INFINITERCS
TECHNOLOGIES, INC.

RADOME
PRODUCT CATALOG


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WHY UTILIZE A RADOME?

The Basic Function

The basic function of a radome is to provide a defense between an antenna and the outside environment while simultaneously minimizing impact on electromagnetic performance. Radomes protect a wide range of ground and shipboard systems for communications, weather radar, military precision tracking, fire control and other antenna systems. The proper selection of a radome can improve overall system performance, reduce down-time, and extend the antenna's useful service life through prolonged component operation and possibly reduce antenna maintenance costs.

Adding a properly designed radome can be a huge benefit to an antenna system faced with adverse weather conditions. A radome will reduce lifecycle maintenance costs and allow for better antenna uptime during significant weather events.

SAVE YOUR ANTENNA

An antenna exposed to high winds, snow, ice, humidity, UV radiation, salt-laden air and other harsh environmental conditions results in reduced system up-time, component degradation, accelerated corrosion, projectile impacts and reduced overall system performance. A radome isolates the antenna from these conditions allowing operations to continue with much less downtime than experienced on a system without a radome.

The structural capability of a radome provides shelter for personnel performing operational duties and maintenance activities, and a security screen by preventing visual observation of the antenna system.

WHY CHOOSE ITIRCS

Infinite Technologies RCS, Inc. (ITIRCS) is a world leader in the design, manufacture and installation of large ground based radomes. We have provided radomes for many domestic and international customers using a wide variety of antenna systems in most environments on Earth. We regularly supply radomes to government entities, large prime contractors, system integrators, commercial OEMs, and various other customers . Applications include weather, ATC, Military, satellite and shipboard to name a few. We have a proven product that meets, and often surpasses our highly technical customer expectations adding value and longevity to almost all antenna systems.

Our expertise stems from key personnel with years of experience analyzing existing radome systems, creating innovative design solutions, and developing a system for replacement of aging radome installations worldwide.

The extensive maintenance and repairs required on older radomes often result in downtime, reduced performance, and substantial maintenance and panel replacement costs for asset owners. ITIRCS has developed viable and affordable solutions for radome fleet replacement. The radomes we manufacture are designed for a minimum service life of 20 years with a reduction in lifecycle costs up to 50%. These savings are realized without degrading performance; in fact, our products have shown substantial RF and structural performance improvements over many aging radome systems.

WORLD-WIDE PROVIDER

EXPERIENCED PROFESSIONALS

20 YEAR SERVICE LIFE

TOP PRODUCT VALUE

FEATURES AND OPTIONS

Key Design Features

Years of experience supplying radomes provides the ITIRCS team insight few others have. We have experience with specific elements of antenna design and operation which are critical to proper radome design. That allows us to design for better performance of the antenna housed within the radome.

Composite Radome Features

Tuned Bolting flanges
Compatible with Dual Pole Antenna Systems
Low IFR
Pseudo-Random Panel Geometry
Non-Coherent Scattering
Improved Sidelobe Performance
Antenna Polarization Neutral
Low Passive Inter-Modulation (PIM)
Durable, Long-Lasting Materials
Optimized Panel Sizes for Installation and Transport
No Metal Framework, Rigid, Self-supporting
Operational without Power

Materials

Skin Materials	Fiberglass
Resin	Fire Retardant Polyester/Epoxy
Core Material	Closed Cell Foam/Honeycomb
Exterior Coating	Hydrophobic & Super Hydrophobic
Joint Sealant	Advanced Non-Silicone RTV
Fasteners	300 Series Stainless Steel

Panel Geometry

A pseudo-randomized panel layout is used for most configurations. Panel-to-panel joint attachment is accomplished through an impedance matched bolted lap joint improving overall radome performance by minimizing the effects of insertion loss and coherent scattering.

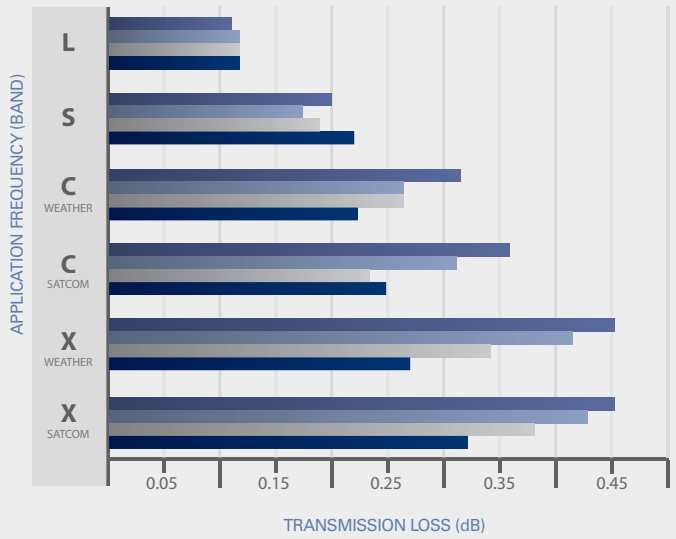
Environmental

Wind Loads	210 mph (338 km/h)
Ice & Snow Loads	50 psf (235 kg/m2)
Temperature Range	-60 F to 160 F (-50 C to 70 C)
Fire / Flame Resistance	ASTM E84
Solar Radiation	MIL-STD-810, Method 505.5
Relative Humidity	0 to 100%
Fungus Resistance	MIL-HDBK-454, Group I Inert
Salt Atmosphere	MIL-HDBK-810, Method 509
Hail	Hail Impact Tested

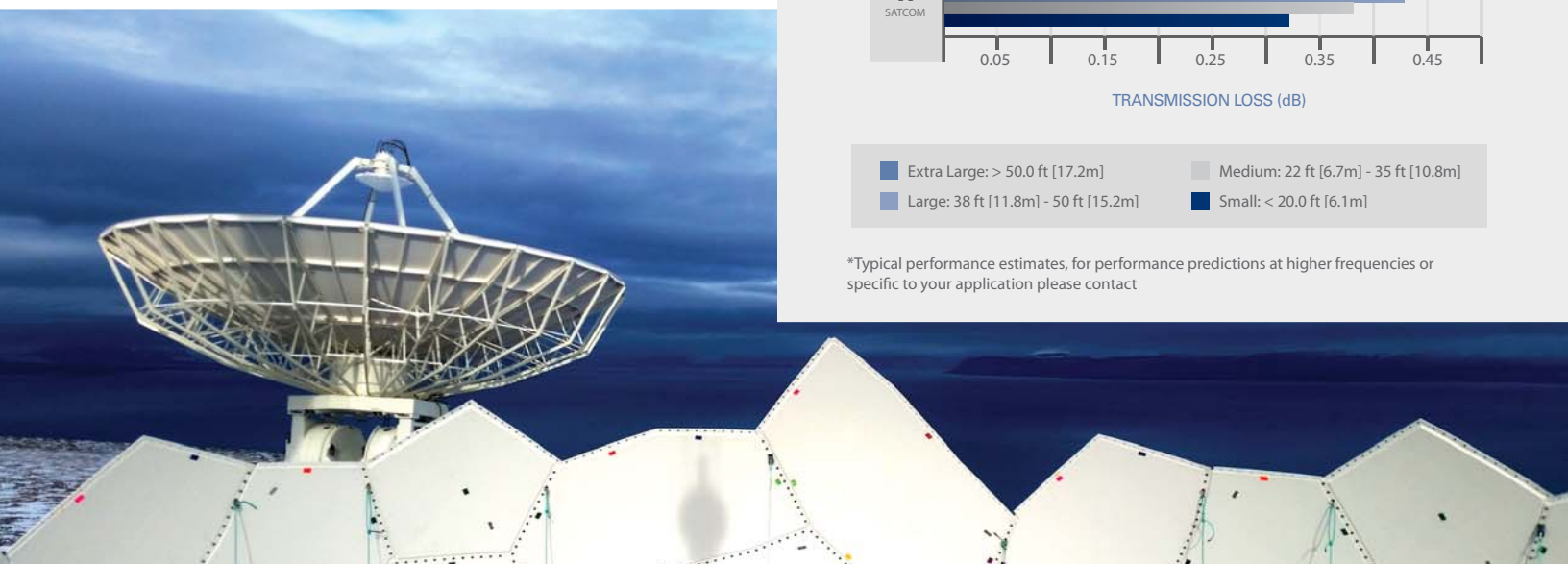
RF Performance

Sandwich composite radomes are superior to metal space frame radomes in applications with relatively narrow frequency bands or potentially at multiple discrete frequencies. Multi-band performance is often possible when coupling IEEE L and S band with other higher frequency bands. ITIRCS has sandwich constructions that provide suitable performance at Ka band and beyond in some applications. The tuned flanges utilized in ITIRCS radomes results in excellent sidelobe performance for sensitive Satcom applications.

For each application, the mechanical and RF requirements are evaluated to establish an optimum solution or configuration.



*Typical performance estimates, for performance predictions at higher frequencies or specific to your application please contact



Finish Options

Our radomes are fabricated using a UV stabilized hydrophobic coating that is integrated into the panel during lamination. The coating will not require re-application over the life of the radome. However, to maintain hydrophobic properties, maintenance will be required.

Post applied super-hydrophobic coatings with contact angles exceeding 120 degrees are available, however, these coatings are not as durable and will likely require re-coating the radome every four to seven years.

Any color conforming to recognized standards is available. White and light grey are available for the super-hydrophobic coating.

	WHITE	GREY	BLUE	TAN/YELLOW	GREEN	ORANGE
FED-STD-595	27875	26270	15466	20400	34108	18913
RAL	9010	7035	5012	1002	6002	2004

Export Restrictions

Most of our radomes are classified as EAR99 or no license required (NLR), and do not require ITAR control. ITIRCS does not conduct business with entities who are not in good standing with the U.S. Government.

Shipping

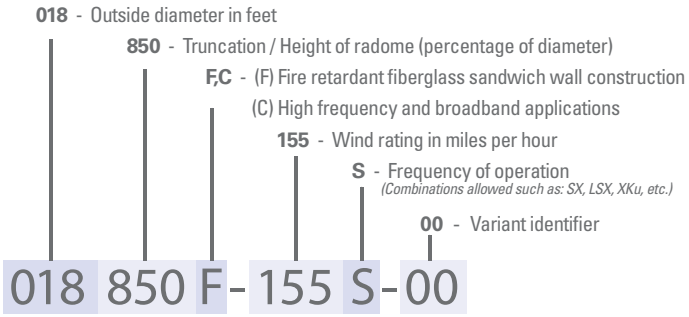
Each radome is packaged in fully enclosed wooden shipping crates compliant with international shipping standards to protect the contents from damage during transportation. Most crates are sized to fit inside a standard shipping container. Optional air transport crating is possible for most radome models.

Radome Warranty

We have confidence in the durability of our radome products. We offer a warranty against defects in workmanship for 24 months from the date of installation or 30 months from the date of delivery—whichever comes first.

Model Identification Terrestrial

Model Number Example: 018850F-155S-00



Many applications require optimum performance at specific frequencies. This is especially true in multi-frequency applications or in single band applications where only a small portion of a broadband letter-designator is used. The variant identifier provides a method for documenting this difference. The variant identifier is also used to identify a set list or model specific build along with accessory items for a specific customer.

Testing and Certification

We perform internal testing and material evaluations for the development of our radome materials and designs. For structural testing and material properties certifications, we utilize the services of accredited testing laboratories.

Service Life

The nominal service life for our radomes is 20 years. With minimal maintenance and cleaning, the service life should exceed 20 years.

MECHANICAL AND ENVIRONMENTAL CONSIDERATIONS

Structural integrity of our radomes is never compromised. Each radome design is confirmed by rigorous analysis. All analysis is performed using recognized engineering standards. Material properties are empirically generated from test coupons manufactured with the same materials and processes used in the production environment.

Mountainous terrain, gorges, ocean promontories, and special wind regions are examined for unusual wind conditions as necessary.

STANDARD CONFIGURATION

- Wind speed of 155 mph [250 km/h]
- Snow and ice load of 50 psf [235-kg/m2]

Our radomes are evaluated to ensure they meet each customer's specific requirements. As such, we have a wide range of radome models available with high wind speed ratings, greater snow and ice load capabilities, or the ability to meet other atypical environmental conditions. All configurations remain compliant with our self-imposed structural safety factors.

Basic wind speed is only one facet of a structurally viable design. Other environmental factors can have a major impact on structural requirements. Therefore, all new radome configurations undergo finite element analysis to determine if structural capabilities are consistent with the operational environment.

