

Specification Sheet

# VIAVI

## RGS-2000NG

### NextGen TCAS Test Set and ADS-B Target Generator

#### Transmitter

Frequency	
Range	952 MHz to 1223 MHz
Resolution	100 KHz
Accuracy	±10 KHz
Phase Noise	>80 dBc/Hz @ 100 KHz
Power <sup>1</sup>	
Range (TCAS)	-20 to -90 dBm [Low Power Mode] +1 to -69 dBm [High Power Mode]
Resolution	1.0 dB
Accuracy	±1 dB @ 1090 MHz
Range (Transponder)	-20 to -90 dBm
Resolution	1.0 dB
Accuracy	±1 dB @ 1030 MHz
Range (UAT)	+1 to -98 dBm
Resolution	1.0 dB
Accuracy	±1 dB @ 978 MHz
Range (Multi-Receiver)	-20 to -90 dBm [Low Power Mode] +1 to -69 dBm [High Power Mode]
Resolution	1.0 dB
Accuracy	±1 dB @ 1090 MHz
Range (DO-260B)	-20 to -90 dBm [Low Power Mode] +1 to -69 dBm [High Power Mode]
Resolution	1.0 dB
Accuracy	±0.5 dB at 1090MHz

1 - High Power Mode is not available when Avidyne OEM is selected

Range (Transmission Block)	-20 to -90 dBm [Low Power Mode] +1 to -69 dBm [High Power Mode]
Resolution	1.0 dB
Accuracy	±1 dB @ 1090 MHz

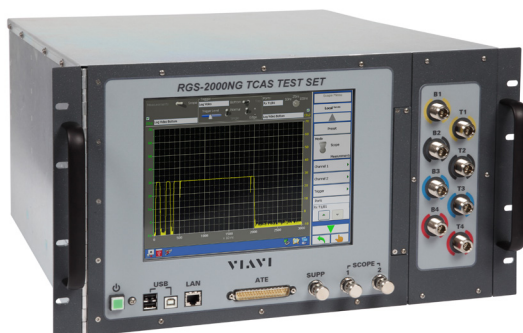
Spectral Purity	
Harmonics	>50 dBc
Spurious	>55 dBc, 350 to 1800 MHz
Residual FM	250 Hz Peak

Channels	
Nº. of Channels	6

Diversity	
Power	±20 dB
Resolution	0.1 dB
Accuracy	±1 dB
Timing	±1 µs
Resolution	25 nS
Accuracy	±10 nS

Modulation	
Pulse On/Off Ratio	>80 dB

Pulse Position (high speed rise/fall time mode)	
ATCRBS Replies Default	145 µs from previous pulse
Accuracy	±10 nS
ATCRBS Replies Variation	F1: 0 to 100 nS in 25 nS steps All other pulses: ±1000 nS
Resolution	25 nS
Accuracy	±10 nS
Mode S Replies Default	P1: 0 µs, P2: 1 µs, P3: 3.5 µs, P4: 4.5 µs
Accuracy	±10 nS
Mode S Replies Variation	P1: 0 to 1000 nS P2/P3/P4: ± 1000 nS
Resolution	25 nS
Accuracy	±10 nS



**Pulse Position (high speed rise/fall time mode) (continued)**

Mode A Interrogation P1- P3 Default	8.0 uS
Accuracy	±10 nS
Mode C Interrogation P1- P3 Default	21.0 uS
Accuracy	±10 nS
ATCRBS Interrogation P1-P2 Default	2.0 uS
Accuracy	±10 nS
ATCRBS Interrogation P3-P4 Default	2.0 uS
Accuracy	±10 nS
ATCRBS Interrogation Variation	±1.95 uS
Resolution	25 nS
Accuracy	±10 nS
Mode S Interrogation P1 to P2 Default	2.0 uS
Accuracy	±10 nS
Mode S Interrogation P1 to P2 Variation	±1.0 uS
Resolution	25 nS
Accuracy	±10 nS
Mode S Interrogation P1 to P6 Default	3.5 uS
Accuracy	±10 nS
Mode S Interrogation P6 Variation	±1.95 uS
Resolution	25 nS
Accuracy	±10 nS
Mode S Interrogation P2 to SPR Default	2.75 uS
Accuracy	±10 nS
Mode S Interrogation SPR Variation	±1.0 uS
Resolution	25 nS
Accuracy	±10 nS
Mode S Interrogation P5 prior SPR Default	400 nS
Accuracy	±10 nS
Mode S Interrogation P5 Variation	±1.95 uS
Resolution	25 nS
Accuracy	±10 nS
Interference Interrogation Signal #1	-175 to 400 uS
Resolution	25 nS
Accuracy	±10 nS
Interference Interrogation Signal #2	0 to 400 uS
Resolution	25 nS
Accuracy	±10 nS
Double Interrogation	0 – 400 uS
Resolution	25 nS
Accuracy	±10 nS
<b>Pulse Width (high speed rise/fall time mode)</b>	
ATCRBS Replies Default	0.45 uS
Accuracy	±10 nS
ATCRBS Replies Variation	F1: -400 to ±950 nS All other: ±400 nS
Resolution	25 nS
Accuracy	±10 nS (minimum 100 nS pulse width)

