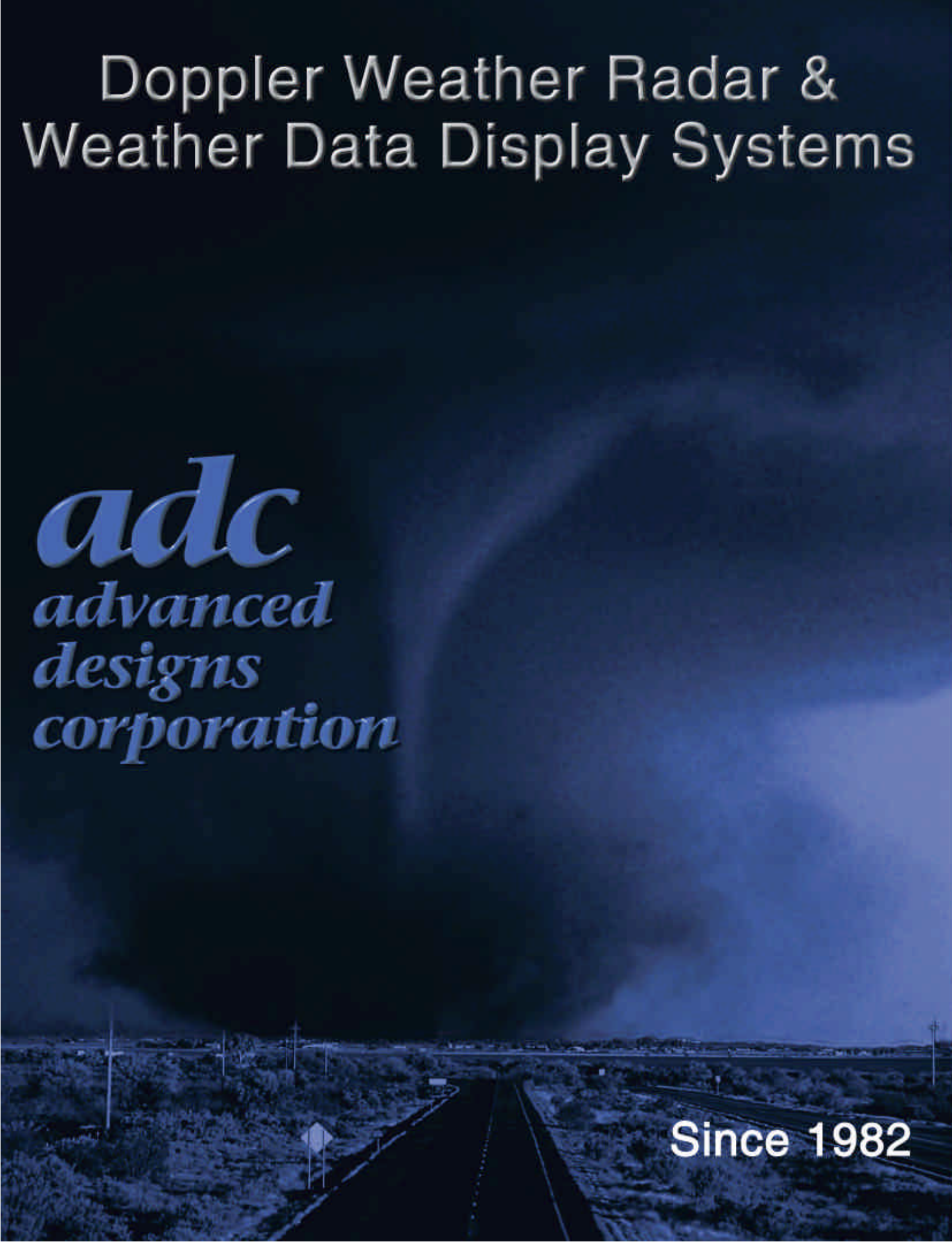
Doppler Weather Radar & Weather Data Display Systems



About Us

Since 1982, Advanced Designs Corporation has been introducing industry-leading innovations such as the first fully coherent live Doppler radar for broadcast. Today, more than 200 ADC radar and display systems are in the field.

Client List

Some of our users include:

Benedek Broadcasting Corporation
Freedom Broadcasting
Gannett Broadcasting
Jefferson Pilot Communication Co.
Liberty Corporation
LIN TV
Media General
New York Times Television
Post-Newsweek Stations, Inc.
Raycom Media, Inc.

Indianapolis Power & Light Co.

Lockheed Martin
Raytheon

NASA
NATO
U.S. Air Force

Diamond Offshore Drilling
R&B Falcon Drilling

"We have kept coming back, because ADC continues to produce advancements which allow us to change our look and keep us in line with our desire to be new, different, and moving forward. Keep up the great work!"

Frank Chebalo
VP Operations & Engineering
The New York Times Broadcast Group

"Benedek's relationship with ADC has enabled us to become much more competitive, in all the important area of weather coverage, than we would have been able to be using the much more expensive competitive systems."

Keith Bland
Senior Vice President of Planning and Technology
Benedek Broadcasting

"Please extend my thanks to all ADC personnel for the excellent support that enabled Cosmos to acquire or update seven ADC radar systems in the last year."

