NATO OTAN

NATO SUPPORT AGENCY
AGENCE OTAN DE SOUTIEN

NSPA NATO SUPPORT AGENCY

RADAR System Performance Check (R-SPC)

September 2012

R-SPC Concept

RADAR SYSTEM PERFORMANCE CHECK (R-SPC) is a periodic measurement of key radar system parameters aimed at maintaining a high standard of performance for modern radar systems after commissioning.

The goals are:

- Detect system degradation and hidden problems early to avoid catastrophic and costly failures
- Support site technical staff in achieving and maintaining high standards of system performance.
- R-SPC links a series of complex engineering tests, beyond the capability of System Built-In-Test-Equipment (BITE) utilizing a combination of extensive NSPA radar engineering expertise and specialized test equipment.

Radar Test Operation

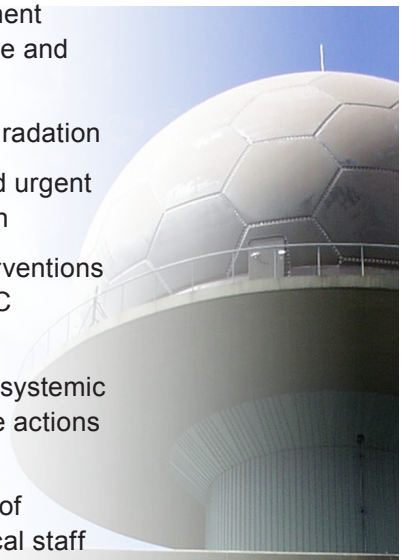
Each R-SPC test is designed to analyze one or more elements of the high level performance criteria:

- Detection range & surveillance volume
- Clutter rejection
- Range & angular resolution and accuracy
- Height accuracy
- Site adaptation & alignment
- Multi radar correlation divergence
- Secondary Surveillance Radar (SSR) performance.

A typical R-SPC lasts about 5 weeks for two expert engineers and consists of:

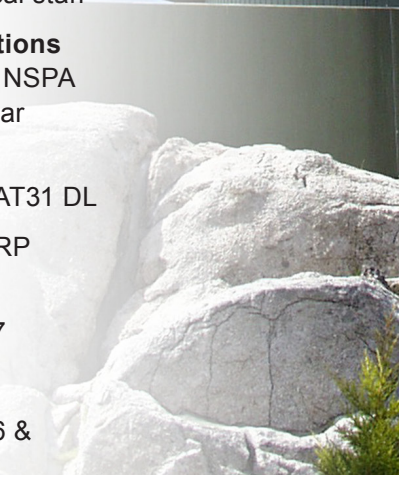
- Kit preparation and transport
- Five to seven day's on-site measurements and recording
- Extensive data analysis resulting in a Radar Performance report
- Kit maintenance and calibration.

R-SPC Benefits



- Independent assessment of system performance and corrective action
- Early detection of degradation
- Minimize unscheduled urgent contractor intervention
- Focus contractor interventions & overhauls on R-SPC findings
- Share Information on systemic failures and corrective actions between users
- Better understanding of system by site technical staff

Over 200 R-SPC Operations have been performed by NSPA engineers on various radar systems including:



- SELEX RAT31 SL, RAT31 DL
- Raytheon HADR, RSRP
- Lockheed Martin AN/TPS-117, RRP-117
- BAE S-723, S-743
- Raytheon AN/TPQ-36 & AN/MPQ-64

NSPA_R-SPC_EN_27Sep2012

FOR FURTHER INFORMATION CONCERNING SYSTEM PERFORMANCE CHECK PLEASE CONTACT
www.nspa.nato.int ■ 11 rue de la Gare, L-8325 Capellen ■ LE-T@nspa.nato.int ■ +352 3063 6506 +352 3063 4800

TÜVRheinland CERT ISO 9001

Additional specific tests have been developed to measure parameters for:

- NATO Airborne Warning and Control System (AWACS)
- M-SSR
- Radome effects
- EADS Counter Battery Radar (COBRA)
- Impact of Galileo satellites on radar performance
- Unwanted emission measurement [e.g. within the soil moisture and ocean salinity (SMOS) satellite frequency band].

