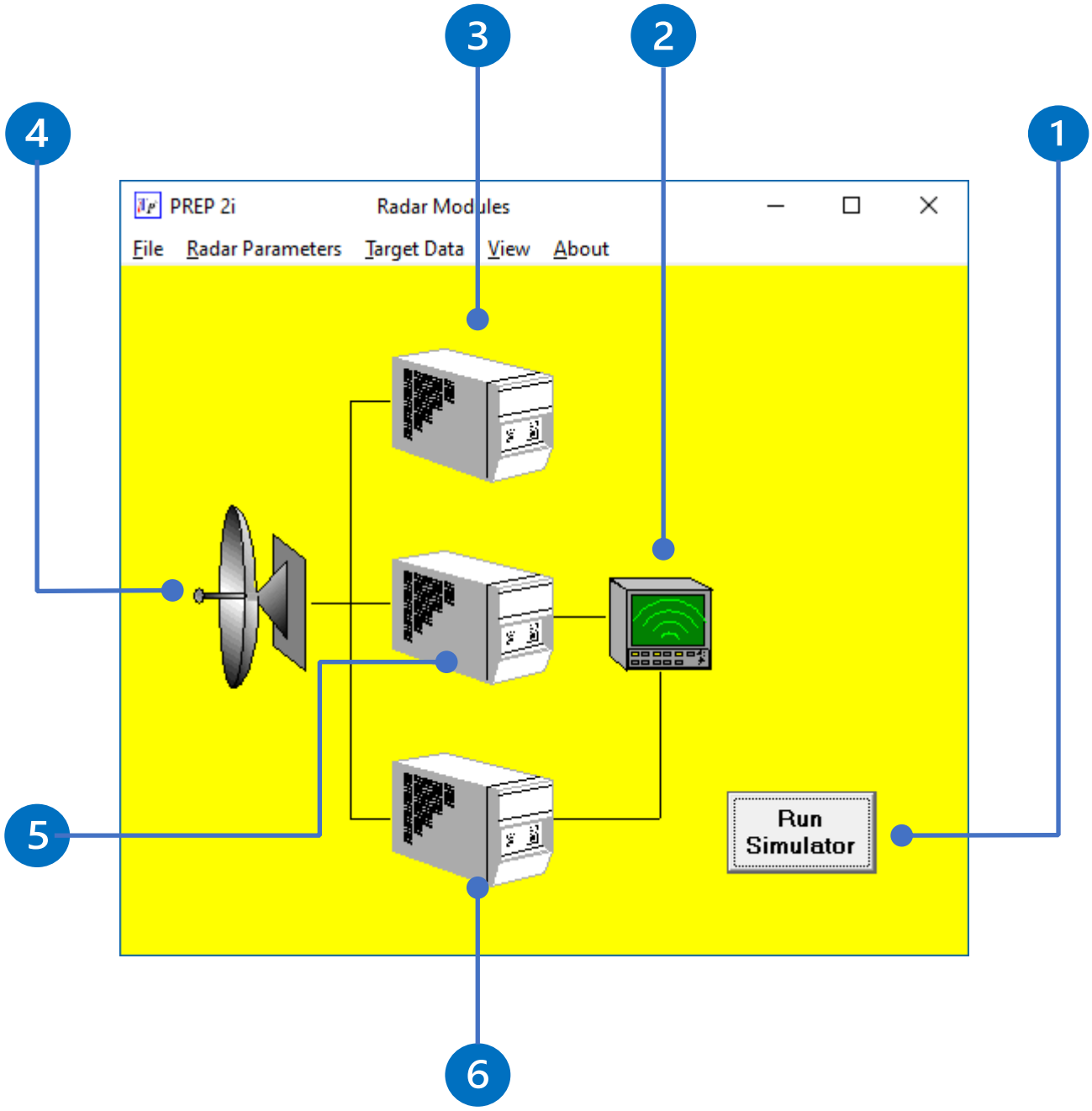


Figure 4 - PREP Main Screen

Image Reference	Component Description
1	Run Simulator – Launches the PPI + A-Scope
2	Control & Display Unit
3	Transmitter
4	Antenna
5	Synchronizer/Exciter
6	Receiver