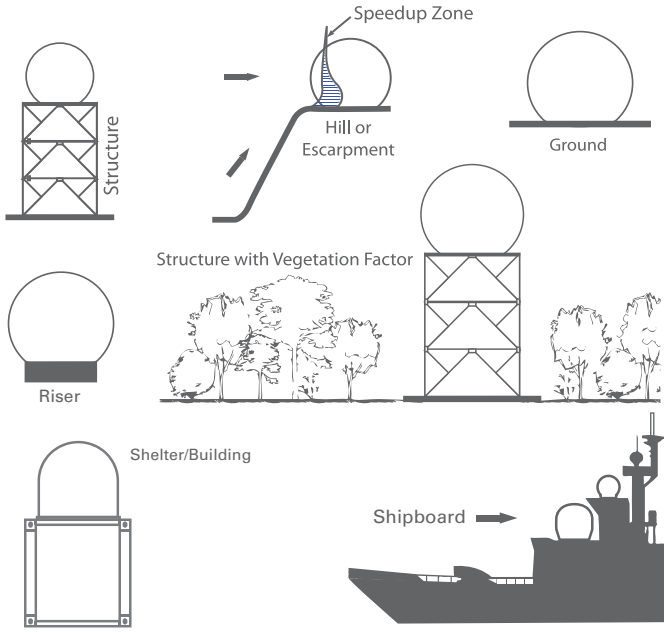
SITE VARIABLES

- Mounting Configuration - Ground or Elevated
- Basic Wind Speed and Directionality
- Gust Effect Factors
- Weather Factors - Hurricane and Non-hurricane Locations
- Terrain Exposure -Vegetation
- Topographic Factors - Mountains and Gorges

SNOW/ICE LOADING

- Balanced Loading
- Unbalanced Loading
- Exposure Factor
- Thermal Factor
- Importance Factor

Mounting Options



Mounting configurations can be customized to meet user requirements.

Sizing

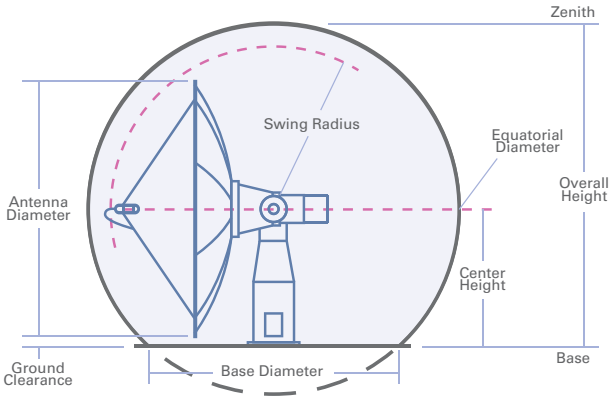
Radome diameter and truncation are primarily driven by antenna size and type. Most ITIRCS radomes have a spherical shape with a truncation or height usually between 70% and 90% of the radome diameter.

Although the exact radome size is determined by the specific antenna, some basic assumptions can be made to aid in obtaining a rough radome size. For preliminary design estimates, the following assumptions are used.

Radome Diameter

Prime Focus - equal to 1.5x the reflector diameter

Offset Feed - equal to 2.3x the reflector diameter



ITIRCS strongly recommends customers provide dimensional information on the specific antenna system for assistance in selecting a properly sized radome.

Truncation

Truncation is the height of the radome from base to zenith expressed as a percentage of the outside diameter. Truncations up to ~90% are available. Selection of the correct truncation is critical to achieving optimum RF performance. Ideally, the center of the radome and the rotation center of the antenna should be collocated. This arrangement ensures the antenna is always looking through the radome wall uniformly on either side of the antenna phase center projection, minimizing the impact on key performance characteristics.

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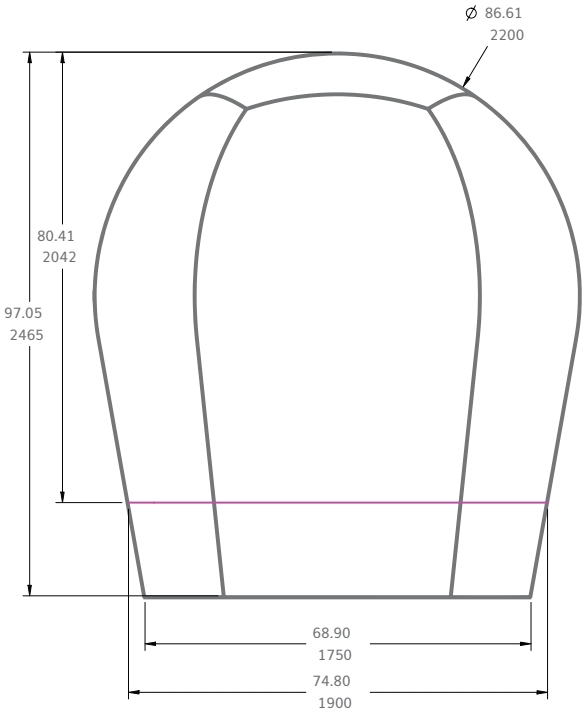
TERRESTRIAL RADOMES

ITIRCS offers a wide variety of radomes suited for most applications and environments on the planet. Each inquiry received is evaluated to determine how to best optimize the radome to meet the rigors of the environment while maintaining high levels of antenna performance.

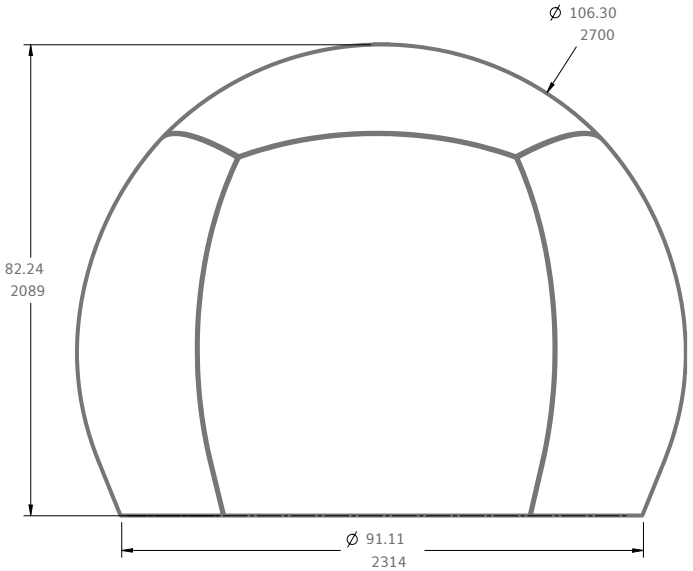
We are proud to manufacture radomes that provide a cost-effective yet robust solution for most terrestrial applications.

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional



7.2 FOOT (2.2 METER)



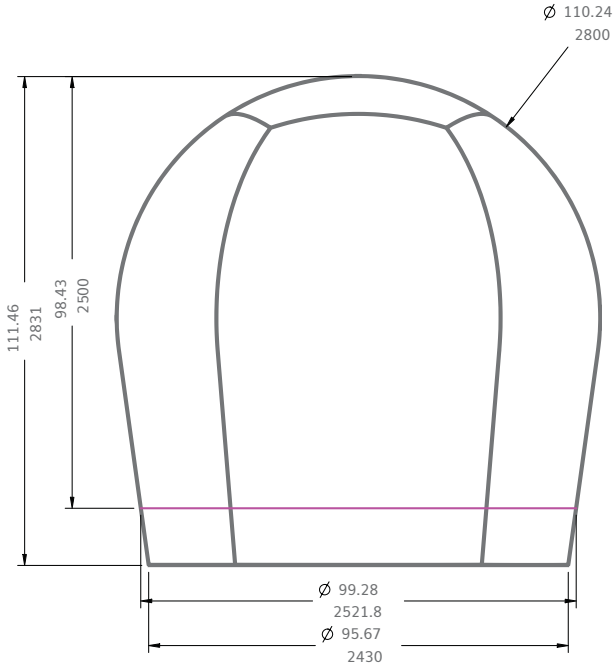
8.9 FOOT (2.7 METER)

TYPICAL CHARACTERISTICS

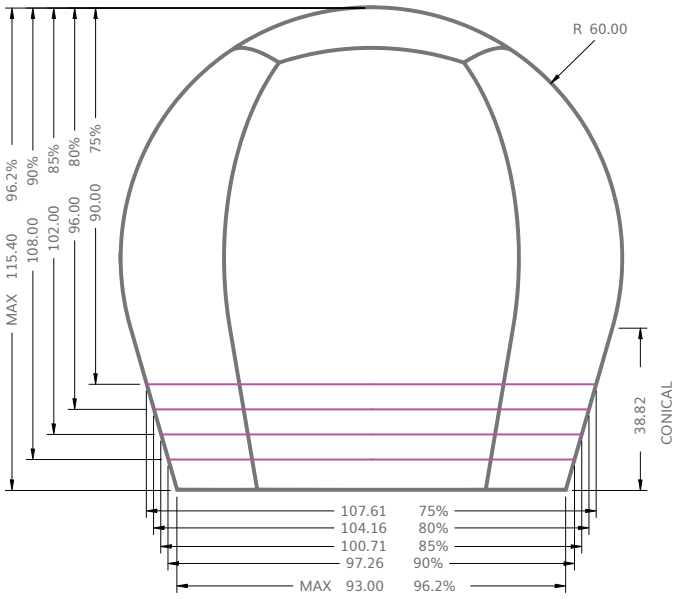
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard 200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



9.2 FOOT (2.8 METER)



10.0 FOOT (3.1 METER)

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard 200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

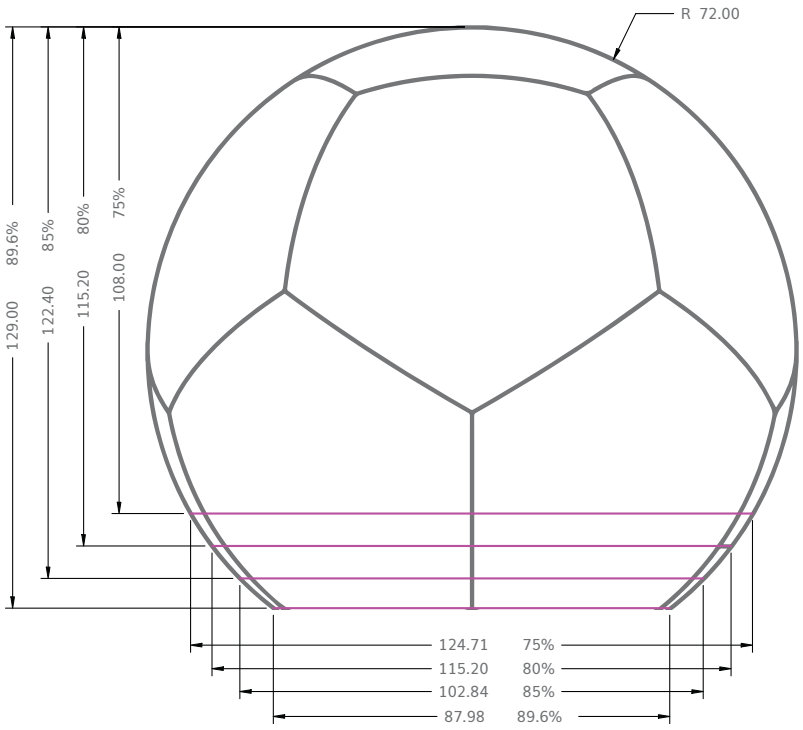
Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.

