

Transmitter

Frequency

Range	952 MHz to 1223 MHz
Resolution	100 KHz
Accuracy	± 10 KHz
Phase Noise	>80 dBc/Hz @ 100 KHz

Power¹

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

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

Note 1: High Power Mode is not available when Avidyne OEM is selected

Channels

No. of Channels	6
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Diversity

Power	± 20 dB
Resolution	.1 dB
Accuracy	± 1 dB
Timing	± 1 μ S
Resolution	25 nS
Accuracy	± 10 nS

Modulation

Pulse On/Off Ratio	>80 dB
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Pulse Position (high speed rise/fall time mode)

ATCRBS Replies Default	1.45 μ S 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 μ S P2: 1 μ S P3: 3.5 μ S P4: 4.5 μ S
Accuracy	± 10 nS
Mode S Replies Variation	P1: 0 to 1000 nS P2/P3/P4: ± 1000 nS
Resolution	25 nS
Accuracy	± 10 nS
Mode A Interrogation P1-P3 Default	8.0 μ S
Accuracy	± 10 nS
Mode C Interrogation P1-P3 Default	21.0 μ S
Accuracy	± 10 nS
ATCRBS Interrogation P1-P2 Default	2.0 μ S
Accuracy	± 10 nS
ATCRBS Interrogation P3-P4 Default	2.0 μ S
Accuracy	± 10 nS

<i>ATCRBS Interrogation Variation</i>	$\pm 1.95 \mu\text{S}$	<i>Mode S Replies Preamble Variation</i>	$\pm 400 \text{ nS}$
<i>Resolution</i>	25 nS	<i>Resolution</i>	25 nS
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Mode S Interrogation P1 to P2 Default</i>	2.0 μS	<i>Mode S Reply Data Bits (Manchester)</i>	0.5 μS
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Mode S Interrogation P1 to P2 Variation</i>	$\pm 1.0 \mu\text{S}$	<i>Mode S Reply Data Variation</i>	$\pm 100 \text{ nS}$
<i>Resolution</i>	25 nS	<i>Resolution</i>	25 nS
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Mode S Interrogation P1 to P6 Default</i>	3.5 μS	<i>ATCRBS Interrogation P1/P2/P3 Default</i>	0.8 μS
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Mode S Interrogation P6 Variation</i>	$\pm 1.95 \mu\text{S}$	<i>ATCRBS Interrogation P4 Short</i>	0.8 μS
<i>Resolution</i>	25 nS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>ATCRBS Interrogation P4 Long</i>	1.6 μS
<i>Mode S Interrogation P2 to SPR Default</i>	2.75 μS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>ATCRBS Interrogation P1/P2/P3/P4 Variation</i>	0 to 1.95 μS
<i>Mode S Interrogation SPR Variation</i>	$\pm 1.0 \mu\text{S}$	<i>Resolution</i>	25 nS
<i>Resolution</i>	25 nS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Mode S Interrogation P1/P2 Default</i>	0.8 μS
<i>Mode S Interrogation P5 prior SPR Default</i>	400 nS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Mode S Interrogation P1/P2 Variation</i>	0 to 1.95 μS
<i>Mode S Interrogation P5 Variation</i>	$\pm 1.95 \mu\text{S}$	<i>Resolution</i>	25 nS
<i>Resolution</i>	25 nS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Mode S Interrogation P6 Short Default</i>	16.25 μS
<i>Interference Interrogation Signal #1</i>	-17.5 to 400 μS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Resolution</i>	25 nS	<i>Mode S Interrogation P6 Long Default</i>	30.25 μS
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Interference Interrogation Signal #2</i>	0 to 400 μS	<i>Mode S Interrogation P6 Variation</i>	P6 Overall: -0.5 to +1.45 μS (offset range) P6 End: 0 to 1.95 μS
<i>Resolution</i>	25 nS	<i>Resolution</i>	25 nS
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Double Interrogation</i>	0 – 400 μS	<i>Mode S Interrogation P5 Default</i>	0.8 μS
<i>Resolution</i>	25 nS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>Interference Pulse Width</i>	0.2 to 32.0 μS
Pulse Width (high speed rise/fall time mode)		<i>Resolution</i>	25 nS
<i>ATCRBS Replies Default</i>	0.45 μS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$	<i>ATCRBS Replies Variation</i>	F1: -400 to +950 nS All other: $\pm 400 \text{ nS}$
<i>ATCRBS Replies Variation</i>	F1: -400 to +950 nS All other: $\pm 400 \text{ nS}$	<i>Resolution</i>	25 nS
<i>Resolution</i>	25 nS	<i>Accuracy</i>	$\pm 10 \text{ nS}$ (minimum 100 nS pulse width)
<i>Accuracy</i>	$\pm 10 \text{ nS}$ (minimum 100 nS pulse width)	<i>Mode S Replies Preamble Default</i>	0.5 μS
<i>Mode S Replies Preamble Default</i>	0.5 μS	<i>Accuracy</i>	$\pm 10 \text{ nS}$
<i>Accuracy</i>	$\pm 10 \text{ nS}$		

