

VIAVI

ATC-5000NG

NextGen ATC/DME Test Set and ADS-B Target Generator

Transmitter

| Frequency | |
|----------------------------|---|
| Range | 952 MHz to 1223 MHz |
| Resolution | 100 KHz |
| Accuracy | 2.5 ppm |
| Phase Noise | <-80 dBc/Hz @ 100 KHz |
| Power | |
| Range (Transponder) | +5 to -110 dBm |
| Resolution | 0.1 dB |
| Accuracy @ 1030 MHz | ±1 dB [+5 to -100 dBm] ±3 dB [< -100 dBm] |
| Range (UAT) | +5 to -100 dBm |
| Resolution | 0.1 dB |
| Accuracy | ±1 dB @ 978 MHz |
| Range (DME, Top Port Only) | +5 to -110 dBm |
| Resolution | 0.1 dB |
| Accuracy | ±1 dB [-100 to +5 dBm] ±3 dB [< -100 dBm] 952 to 1223 MHz |

| Spectral Purity | |
|---|----------------------------------|
| Harmonics | <-50 dBc |
| Spurious | <-55 dBc, 350 to 1800 MHz |
| Residual FM | 250 Hz Peak |
| Channels | |
| No. of Channels | 4 (XPDR/UAT) 6 (ADS-B Option) |
| 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) | |
| Mode A Interrogation P1-P3 Default | 8.0 µs |
| Accuracy | ±10 ns |
| Mode C Interrogation P1-P3 Default | 21.0 µs |
| Accuracy | ±10 ns |
| ATCRBS Interrogation P1-P2 Default | 2.0 µs |
| Accuracy | ±15 ns |
| ATCRBS Interrogation P3-P4 Default | 2.0 µs |
| Accuracy | ±15 ns |
| ATCRBS Interrogation Variation | ±1.95 µs |
| Resolution | 25 ns |
| Accuracy (P1-P3) | ±10 ns |
| Accuracy (P1-P2 and P3-P4) | ±15 ns |



Transmitter (continued)

| Pulse Position (high speed rise/fall time mode) - (continued) | |
|---|---------------------|
| Mode S Interrogation P1-P2 Default | 2.0 μ s |
| Accuracy | ± 10 ns |
| Mode S Interrogation P1-P2 Variation | ± 1.95 μ s |
| Resolution | 25 ns |
| Accuracy | ± 10 ns |
| Mode S Interrogation P6 to SPR Default | 1.25 μ s |
| Accuracy | ± 15 ns |
| Mode S Interrogation P6 Variation | ± 1.95 μ s |
| Resolution | 25 ns |
| Accuracy | ± 15 ns |
| Mode S Interrogation P2 to SPR Default | 2.75 μ s |
| Accuracy | ± 15 ns |
| Mode S Interrogation SPR Variation | ± 1.0 μ s |
| Resolution | 25 ns |
| Accuracy | ± 15 ns |
| Mode S Interrogation P5 prior SPR Default | 400 ns |
| Accuracy | ± 15 ns |
| Mode S Interrogation P5 Variation | ± 1.95 μ s |
| Resolution | 25 ns |
| Accuracy | ± 15 ns |
| Interference Interrogation Signal #1 (Relative to P1 Pulse) | -175 to 400 μ s |
| Resolution | 25 ns |
| Accuracy | ± 20 ns |
| Interference Interrogation Signal #2 (Relative to signal #1) | 0 to 400 μ s |
| Resolution | 25 ns |
| Accuracy | ± 10 ns |
| Double Interrogation | 0 to 400 μ s |
| Resolution | 25 ns |
| Accuracy | ± 10 ns |
| Pulse Width (high speed rise/fall time mode) | |
| ATCRBS Interrogation P1/P2/P3 Default | 0.8 μ s |
| Accuracy | ± 10 ns |
| ATCRBS Interrogation P4 Short | 0.8 μ s |
| Accuracy | ± 10 ns |
| ATCRBS Interrogation P4 Long | 1.6 μ s |
| Accuracy | ± 10 ns |