TYPICAL CHARACTERISTICS

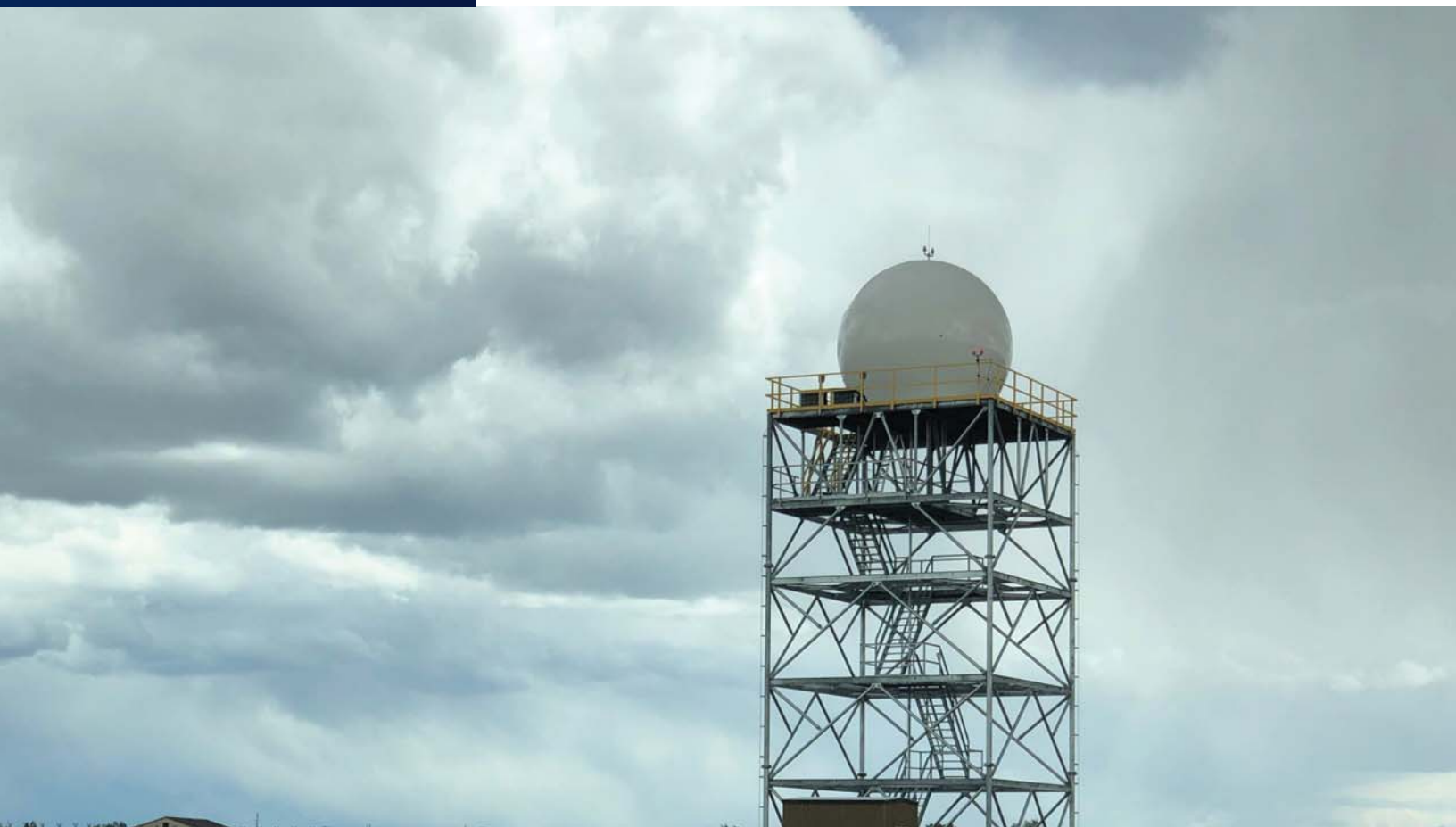
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

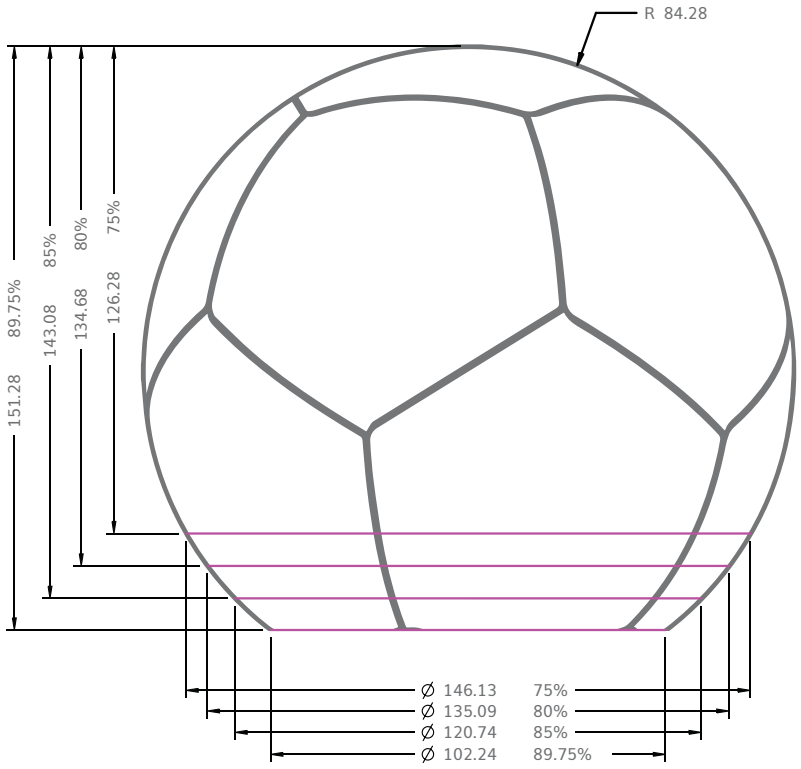
TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



12.0 FOOT (3.7 METER)





14.0 FOOT (4.3 METER)

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

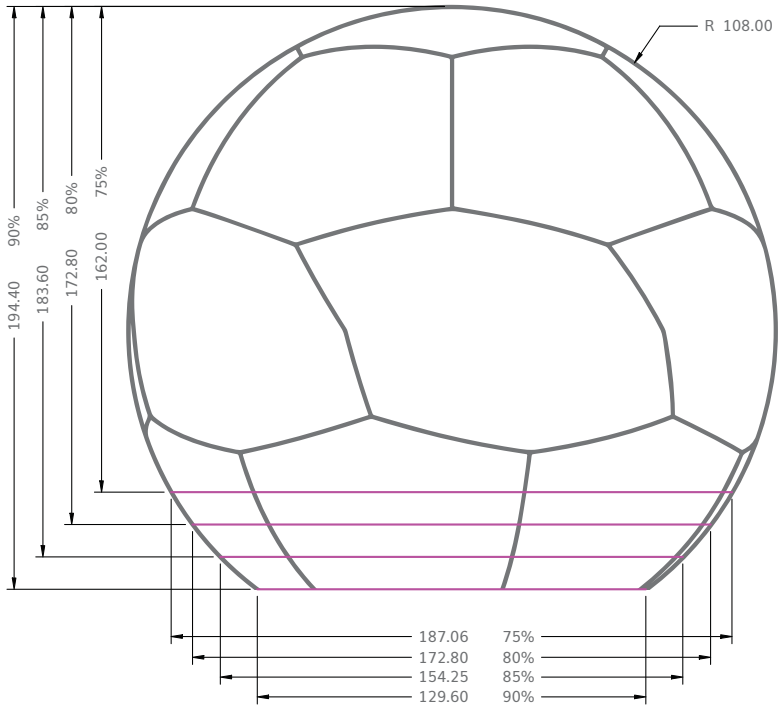
Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.

TYPICAL CHARACTERISTICS

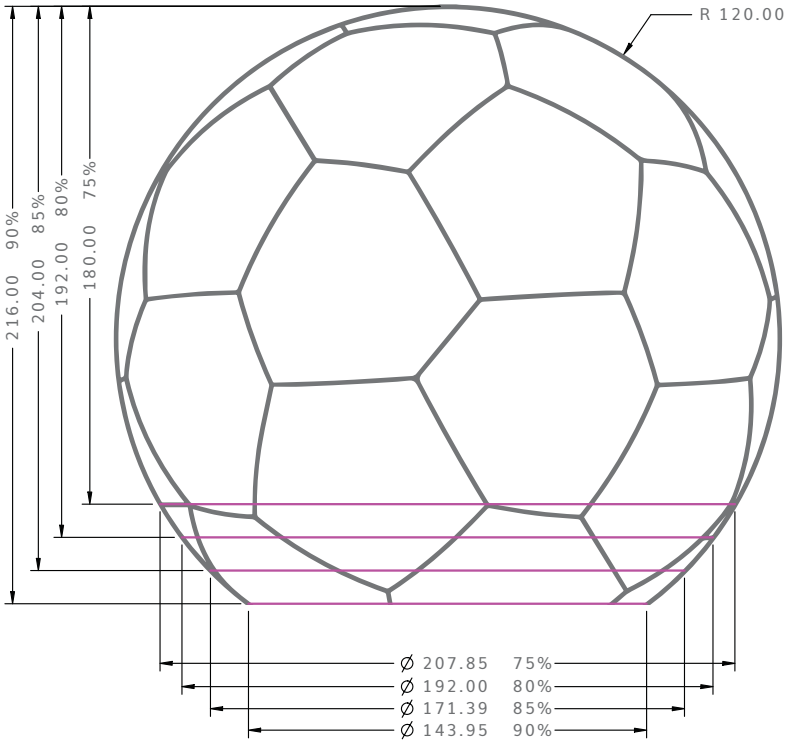
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



18.0 FOOT (5.5 METER)



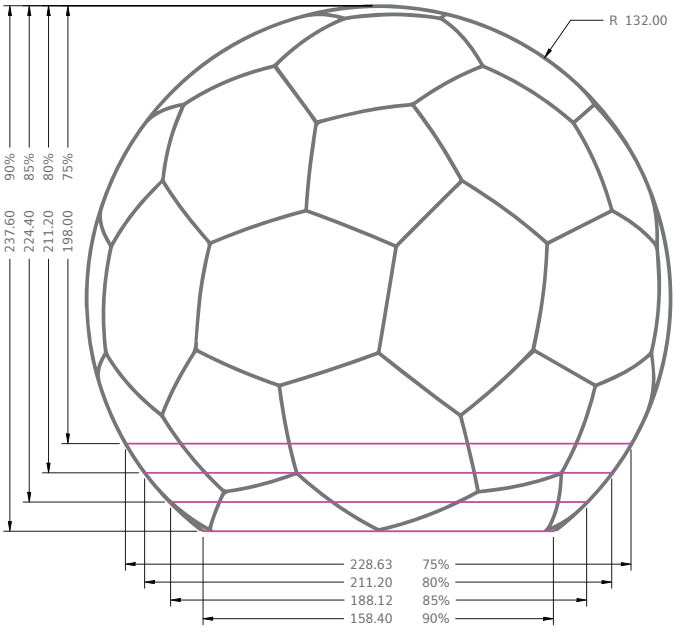
20.0 FOOT (6.1 METER)

TYPICAL CHARACTERISTICS

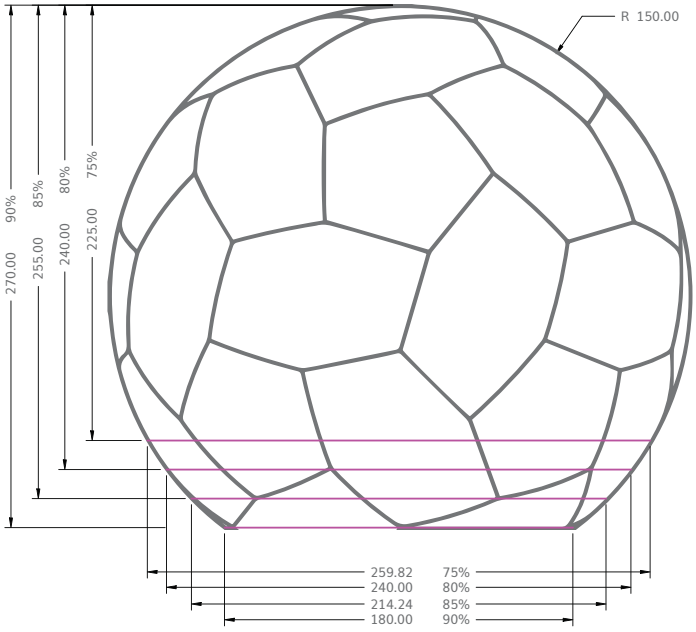
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



22.0 FOOT (6.7 METER)



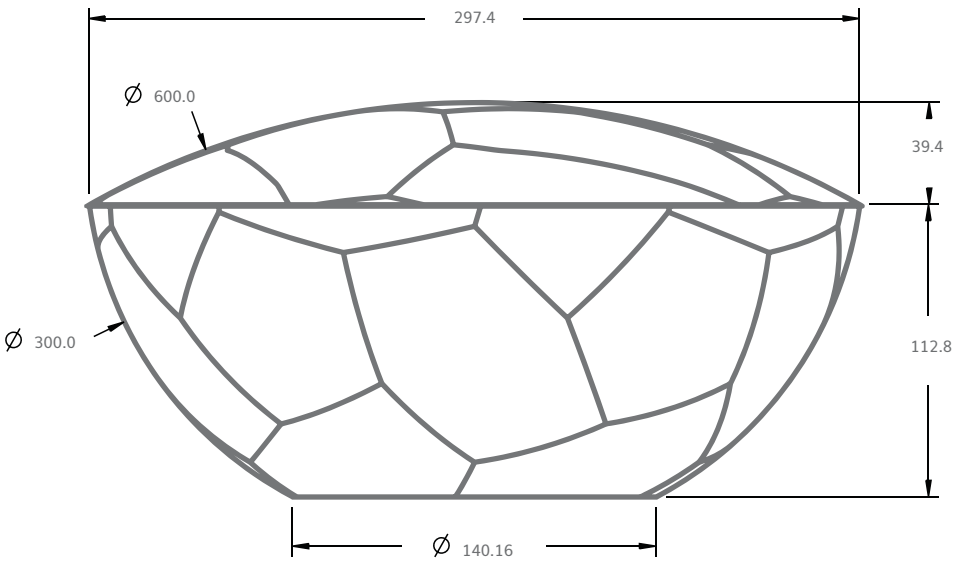
25.0 FOOT (7.6 METER)

