

WATCHMAN MODERNIZATION PACKAGE Affordable Advanced Field Proven Technology

Legacy Watchman radar systems, being in service worldwide since the 1980s, need to be upgraded or replaced, in order to fulfil present and future requirements for at least another 20 years. At the Nato Missile Firing Range in CRETE, five of these radars have been successfully upgraded in the years 2014-5.

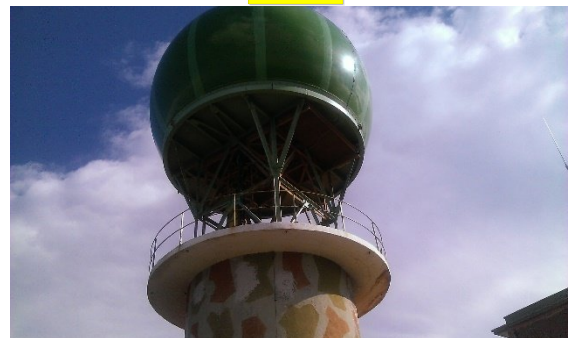
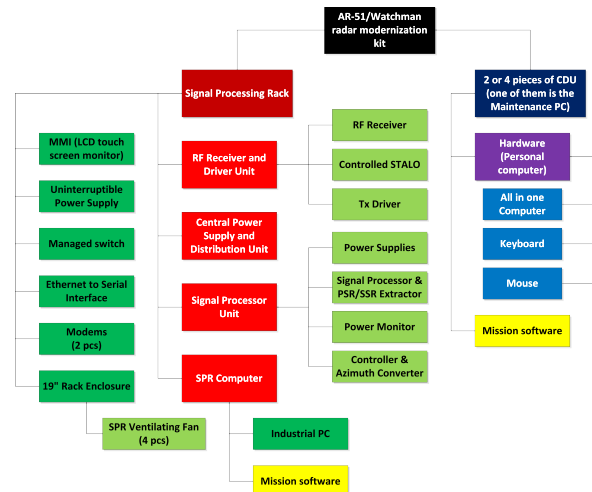
The refurbishment implemented at NAMFI, was limited to the Rx part of the Radar and met or exceeded all expectations. It solved the issue of critical failures due to obsolescence and provided increased RAM, improved signal processing, better target detection, enhanced track & plot processing and higher tracking capacity.

The functionalities ensured:

- Transmitter drive and control,
- Receiver,
- Beam switch control,
- Antenna control & turning data interface,
- Adaptable range & azimuth,
- Sea target surveillance processing,
- Air target surveillance processing,
- Operator's display with radar video,
- Interface and data format compatibility,
- Remote control & status monitor,
- Built-in Test Equipment (BITE),
- Data recording and replay module,
- Secondary radar interface,
- ECCM capabilities.

The upgrade package kit includes:

- Computer based controller,
- Modern TFT displays,
- Complete mission software and GUIs,
- New Signal Processing Rack (SPR).



The KEY Benefits at a Glance:

- Cost effective and Flexible concept,
- Quick and Risk Free installation,
- State of the art solution,
- Better radar operation,
- Improved target detection,
- Precise tracking,
- Remote Control and Status Monitor,
- Modular and Compact design,
- Better Workspace,
- Higher Reliability & Simpler maintainability,
- Life expectancy extended by 20 years.

Signal Processor Rack – The new units are of modular design, installed inside an EMI / EMC qualified rack cabinet. An industrial grade touchscreen monitor is provided, connected to the signal processor computer, for full operation access.

The rack is easily adaptable to the existing radar hardware configuration.

Furthermore the energy consumption and thus the operational costs of the upgraded radar system are reduced.

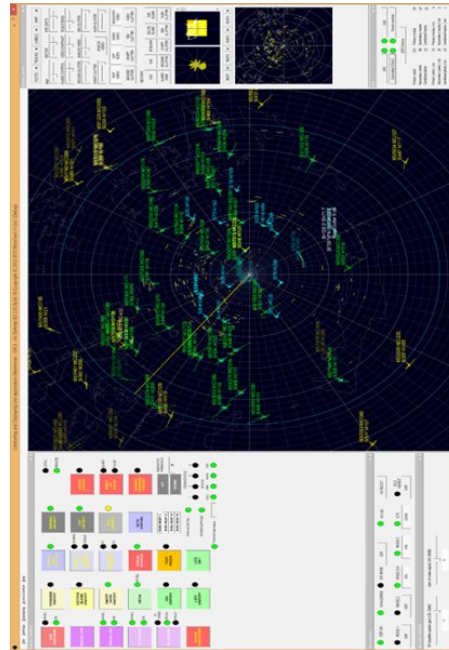


Signal processor and plot extractor unit consist of two dense boards:

The DSP board performs all the signal processing and plot extractor functions;
The CONVERTER board performs IF transmitter signal generation and IF echo signal reception.