| ATCRBS Interrogation P1/P2/P3/P4 Variation | 0 to 1.95 μ s for P1, P2 and P3 0 to 2.75 μ s for P4 |
|--|---|
| Resolution | 25 ns |
| Accuracy | ± 10 ns (PW \geq .02 μ s) |
| Mode S Interrogation P1/P2 Default | 0.8 μ s |
| Accuracy | ± 10 ns |
| Mode S Interrogation P1/P2 Variation | 0 to 1.95 μ s |
| Resolution | 25 ns |
| Accuracy | ± 10 ns (PW \geq .02 μ s) |
| Mode S Interrogation P6 Short Default | 16.25 μ s |
| Accuracy | ± 10 ns |
| Mode S Interrogation P6 Long Default | 30.25 μ s |
| Accuracy | ± 10 ns |
| Mode S Interrogation P6 Variation | |
| P6 Overall | -0.5 to +1.45 μ s (offset range) |
| Resolution | 25 ns |
| Accuracy | ± 10 ns |
| Mode S Interrogation P5 Default | 0.8 μ s |
| Accuracy | ± 10 ns |
| Mode S Interrogation P5 Variation | 0.2 to 1.95 μ s |
| Resolution | 25 ns |
| Accuracy | ± 10 ns |
| Interference Pulse Width | 0.2 to 32.0 μ s |
| Resolution | 25 ns |
| Accuracy | ± 25 ns |
| Pulse Rise/Fall Time | |
| Transponder | <50 / <50 ns |
| Accuracy | <50 ns |
| Pulse Amplitude | |
| Video Data Block Variation | +3 to -4 dB |
| Resolution | 1 dB |
| Accuracy | ± 1 dB |
| ATCRBS Interrogation Variation | +9 to -19 dB |
| Resolution | 0.1 dB |
| Accuracy | ± 0.5 dB |
| Interference | +9 to -19 dB |
| Resolution | 0.1 dB |
| Accuracy | ± 0.5 dB |

Transmitter (continued)

| Block Transmissions | |
|------------------------------------|---|
| Unique Messages | 1 to 2000 messages |
| No. of Blocks | 1 to 50,000 |
| Interrogation Spacing within Block | User defines spacing between interrogations: Min: 10 μ s Max: block period -120 μ s |
| Resolution | 1.0 μ s |
| Period | 10 ms to 90 seconds |
| Resolution | 1 ms |
| Accuracy | ± 1 ms |
| PRF | |
| Single Interrogation | 1 to 10,000 Hz |
| Resolution | 1 Hz |
| Accuracy | 0.1% of setting |
| Double Interrogation | |
| Each message: | 1 to 10 KHz |
| PRF | in sync or non-sync |
| Resolution | 1 Hz |
| Accuracy | 0.1% of setting |
| Interlace | 1 to 10 KHz |
| Resolution | 1 Hz |
| Accuracy | 0.1% of setting |
| Interlace Ratio | |
| Ratio | 1:1 to 1:1000 |
| DME Simulation | |
| Ident Frequency | 1350 Hz |
| Accuracy | $\pm 0.02\%$ |
| Dot Default | 120 ms |
| Accuracy | ± 1 ms |
| Dot Variation | 50 to 250 ms |
| Resolution | 10 ms |
| Accuracy | ± 1 ms |
| Dash Default | 360 ms |
| Accuracy | ± 1 ms |
| Dash Variation | 150 to 750 ms |
| Resolution | 10 ms |
| Accuracy | ± 1 ms |
| Space Default | 150 ms |
| Accuracy | ± 1 ms |
| Space Variation | 50 to 250 ms |
| Resolution | 10 ms |
| Accuracy | ± 1 ms |
| Code Rate Default | 30 s |
| Accuracy | ± 100 ms |

