Transmitter-Receiver Subsystem Characteristics	
Transmitter	
Magnetron Type	Coaxial long-life vacuum tube – EEC 2729
Modulator Type	Solid State Modulator
Operating Frequency	Tunable over the range of 2700 to 2900 MHz
Pulse repetition frequencies PRF) Intensity	250 ± 1 PPS to 1200 PPS
Frequency Stability	< 1 in 10^9 Hz/sec
Pulse Duration Intensity/Reflectivity	0.8 µsec or 2.0 µsec
Peak Power	850 kW
Receiver	
Operating Frequency	2700 to 2900 MHz
Input Noise Factor	≤2 dB Maximum
Mixers	Balanced Coaxial
Local Oscillator	Frequency Synthesizer with AFC
IF Amplifier	Logarithmic
Intermediate Frequency	30 MHz
IF Bandwidth: 2.0 µsec Pulse 0.8 µsec Pulse	 750 KHz ±250 KHz 1.5 MHz ±250 KHz
Dynamic Range Log Receiver	 ≥100 dB
Sensitivity(MDS)	-113 dBm minimum in long pulse -110 dBm minimum in short pulse
Video Types Intensity Mode	 Logarithmic

Antenna Subsystem Characteristics		
Reflector		
Reflector Type	Solid-Surface Parabolic	
Feed Horn Types Standard Optional	 Rectangular Horn Dual Polarization with Multi-Mode Horn	
Diameters Available 3.22 - 8.5m	**Beam widths @ 2800 MHz** 0.95 - 2.13°	**Gain** 38 - 45 dB
Operating Frequency	2700 - 2900 MHz	
Wavelength	10.7 cm at 2800 MHz	
Polarization	Linear Horizontal	
Side Lobes	≥25 dB down from main lobe	
Pedestal		
Type	Elevation over Azimuth	
Azimuth Acceleration	> 15° sec^2	
Azimuth Deceleration	> 15° sec^2	
Azimuth Rotation	360°	
Azimuth Pointing Accuracy	± 0.1°	
Azimuth Display Resolution	± 0.1°	
Elevation Movement Range	-2° to + 90°	
Elevation Speed Manual Mode Automatic Mode	 Variable from 0 to 15° sec Software controlled up to 5 scans per minute	
Elevation Pointing Accuracy	± 0.1°	
Elevation Display Resolution	± 0.1°	
Safety Devices	Safe switch on pedestal and servo control panel Access door interlock	
Servo Amplifier		
Type - Digital	Solid-state two axes, DC PWM control voltage for Brushless motors	

AWR-8500S Radar System Environmental Specifications			
Outdoor Equipment			
	Temperature		**Humidity**
	Minimum	**Maximum**	
Operating	-40°F	+120°F	10% - 100%
	-40°C	+50°C	
Non-Operating	-50°F	+140°F	10% - 100%
	-58°C	+60°C	
Indoor Equipment			
	Temperature		**Humidity**
	Minimum	**Maximum**	
Operating	+50°F	+95°F	10% - 90%
	+10°C	+35°C	10% - 90%
Non-Operating	-40°F	+130°F	10% - 90%
	-40°C	+60°C	10% - 90%

AWR-8500S Approximate Weights, Dimensions, and Power Consumption					
Unit	**Weight Kg**	**Height cm**	**Width cm**	**Depth cm**	**Average Power Watts**
14' Antenna/Pedestal	840	N/A	N/A	N/A	N/A
Transmitter/Receiver	523	168	130	61	3000
Servo Assy	130	160	60	66	1500
Rapic Interface Assy	130	180	60	80	1200

Specification subject to change due to product improvements

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incorporating - mindata australia seismology research centre

AWR-8500S

Transmitter/Receiver

Unequalled Long Range Detection
850 KW Very High Power Transmitter
Long-Life Magnetron
Extremely Stable Frequency Synthesizer
> 98% System Availability

Antenna/Pedestal System

Precise, Reliable, Low Maintenance Antenna/Pedestal Subsystems with digital servo and brushless motors. Available in sizes to fit every application.

The Power to See Further

The AWR-8500S Series is the most powerful commercial S-Band weather radar available. A direct development from the field proven WSR-88 and WSR-93 series radar systems, the AWR-8500S extends and expands the tradition of excellence with state-of-the-art design, including: a precise high voltage modulator, improved receiver performance, improved antenna pedestal drive train, and a choice of full-featured control and display systems. With more radiated power than any other commercially available weather radar, the AWR-8500S provides the best range performance for observing multiple long-range weather phenomena. Precise processing eliminates virtually all ground clutter from the radar screen, leaving a clean and true picture of the rain and wind at the longest practical, useful ranges.

Since incorporation in 1971, EEC has been the world leader in the design and manufacture of high-performance weather radar systems. Today, the EEC advanced hardware combined with the Australian Bureau of Meteorology weather analysis software, RAPIC©, continues to set the industry standard for innovation, reliability, and value.