Controller and Display Unit (CDU) is a compact desktop computer suitable for the mission software and the provision of a friendly and robust GUI. Following functions are offered:

- Local Air, Sea and Coastal Picture (LASCP),
- Enhanced analog picture, A-scope,
- System status and in-progress BITE signals,
- Detailed status display for each SPR,
- Access control at various levels for operator and maintenance personnel,
- Recording and Replay,
- Interfaces to:
 - ✓ set parameters of each SPR unit.
 - ✓ set main system parameters.
 - ✓ set program parameters.
 - ✓ initiate off-line BITE functions.
 - ✓ change the views of LASCP.
 - ✓ set output communication interface parameters.
- Any number of CDUs can be connected,
- Loading of predefined operational modes, data & settings.



Improved target detection & precise tracking is achieved with latest signal processing technology and several advanced filtering techniques rejecting false targets and improving detection parameters.

The filtering procedures take into account:

- Spectral characteristics of the targets, noise & clutters and after analysing them specifically optimised filtering is used,
- The blind speed, the pulse repetition frequency and the stagger function.

The filters deploy built in clutter maps and interact adaptively, striving for suppressing – reducing the ground, sea and weather clutter.

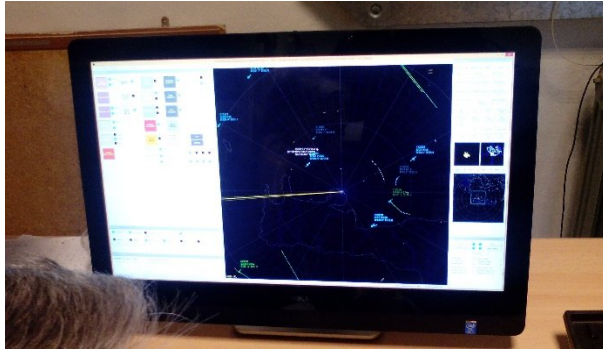
International Standards Compliance

The upgrade KIT can be qualified for compliance to all relevant international standards

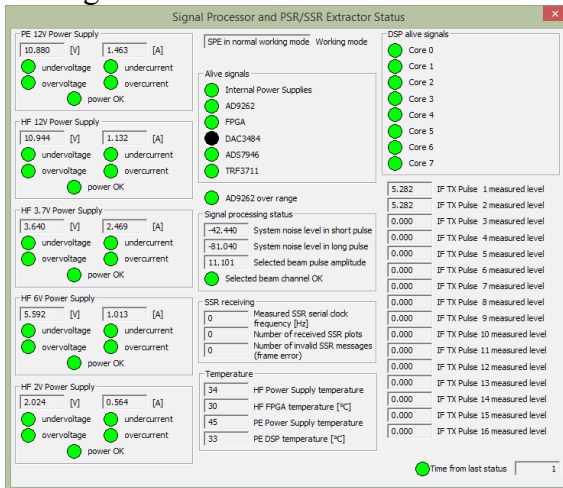
Two stage internal surge protection system is used, ensuring higher reliability.

Secondary radar interface is included in the modernization package.

Remote control offers access of hardware & software based functions from remote sites.



High level BITE functionality - continuously self tests the system operation and provides the user with detailed status messages.



Overview of Overall Advantages in brief

- Cost effective & simple COTS implementation, suitable for any Radar,
- Increased proven performance in surveillance / reception / processing & display capability to local or remote sites,
- Open Architecture and networking supporting TCP/IP and or other several interfaces deploying various protocols,
- Efficient space and energy consumption,
- Better RAM with less running costs, for an extended operational life.

SSA SA

Ethnikis Antistaseos 84,
15231, Halandri Attikis Greece
tel: +30 210 6725106 fax: +30 210 6726682
email: ssa@ssa.gr