

RADAR SYSTEM SPECIFICATIONS

SPECIFICATIONS

EXHIBIT # 1

ANTENNA

Type — Modified parabolic reflector with integral search and IFF feedhorn system

Aperture — Greater than 15 feet horizontal, and 9 feet vertical

Beamwidth

Azimuth: 4 degrees maximum (measured 3.8 degrees)

Elevation: 8 degrees with greater-than-cosecant-squaring above 7 degrees

Polarization

Search: Horizontal

IFF: Vertical

Gain

Search: 27 dB at 7 degrees; 29 dB at peak of beam

IFF: 25 dB at 7 degrees; 27 dB at peak of beam

Lobes

Side lobes down 25 dB min.

Back lobes down 30 dB min.

Lower vertical lobes down 30 dB min.

Positioning

Azimuth: Electrically driven clockwise at 6 RPM.

Elevation: Manually adjustable from -3 degrees to +6 degrees

TRANSMITTER

Type — Pulsed magnetron oscillator (QK358) with DC resonant line charging modulator

Power — 1 MW minimum pulse power

Pulse Width

1.4 usec for use with PRF up to 800 pps and 2.8 usec for use with PRF up to 400 pps

Pulse Repetition Frequency

Internal: Three basic rates staggered with four different inter-pulse periods. Maximums of these rates are 800, 533, and 400 pps

External: Will follow any PRF up to 800 pps in the 1.4 usec mode and 400 in the 2.8 usec mode.

Frequency

Continuously tunable over 1.25 to 1.35 GHz range

RECEIVER

Type — Low-noise, solid-state RF amplifier followed by image rejection heterodyne receiver having several IF processing circuits

Noise Figure — 3 dB maximum specification value, typically 2.5 dB

Image Rejection — 20 dB

IF Frequency — 30 MHz

IF Amplification — Linear or logarithmic

Dynamic Range — 65 dB

Limiting Modes — Wideband-limiting and/or noise-limiting

IF Bandwidth — 1 MHz for 1.4 usec pulse mode 1/3 MHz for 2.8 usec pulse mode

RF Bandwidth — 10 MHz

Sensitivity

Specifications: -109.5 dBm (typically -111 dBm) for 1 MHz bandwidth, and -115 dBm for 1/3 MHz bandwidth

Automatic Frequency Control — Single knob tuning of system, local oscillator follows transmitter frequency automatically

Sensitivity Time Control

Selectable ON/OFF, 12 dB per octave with four octaves of range

Signal-to-Noise Ratio—Adjustable, typically set to 4:1 nominal

Signal Processing

Moving Target Indicator (MTI)

Digital, 3-pulse canceller with staggered PRF. Provides 42 dB cancellation ratio with no significant blind speeds (first blind speed in excess of 3000 knots)

Video Sweep Integrator (VSI)

Digital Integrator with 0.875 feedback factor. Provides two independent VSI channels. One is for MTI video and the other is for Normal video. Both channels are simultaneously available.

Pulse Width Discriminator (PWD)

Pulse blanking type: Eliminates video signals having widths less than 1 usec or greater than 2, 3, or 4 usec. (Upper blanking width is manually selectable.)

OPERATOR'S DISPLAY CONSOLE

Type — 16" PPI

Range Strobe/Cursor — Trackball controlled. Electronic readout of range and bearing

Off Centering — One radius in any direction

Display ranges — 10 to 200 Nautical Miles

Display Channels — Separate video mixing for MTI/VSI, Normal/VSI, IFF/SSR, Normal plus one spare video channel

Range Marks — 2, 5, 10, 25 Nautical Mile rings with independent intensity control

MTI Gate — Operator control of point in range at which displayed video switches from MTI to normal

INTERROGATOR

~~Frequency — 1030 MHz transmit, 1090 MHz receive~~

~~Peak Power — 2000 W (min)~~

~~Modes — 1, 2, 3 and C can be inter-laced~~

~~Receiver Bandwidth — 8 MHz~~

INTERFERENCE BLANKER

Signal to Noise enhancement — Automatic noise thresholding and pulse width discrimination

Blanking — Four mode pulse-to-pulse defruiting

Outputs — Separated, Composite, Tagged video

DECODER

Mode Compatibility — 1, 2, 3, C

Interlace — Any

Passive Decoding — 4 Channels, Selectable Modes 1, 2 and 3

Selected Altitude Layer — 4 Channels, Selectable Modes 1, 2 and 3

Selected Altitude Layer — 0 to 99,000 feet in 1000 ft increments

Active Readout — 1 target 2 modes, 2 targets 2 modes, 4 targets 1 mode

Unique symbology for each type of decode

Alarms — 7600 for Communications failure, 7700 for Civil Emergency, 4X for Military Emergency, Communication Emergency (7600), audible and visual emergency alarms are also actuated on the decoder.

POWER REQUIREMENTS

3-phase, 120/208 volt, 4-wire, 400 cps

40 kW (maximum) including approximately 15 kW for air conditioning/heating

WEIGHTS AND DIMENSIONS

Shelter Group

Weight: 4420 pounds

Dimensions: Length — 148 inches; Width — 87 inches; Height — 84 inches

Antenna Group

Weight: 4142 pounds

Dimensions: Length — 145 7/8 inches; Width — 87 inches; Folded Height — 90 inches