TSS SOLUTIONS

TSS TPS-43
Radar System

We've Got Your Track™

SPECIFICATION	UPA 62 DISPLAY	TSS PPI DISPLAY
Performance		
3D Range	445 km / 240 nmi	445 km / 240 nmi
Small Target Detection	2.5 m2 at 408 km / 220 nmi	1 m2 at 180 nmi
Probability of Detection Pd	80%	90%
False Alarm Rate Pfa	1 x 10 -6	1 x 10 - 5
Data Rate	10 Seconds (6 rpm antenna)	10 Seconds (6 rpm antenna)
Elevation coverage	to 20 degrees	to 20 degrees
Height Accuracy	+/- 457 m at 185 km +/-1500 ft. at 100 nmi	+/- 400 m at 185 km +/-1200 ft. at 115 nmi
Azimuth Resolution	1.1 degrees	1 degree
Range Resolution	3400 Feet	3400 Feet
Availability	> 95% MTBCF > 5 years	MTBCF > 5 years
ECM and DCCM Capabilities	13-bit Barker Code	13-bit Barker Code
TRANSMITTER		
Frequency	S-Band	S S-Band
Power Output	2.8 MW typical 6.5 uSec Pulse Fixed, Stagger	4 MW adjustable by a percentage of modulation HV Fixed, Stagger
Frequency Modes	Fixed, Agile, or MTI agility (16 Frequencies 4 sets)	Fixed, Agile, or MTI agility (16 Frequencies 4 sets)
Type	Twystron is driven by broadband TWT	Klystron is driven by a new Solid State 4 KW Driver
Stability of Transmitter	5 degrees pulse to pulse (@.5 nanosec)	2.5 degrees pulse to pulse (@.25 nanosec)
Duty Cycle	6.5 uSec Pulse	6.5 uSec Pulse
Modulator Output Pulse	35KV 6.5Usec pulse / 135KV Final	1.2Kv x9, 60% at 1.2Kv x3 / Final 100-125 kV 80-100 Amps (Tube Dependent)
RF Driver	1.5 kW min	4 kW Solid State with adjustable gain
Upgrade Frequency- Generator	JATS, MTI Pulse, Pulse Stagger Mode Analog Generation	JATS, MTI Pulse, Pulse Stagger Mode Upgraded Frequency Synthesizer and Filter

DESCRIPTION	TPS-43 SPECIFICATIONS	TSS TPS-43 SPECIFICATIONS
Receiver / Processor		
Type and Number	7 log RX channels, 6 for Rx, 1 for reference channel, sidelobe blanking, and JATS	Array Signal Amplifiers on antenna - 13 channels, 7 log RX channels, 6 for Rx, 1 for reference channel, sidelobe blanking, and JATS
Receiver Bandwidth	200 Mhz	200 Mhz
Dynamic Range incl. STC	70 dB search / 75 dB Height	100 dB w/ STC
Signal to Noise Ratio	4.5 dbdB	1.5 dB
ECCM	JATS, CPACS, agility, CFAR, PRF Stagger	JATS, Fixed, Agile, MTI agility, Stagger
Digital MTI	4 separate MTI channels, 3 pulse cancellers, digital integration, 4 pulse cancellers available as plug- in option	4 separate MTI channels, 3 pulse cancellers, digital integration, 4 pulse cancellers available as plug-in option / Video post-processing for additional tracker enhancement
MTI Improvement Factor	>29 dB	>/= 48 dB
Minimum Target Speed	Fixed analog	Adjustable in Tracker
PRF Baseline	245,250,258 Hz	245,250,258 Hz
PRF Stagger	6 PRT's around 250 Hz	6 PRT's around 250 Hz
Details on Normal/Search Processing Detection Threshold	2.5 m^2 80% 160nm@20K	1 m swirling @ 180 nM
Antenna		
3-D radar antenna	Multiple 6 beams 38 dB gain, Beamwidth 1.1 degrees	13 waveguide channels with ASA small signal low noise amplifiers extend detection ranges well beyond previous designs, 50 dB gain, Beamwidth 1 degree
IFF Antenna	Hi-Res ISLS antenna mount- ed on the primary antenna, 4 degrees Beamwidth	Hi-Res ISLS antenna mounted on the primary antenna, Hybrid diplexer coupler for secure mode transmissions, 3.6 degrees beamwidth
Rotary Joint	Standard original unit 3.2 M watt max Slip rings on beryllium wires	New Roll Ring IF and power slip rings, High power rated to 4 M watts. Life expectancy well beyond the previous model, Fiber interface allows enhanced future modifications on antenna rotating platform

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