Steven A Smith
VP, Engineering/Operations
Cosmos Broadcasting

Environmentally Friendly & Effective

Unlike magnetron tube-type systems that produce excessive, unneeded and potentially dangerous microwave radiation, ADC's DOPRAD® system minimizes microwave radiation hazards and RF interference problems through the use of large penetrating pulse widths, lower power, narrower emissions band, and unsurpassed receiver sensitivity. This makes it an ideal choice for environments where transmitter interference and microwave radiation exposure are a concern. The real secret to the performance of the DOPRAD® system is the use of advanced receiver technology, utilizing digital signal processing and penetrating pulse widths that provide the industry's best receiver sensitivity. The DOPRAD® receiver is far more effective than the 1930's-era magnetron technology used in other systems - up to a factor of 100 times more effective. In addition, the DOPRAD® pulse widths are up to a factor of 50 times larger than that of magnetron systems. This all makes for a very safe and effective radar.

Simple & Reliable

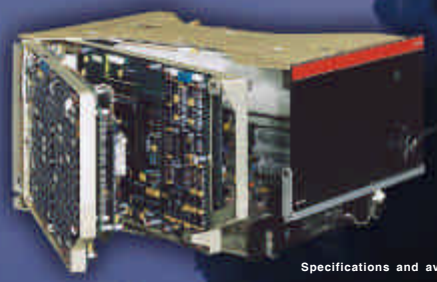
DOPRAD® radars are known worldwide for high reliability and low maintenance. In fact, over 90% of all ADC's ground-based radars placed in the field since 1982 are still in service today. Thanks to its lightweight, modular design and simple installation process, the system can easily be installed on buildings or small towers. ADC offers a vast array of configuration options - from a 30" system to the 8.33' High Gain Antenna system - all with a wide variety of display options. ADC also offers interfaces for equipment from other weather-related companies. Of course, all of the systems are upgradable, so you won't have to worry about obsolescence. System operation is simple, utilizing a single computer. Display and radar controls are very user-friendly. Most features can be accessed via a click of the mouse.

Enhanced & Affordable

The ADC DOPRAD® radar is the most cost effective, fully coherent, C-band Doppler weather radar available today. Over time, the system will also save your company in terms of "cost of ownership." It's a 100% solid-state, digital Doppler radar that is greatly advanced over outdated, tube-type radar systems offered by other venders. In fact, ADC has replaced over 50 magnetron based radars since 1982. The ADC DOPRAD® system produces high quality Doppler data. Testing by the National Center for Atmospheric Research (NCAR) on the DOPRAD® weather radar with a 30" antenna showed that "...radar produced observations of convective storms which were quite similar to the MIT radar observations."

"I want to thank you and your team for providing us with our DOPRAD 32 weather radar system. It's proven to be an important addition to managing our flight operations here at NASA's Johnson Space Center, in Houston, Texas."

Terry Pappas, Research Pilot, NASA JSC



Below Left: 30" Flat Plate Phased Array, Pedestal & R/T.
Below Center: Solid State R/T.
Below Right: Pedestal with a 6.33' dish, DOPRAD® radars are available in 30" phased array flat plate, 6.33' and 8.33' parabolic dishes

Specifications and availability subject to change without notice.

Application: Broadcast

"PowerDoppler 17 has been an amazing success for KMIZ-TV and we sincerely appreciate the tremendous support your staff has provided."

Randy Wright
Station Manager/Weathercaster
KMIZ-TV

"I won an Emmy for my continuous coverage that night...about 4-hours on air. Even though the Emmy is for my performance...your ADC radar shares the glory!"

Chuck Gaidica
Director of Meteorology
WDIV-TV

Viewer Comments:

"Excellent storm coverage."

"The information was there...clear and complete."

"We got up and heard the sirens. Channel 3 saved our lives."

"We appreciate that you update us to keep us safe."

"We're just thankful that our neighbors are safe because of him and I want to thank him..."

"KAIT is the severe weather station for Northeast Arkansas and the ADC/Collins system puts us well ahead of the Memphis competition."

Clyde Anderson
VP & General Manager
KAIT-TV

"...The weather folks are in love with that triple Doppler radar..."

Arnold Killian
Chief Engineer
KFVS-TV

"Your staff had been a pleasure to work with, and equipment installed in 1995 has worked perfectly."

John K Walsh
Director of Engineering
WHEC-TV

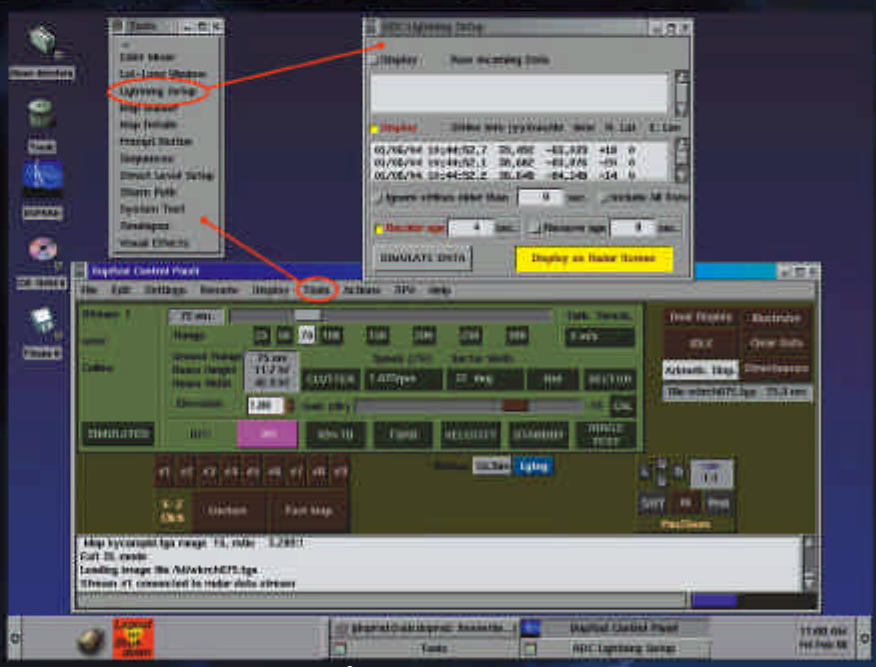
"Your radar system really puts us ahead of the competition."

