

Avionics

RGS 2000 TCAS REPLY GENERATOR



AEROFLEX
A passion for performance.

Your complete RF source for the testing of TCAS computers

The RGS 2000 TCAS Reply Generator is designed as an integral part of various OEM TCAS test stations as defined in the specific LRU Component Maintenance Manual (CMM). The RGS 2000 features user-friendly menus, displayed on an electroluminescent flat panel display, that allow the operator to:

- Decode and display Mode S and Mode C Interrogation Data
- Measure and display port-to-port relative amplitude and phase of interrogation signal
- Measure and display interrogation pulse characteristics including peak pulse power, pulse frequency, pulse spacing, pulse width, and pulse rise/fall time
- Measure and display interrogation pulse frequency spectrum
- Simulate up to 154 intruders including generation of Mode S and Mode C instrument replies, Mode S squitter, Mode C fruit and intruder movement simulation
- Perform manual or GPIB controlled testing

The RGS 2000 is not a stand-alone or user configured test solution, but an RF resource for OEM TCAS testing.

Consult the TCAS processor CMM for testing requirements.

GENERAL SPECIFICATIONS

TRANSMITTER OPERATION

FREQUENCY

Range

1025 to 1155 MHz

Resolution

0.1 MHz

Accuracy

± 0.1 MHz

POWER

Range

-85 to -20 dBm

Resolution

1.0 dB

Accuracy

± 1.0 dB

PULSE MODULATION

Rise Time

0.075 ± 0.02 μ S

Fall Time

0.150 ± 0.04 μ S

Width Mode C

0.450 ± 0.05 μ S[†]

Width Mode S

0.500 ± 0.05 μ S[†]

ON/OFF Ratio

>60 dB

Pulse Ripple

<1 dB

Ampl. Var.

<2 dB

UNWANTED OUTPUTS**Harmonics**

<60 dB

Spurious

<30 dB

BEARING SIMULATION**Port-to-Port Relative Phase**

Range 0 to 359°

Resolution 1.0°

Accuracy ±1.0°

Port-to-Port Relative Amplitude

Range -15 to 0 dB

Resolution 0.25 dB

Accuracy ±0.25 dB

RANGE SIMULATION**Range**

500 ft to 160 NMI

Resolution

0.01 NMI

Accuracy

±0.01 nmi²

VELOCITY SIMULATION**Span**

-2000 kts to + 2000 kts

Resolution

1 kt

Accuracy

1 kt²

ALTITUDE SIMULATION**Range**

-1000 to 126700 ft

Resolution

10 ft

Accuracy

10 ft²

VERTICAL SPEED**Range**

-6000 to +6000 fpm

Resolution

1 fpm

Accuracy

±1 fpm²

RECEIVER OPERATION

Input VSWR

<1.2

UUT PEAK POWER MEASUREMENT**No Damage**

Max Peak 1000 W per port

Max CW 1 W per port

Normal Operation

Range 0.03 W to 500 W peak per port. 1030 ±10 MHz Video BW >12 MHz

Resolution 0.1 dB

Absolute Accuracy ±1 dB

Relative Accuracy ±0.25 dB

UUT FREQUENCY MEASUREMENT**Range**

1030 ±10 MHz

0.1 W to 500 W per port

Video BW >12 MHz

Resolution

1 kHz

Accuracy

±1 kHz (sample averaging)

UUT RELATIVE PHASE MEASUREMENT**Range**

0 to 359°, 1030 ±10 MHz

0.1 W to 250 W per port, Video BW > 12 MHz

Resolution

1°

Accuracy

±1°

UUT PULSE CHARACTERISTICS MEASUREMENT**Pulse Width**

Range 0.7 to 32 μS

Resolution 0.01 μS

Accuracy 0.01 μS

Pulse Spacing

Range 0.5 to 32 μS

Resolution 0.01 μS

Accuracy 0.01 μS

Pulse Rise and Fall Times

Range 0.04 to 0.4 μS

Resolution	0.01 μ S
Accuracy	0.01 μ S

UUT SPECTRUM ANALYSIS

Scan Center

1030 MHz

Scan Width

\pm 90 MHz

Resolution

0.1 MHz

Accuracy

Amplitude

\pm 3 dB

Frequency

\pm 0.1 MHz

Input Power

125 W to 500 W

Dynamic Range

>60 dB

POWER REQUIREMENTS

Voltage

115/230 VAC, 175 W

Frequency

50/60 Hz

Note 1: Non-standard reply pulse widths may be specified via the GPIB

Note 2: Stated accuracy is valid for most scenarios. The maximum error shall not exceed the displacement of the intruder in 0.1 second as allowed by D0185 par. 2.4.1.2w.

ENVIRONMENTAL

Temperature

15°C - 35°C

Relative Humidity

85% max non-condensing

PHYSICAL CHARACTERISTICS

Weight

109.5 lbs. (49.6 kg)

Height

12.25" (31.12 cm)

Width

19" (48.26 cm)

Depth

20" (50.80 cm)

ORDERING INFORMATION

When ordering please quote the full ordering number information.

Ordering

Numbers

Versions

614	RGS 2000-06 TCAS Reply Generator Collins ITS-700 Configuration
615	RGS 2000-11 TCAS Reply Generator Universal Configuration
616	RGS 2000-16 TCAS Reply Generator ATA TELI Configuration
618	RGS 2000-20 TCAS Reply Generator Allied Signal GAA Configuration
619	RGS 2000-21 TCAS Reply Generator w/o Spectrum Analyzer

OPTIONAL ACCESSORIES

663	TTA-100A TCAS Interface Unit (used in TPT-81A stations)
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EXTENDED WARRANTY

84392	WRGS/203C Extended standard warranty 36 months with scheduled calibration
84393	WRGS/205C Extended standard warranty 60 months with scheduled calibration

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.