

TECHNICAL CHARACTERISTICS

OF THE

KHDD-1000C RADAR SYSTEM

1.0 System Overview

The KHDD-1000C Radar System consists of a fully coherent transmitter, receiver, digital signal processor and a horizontally polarized 1 degree pencil shaped beam antenna with the capability to be scanned over a hemispherical volume consisting of 360 degrees in Azimuth and 0 to 90 degrees in elevation. The digital signal processor employs algorithms to process weather events for display, including "rainfall rate", "radial wind velocities", "turbulence", and rainfall accumulation. These weather data are made available to the Meteorologist for analysis and dissemination.

2.0 Technical Characteristics

The following tables describe the technical characteristics of the KHDD-1000C Radar System Transmitter and Receiver:

2.1 Transmitter Characteristics

<i>Nomenclature</i>	<i>Comments</i>
Transmitter Type	Klystron Power Amplifier
Operating Frequency	Adjustable from 5600MHz - 5650MHz
Duty Cycle	.0015%
PRF	Preset Modes, ranging from 333pps to 1180pps
Pulse Widths	Preset Modes, ranging from .8μs – 4.5μs, Chirped at 4.5μs & 1.25MHz compressed to .8μs
Pulse Peak Power	1.25 MW
TR Switch	3-port Circulator with Solid-State TR limiter

Fig. 1

2.2 Receiver

<i>Nomenclature</i>	<i>Comments</i>
Receiver Type	Fully Coherent Super heterodyne, employing double up conversion from a 60MHz source in the Signal Processor
Noise Figure	3dB Maximum
Digital Stalo	Digitally Tuned Phase Lock Loop
Intermediate Frequency	60MHz stable frequency
IF Processor	IF is Digitized to 14-bits and coupled to the digital signal processor, Digitizer rate is ~74MHz
Receiver Bandwidth	Matched Filter of 1/tau implemented digitally by the signal processor
Dynamic Range	Dependent on receiver bandwidth, ranges from 90dB to 110dB
Sensitivity	As low as -130dB in wide pulse

Fig. 2