Larry Beaulieu
VP & General Manager
KFDM TV

DOPRAD® Under LINUX

With DOPRAD® Under LINUX, your Doppler weather radar system will offer you more reliability, control, and operational simplicity than ever before! LINUX is a rock-solid, multi-tasking operating system that will be a necessary backbone for extensive ADC display improvements for years to come. Many of these improvements are available now!

The very nature of Linux means that operational functionality has been expanded and speed increased. In short, you can do more and do it faster. The enhanced Storm Path Analyzer now allows you to create new Storm Paths without stopping the radar sweep. The Range/Height Indicator function now has extended ranges and allows you to define the RHI location independent of the radar sweep with one click of the mouse. Street-Level Maps draw faster, and we've even made it simpler to place your logo on a map.



The enhanced user interface of DOPRAD® Under LINUX allows the user to place tear-off menus on the desktop for easy access. Shortcut buttons appear on the taskbar for torn-off menu items.

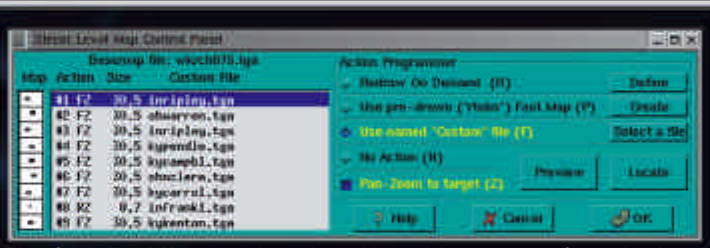
The optional ADC Lightning Data Interface has been improved, now allowing lightning display data to be directly ingested from Vaisala without reformatting. This creates seamless integration between lightning data and DOPRAD® Under LINUX. Lightning strikes can even be aged or removed with user defined time intervals without clearing radar data!

Linux gives you the flexibility of placing controls where you need them. Tear-off drop-down menus can be positioned anywhere, and setup files can be edited from within the application!

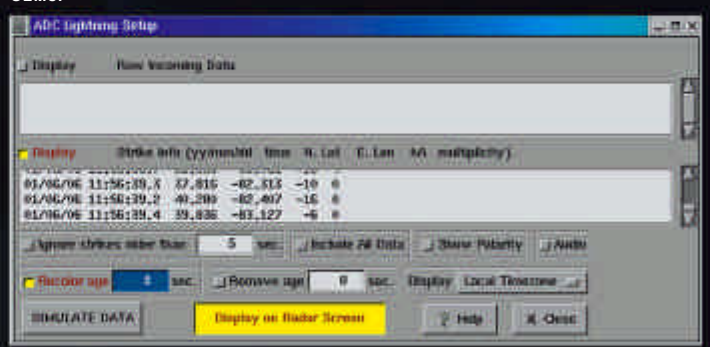
SkyWarn 2000™ Alert Crawl System

- Built-in adjustable DVE squeeze and "Summary Mode" provide comprehensive alerts which helps minimize Program Disruption.
- Display flexibility allows for Combinations of county map, radar logos, static text, and time/temp.
- A 24-hour/7-day scheduler can pre-define display styles at different times of the day (i.e. New Crawls Only During Newscasts).
- Provides the User with multiple GPI's (General Purpose Interface) for dropping display during commercials, cutins, etc.
- Will interface with the TFT 911 EAS receiver.
- Spanish language capabilities.
- A language priority that is user selectable.
- Included external keyer maintains closed caption capabilities.
- County map, Radar Image, Graphic Bugs, and Text are easily resizable on the fly.
- "Dynamic Billboards" - Text lines with user defined colored back bars can display information received from School Closings.
- "Hotlist" can be sorted by Weather Condition, County or Expire Time (done on the PC screen only).
- The "User Defined" Display Style can be activated via external GPI. Allows SkyWarn Display to be modified to reveal externally generated video such as election display system, school closings, etc.
- Most features accessible via shortcut keystrokes as well as menus and buttons.
- User may include additional bitmap graphics to individual Display styles (i.e. sponsor logos, etc.).
- New Interface - improved User Interface that's easier to use.
- WYSIWYG editing of Display Styles.

The enhanced Storm Path Analyzer operation allows the creation of new storm paths without stopping the radar sweep.



New Street-Level Map control panel provides quicker access to faster-drawing SLMs.



Lightning Setup panel offers easier access to commonly needed controls.

- Rock-solid, multi-tasking operating system which will be the necessary backbone of extensive ADC display improvement for years to come.
- Cursor-selectable Range/Height Indicator location.
- Extended RHI ranges.
- Enhanced Storm Path Analyzer operation - setup "storm track" on the control monitor, allowing the radar to continue to sweep while the SPA is under construction.
- Optional direct lightning ingest from Vaisala (Requires no reformatting) allows user-defined time periods to age or clear displayed strikes without the need for clearing radar data.
- Faster Street-Level Map draw time.
- Time/Date stamp.
- System Testing while the system is Operational (sweeping).
- Network capability.
- Setup file editing from within the application.
- Extended DRCP runs up to 1000 ft.
- Automatic tilt adjustment with selected range.
- Optional high-resolution component frame grab for output to websites.
- Optional ancillary serial output of radar data to support some Weather Central and WSI systems.