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

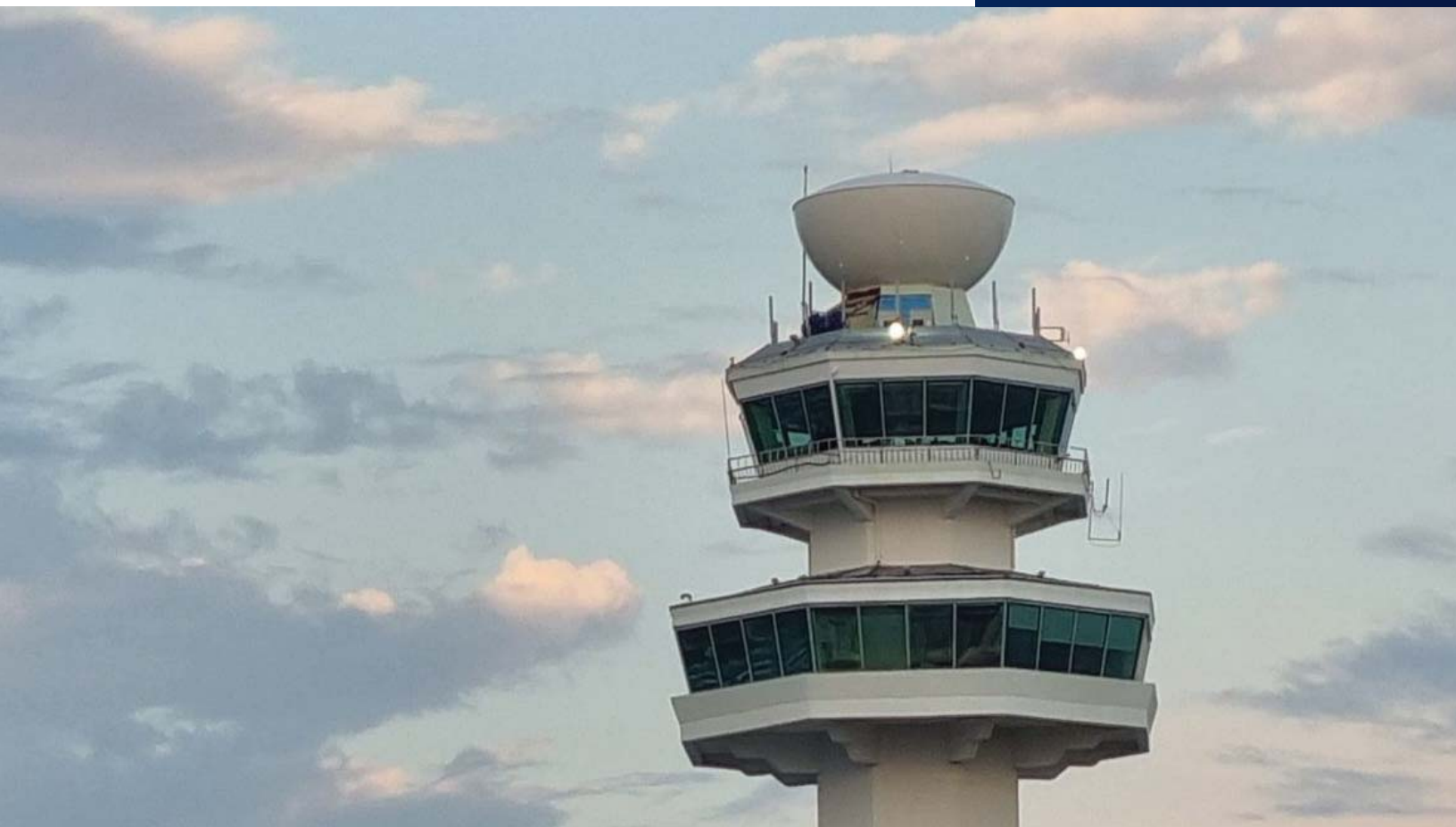
Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



24.8 FOOT (7.6 METER) OBLATE

TYPICAL CHARACTERISTICS

Truncation:	up to 95%
Service Life:	20 Years
Wind Rating:	
155 mph (250 km/h) standard	
200+ mph (320+ km/h) optional	

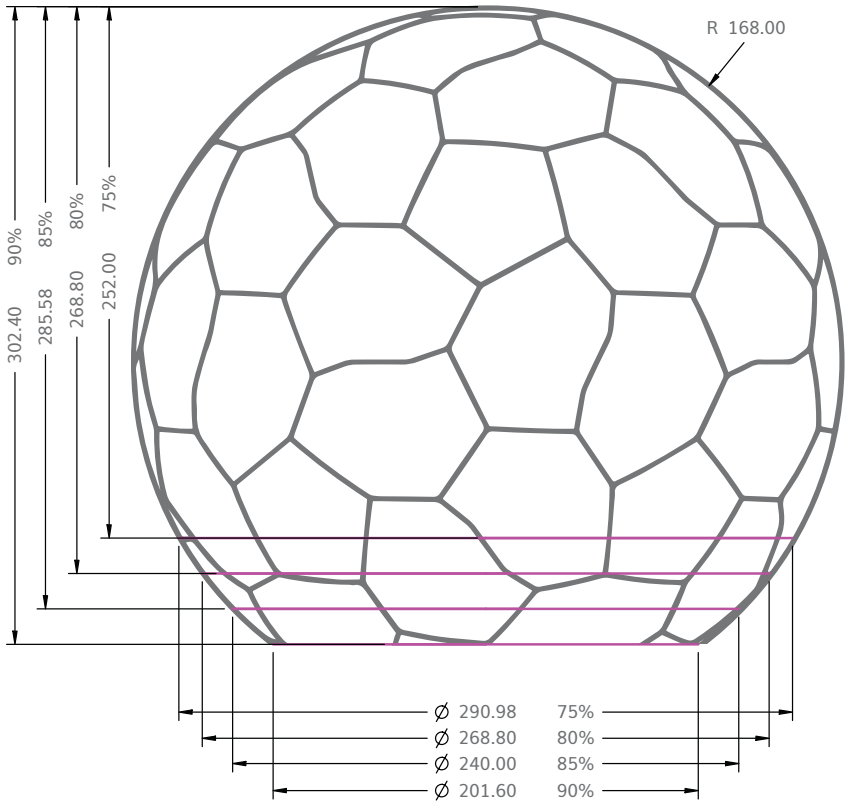


TYPICAL CHARACTERISTICS

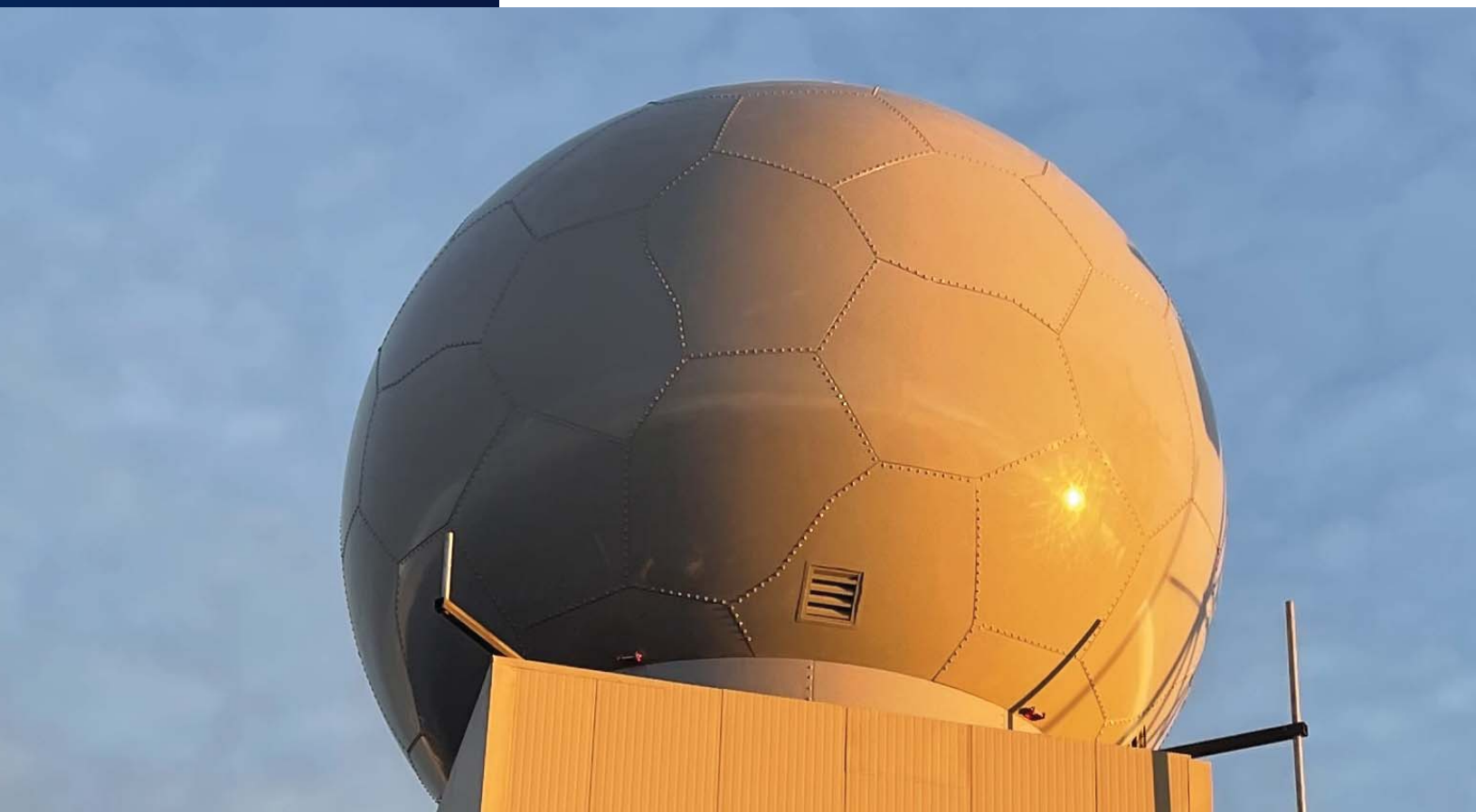
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

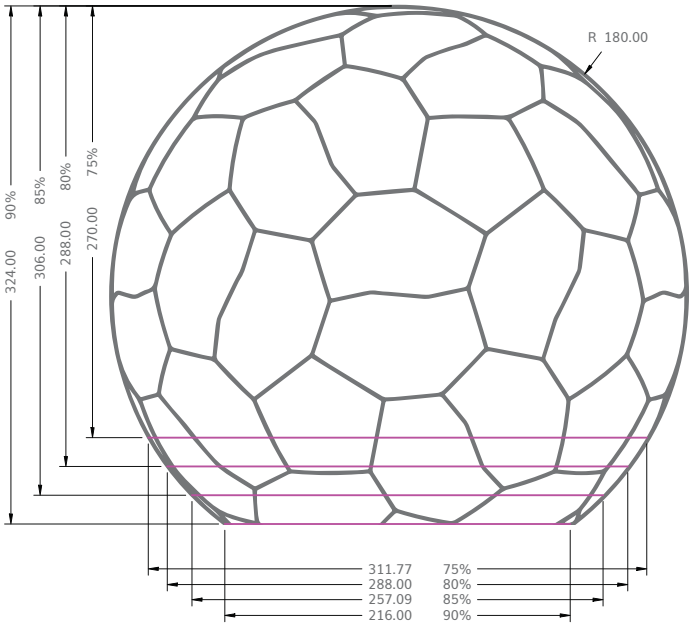
TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.

