

Radar Cross Section (RCS) Range Configuration Worksheet

Customer: _____
Location: _____
Customer contact: _____
Telephone: _____ e-mail: _____
Agilent Field Engineer: _____ Office: _____
Telephone: _____ e-mail: _____
Agilent Systems Engineer: _____ Office: _____
Telephone: _____ e-mail: _____
Date: _____

How to use this worksheet

This worksheet is intended to be a guide for discussions between local Agilent Field Engineers, and a potential customer about their near-field antenna measurement system needs. This worksheet asks the questions an Agilent Systems Engineer would need to know to specify a customized antenna measurement system to meet a customer's unique requirements.

Please fill out this form as completely as possible, and also describe any unique features of the location of the RCS system, or additional requirements not covered in this worksheet. A sketch of the proposed or existing location and layout is always very helpful.

With the information provided in this worksheet, an Agilent Antenna Systems Engineer will configure an RCS measurement system to meet the needs and requirements as specified in this worksheet. A quotation can be prepared which will include an instrumentation block diagram, a list of all the instrumentation components included in the RF sub-system, and price. Occasionally, additional discussions will be necessary between the Agilent Antenna Systems Engineer and the customer to clarify the understanding of the system requirements and configuration

What is the objective for this system?

(a sketch of the existing facility would be helpful)

- ☐ Upgrade an existing radar cross-section range with new equipment
- ☐ Improve the productivity of their measurements
- ☐ Build a new radar cross-section range
- ☐ Other: _____

What is important to you?

(It is helpful, but not necessary, to rank in order of importance)

- ☐ Measurement productivity / throughput
- ☐ Measurement acquisition software
- ☐ Measurement analysis software
- ☐ A "turn-key" or complete measurement solution
- ☐ System uptime and reliability
- ☐ Assurance that they are producing a reliable product
- ☐ Accurate measurements
- ☐ Assurance they are selecting the right solution
- ☐ Multiple-channel, multiple-frequency measurements
- ☐ Low cost measurement system
- ☐ Upgrading old instrumentation
- ☐ On-site installation and performance verification
- ☐ On-site user training
- ☐ Ease of use
- ☐ Software and hardware support
- ☐ Other: _____

Do you have a preferred software provider preference?

- ☐ NSI – Nearfield Systems Inc.
- ☐ Orbit/FR
- ☐ MI-Technologies
- ☐ SPC – System Planning Corporation
- ☐ Other _____

Type of radar cross-section range?

Type and location of RCS range

- ☐ Indoor direct illumination RCS measurements
- ☐ Indoor compact range for RCS measurements (uses large reflectors)
- ☐ Outdoor direct illumination radar cross-section measurements

Range length

What is the distance from the Transmit/Receive antennas to the target?: _____meters

Type of measurement

- ☐ Monostatic - one antenna for Tx and Rx
- ☐ Quasi-monostatic - two antennas (one Tx, one Rx)
- ☐ Bi-static - two antennas with wide separation
- ☐ Other: _____
- ☐ Unknown

Distance from control room to transmit & receive antennas:

_____ meters

Frequency range: _____ to _____

Types of targets to measure or purpose of measurements: (scale model aircraft, etc.)

Maximum target sizes: _____ m. x _____ m. x _____ m.

Approximate RCS levels of targets: _____ dBsm

Is there any existing Agilent or HP equipment that would be available for use in this facility?

- ☐ none

☐ yes (please specify):

Is any other manufacturers equipment available?

☐ none

☐ yes (please specify):

Transmit and receive antennas

☐ To be supplied as part of the system

☐ Customer supplied or existing

Model number: _____

Frequency range: _____

Is hardware gating desired?

Hardware gating is a separate piece of hardware (instrument) that pulses the transmitter to send out a pulse of microwave energy, when that pulse returns from the target, the receiver is turned on. Can improve the sensitivity, dynamic range and alias free range of outdoor ranges, and reduce the clutter in indoor ranges. Typically used on ranges capable of testing targets 1 meter or larger.

☐ Yes

☐ Maybe

☐ No

- ☐ Unknown
- ☐ Uncertain if this would be beneficial in this application

Measurement polarization capability desired

- ☐ Transmit and receive only one polarization
- ☐ Dual (VV + HH) transmit and receive vertical + transmit and receive horizontal
- ☐ Full polarization capability (VV + VH + HV + HH) transmit any polarization and receive any polarization
- ☐ Unknown at this time

Positioning and Target Mount Subsystem

Target mount:

- ☐ Customer supplied or existing
- ☐ To be supplied as part of the system

Type of target mount to be used?

- ☐ Styrofoam column
- ☐ Metal RCS pylon
- ☐ Other: _____
- ☐ Unknown at this time

Target positioner control

- ☐ Azimuth movement (movement in a horizontal plane)
- ☐ Elevation movement (tilting forward and backwards)
- ☐ Polarization movement (movement about a horizontal axis)
- ☐ Unknown at this time