| | |
|----------------------------------|-----------------------------------|
| Code Rate Variation | 10 to 65 s |
| Resolution | 0.1 s |
| Accuracy | ± 100 ms |
| Echo Range | 30 nmi |
| Accuracy | ± 0.02 nmi |
| Range | 0 to 400 nmi |
| Resolution | 0.01 nmi |
| Accuracy | ± 0.02 nmi |
| Velocity | 0 to 10000 knots |
| Resolution | 1 knot |
| Accuracy | $\pm 0.001\%$ |
| Acceleration | 0 to 400 ft/s ² |
| Resolution | 1 ft/s ² |
| Accuracy | $\pm 0.05\%$ of setting |
| Squitter | 0 to 8000 Hz |
| Resolution | 1 Hz |
| Accuracy | 10 Hz or 2%, whichever is greater |
| Spectrum at ± 800 KHz Offset | < -52 dBc |
| Reply Efficiency | 0 to 100 % |
| Resolution | 1% |
| Accuracy | $\pm 0.5\%$ |

Receiver

| VSWR | |
|------------------------|---|
| <1.4 (952 to 1223 MHz) | |
| Max Input Power | |
| +60 dBm | |
| Receiver Decoding | |
| Messages | ATCRBS Interrogation and Replies |
| | Mode S Interrogations and Replies |
| | UAT Ground and Airborne Messages [UAT Option] |
| | DME Interrogations |
| Channels | |
| No. of Channels | 2, Top/Bottom |
| Measurement | |
| Power | +17 to +60 dBm |
| XPDR | 1090 ± 3 MHz |
| DME | 1025 to 1150 MHz |
| Resolution | 0.1 dB |
| Accuracy | ± 0.5 dB |

Receiver (continued)

| Measurement (continued) | |
|-------------------------|--|
| Frequency (XPDR) | 1090 MHz \pm 3 MHz |
| Resolution | 1 KHz |
| Accuracy | \pm 50 KHz |
| Frequency (DME) | RX Channels (1025 to 1150 MHz \pm 1 MHz) |
| Resolution | 1 KHz |
| Accuracy | \pm 20 KHz |
| Pulse Spacing | |
| Resolution | 1 ns |
| Accuracy | \pm 10 ns (XPDR) \pm 50 ns (DME) |
| Pulse Width | |
| Resolution | 1 ns |
| Accuracy | \pm 15 ns (XPDR) \pm 50 ns (DME) |
| Pulse Rise/Fall Time | |
| Resolution | 1 ns |
| Accuracy | \pm 15 ns (XPDR) \pm 100 ns (DME) |
| Reply Delay (XPDR) | |
| Resolution | 25 ns |
| Accuracy | \pm 50 ns |
| Reply Jitter | |
| Resolution | 1 ns |
| Accuracy | \pm 20 ns |

Environmental

| Temperature | |
|---|--------------------------------------|
| Requires 45 minute warm-up period to meet specified performance | |
| Full specified performance | 23°C, \pm 5°C (73.4°F, \pm 41°F) |
| Operating | 0 to +40°C (32° to 104°F) |
| Storage | 0 to +71°C (32° to 159.8°F) |
| Relative Humidity | 0 to 95% noncondensing |

Physical Characteristics

| | |
|------------|--|
| Dimensions | 10.5 in x 19 in x 24 in (26.7 cm x 48.3 cm x 60.9 cm) |
| Weight | 41 lbs (18.6 kg) test set only |

Functional Characteristics

| Remote Interface |
|---|
| Ethernet |
| GPIB |
| Inputs/Outputs |
| Suppression bus (front/back) |
| 2 scope BNC outputs (front/back) |
| LAN (front/back) |
| 2 USB Type A (front) for HID/flash drives |

Test Set Certifications

| |
|---------------------------------|
| MIL-PRF-28800F (Class 3 Device) |
| CE |
| UL/EN 61010-1 |
| EN 61326-1 |



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