3D RAPIC©

3D RAPIC© is an innovative, full featured, PC based radar control and data display system developed by the Australian Bureau of Meteorology, and utilises the latest features of the Linux operating system. This powerful weather radar display system is designed to offer the professional meteorologist and government organisations with a sophisticated display, product generation, data archiving and networking capability. A feature of the RAPIC system is the ability to automatically integrate the data from multiple radars into each RAPIC workstation displays allowing wide area meteorological interpretation.

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RADAR CONTROL AND DATA ANALYSIS SOFTWARE

3D Rapic©

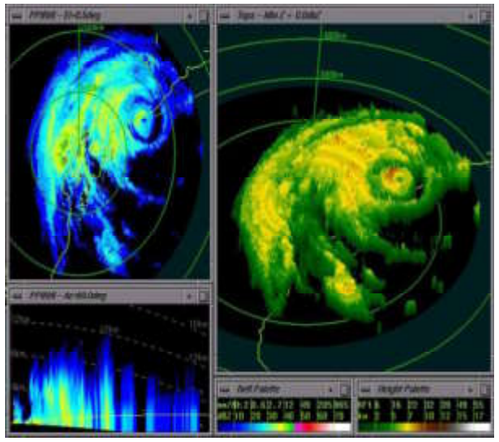
The 3D Rapic Processing and Display System is a Radar situation display, designed specifically for the display of volumetric (3 dimensional) weather radar data. Rapic provides the end user with a facility to conveniently view sequenced or real time weather radar data from single or multiple radar sites. Rapic runs on a powerful PC platform under the Linux Operating System.

Rapic was developed by the Australian Bureau of Meteorology to provide an easy to use but extremely capable display system for their extensive network of weather radars. It has been in use for over 13 years and has been widely adopted by media, airlines, mining and construction companies and public authorities, and is in extensive service throughout South East Asia and the South Pacific.

3D Rapic allows the volumetric data to be viewed in a number of different ways, such as PPI, RHI, Echo Tops, VIL (Vertically Integrated Liquid), CAPPI etc. through windows on the display screen. A number of different representations may be simultaneously displayed. Map overlays are supported.

The system contains all of the necessary communications and database infrastructure to allow data from a number of volumetric and standard surveillance Rapic radar sites to be automatically collected and stored.

Display and Sequence Controls



3D-Rapic allows a number of radar product display windows to be open concurrently. These may be used to offer different methods of viewing the radar data, as well as to allow data from multiple radars to be viewed concurrently.

Primary control of the 3D-Rapic display is through the Rapic Control Panel. This control panel contains the basic sequence controls such as Stop, Start, Step, Oldest, Latest, and also the main menus which provide access to all of the more detailed sequence options, the database interface and the communications interfaces.

The Window Control Box in the top left corner of all window frames contains options for Moving, Resizing, Minimizing, Maximising, Raising, Lowering, Closing and Exiting.

Display Windows

Some of the various displays available in 3D Rapic are:

- PPI - Plan Position Indicator, constant radar elevation view.
- RHI - Range Height Indicator, constant radar azimuth view
- Echo Tops - product calculated from the volumetric data to show highest echoes that exceed a given threshold, color coded and 3D rendered according to height
- VIL - Vertically Integrated Liquid, product calculated from the volumetric data to show mass of water in a column above the earth's surface. Units of kg/m 2
- CAPPI - Constant Altitude PPI, assembled from the pieces of each PPI scan closest to the desired altitude.
- Various vertical cross section modes.

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Rainfall Accumulation Display

3D-Rapic can be configured to calculate rainfall accumulation products for user specified radars and periods. A PPI window displays the accumulation by switching the window into accumulation mode. Where accumulations from multiple radars are being performed, it is possible to display merged rainfall accumulation PPIs.

Database

3D-Rapic has an integrated database system which stores all incoming radar scans.
The scans from the database are available for review through an easy to use database browser.

Communications

3D-Rapic has an integrated communications system, which allows either volumetric data, and/or standard surveillance data, from a number of radars, to be ingested.

Radar data may be accessed directly from a radar, or it may be requested from another 3D-Rapic display which buffers the data it receives and makes it available for other display systems. This mode of operation is known as splitting, and is of particular value where volumetric data from a single radar is required at more than one display site.

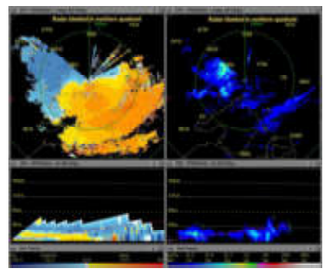
A scheduler is also provided which will periodically interrogate radar data. 3D-Rapic uses one or more communications handlers, each of which can either be dedicated to collecting data from a single radar, or be available in a pool for servicing requests for data.

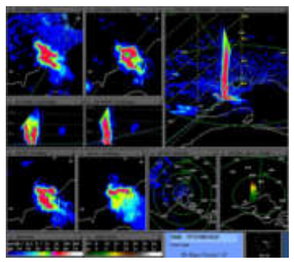
Dedicated radar connections (typically for volumetric data), communications request handlers and radar sites available for interrogation are configured by the 3D-Rapic administrator in a communications initialisation file.

Options

Various options are available to expand the capabilities of the AWR-8500S radar. Some of these are:

- Dual Polarization
- Doppler Processing and Display
- Quantitative Rainfall Measurement.





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