

3300 SBSS ADS-B RADIO



Security & Information Systems

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THE MODEL 3300 WAM/ADS-B RADIO IS THE FOUNDATION OF A FULL-FEATURED WIDE AREA MULTILATERATION (WAM) OR ADS-B GROUND NETWORK, INTEGRATING ALL EQUIPMENT IN EXISTING TELECOMMUNICATIONS POWER DELIVERY SYSTEMS. IT MAY BE INTEGRATED WITH COMMERCIAL OFF THE SHELF (COTS) AC-DC POWER SUPPLIES AND BATTERY CHARGERS ALLOWING EASY ADAPTATION TO LOCAL POWER AND BACKUP REQUIREMENTS AND PROVIDES REDUNDANT NETWORK OUTPUTS FOR HIGH RELIABILITY SURVEILLANCE NETWORKS.

SYSTEM DESCRIPTION

The 3300 radio consists of two components, the 1090 radio unit and UAT radio unit. Both units are mountable in an industry standard 19" rack, operating from -48 VDC power.

The 1090 Radio Unit integrates all communications equipment and a 1, 2, or 4 channel 1090 receiver and 1090/1030 agile transmitter. The 1090 receiver can decode ATRBS, Mode-S, and ADS-B surveillance replies and squitters, while meeting or exceeding degarbling requirements for DO-185B ATRBS and DO-260B A3. The transmitter supports both generations of TIS-B/ADS-R target uplinks at 1090 MHz and interrogation legacy airborne transponders at 1030 MHz. The 1030 MHz interrogator supports Mode-A, Mode-C, and Mode-S (DF4/5 or DF20/21) interrogations.

The UAT Radio Unit integrates a 1 or 2 channel UAT transceiver with a 1030 MHz receiver. The UAT transceiver operates on the 978 MHz band and receives UAT ADS-B target reports, and generates TIS-B/ADS-R target uplinks and FIS-B uplinks. The 1030 MHz receiver decodes Mode-A, Mode-C, and Mode-S interrogations.

TECHNICAL FEATURES

- Supports FAA CAT033 and CAT023, as well as EUROCONTROL CAT021, CAT023, and CAT247 surveillance reports on redundant 1 GBit LAN connections.
- Accepts FAA CAT033 and EUROCONTROL CAT062 target reports for the generation of TIS-B and ADS-R uplinks in either the 1090ES or UAT link formats.
- Accepts UAT FIS-B uplink commands for providing extended data such as weather data or NOTAMs.
- Provides SNMP, SSH, SFTP and web-based maintenance interfaces, supported on both the redundant surveillance LAN ports and a dedicated 1 GBit Maintenance LAN connection.
- Allows basic maintenance to be performed through the available serial maintenance port.

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	1090 RX	UAT RX	1030 RX
Downlink Format	ATCRBS: A, C Mode-S: DF 0, 4, 5, 11, 17, 18, 19, 20, 21	ADS-B	ATCRBS and Mode-S
Sensitivity	-88 dBm	-98 dBm	-84 dBm
Time Stamp Accuracy (ns RMS Error to UTC)	30 ns at -88 dBm	30 ns at -90 dBm	N/A
Capacity	250 Targets/Channel 1000 Targets in Aggregate	800 Targets/Channel 1600 Targets in Aggregate	250 Messages/Sec
Channels	1, 2, or 4	1 or 2	1
MTBF	>50,000 Hours	>50,000 Hours	>40,000 Hours
Message Fault Probability	<0.5x10 ⁻⁵	<0.5x10 ⁻⁵	<0.5x10 ⁻⁵
BITE	Test Message Ingestion at Antenna Port		

	1090/1030 TX (shared transmitter)	UAT TX
Uplink Format	1090: TIS-B, ADS-R 1030: Mode A/C, UF 4/5/20/21	TIS-B, ADS-R, GUL
Peak Output Power	57.7 dBm	52.5 dBm
TX Power Control	28 dB	14 dB
Duty Cycle	6.8% (>1000 Mode-S ES/Sec)	12.3% (5 GULs/Sec + 250 ADS-B/Sec)
MTBF	>30,000 Hours	>30,000 Hours
Message Fault Probability	<0.5x10 ⁻⁵	<0.5x10 ⁻⁵
BITE	Forward Power, VSWR, Antenna Continuity	

Environment	-10C to +50C, Fan-less operation at 20 Deg C at full TX Duty Cycle
Clock	Oven Oscillator with GPS Stabilization (or optional External Atomic)
Maintenance	Integrated browser based maintenance interface SNMP
MTRR	<30 Minutes
Output	Redundant Ethernet
Digital IO	6 Inputs/6 Outputs (Form-C Relay) (SCADA Function)
Power	-48 VDC, <450 Watts with both transmitters at max duty cycle, <30Watts in Standby Mode

Standards	
ICAO Annex 10	
RTCA DO-144A	
RTCA DO-181D	
RTCA DO-185B	
RTCA DO-260B (support for DO-260 message formats versions 0-2)	
RTCA DO-282B (support for DO-282 message formats versions 0-2)	



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