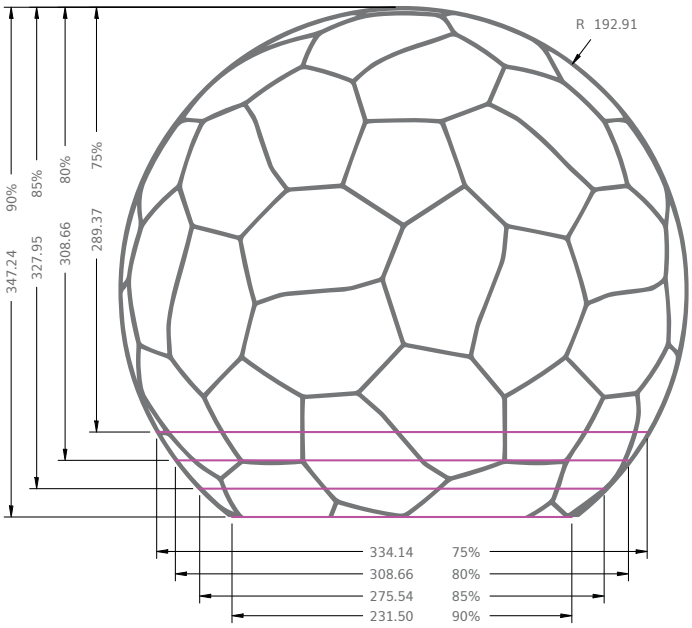


28.0 FOOT (8.5 METER)





30.0 FOOT (9.1 METER)



32.2 FOOT (9.8 METER)

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

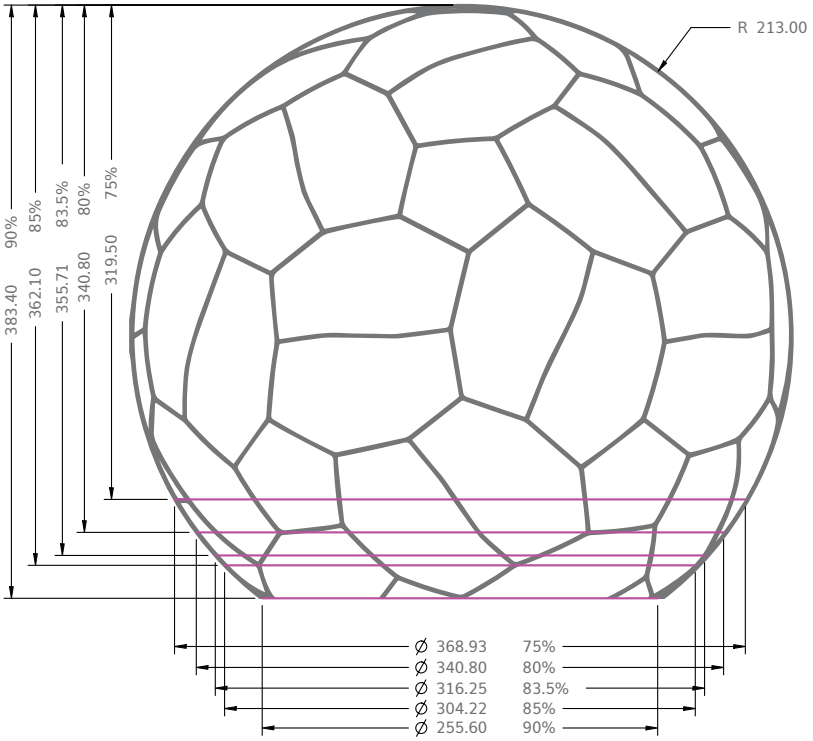
Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.

TYPICAL CHARACTERISTICS

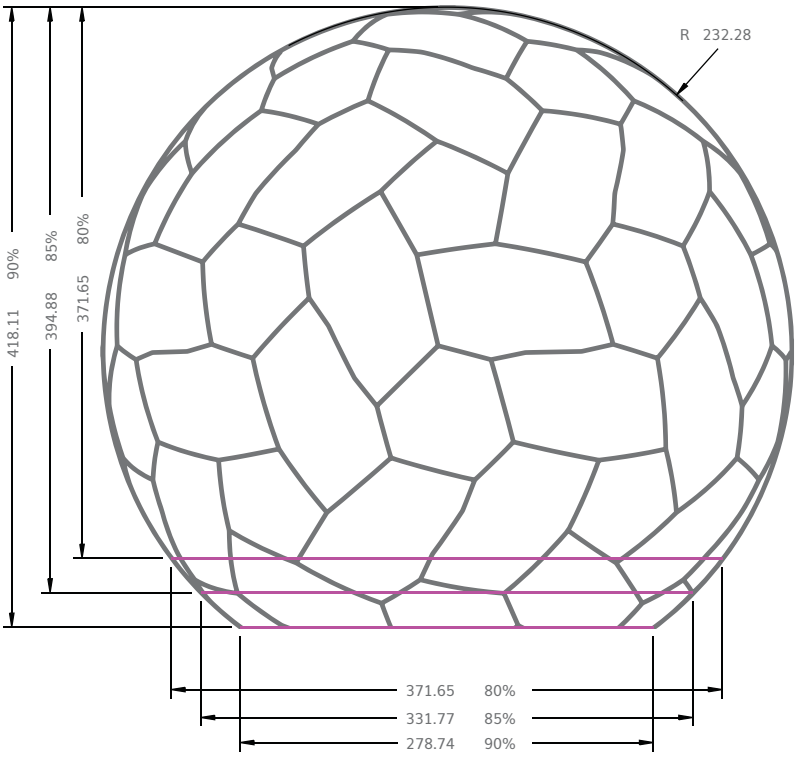
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



35.5 FOOT (10.8 METER)



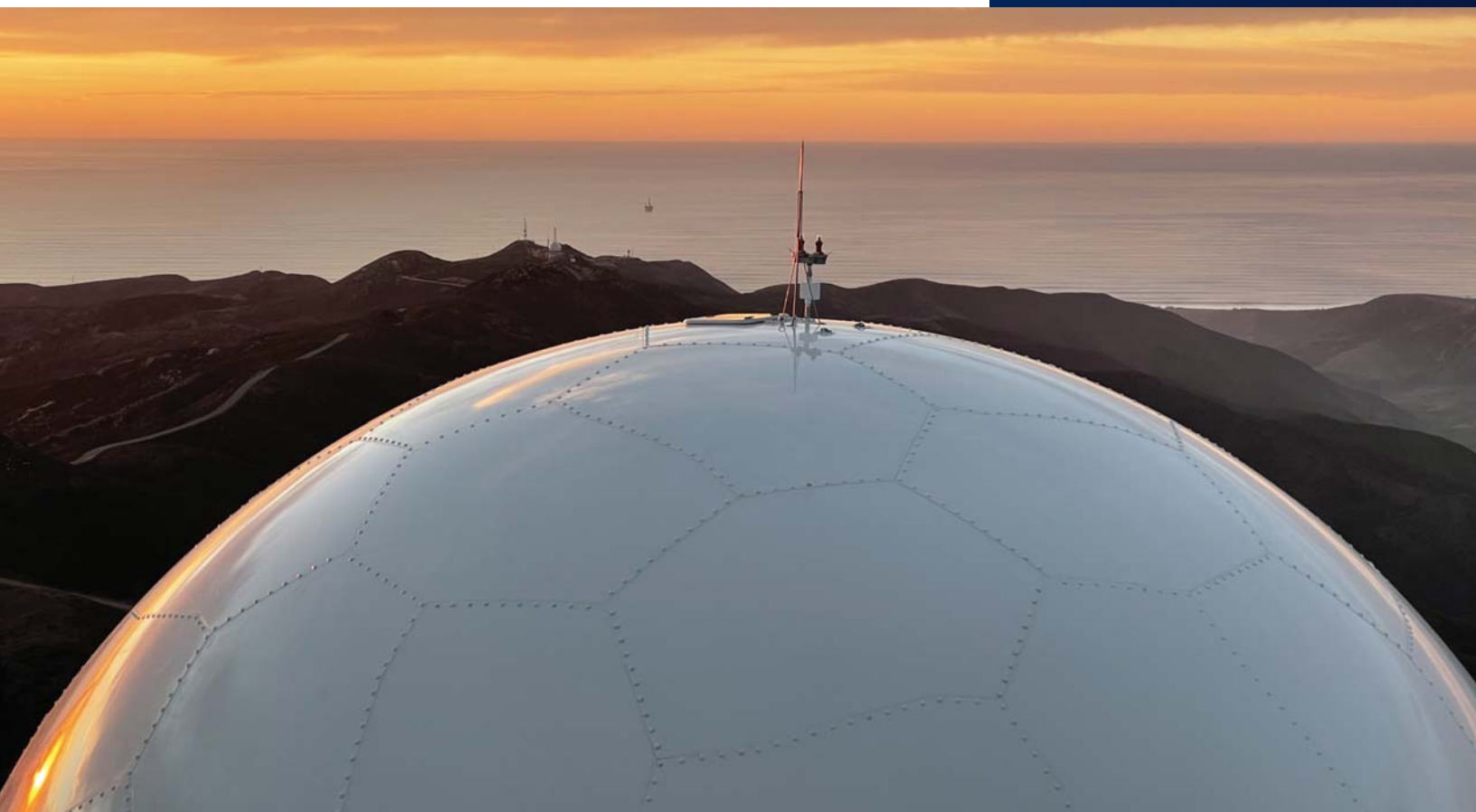
38.7 FOOT (11.8 METER)

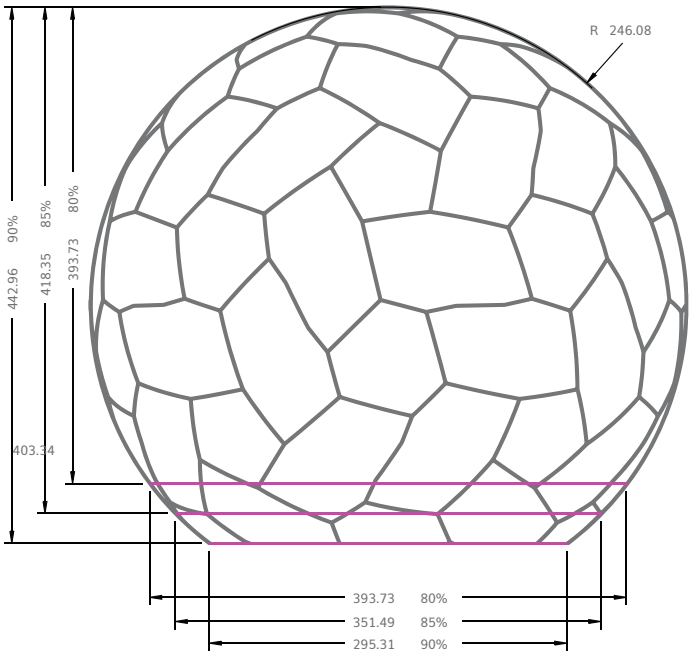
TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

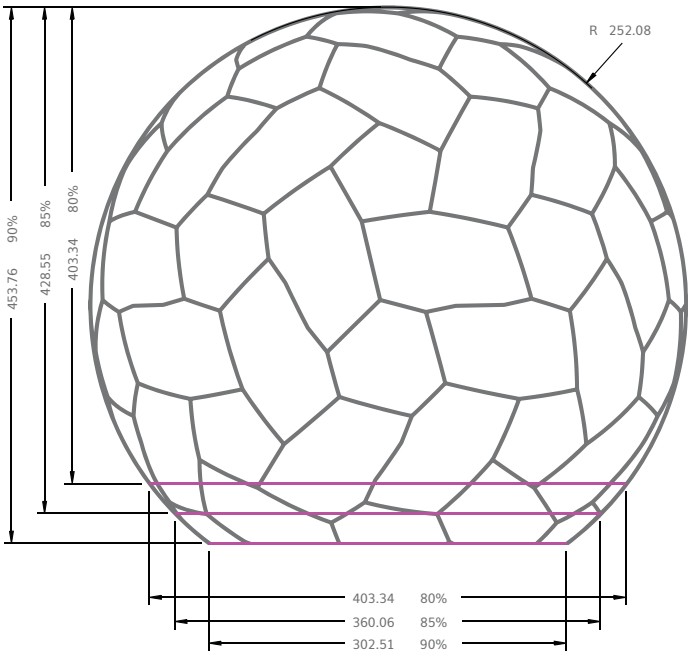
TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.