Tracking Features & Options

Street-Level Mapping (SLM)

Helps identify severe weather as it approaches specific locations such as schools, parks, airports, hospitals, or other locations of interest. Street-Level maps can be drawn in seconds (on-The-Fly) or pre-made and recalled (Custom).

Dual & Triple Composite Radars

Consists of two or three Doppler radars on one display - updating simultaneously in real-time. With Active Composite Live Doppler, you control BOTH (OR ALL THREE) Doppler radars. With the Passive version, you control ONLY your radar, which means you can access other live radars to combine data with your own.

EZ-Street ID

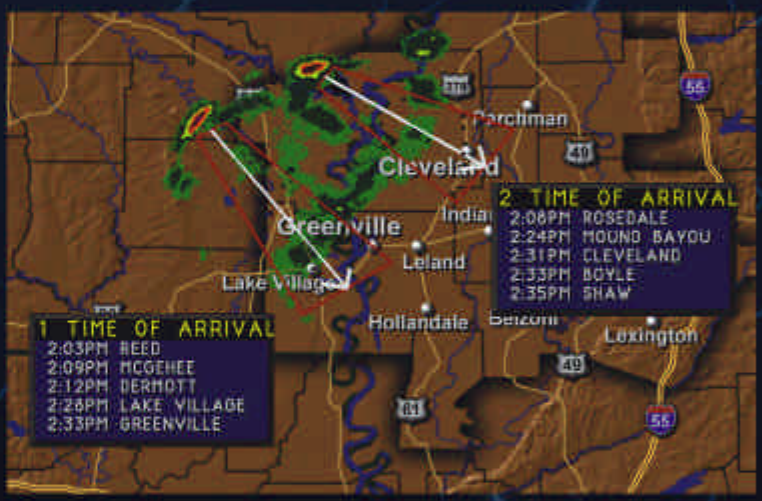
Allows the user to identify streets. Using the mouse, the user can click on streets on any map within the users ADI and the name will appear. This is not only an excellent feature for weather information, but it is also very useful for news.

DEPIX™

Our unique DEPIXelization processing reduces the "blocky" appearance that occurs when scaling radar returns down to a Street-Level Map. The process results in an ultra smooth and refined look that you will be proud to show your viewers.

Storm Path Analyzer (SPA)

Estimates the approximate time of arrival to specific cities and towns. It then displays a graphic that includes a trapezoid showing the affected area and the direction in which the storm is moving, along with a list of cities at risk with estimated times of arrival.



7-Level Modification

Increases the number of display levels for your live Doppler Radar. The 4/5-Default Levels currently are: 20dBZ, 30dBZ, 40dBZ, 45dBZ, and 50dBZ*. With the 7-Level Modification, systems now have the addition of "native" 25dBZ and 35dBZ thresholds.

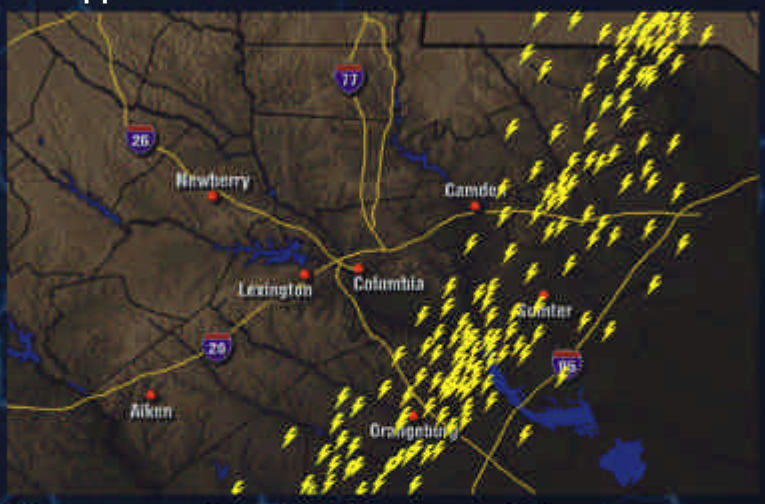
*5th level option

"I have been watching our station in Wilmington, WECT, over the internet all morning and right now the eye of Hurricane Isabel is just about on top of Cape Hatteras. And, I just wanted to tell you that the images we're getting off your radar are just great! It is first class stuff. The radar is doing well with all that moisture. No problem with the imaging. That hurricane eye is just as clear as can be. Very, very impressive animation."

