

APPENDIX G - SPECIFICATIONS

1. RD-301A Radar Test Set Specifications

NOTE: Specifications and features are subject to change without notice.

A. RF Signal Generator:

Frequency: Variable from 9.295 to 9.500 GHz

Tracking:

UUT Frequency: 9.295 to 9.500 GHz

UUT Power: 0.25 to 12 kW

Accuracy:

UUT PULSE WIDTH	ACCURACY
2 to 30 μ s	\pm 25 kHz
0.5 to <2 μ s	\pm 60 kHz
0.1 to <0.5 μ s	\pm 600 kHz
0.05 to <0.1 μ s	\pm 2 MHz

Δ F Offset: \pm MHz from tracking frequency

Accuracy: \pm 20 kHz + 10% of Δ F offset PANEL Meter reading

Output Power: Variable from -127 to -50 dBm (at UUT)

Step: 1 or 10 dB

Accuracy: \pm 2 dB

Contour Boost: Variable from 0 to 20 dB above selected RF Output level between -127 to -75 dBm

Accuracy: \pm 1 dB from 9.310 to 9.410 GHz

Range 2 Attenuation: Variable from 0 to 59 dB below selected RF Output level (Range 1) (\geq -127 dBm)

Step: 1 dB

Accuracy: \pm 1.5 dB

RF Pulse Width: Variable from 0.05 μ s to 2.5 ms

RF ON/OFF Ratio: \geq 70 dB

Source VSWR at Waveguide Coupler: \leq 1.25:1

B. IF Signal Generator

Frequency:	Variable from 20 to 70 MHz
Sweep Width:	Variable from 0 to 4 MHz
Marker Frequency:	Variable from 20 to 70 MHz
Power:	Variable from -130 to +20 dBm
Step:	1 or 10 dB
Accuracy:	$\pm > 2.5$ dB + 1% of selected level
Pulse Width:	Variable from 0.05 μ s to 2.5 ms
ON/OFF Ratio:	≥ 48 dB

C. Modulation

Track:	PRF same as UUT (50 Hz to 20 kHz)
INTL (Internal):	Variable PRF from 50 to 5000 Hz
Internal AM (Square Wave):	
Frequency:	Variable from 50 Hz to 5 kHz
Square Wave Duty Cycle:	50%
Accuracy:	$\pm 2.5\%$
Amplitude:	
Up Modulation:	Variable from 0 to +20 dB
Step:	1 or 10 dB
Accuracy:	± 1 dB for selected RF Output level between -127 to -75 dBm (9.295 to 9.500 GHz)
Down Modulation:	Variable from 0 to -59 dB
Step:	1 or 10 dB
Accuracy:	± 1.5 dB for selected RF Output level above -127 dBm (9.295 to 9.500 GHz)

D. Range

Range 1: 0.1 to 999.9 μ s or nmi (NM) referenced to leading edge of detected UUT pulse at 50% point

Residual Delay: 0 to 0.2 μ s

Range 2: 0.1 to 999.9 μ s or nmi (NM) referenced to leading edge of detected UUT pulse at 50% point

Residual delay: 0.3 to 0.5 μ s

Range Accuracy: Residual delay $\pm 0.01\%$ of selected range delay (Range delay is referenced to 12.3589 μ s/nmi.)

Modes:

CONTOUR: Refer to RF Signal Generator, Contour Boost.

RINGS 1 through 5: Selectable multiples of Range 1

R2 ON: Range 1 and Range 2 active.

R2 ALT: Range 1 active with Range 2 active every other detected Radar transmitter pulse.

R1,R2 AUTO: Range 1 or Range 2 active according to detected radar transmitter pulse width. Range 1 active when Radar transmitter pulse width is $<$ Threshold. Range 2 active when Radar transmitter pulse width is \geq Threshold.

Threshold: Variable from 0.2 to 1.0 μ s (Preset for 0.4 μ s)

E. Frequency Counter

RF:

Resolution: 10 kHz

Accuracy: ± 250 kHz

IF:

Resolution: 1 kHz

Accuracy: $\pm 0.01\%$ of FREQUENCY Hz/MHz Digital Display reading

PRF:

Resolution: 1 Hz

Accuracy: ± 1 Hz + 0.01% of FREQUENCY Hz/MHz Digital Display reading

F. Power Meter

Range:	0.25 kW to 12 kW peak (standard) 1.0 kW to 120 kW peak (option with external 10 dB Attenuator, not calibrated in system)
Accuracy:	±0.6 dB from 1 to 12 kW peak (standard) (at UUT)
Load VSWR:	≤1.25:1

G. Outputs

ANLYZER RF X-BAND XMTR
Connector:

Radar transmitter signal

Level:

56 to 68 dB below radar transmitter level

DLYD SYNC Connector:

Positive pulse coincident with reply pulse
(Range 1 and/or Range 2)

XMTR DET Connector:

Detected Radar transmitter pulse

Level:

0 to +3 Vdc peak Video into 50 Ω

XMTR DSCRM .1V/MHz Connector:

0.1 V/MHz (±10%) into 50 Ω

XMTR HET MON Connector:

Level:

0 to <+0.5 Vdc peak into 50 Ω

SYNC Connector:

Positive pulse

Position:

Dependent on MODULATION MODE Pushbutton
Switches selection:

TRACK	Coincident with Radar transmitter pulse
INTL	Coincident with internal pulse
EXT (+)	Coincident with external trigger
EXT (-)	Coincident with external trigger

H. Inputs

AM EXT INPUT Connector: External AM

Input Impedance: >10 kΩ, ac coupled

Input Voltage: 3 VP-P for 28 to 32% modulation

3 dB Bandwidth at 30% AM: ≥4970 Hz (30 Hz to 5 kHz)

AM Percent Limit: 0% to 50%

Square Wave Modulation
(typical values):

FREQUENCY	MODULATION	RISE TIME	FALL TIME
500 Hz	50% (10 dB)	28 μs	60 μs
500 Hz	30% (6 dB)	24 μs	40 μs

EXT TRIG Connector: ac coupled, + or -

Level: 2 to 25 VP

Frequency: 50 Hz to 20 kHz

I. Power

AC INPUT Connector:

Voltage: 103 to 253 VAC

Frequency: 50 to 440 Hz

Power Consumption ≤150 W