41.0 FOOT (12.5 METER)



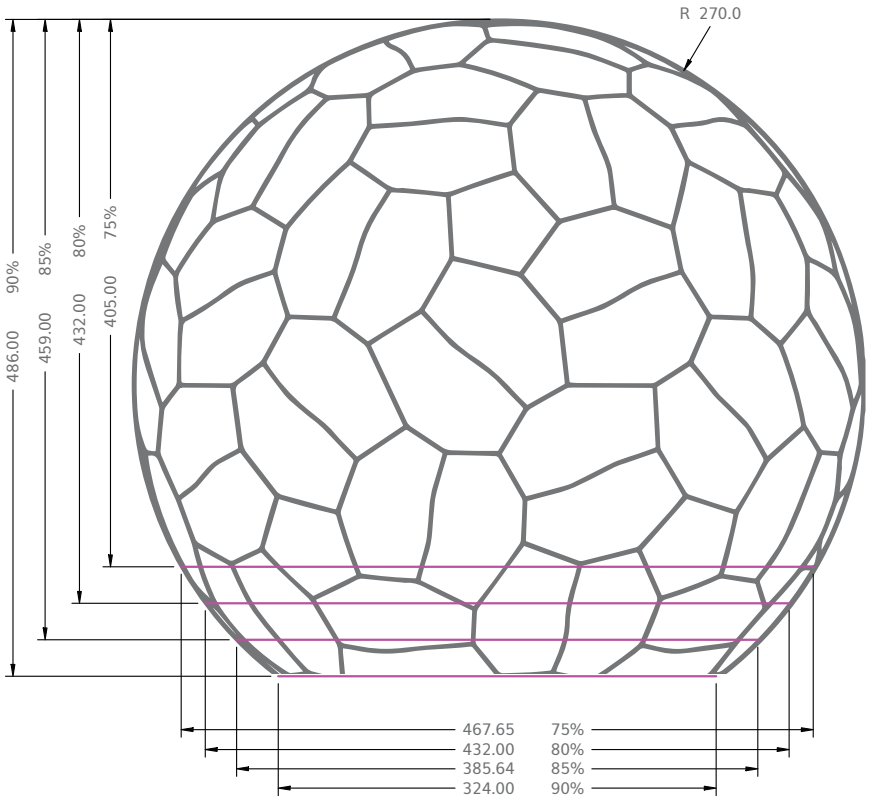
42.0 FOOT (12.8 METER)

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



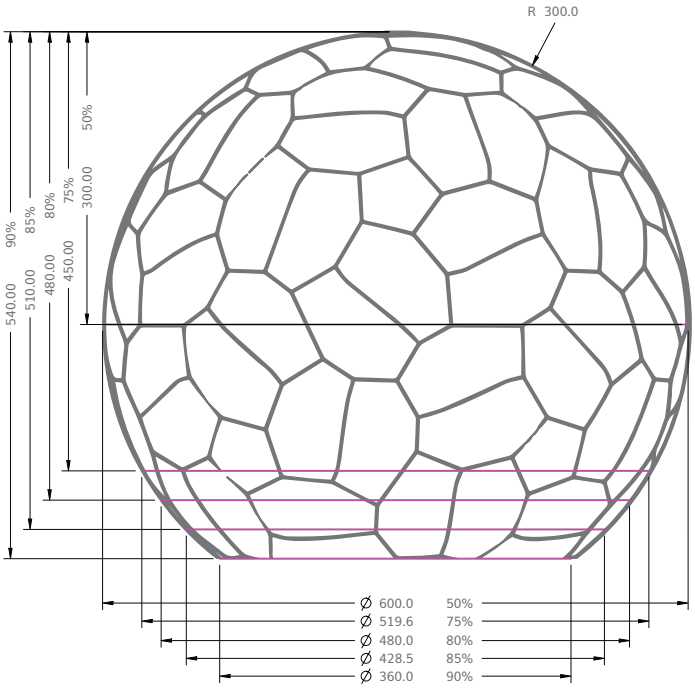
45.0 FOOT (13.7 METER)

TYPICAL CHARACTERISTICS

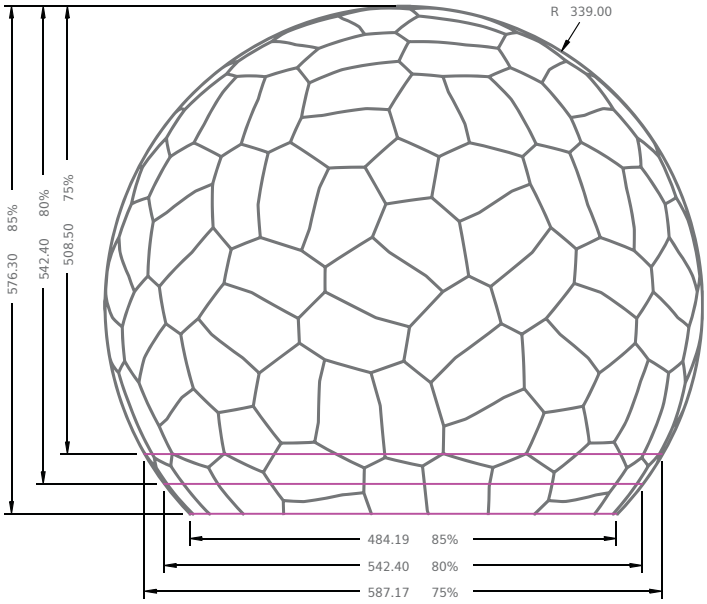
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



50.0 FOOT (15.2 METER)



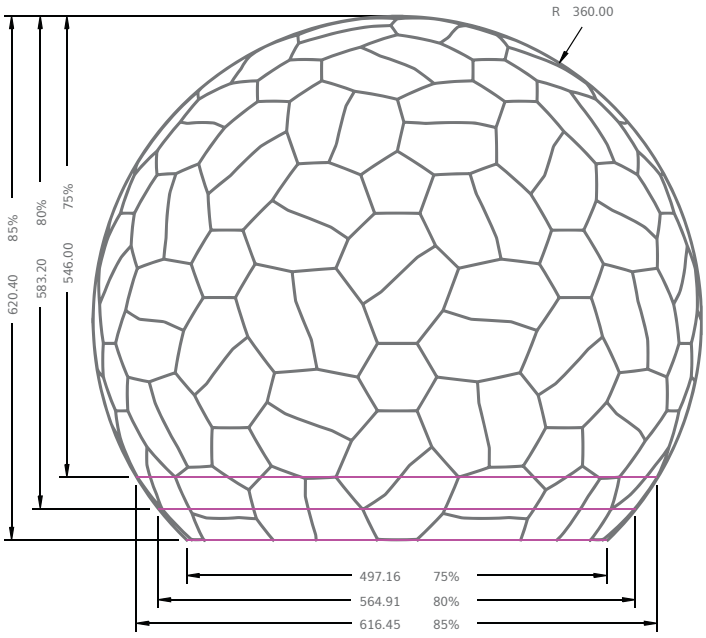
56.5 FOOT (17.2 METER)

TYPICAL CHARACTERISTICS

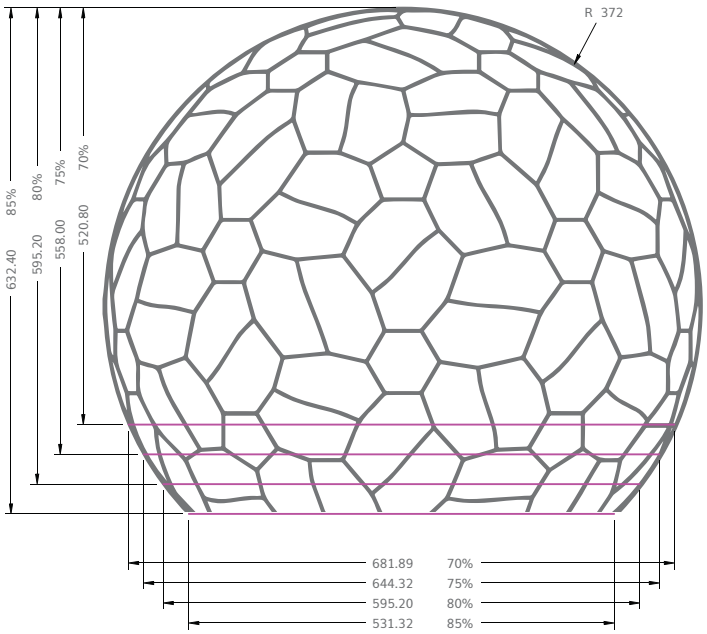
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



60.0 FOOT (18.3 METER)



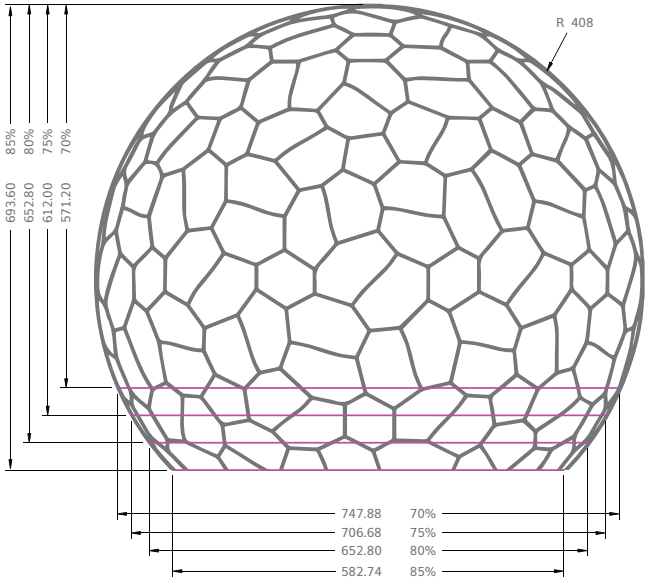
62.0 FOOT (18.9 METER)

TYPICAL CHARACTERISTICS

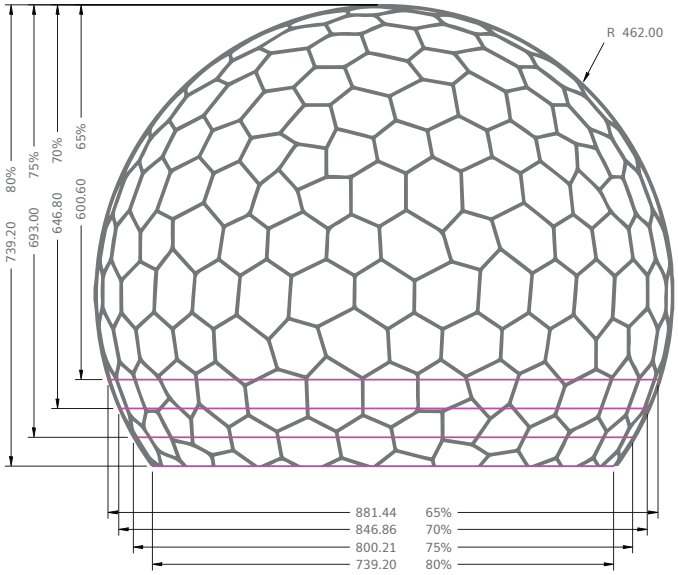
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



68.0 FOOT (20.7 METER)



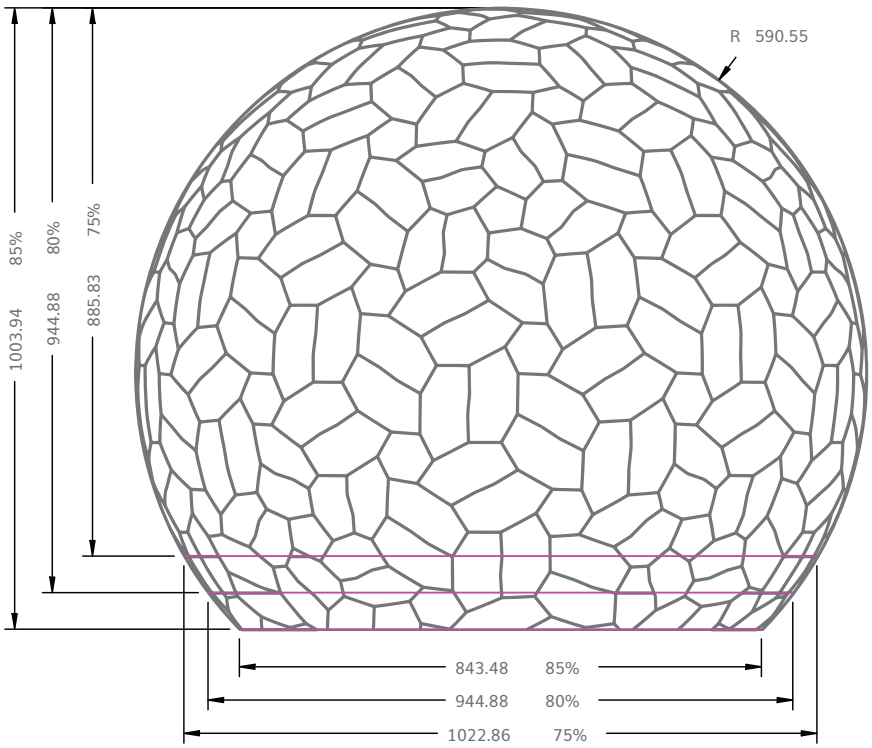
77.0 FOOT (23.5 METER)

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.



98.4 FOOT (30 METER)

TYPICAL CHARACTERISTICS

Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

TYPICAL TRUNCATIONS

Truncation is customized for each application. The magenta line indicates the most common truncations. Dimensions are in inches unless specified.