Eric Braun, VP of Convergence, Raycom Media

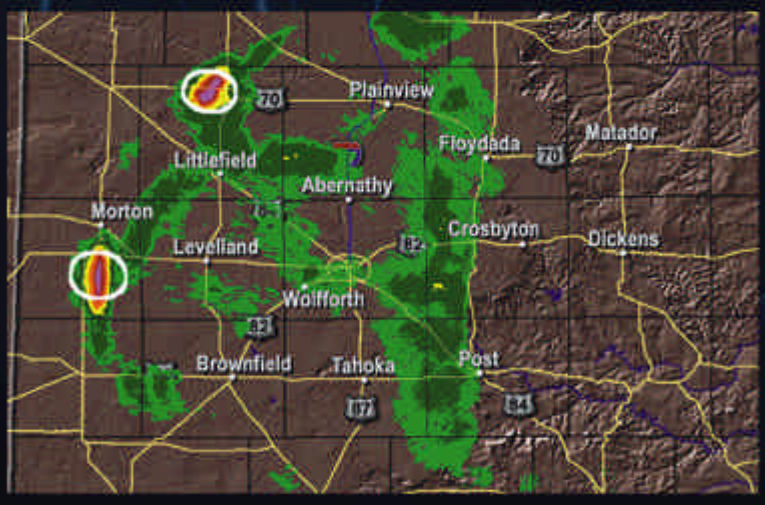
Lightning Display

A real-time system that displays lightning strikes within seconds. It can be combined with real-time radar, and can display multiple symbols. (Also available as a stand-alone system.) With the DOPRAD® Under LINUX, lightning display data can be ingested directly from Vaisala (requires no reformatting) and lightning strikes can be aged or cleared with user-defined time periods without the need for clearing radar data. And lightning polarity is supported.



Severe Turbulence Alert System (STAS)

An automatic system for detecting regions of high turbulence and/or reflectivity. Using values from the control file, it determines whether a region meets the criteria for issuing a warning and if it does, it draws a boundary around the region on the screen and optionally issues an alarm.



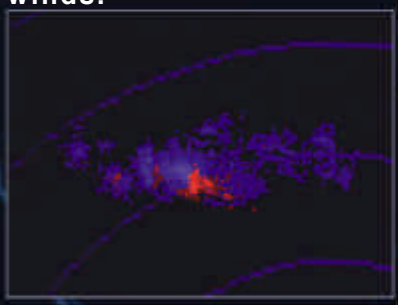
Range Height Indicators (RHI)

As a standard feature, ADC's agile, lightweight 30", 6.33', and 8.33' antenna systems and high gain antenna pedestals allow the user to do RHI's and Sector Scans at any point in the azimuth sweep.

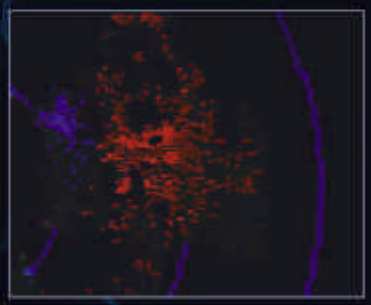
Vertical cross section RHI scan showing hail shaft at 12 miles.

Mean Radial Velocity (MRV)

As a standard feature, ADC's agile, independent-mode Mean Radial Velocity detection has 15 levels of velocity which can aid in the detection of mesocyclones, microbursts, and straight-line winds.



Mesocyclone Example



Microburst Example

Gain Tracking

Increases the number of unique available radar data level (colors) from 4 or 5 up to 15 based on user selected gain setting. When enabled, an "increase or decrease" in gain shifts all the levels to the nearest 5dBZ threshold.

"...thanks also for a superior product backed by superior people who always go out of their way to help when we have a question."

Wray Dudley
Systems Maintenance Supervisor
WWBT

"Recent upgrades have made spectacular improvements to the system's performance and graphic quality, so much so that we have now leaped ahead of the other Doppler radar systems in the market. Without a question, I feel that we have the best looking radar in the market by far."

Les Garrenton, Director of Engineering, WAVY TV

Applications:

Tactical Radar/Military

Members of the U.S. Military put their lives on the line everyday to preserve the peace and protect our freedom. ADC provides a lightweight, transportable weather radar system that can be easily deployed anywhere in the world, and quickly setup to provide a tactical solution for severe weather detection needs.

The Mobile Doppler is a specially modified 30" system that can be mounted on top of a truck, van, SUV, or trailer and includes a mobile display, a home base display, and a GPS navigational system. This is an ideal system for storm chasers, or anyone needing the mobility this system has to offer.

"ADC demonstrated their desire to be a real team player..."
Director of Battlefield Management

30" System mounted inside a 3.5' radome.

Aerostat Support

ADC provides Doppler Weather Radar Systems so that aerostat crews on the ground can detect severe weather before damage to the aerostat or its valuable payload can occur.

Sports Venues

ADC's DOPRAD® Radar System can help support your sporting event. With the optional Storm Path Analyzer feature, you will be able to determine where the storms are headed and their estimated times of arrival.

Theme/Water Parks & Racing Venues

DOPRAD® can be used for logistic support at these events. How important is it to know when storms might occur and their durations?

Educational

DOPRAD® systems are a great educational tool when used in conjunction with academic and professional courses on Radar Meteorology.

Application: Marine

Offshore occurrences of severe weather seem more frequent and unpredictable than ever. Your people and assets at sea are often vulnerable to fast-moving and damaging weather including severe squall lines, tropical storms and even hurricanes.

We can equip your ships, drilling vessels, tankers and rigs with an effective Doppler weather radar and DOPRAD® system featuring Storm Path Analyzer. Use the Storm Path Analyzer to determine where storms are headed and their estimated times of arrival.

50 Nautical mile range map showing Storm Path Analyzer

30" System mounted inside radome aboard the Ocean Confidence.

Detail of 3.5' radome.