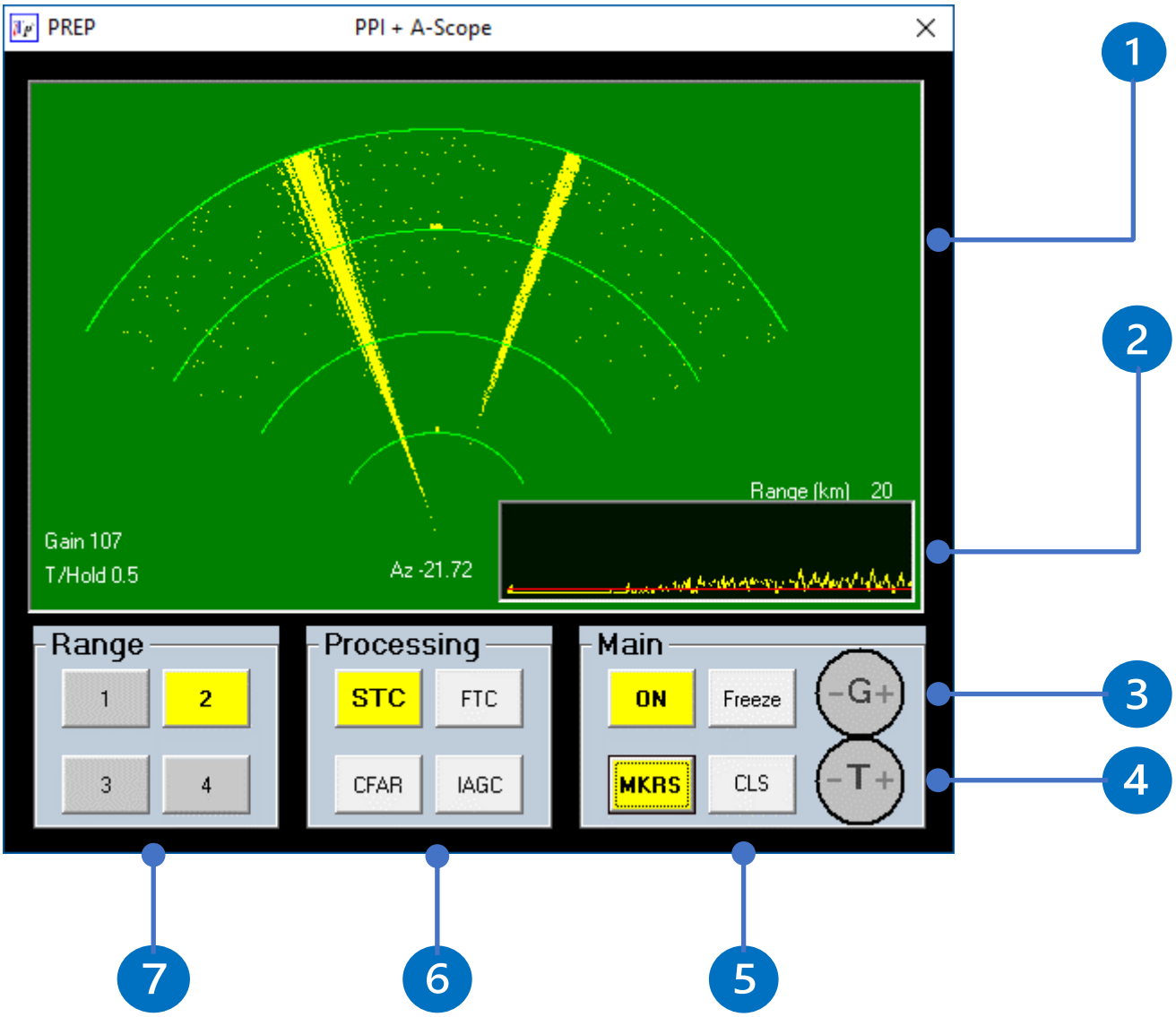


Figure 5 - PPI + A-Scope Display

Image Reference	Component Description
1	PPI Display
2	A-Scope Display
3	Gain +/- Control
4	Threshold +/- Control
5	Main Control Panel – ON/Standby, Freeze Screen, Show/Hide Markers, Clear Screen
6	Processing Control Panel – STC (Sensitivity Time Control), FTC (Fast Time Constant), CFAR (Constant False-Alarm Rate), IAGC (Instantaneous Automatic Gain Control)
7	Range Control Panel – 1, 2, 3, 4

PRODUCT SPECIFICATIONS

Antenna	**Antenna Type:** Parabola, Cassegrain, Phased Array
	Antenna Dimensions: 1cm to 100cm in Azimuth and Elevation
	Scan Width: 1 to 120 degrees in Azimuth
	Scan Type: Mechanical or Electronic
	Scan Speed: 1 to 120 degrees per Second
	Plumbing Loss: 0.01 to 20 dB
	Switch Loss: 0.01 to 5 dB
Transmitter	**Peak Power:** 1mW to 1MW (-30 to +60dBW)
Synchronizer/Exciter	**Frequency:** 100MHz to 50GHz
	Pulse Width: 100ps to 1ms
	PRF (Pulse Repetition Frequency): 10Hz to 50kHz
	Pulse Modulation: Linear FM or Barker Coding (up to 13 Bits)
Receiver	**Receiver Gain:** 30 to 150dB, Linear or Logarithmic
	Video Threshold: 0.1 to 10V
	Receiver Noise Factor: 1 to 50
	Receiver Temperature: 150 to 400 Kelvin
	Signal Processing: FTC, IAGC, CFAR, STC
Control & Display Unit	**Display Formats:** PPI or B-Sweep with additional A-Scope
	Number of Ranges: Four Variable
	Maximum Range: 1m to 500km