SHIPBOARD RADOMES

ITIRCS offers four standard size shipboard or single piece radomes ranging from 1.4m to 2.55m in diameter. The standard size models can be tuned to meet RF and structural requirements for most applications.

Our advanced composite materials, including hydrophobic and super-hydrophobic coatings, offer excellent performance and longevity in harsh marine environments. Each ITIRCS radome is carefully evaluated to ensure our customers' needs and expectations are realized.

TYPICAL CHARACTERISTICS

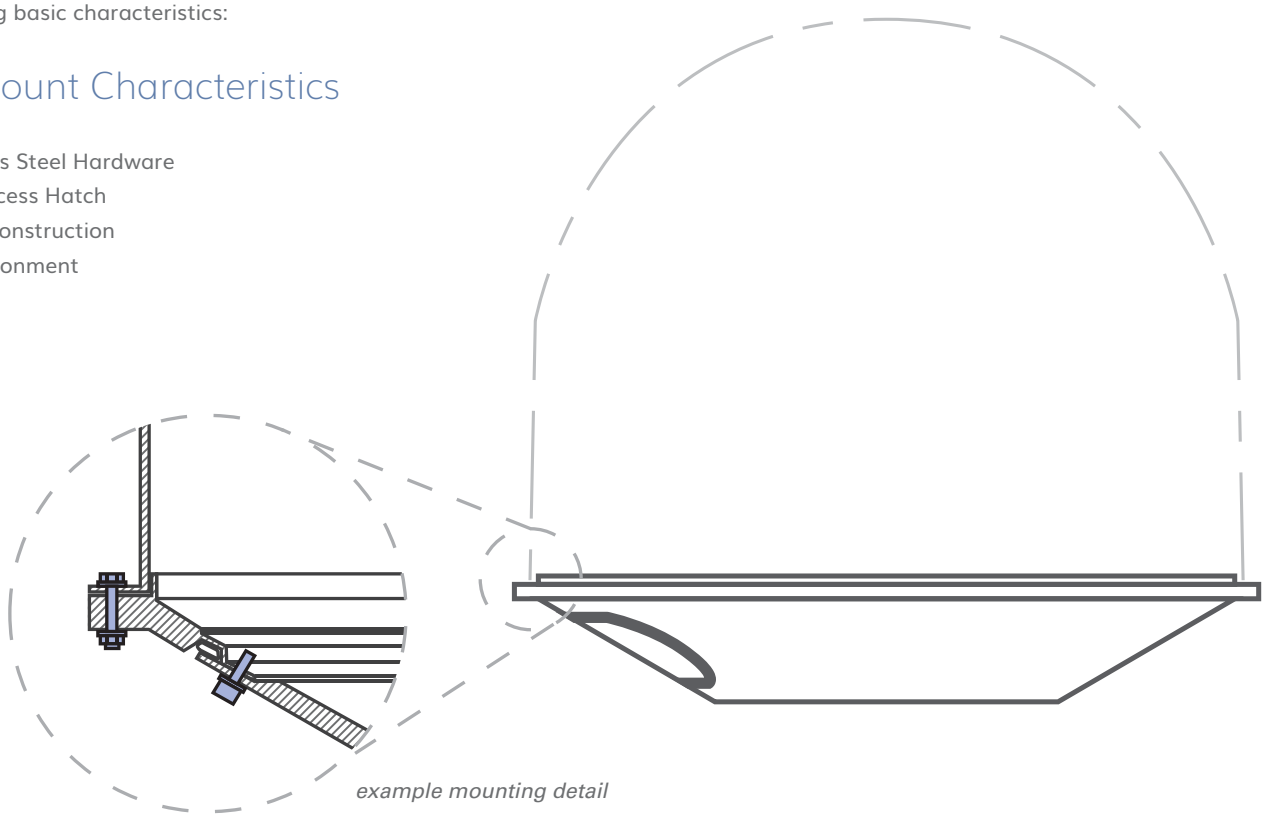
Truncation: up to 95%
Service Life: 20 Years
Wind Rating:
155 mph (250 km/h) standard
200+ mph (320+ km/h) optional

SHIPBOARD BASE MOUNT

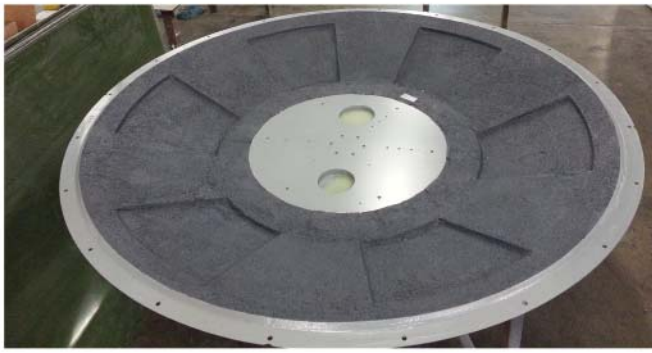
Our shipboard base mounts are designed to meet the rigorous environmental and performance requirements of commercial and military applications and typically include the following basic characteristics:

Base Mount Characteristics

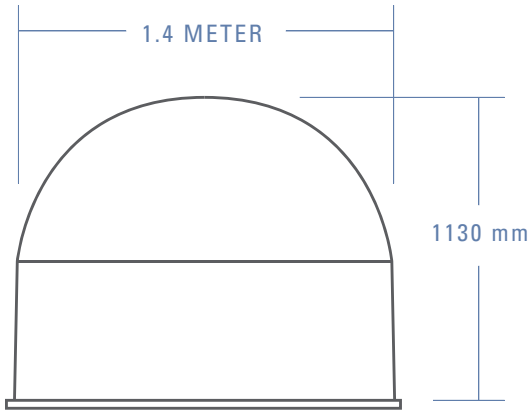
316 Stainless Steel Hardware
Optional Access Hatch
Fiberglass Construction
Sealed Environment

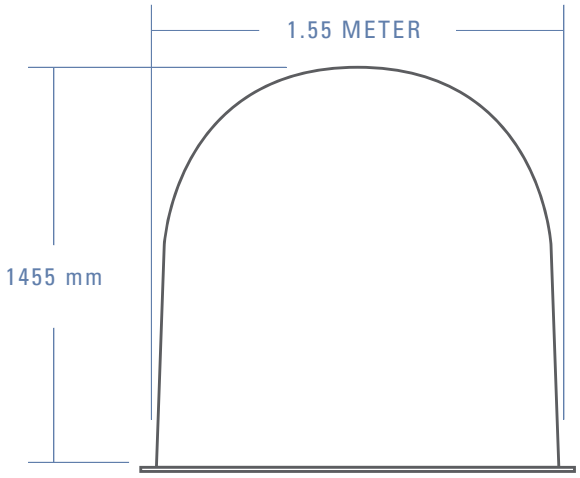


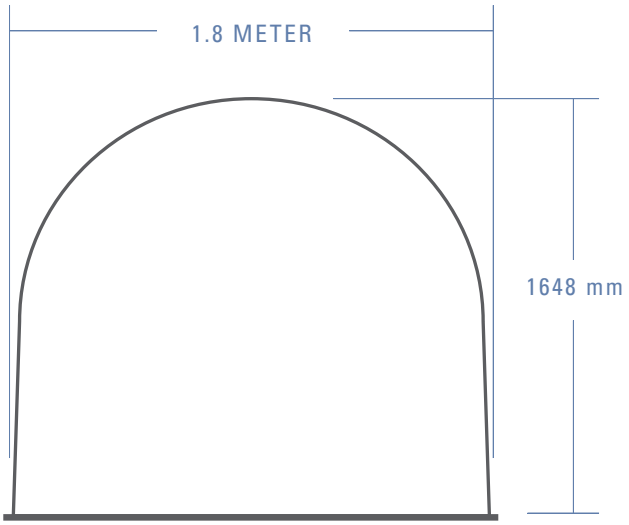
example mounting detail

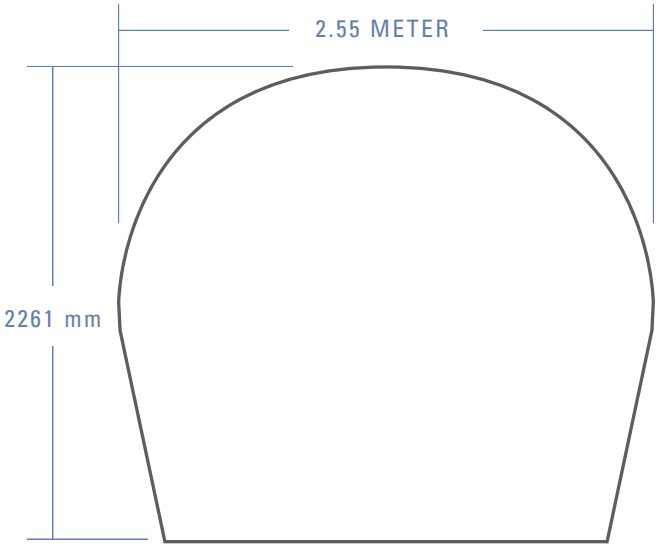


SHIPBOARD RADOMES









ACCESSORY ITEMS

A wide variety of accessory items for ITIRCS radome systems are available to meet your requirements. The most commonly requested items are shown in this catalog. Additional accessory options can be made available upon request. ITIRCS chooses items that are cost effective but that still meet or surpass the the needs of our customers.

The items detailed in this catalog are just a few of the examples of items provided to customers based on requirements.

We are ready to assist with identifying, designing, and configuring any accessory items needed for your application.

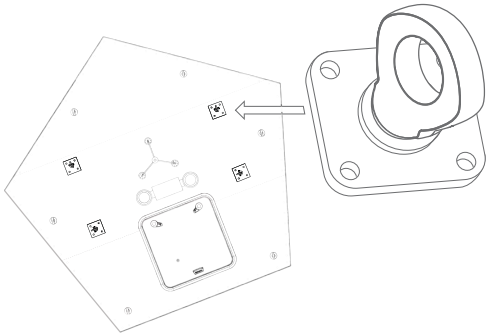
STANDARD ITEMS INCLUDED

All ITIRCS composite radomes are constructed utilizing a polyester resin conforming to MIL-R-7575 Grade B, Class 1 and FED-STD-406, Method 2021 which provides strength and fire-resistance properties to our radome products. Closed cell, non-burning, self-extinguishing foam is used in many cases as core material. The core is non-toxic recycled material that produces minimal smoke.

ITIRCS radomes are supplied with many items that aide in installation and maintenance programs and are shipped in IMPS/IPPC 15 rated crates. This catalog illustrates many of the items that are commonly requested as accessories. If you do not see a specific item required for your project, please feel free to request the item and we will do our best to accommodate your needs.

APEX MAINTENANCE POINTS

Dual apex mounted anchor points, used for exterior access, may be included with radomes from 22 to 77 ft (6.7 to 23.5 m) in diameter. The anchor points are configured with stainless steel anchors, and ropes are used for securing access ropes. Items included with this accessory are: dual ring attach points, dual pulling ropes, and base mounted securing clevis.



ASSEMBLY TOOL KIT

The assembly tool kit is provided with every segmented ITIRCS radome. The kit includes items necessary to install and seal the radome and perform basic maintenance activities. A sampling of the type of items included are below.

- RTV sealant applicator tool
- Bottoming tap (captive inserts only)
- Hex key or wrench for panel bolts
- 3/8" Drive socket wrench
- Deep sockets for panel hardware
- Hole saw (sized for mounting holes)
- Gasket punch (for cutting holes in base gasket)
- Tie Down Rings

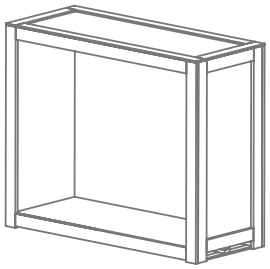
FIBERGLASS MAINTENANCE KIT

The maintenance kit is provided with every segmented ITIRCS radome. The kit includes items that will allow for minor repairs during installation. A sampling of the type of items included are below. Liquid items cannot be transported by air.

- Maintenance / repair instructions
- Fiberglass cloth
- Resin and top coat
- Core material
- Tools

SHIPPING CRATES

Each radome is packed in fully enclosed wooden shipping crates to protect the contents from accidental damage during transportation. Most radomes are configured to allow shipment by standard height shipping containers. ITIRCS's crates meet ISPM/IPPC 15 requirements.



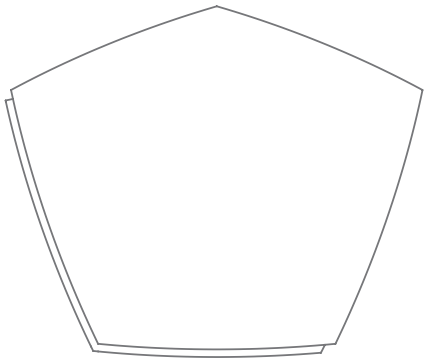
SUPER-HYDROPHOBIC SURFACE

A super-hydrophobic coating with contact angles greater than 120 degrees is available. Typical service life is 4-7 years. Limited color options are available. Increased hydrophobicity allows for better system performance during periods of heavy rainfall. The system does not enhance performance during snow/ice events.

