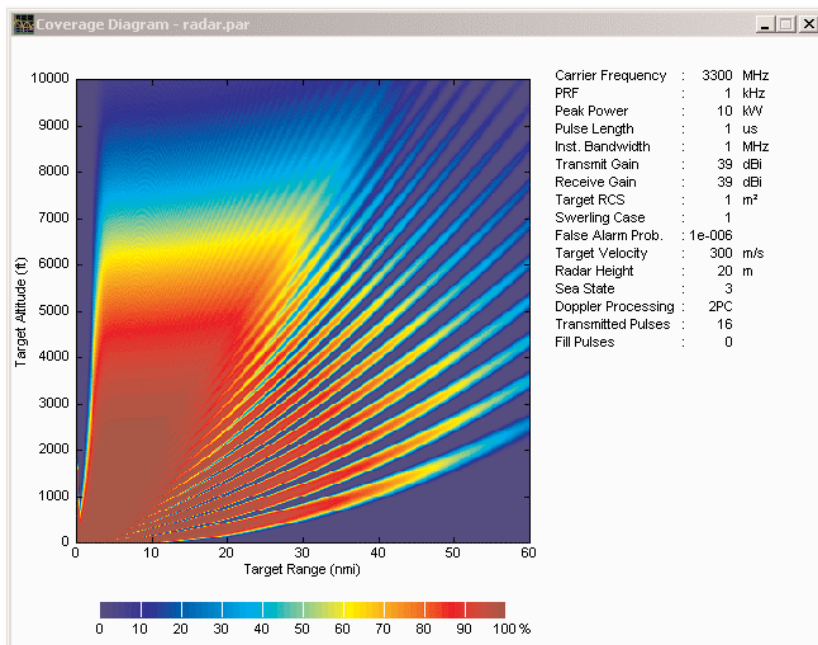


# CARPET

A Quick and Easy to Use Computer Tool for the Assessment and Design of Surface-Based Radars Developed at the TNO by Albert G. Huizing and Arne Theil.



TNO has decided to celebrate the tenth anniversary of CARPET by releasing a new version: CARPET 2. We expect this program to be as successful as its predecessor of which over 400 copies were sold, worldwide.

## What is CARPET?

CARPET (Computer Aided Radar Performance Evaluation Tool) is a quick and easy-to-use computer tool for the assessment and design of surface-based (maritime and land-based) radar systems. This comprehensive computer application simplifies the complex task of designing and evaluating surface-based radar systems. In order to achieve a radar system that is both efficient and cost effective, it is necessary to conduct a detailed analysis of the radar-environment-target chain. This invaluable software package does exactly that...

CARPET considers the entire radar system and its environment, including: transmitter/receiver characteristics, clutter, jamming, antenna, and propagation phenomena. CARPET accurately assesses the effects of radar parameters and environmental conditions on detection probability as a function of target range, velocity or altitude.

CARPET is a valuable timesaver for design engineers at industrial and applied research establishments, military and civil practitioners in the radar field, and students and professors in electrical engineering departments and military academies.

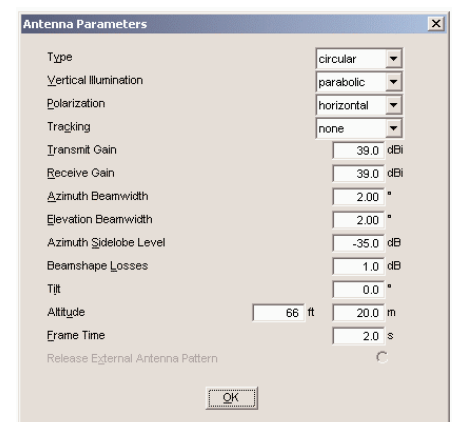
## Scenario Toggles

Manipulating models through the use of CARPET's scenario toggles, you can easily assess the effects of: Transmitter:

synthesizer phase noise, waveform, and timing jitter, Antenna: elevation pattern, tracking mode and rotation, Propagation: surface reflection, atmospheric absorption, evaporation duct, surface-based duct, and troposcatter, Clutter: sea clutter, land clutter, rain, and chaff jammer: Barrage jamming and responsive jamming.

