



TSS MAX TPS-43 Radar System





Description	TPS-43 Specifications	TSS MAX-43 Specifications
Performance		
3D Range	445 km / 240 nmi	445 km / 240 nmi
Small Target Detection	2.5 m ² at 408 km / 220 nmi	1 m ² at 180 nmi
Probability of Detection Pd	80%	90%
False Alarm Rate Pfa	1 x 10 ⁻⁶	1 x 10 ⁻⁶
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	1.1 degrees
Range Resolution	152 m (500 ft.)	76 m (250 ft.)
Availability	> 95%	MTBCF > 5 years
ECM and DCCM Capabilities	13 bit Barker Code	13 to 100 bit Barker Code
Transmitter		
Frequency	S-Band	S Band
Power Output	3.5 MW typical 6.5 uSec pulse fixed	4 MW adjustable by pulse width 6.5 to 245 uSec
Frequency Modes	Fixed, Agile or MTI agility (16 Frequencies)	Fixed, Agile, MTI agility, MTD, STAE, MTD, VIP, Stagger, (100 Frequencies) 5 of 20 selected by software
Type	Twystron driven by broadband TWT	Klystron driven by Solid State Driver
Stability of Transmitter		1 x 10 ⁻¹¹ Year GPS Supervised
Duty Cycle		.2145% @ 6.5 uSec Pulse, 6% @ 245 uSec Pulse (Pk 3.4Meg - 113Kw/Avg 24-26Kw maintained)
Modulator Output Pulse		100-125 kV 80-100 Amps (tube dependent)
Vision upgrade RF Driver		4 kW Solid State with adjustable gain.
Vision upgrade FrequencyGenerator		GPS Supervised accuracy and stability, JATS, MTI Pulse, Pulse Stagger Mode. New modes: Long Pulse, Extended Pulse, Extended Barker Code, Digital Chirp 100 Channels



Description	TPS-43 Specifications	TSS MAX-43 Specifications
Receiver / Processor		
Type and Number	7 log rx channels, 6 for Rx, 1 for reference channel, sidelobe blanking and JATS	Digitized on antenna 13 channels (13 individually processed channels)
Receiver Bandwidth		Approx. 8 MHz for Doppler Processing
Dynamic Range incl. STC		100 dB w/ STC
Signal to Noise Ratio		2 dB improvement
ECCM	JATS, CPACS, agility, CFAR, PRF Stagger	JATS, Fixed, Agile, MTI agility, MTD, STAE, MTD, VIP, Stagger
Digital MTI	4 separate MTI channels, 3 pulse cancellers, digital integration, 4 pulse cancellers available as plug in option	Processing digital
MTI Improvement Factor	30 dB	>/= 52 dB
Minimum Target Speed		TBD
PRF Baseline		250 Hz 500 Hz
PRF MTD		250-500 Hz for future special modes power level dependent. 112 kW to 4 MW (112 Kw 245 micro sec 240 mile mode)
PRF Stagger		7 PRT's around 275 Hz, 7 PRT's around 250 Hz
Details on MTI Processing		200 bit code
Details on Normal/Search processing detection threshold		1 m swirling @ 180 nM
Antenna		
3-D radar antenna	Multiple 6 beams 40.6 dB gain	13 beams tailored input processing
IFF Antenna	Hi-Res ISLS antenna mounted on primary antenna	Hi-Res ISLS antenna mounted on primary antenna

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