Mode S Replies Preamble Default	0.5 uS
Accuracy	±10 nS
Mode S Replies Preamble Variation	±400 nS
Resolution	25 nS
Accuracy	±10 nS
Mode S Reply Data Bits (Manchester)	0.5 uS
Accuracy	±10 nS
Mode S Reply Data Variation	±100 nS
Resolution	25 nS
Accuracy	±10 nS
ATCRBS Interrogation P1/P2/P3 Default	0.8 uS
Accuracy	±10 nS
ATCRBS Interrogation P4 Short	0.8 uS
Accuracy	±10 nS
ATCRBS Interrogation P4 Long	1.6 uS
Accuracy	±10 nS
ATCRBS Interrogation P1/P2/P3/P4 Variation	0 to 1.95 uS
Resolution	25 nS
Accuracy	±10 nS
Mode S Interrogation P1/P2 Default	0.8 uS
Accuracy	±10 nS
Mode S Interrogation P1/P2 Variation	0 to 1.95 uS
Resolution	25 nS
Accuracy	±10 nS
Mode S Interrogation P6 Short Default	16.25 uS
Accuracy	±10 nS
Mode S Interrogation P6 Long Default	30.25 uS
Accuracy	±10 nS
Mode S Interrogation P6 Variation	P6 Overall: -0.5 to ±1.45 uS (offset range) P6 End: 0 to 1.95 uS
Resolution	25 nS
Accuracy	±10 nS
Mode S Interrogation P5 Default	0.8 uS
Accuracy	±10 nS
Interference Pulse Width	0.2 to 32.0 uS
Resolution	25 nS
Accuracy	±10 nS
<b>Pulse Rise/Fall Time</b>	
TCAS	75/75 nS <sup>2</sup> 100/200 nS <sup>2</sup> 230/230 nS <sup>2</sup> 600/600 nS <sup>2</sup> <50/<50 nS
Accuracy	±25 nS; <50 nS for <50/<50
Transponder	<50/<50 nS
Accuracy	<50 nS

Pulse Amplitude	
ATCRBS Replies Variation	All pulses: 0 or -1 dB
Mode S Reply Variation	All preamble: 0 or -1 dB
Video Data Block Variation	+3 to -4 dB
Resolution	1 dB
Accuracy	±1 dB
ATCRBS Interrogation Variation	+9 to -19 dB
Resolution	1 dB
Accuracy	±1 dB
Interference	+9 to -19 dB
Resolution	1 dB
Accuracy	±1 dB
Pulse Enable	
ATCRBS Replies	All pulses: on/off
Mode S Reply	All preamble: on/off
Block Transmissions	
TCAS	1000 messages
XPDR	2000 messages
No. of Blocks	1 to 50,000 or indefinite
Interrogation Rate within Block	User defines spacing between interrogations
Period	10 ms to 90 seconds
Resolution	1 ms
Accuracy	±1 ms
PRF	
ATCRBS Interrogations	1 to 10,000 Hz
Resolution	1 Hz
Accuracy	0.1% of setting
Mode S Interrogations	1 to 2500 Hz
Resolution	1 Hz
Accuracy	0.1% of setting
Double Interrogation	
Each message:	1 to 2500 Hz PRF in sync or non-sync
Resolution	1 Hz
Accuracy	0.1% of setting
Interlace	1 to 400 Hz
Resolution	1 Hz
Accuracy	0.1% of setting