## Diagrams

CARPET can plot the following diagrams: Received Powers, Single-scan Detection Probability, Cumulative Detection Probability, MTI Improvement Factor, Blind zone Diagram, Vertical Coverage Diagram, Reflection Coefficient, Antenna Pattern, Propagation Factor, Height Gain, Swerling Cases, Antenna Noise Temperature, Atmospheric Losses and Doppler Filter Transfer Function.



## Worksheets

CARPET can also be likened to an "electronic radar handbook", as it contains worksheets that give you fingertip access to numerical information found in tables, graphs, and nomograms scattered throughout various radar and propagation handbooks.

## System Requirements

CARPET 2 runs under versions of Windows '95 and higher with 32 Mbyte RAM or more and demands True Color display mode.

## Manual Contents

### Introduction

*How to Operate CARPET:*

System Requirements, Licensing, Loading, Saving, Writing Settings Files, Making Hardcopies, Saving Diagrams, Loading an Antenna Pattern

*The Scenario Toggles*

Propagation, Clutter, Jammer, Radar.

*The Parameters*

Propagation, Clutter, Jammer, Transmitter, Antenna, Receiver, Target, Layout.

*Worksheets*

Geometry, Swerling Cases, Antenna, Attenuation, Reflectivity, Reflection, Propagation.

*Description of Graphical Output*

Received Powers, Single-scan Detection Probability, Cumulative Detection Probability, MTI Improvement Factor, Blind zone Diagram, Vertical Coverage Diagram.

*More Graphical Output*

Reflection Coefficient, Antenna Pattern, Propagation Factor, Height Gain, Swerling Cases, Antenna Noise Temperature, Atmospheric Losses, Doppler Filter Transfer Function.

*CARPET Models*

Target, System Noise, Surface Clutter, Volume Clutter, Jamming, Antenna Pattern, Radio Wave Propagation, Atmospheric Losses, Radar Signal Processing.

## What's New in CARPET 2?

CARPET 2 differs from its predecessor CARPET 1 in the following respects:

1. CARPET 2 is a true Windows application. The graphical user interface is even more intuitive to handle, the graphical output complies with modern colourful demands and several diagrams can remain on the desktop.

2. The underlying numerical values of the graphical output can be saved and are thus available for further analyses or processing.
3. Settings that are entered in a Worksheet can easily be copied to the main list of settings.
4. CARPET 2 can import antenna patterns that are specified by the user.
5. Minimum and maximum allowable values of certain parameters have been enlarged in order to meet user demands.
6. Non SI-units are available: target altitude in feet, range in nautical miles, speed in knots.

## Prices 2006

CARPET 2.0 sells for 350 EURO, single platform license, V.A.T. excluded. Installation on second PC's in case of non-simultaneous use is permitted.

2-5 platforms:	10% discount
6-10 platforms:	20% discount
more than 10 platforms:	30% discount

## Acquiring CARPET

The procedure to acquire CARPET 2 is as follows:

1. Fill-in the order form on <http://www.tno.nl/carpet> - or fax your purchase order to +31 70 374 06 54.
2. An invoice will be sent to you.
3. As soon as the payment is received, CARPET 2 plus the pdf Manual will be e-mailed to you.

## About the Authors

Albert G. Huizing earned his M.Sc. in 1981 in Electrical Engineering at Twente University of Technology, Netherlands, and his M.Phil. Electrical Engineering in 1989 at Birmingham University, United Kingdom. He is currently a senior radar scientist at TNO, and a member of the IEEE.

Arne Theil earned his M.Sc. in Physics at Delft University of Technology in 1985. He is currently a senior radar scientist at TNO.

## TNO Defence, Security and Safety

TNO Defence, Security and Safety provides innovative contributions to the advance of comprehensive security and is a strategic partner of the Dutch Ministry of Defence to build up the defence knowledge-base. We employ our acquired knowledge for and together with contractors.

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