Deepwater Horizon

Advantages of owning your own DOPRAD® Doppler weather radar system include:

- **Provides highly detailed images of severe weather including rainfall, turbulence, and 15 levels of Doppler velocities.**
- **Distinguish threatening storms from normal weather to reduce false alarms and save money.**
- **Extremely supportable and easy to maintain with 100% solid state receiver/transmitter.**
- **Occupies very little space and uses very little power.**
- **Minimal microwave radiation hazards and interference potential.**
- **Environmentally friendly.**
- **Easy to install and operate.**

At sea, Mother Nature takes no prisoners!

"The cost of building and operating these vessels is substantial and while we can't control the weather, the DOPRAD 32's afford us the valuable time needed to prepare for the worst and protect our personnel and investment. The Weather Radar has been relied upon since the first vessel sailed from Koje Island, Korea in 1998 and your firm is to be commended on delivering an excellent product."

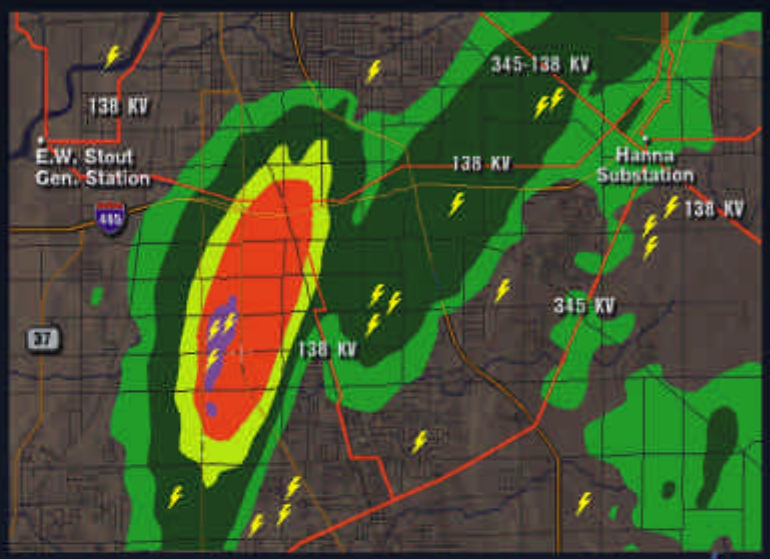
Terry L Loftis
Team Leader - Instrumentation & Communications Group
R&B Falcon Drilling

Application: Utilities

Your substations, lines, and personnel are affected by weather. You base your operational strategy on it, paying monthly fees for weather data that is sometimes hours old. The cost of being unprepared for a severe weather event can seriously influence the bottom line.

Our DOPRAD® weather radars can provide you with a variety of severe weather information, all of it in true-real time, and at a cost which can pay for itself in operational savings, not to mention public relations benefits.

25 Nautical Mile range map showing Storm Path Analyzer with lightning.



Street-Level Maps show a detailed view of an area with power lines and substations, combining true real-time, turbulence detection and real-time lightning. 3 Nautical Mile map shown.

Advantages of owning your own DOPRAD® LIVE Doppler weather radar system include:

- **Maintenance/Cost:** ADC's low-cost DOPRAD® LIVE Doppler weather radar systems are lightweight and low power, using a 100% solid state receiver/transmitter. Expensive spare parts or test equipment are not needed. It also minimizes radiation hazards and interference potential. Rental units are available.

- **Data:** YOUR radar provides YOUR data. There is no monthly license fees involved! You can provide feeds to the community, to Emergency Management Services, and to your website with no recurring fees!

- **Operation:** ADC's DOPRAD® systems are easy to install and operate, and our display is easy to read.

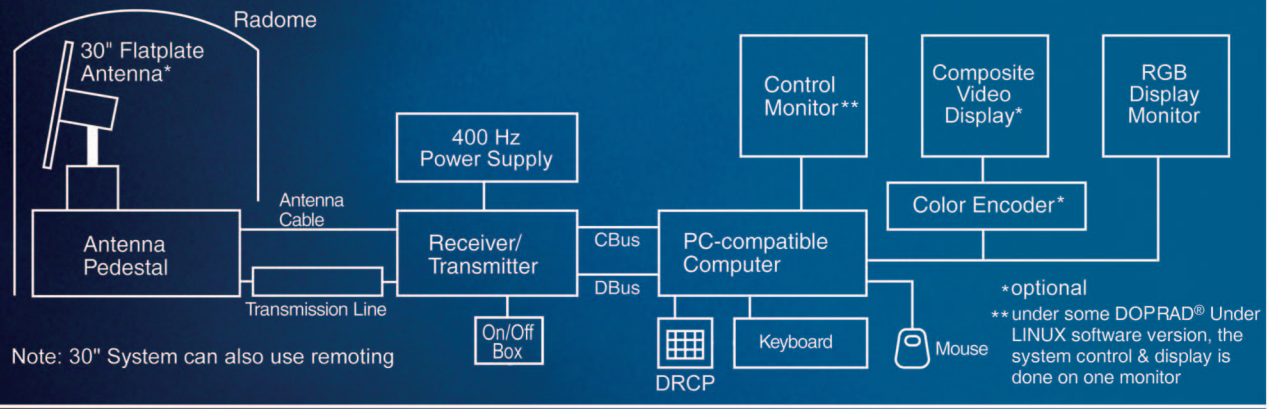
"I wanted to let you and your associates know that we are very pleased with our purchase. Having our own radar system provides a tremendous advantage because of our compact service territory and our close proximity to the Indianapolis NEXRAD site. The ADC system now allows us to view storm cells within the county. You are aware that no meteorologists are assigned to our operating area. Our people are comfortable with all the features of the system, including turbulence and range/height indicator modes."