Interlace Ratio	
Ratio	1:1 to 1:1000
TCAS Bearing Simulation	
Bearing <sup>3</sup>	0 to 359 degrees
Resolution	1 degree
Accuracy	<u>Phase Bearing</u> 4-Port Formula: ±2 degrees 4-Port Standard Deviation: <1 deg at any simulated bearing Port-to-Port: ±4 degrees max to min deviation between any two adjacent ports <u>Magnitude Bearing</u> 4-Port Formula: ±2 degrees Power Table: ±0.556 dB (equivalent to ±2 degrees)
OEM	Honeywell Phase Collins Phase/Magnitude ACSS Magnitude Garmin Phase Avidyne Magnitude
TCAS Range Simulation	
Range	Mode S: 0 to 160 nmi Mode C: 0.5 to 160 nmi
Resolution	0.001 nmi
Accuracy	±0.01 nmi from 500 ft. to 30 nmi ±0.10 nmi from >30 nmi
TCAS Velocity Simulation	
Velocity	±2000 kts
Resolution	1 kt
Accuracy	±1 kt
TCAS Vertical Speed Simulation	
Vertical Speed	±32608 ft/min
Resolution	64 ft/min
Accuracy	±64 ft/min
TCAS Altitude Simulation	
Altitude	-1000 to 126700 ft
Resolution	25/100 ft up to 50175 ft 100 ft above 50175 ft
Accuracy	±25 ft
Mode	Gilham/Binary

<sup>3</sup> - Bearing accuracy specifications apply to the top antenna only when Avidyne OEM is selected.

## Receiver

<b>VSWR</b>	
< 1.4 (1030 MHz and 1090 MHz)	
<b>Max Input Power</b>	
+60 dBm	
<b>Antenna Simulation</b>	
OEM	Honeywell Phase
	Collins Phase/Magnitude
	ACSS Magnitude
	Garmin Phase
	Avidyne Magnitude
Antenna Resistors (Internal)	Honeywell Phase
	Collins Phase/Magnitude
	ACSS Magnitude
	RGS-2000NG can handle Collins Magnitude DC voltages to antenna
Arrangement	RGS-2000NG ports are arranged in the same manner as antenna.
	RGS-2000NG B2 and B4 are swapped for RGS-2000 B2 and B4
Cross-Coupling	Adjacent and Non-adjacent Ports: -15 to -19 dB
<b>Receiver Decoding</b>	
Messages	ATCRBS Interrogation and Replies Mode S Interrogations and Replies (T1 and B1 ports only) UAT Ground and Airborne Messages [UAT Option], (B1 port only)
<b>Dynamic Range</b>	
1030/1090 MHz	+17 to +60 dBm
UAT	+30 to +57 dBm
<b>Channels</b>	
No. of Channels:	2, Top/Bottom
<b>Measurement</b>	
Power	+17 to +60 dBm
Resolution	0.1 dB
Accuracy	±0.5 dB
TCAS Relative Phase	0 to 359 degrees; any port reference to T1/B1 Phase
Resolution	1 degree
Accuracy	±4 degree
Frequency Pulse Measurement Type	1030 MHz (±3 MHz)
Resolution	1 KHz
Accuracy	±50 KHz

Frequency 1030 Measurement Type	1030 MHz ±50 KHz
Resolution	100 KHz
Accuracy	±1 KHz
Pulse Spacing	
Resolution	1 nS
Accuracy	±10 nS
Pulse Width	
Resolution	1 nS
Accuracy	±15 nS
Pulse Rise/Fall Time	
Resolution	1 nS
Accuracy	±20 nS
ATCRBS Reply Delay	
Resolution	25 nS
Accuracy	±20 nS
Mode S Reply Delay	
Resolution	25 nS
Accuracy	±50 nS
Reply Jitter	
Resolution	25 nS
Accuracy	±20 nS

## Environmental

<b>Temperature</b>	
Full specified performance	23°C ±5° (73.4°F ±5°)
Operating	0° to +40°C (32° to +104°F)
Storage	0° to +71°C (32° to +159.8°F)
Relative Humidity	0 to 95% non-condensing

## Physical Characteristics

Size: Test Set Only	10.5"H x 19"W x 24" D (26.67 cm x 48.26 cm x 60.9 cm)
Weight	43 lbs. (19.5 kg)
Shipping Weight	58 lbs. (26.3 kg)

<b>Compliance</b>	
CE	
UL/EN 61010-1	
EN 61326-1	
MIL-PRF-28800F (Class 3 Device)	