	Display Options: Range Markers, Freeze, Clear Screen
Target	**RCS (Radar cross-section) m^2:** 0.0001 to 100
	Range: 0.01m to 500km
	Bearing: -60 to +60 degrees in Azimuth
	Jamming: CW Noise, On-board or Off-board
Noise Jammer - EW (Electronic Warfare)	**Effective Radiated Power:** 1µ W to 1kW
	Bandwidth: 10kHz to 2GHz
	Range: 0.01m to 500km
	Bearing: -60 to +60 degrees in Azimuth
Chaff	**Weight:** 0.01 to 9999 grams
	Range: 0.01m to 500km
	Width, Depth, Height: 1 to 10000m
	Bearing: -60 to +60 degrees in Azimuth

PC REQUIREMENTS

No supporting IT equipment is supplied with PREP.

Computers that are intended to support and run the Primary Radar Engineering Program (PREP) must meet the below requirements.

	Minimum Requirements	Recommended Requirements
Operating System	Windows 10 – 64bit	Windows 11 – 64bit
Processor	Intel Core i3	Intel Core i5
Processor Speed	2GHz	2.4GHz
Memory	4GB	8GB
Hard Disk Size	80GB HDD	128GB or more (Solid State Drive)
Free Disk Space	20GB	40GB or more
Graphics Card	Dual Monitor Capable	Dual Monitor Capable
Monitors	Two Monitors	Two Monitors
Monitor Resolution	1024 x 768	1920 x 1080
Mouse	USB Mouse	USB Mouse
Keyboard	USB Keyboard	USB Keyboard
3x USB Type A Ports	Required for the PREP USB, Mouse & Keyboard	Required for the PREP USB, Mouse & Keyboard
Internet Connection	Recommended	Recommended
PDF Viewer	Microsoft Edge	Adobe Reader