Charles M Bailey
Superintendent Lines Service
Indianapolis Power & Light Company

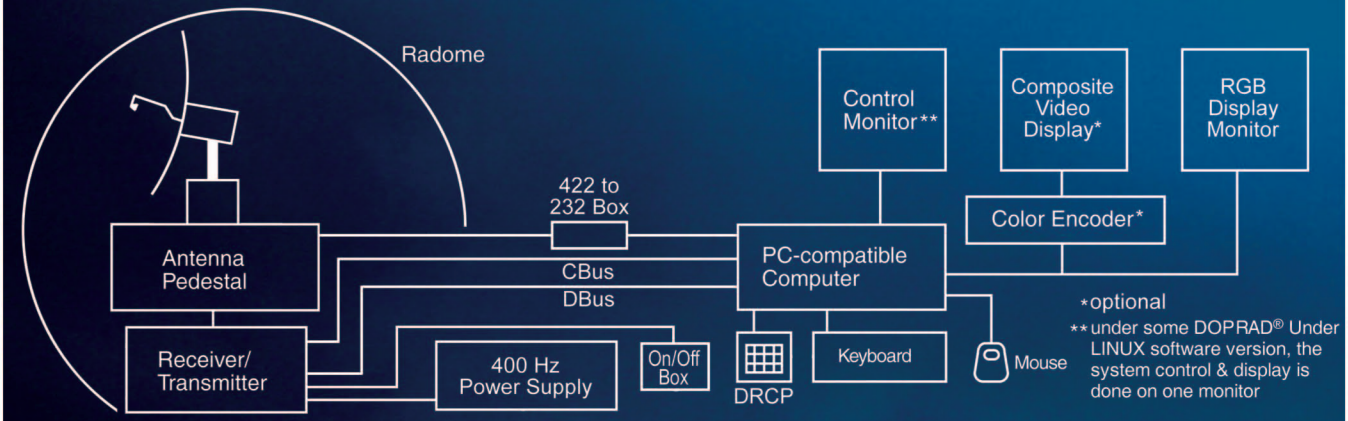
When lives and assets are at stake during severe weather, count on ADC!

System Diagrams

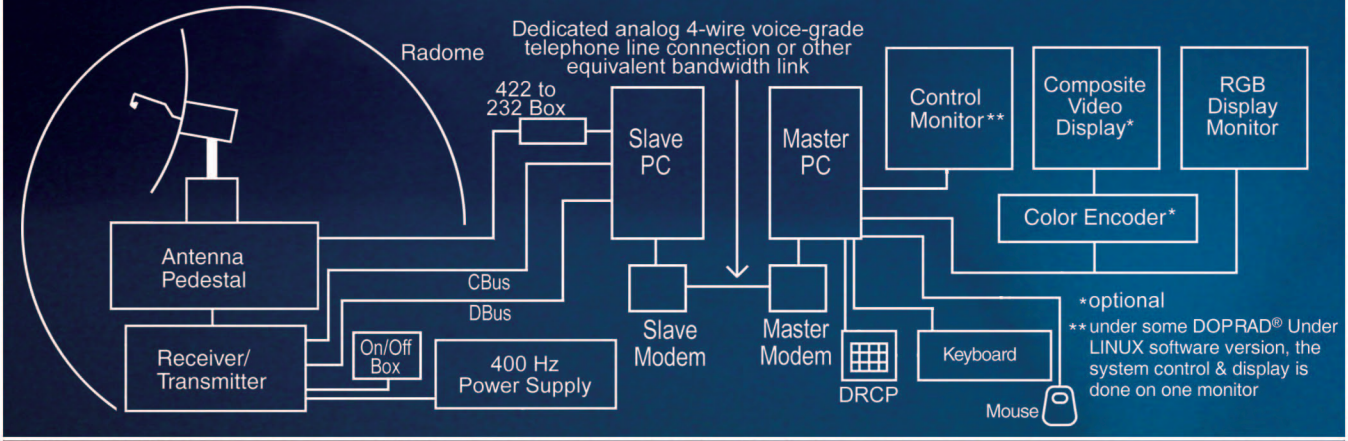
DOPRAD®/ Collins 30" System Diagram



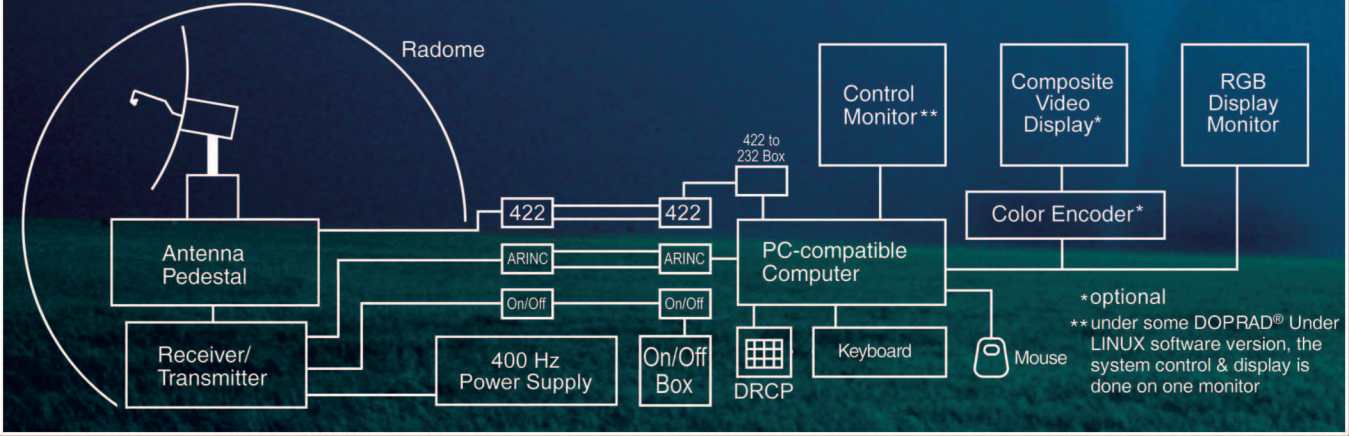
DOPRAD®/ Collins 6.33' or 8.33' System Diagram