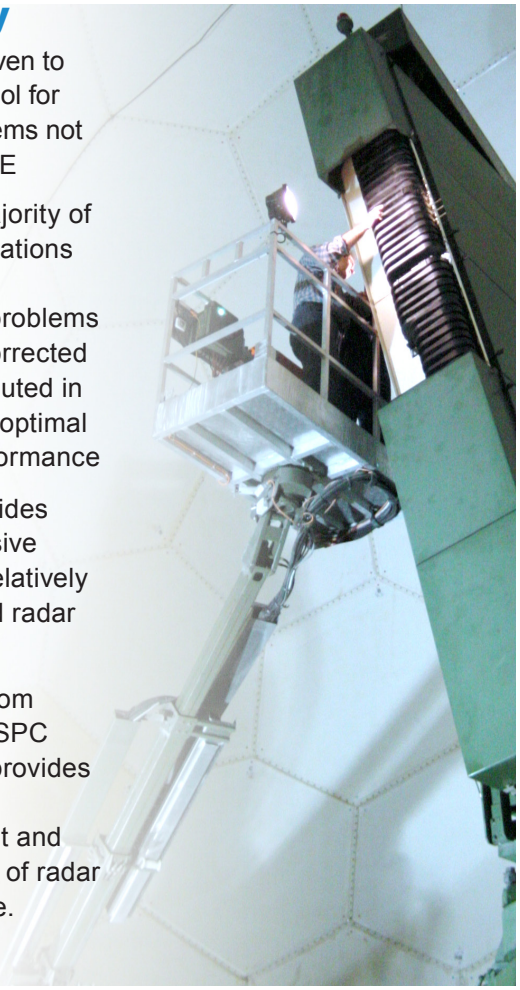
Test Results

An R-SPC report highlights deficiencies for each individual test as well as an evaluation of the overall radar system status, including recommended corrective actions.

Summary

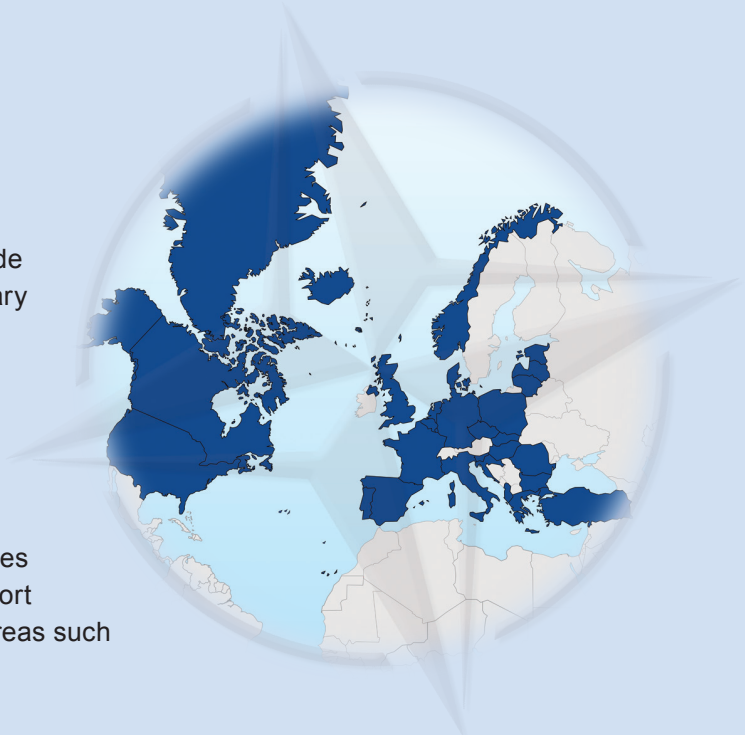
R-SPC has proven to be a valuable tool for detecting problems not detected by BITE

- The vast majority of R-SPC operations to date have uncovered problems that once corrected have contributed in maintaining optimal system performance
- R-SPC provides comprehensive testing for relatively low cost and radar downtime
- Feedback from previous R-SPC operations provides continuous improvement and optimization of radar performance.



About NSPA

NSPA, as NATO's Support Agency provides a wide range of logistics support services to NATO military forces and its member nations. In addition, the Agency has legal agreements with many of the NATO Partnership for Peace (PfP) Nations providing them access to the Agency's services. Although most of the services provided by NSPA are outsourced to industry under international competitive bidding, NSPA does have an in house engineering and technical support capability in a number of specific technological areas such as radar performance measurement.



FOR FURTHER INFORMATION CONCERNING SYSTEM PERFORMANCE CHECK PLEASE CONTACT
www.nspa.nato.int ■ 11 rue de la Gare, L-8325 Capellen ■ LE-T@nspa.nato.int ■ +352 3063 6506 +352 3063 4800