Pulse Rise/Fall Time

TCAS	*75/75 nS *100/200 nS *230/230 nS *600/600 nS <50/<50 nS *Lo Pwr Mode ONLY
Accuracy	± 25 nS; <50 nS for <50/<50
Transponder	<50/<50 nS
Accuracy	<50 nS

Pulse Amplitude

ATCRBS Replies Variation	All pulses: -1/0 dB
Mode S Reply Variation	All preamble: -1/0 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
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TCAS Bearing Simulation

Bearing ²	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
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TCAS Range Simulation

Range	Mode S: 0 to 160 nmi Mode C: 0.5 to 160 nmi
Resolution	0.001nmi
Accuracy	± 0.01 nmi from 500 ft. to 30 nmi ± 0.10 nmi from >30 nmi

Note 2: Bearing accuracy specifications apply to the top antenna only when Avidyne OEM is selected.

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

Receiver

VSWR	< 1.4 (1030 MHz and 1090 MHz)
Max Input Power	+60 dBm

Antenna Simulation

OEM	Honeywell Phase Collins Phase/Magnitude ACSS Magnitude Garmin Phase Avidyne Magnitude
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Antenna Resistors (Internal)	Honeywell Phase Collins Phase/Magnitude ACSS Magnitude
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RGS-2000NG can handle Collins Magnitude DC voltages to antenna

Arrangement	RGS-2000NG ports are arranged in the same manner as antenna.
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RGS-2000NG B2 and B4 are swapped from RGS-2000 B2 and B4

Cross-Coupling	Adjacent and Non-adjacent Ports: -15 to -19 dB
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Receiver Decoding

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)
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Dynamic Range

1030/1090 MHz	+17 to +60 dBm
UAT	+30 to +57 dBm

Channels

No. of Channels	2, Top/Bottom
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Measurement

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
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

<i>Mode S Reply Delay</i>	
<i>Resolution</i>	25 nS
<i>Accuracy</i>	± 50 nS
<i>Reply Jitter</i>	
<i>Resolution</i>	25 nS
<i>Accuracy</i>	± 20 nS

Environmental

Temperature

<i>Full specified performance</i>	23 ±5 degrees C
<i>Operating</i>	0 to +40 degrees C
<i>Storage</i>	0 to +71 degrees C
<i>Relative Humidity</i>	0 to 95% non-condensing

Physical Characteristics

<i>Height</i>	10.5 inches (26.67 cm)
<i>Width</i>	19 inches (48.26 cm)
<i>Depth</i>	24 inches (60.9 cm)
<i>Weight</i>	43 lbs. (19.5 kg)
<i>Shipping Weight</i>	58 lbs. (26.3 kg)

Compliance

CE
UL/EN 61010-1
EN 61326-1

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