DOPRAD®/ Collins 6.33' or 8.33' System Diagram with Master/Slave



DOPRAD®/ Collins 6.33' or 8.33' System Diagram with Fiber Optic Link



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email: adc@doprad.com
web:www.doprad.com

Antenna	30" System	6.33' HGA System	8.33' HGA System
Size	30" Diameter	76" Diameter	100" Diameter
Weight	6 lbs. maximum	29 lbs.	47 lbs.
Antenna Type	Phased Array Flat Plate	Parabolic dish with linear horizontally polarized feed	Parabolic dish with linear horizontally polarized feed
Beam Width	5.4 degrees (Nominal)	2.1 degrees maximum	1.7 degrees maximum
Gain	30.5 dB	38 dB minimum	40 dB minimum
1st Side Lobe	-25 dB maximum referenced to main lobe	-25 dB maximum referenced to main lobe	-25 dB maximum referenced to main lobe

Antenna Pedestal	30" System	6.33' and 8.33' HGA Systems
Size (Extended)	23.5" high, 9.75" wide, 16.75" deep	27.5" high, 9.75" wide, 16.75" deep
Weight	35 lbs. maximum	59 lbs. maximum
Operating Temp.	+5 to +131 degrees F	+5 to +131 degrees F
Input Power	115V, 60Hz	115V, 60Hz
Azimuth Scan Range	360 degrees	360 degrees
Elevation Scan Range	-2 to +60 degrees	-2 to +60 degrees
Scan Rate	1.87 , 3.75 , 7.5 RPM	.93 , 1.87 , 3.75 RPM
Scan Modes	Automatic, Sector, and RHI	Automatic, Sector, and RHI

Receiver/Transmitter WRT-701C	For All Systems
Size	7.72" high, 10.27" wide, 15.03" deep
Weight	30 lbs. maximum
Storage Temperature	-67 to +185 degrees F
Operating Temperature	+5 to +131 degrees F
Input Power	115V, 400 Hz, single phase 300 watts dissipated power
Cooling	Provided by mount
Signal Processor	Pulse Pair
Ground Clutter Suppression	Based on pulse-to-pulse amplitude signature recognition of Doppler spectrum width
Max. Theoretical Precipitation Detection	320 Nautical Miles (368.2 Statute/593 km)
Max. Doppler Turbulence	50 Nautical Miles (57.5 Statute/93 km)
Mean Velocity Range	50 Nautical Miles (57.5 Statute/93 km)
Precipitation Detection	5 Calibrated Levels: 20, 30, 40, 45, 50. (Window of 30 dBZ from a range of 60 dBZ) *
Doppler Detection	Pulse Pair Variances: turbulence 5-12 meters per second (m/s) in 1 m/s increments. 4 bit mean velocity +/- 20 m/s in 2.5 m/s increments (15 levels) (Optional w/-405 R/T)
Operating Frequency	5.44 GHz (Dual Crystal Control)
Output Power	200 watts peak (nominal)
Pulse Repetition Frequency	181/362 precipitation, 1448 Doppler Modes
Pulse Width	2 to 20 microseconds, variable with selected ranges
Safety Rating (maximum exposure)	30" < 2 mw/cm^2; 6.33' HGA < 0.4 mw/cm^2; 8.33' HGA < 0.23 mw/cm^2
Noise Figure	<5.0 dB
Bandwidth	Variable with Pulse Width
Sensitivity	-125 dBm (minimum discernable signal at 20 microseconds pulse width)
IF Response	Linear

R/T Mount	For All Systems
Size	12.6" high, 10.3" wide, 17.5" deep
Weight	4 lbs. maximum
Input Power	115V, 60 Hz for cooling fan 115 CFM

Frequency Converter 500C	For All Systems
Power Output	500VA
Output Voltages	115 Nominal
Output Frequency	400 Hz fixed

Radome	3.5' Radome	8' Radome	10' Radome
Size	41.25" high Inner Diameter: 38.5" Outer Diameter: 39.5" Radius: 19.75"	89" high Inner Diameter: 97" Outer Diameter: 99" Radius: 49.5"	115" high Inner Diameter: 126" Outer Diameter: 128" Radius: 64"
Weight	30 lbs.	225 lbs. (approximately)	300 lbs. (approximately)
Riser	N/A	6" high	N/A
Opening	N/A	60" inner diameter	77.7" inner diameter
Door	N/A	34" x 31"	34" x 31"
Paint	Linear White High Gloss Gelcoat	Linear White High Gloss Gelcoat	Linear White High Gloss Gelcoat
One way transmission loss	Not greater than .5 dB		