SPARE PANELS

Spare panels used for replacing damaged panels can be supplied for immediate availability. The basic spare panel kit includes 1 of each unique full-sized panel ('A', 'B', 'C', etc.) and assembly hardware. The basic kit does not include any special, base, or zenith panels. These panels can be supplied if desired by specifying an enhanced spare panel kit.

Spare panels can also be supplied after the radome has been delivered. Regardless of when the panels are supplied all panels will be 100% interchangeable, with panels of the same type.

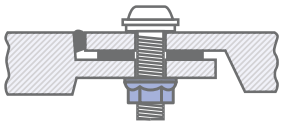


ASSEMBLY HARDWARE

Corrosion resistant stainless steel fasteners are supplied with each radome. One option for assembly hardware is a bolt and nut assembly. Captive panel assembly hardware is also available that utilizes a captive nut secured mechanically and adhesively bonded to the outside surface of the overlap flange. Access to the radome exterior is required only to apply RTV sealant between the panel joints and to seal any captive nut that has been inadvertently spun during install.

MATERIAL:	Stainless Steel
FINISH:	Powder Coated Stainless Steel
ATTACHMENT:	Permanent, Mechanical and Adhesive Bonded

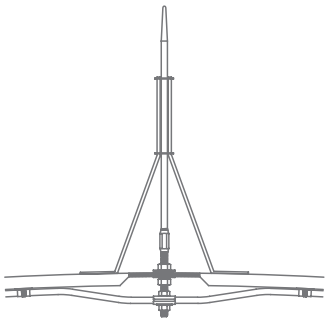
Bolt and Nut



Bolt and Captive Nut

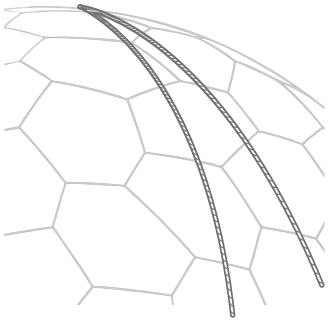
LIGHTNING PROTECTION

Our typical lightning protection kits are configured to NFPA "Rolling Sphere" or "Cone of Protection" guidelines. This kit includes the following: single or multiple rods, dual copper down conductors, NFPA/UL approved connectors, and interconnections loops, as required.



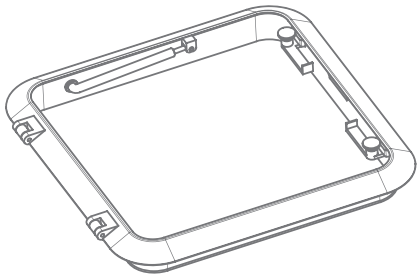
ROPE SYSTEMS

Mounted outside of the radome at the zenith, the snow removal rope is used to remove snow accumulations that may impact performance of the radome. When the radome is supplied with a multiple air terminal (NFPA "Rolling Sphere") lightning protection system, multiple snow removal ropes are used.



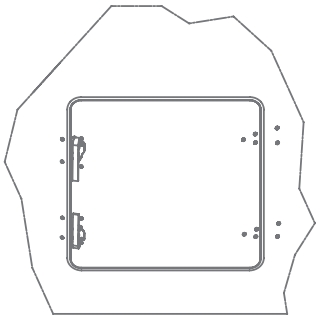
ZENITH HATCH

Access to the radome exterior to perform maintenance activities is accomplished via a zenith hatch. The hatch is constructed of a two-piece anodized aluminum frame and translucent lens. The hatch is operable from both the interior and exterior with lockable handles. A ladder bar is typically included with zenith access hatches.



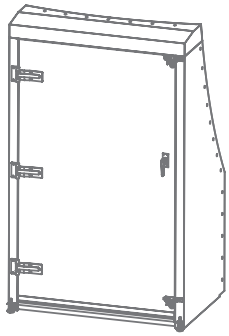
BASE HATCH

For access to the interior of the radome by personnel, a hatch fabricated using the same materials as the radome and using stainless steel hardware (including latches and hinges) is available. The standard size is 34″ x 34″ but can be altered in many cases should a larger or smaller hatch be required. The size of the hatch is limited by size of the panels available to place the hatch within. If a larger access area is required, please see the door section of this catalog.



PERSONNEL ENTRY DOOR

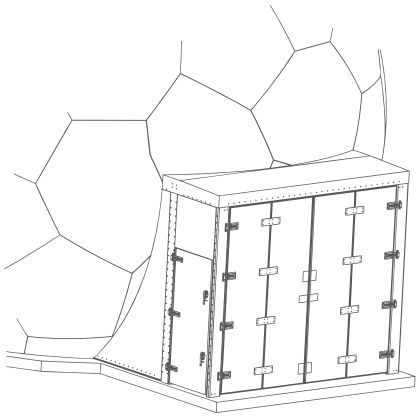
For access to the interior of the radome, a flat door fabricated using the same materials as the radome and using stainless steel hardware (including latches and hinges) is available. Our door utilizes a standard lock set that is corrosion resistant. The standard size 36″ x 60″ can be altered in many cases should a larger, smaller or double door be required.



LARGE EQUIPMENT ACCESS DOOR

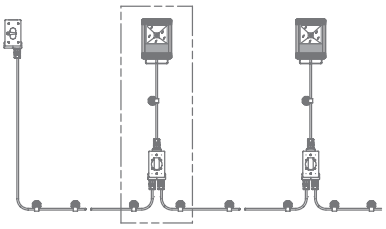
Optional access doors can be provided for most radomes. The door is prehung with structural fiberglass members that form an entry alcove outside the base diameter of the radome. The hinged, outward opening door comes complete with threshold, weather-stripping, lever-style latch, and deadbolt. It is a flush fiberglass door that matches the radome color, texture and finish.

FEATURES INCLUDED:
All composite construction
Same materials and finish as the radome
Stainless steel hardware
Flush entryway
Incorporation of man door with some configurations
Lockable handles
Inside/Outside operation
Positive latching systems



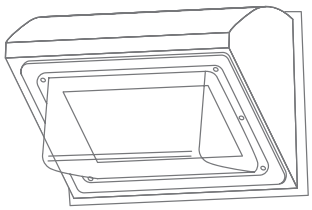
INTERIOR LIGHTING

Interior lighting kits are available for all radome models, and configuration is completely customizable. Our typical interior lighting kits include the following: one or more lamp fixtures, LED flood lamps (2,400 lumen each) operating at 120 to 240v 50/60Hz, on/off switch, electrical junction boxes, and wiring. The lamps have a service life up to 30,000 hours and are easily replaceable.



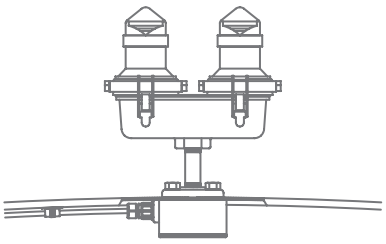
SECURITY LIGHTS

Security lights are sometimes required at sites to provide illumination outside the radome. ITIRCS offers an adjustable LED floodlight operating on 120v to 240v 50/60Hz power. The 40w version is capable of 5,300 lumen, and the 80w light is capable of up to 10,300 lumen. The lights are photocell controlled for convenience and have a service life up to 30,000 hours.



WARNING LIGHTS

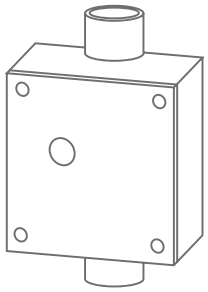
Obstruction warning lights are commonly required by the FAA and as such, ITIRCS offers a warning light kit that meets the necessary standards of FAA AC 70/7460-1 and ICAO Annex 14. The kit consists of the following items: LED or incandescent lamps, twin red globes, and optional photocell control.



PHOTOCELL CONTROL - OBSTRUCTION WARNING LIGHT

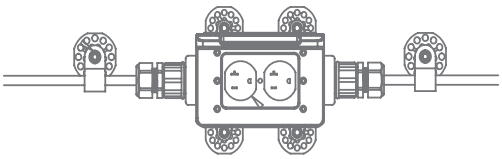
Photocell control automatically turns obstruction lights on and off to maximize service life and minimize power requirements. The unit is non-adjustable and normally closed circuit ensuring light ON in the event of control failure:

POWER: 120 or 240v 50/60 Hz
ACTIVATION: ON @ 35 fc and below, OFF @ 58 fc and above
Power ON indicator
Normally closed provides light ON in case of failure



UTILITY POWER - CONVENIENCE OUTLETS

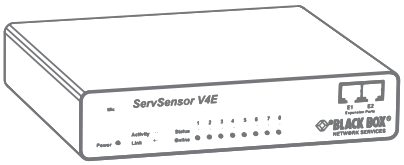
A convenience outlet/power kit to provide access to site power is offered to facilitate activities by personnel inside the radome. Outlet type supplied is NEMA (or based on local standards). The kit includes:

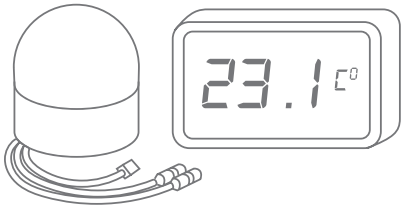


STYLE: Single/double outlet with cover
POWER: 120v 15A or 240v 10A
UNIVERSAL: North America - NEMA 1-15P, 5-15P, 5-20P, 6-15P, 6-20P
International - European, United Kingdom, Switzerland Italy, Denmark, Israel, Australia, China, Brazil, Japan, or Thailand

ENVIRONMENTAL MONITORING SYSTEM

A system for monitoring environmental conditions inside the radome consists of a single device capable of monitoring temperature and humidity levels. The system connects via an Ethernet cable to a network and utilizes IP protocol. Exact configuration and functions are determined per customer requirements. Customer is to supply a connection to the network or monitoring device (computer) and system rack.

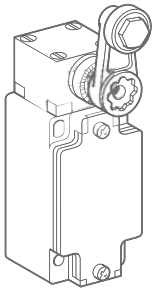




TYPICAL KIT INCLUDES:
Power over Ethernet SPOE IEEE 802.3af
Power Requirements: 7.5 – 9 VDC, 1.2A
Integrated data collection and graphing package
Standard 1U rack mountable (rack not supplied)
Network connection via Ethernet hub or switch
Internal Web server
Humidity from 20% - 80% non-condensing
Door opened / closed monitoring capable.
Video monitoring capable

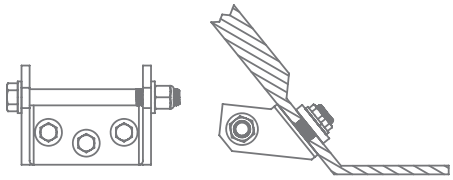
INTERLOCK SWITCH

An interlock switch provides a means of disconnecting power to electrical equipment whenever an entry access point is opened. ITIRCS offers switches that can connect to hatches, doors, and other moveable interior equipment to ensure protection of personnel and moveable antennas.



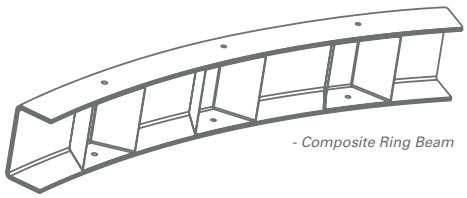
RADOME LIFTING SYSTEM

The radome lifting system is used for lifting a fully assembled radome on its foundation. The basic kit contains steel brackets which should be equally spaced about the radome. The brackets are installed by drilling holes through the solid fiberglass portion of the base panels and attaching the bracket with nuts and bolts.



MOUNTING RING BEAM

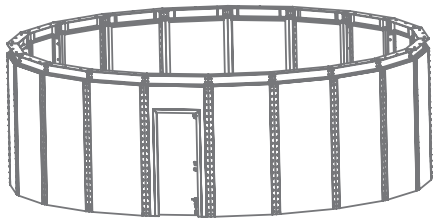
Mounting ring beams are not required with ITIRCS radomes, but can be provided. A beam allows the mounting surface to be level with a uniform height. The beam is faceted and fabricated from structural "H" or "W" shapes. Beams come in galvanized steel, powder coated steel, or fiberglass. The kit includes the beam sections, hardware for attaching beam segments to each other, and hardware for securing the radome to the beam. Anchor bolts for securing the beam to its foundation are NOT included but are available.



- Composite Ring Beam

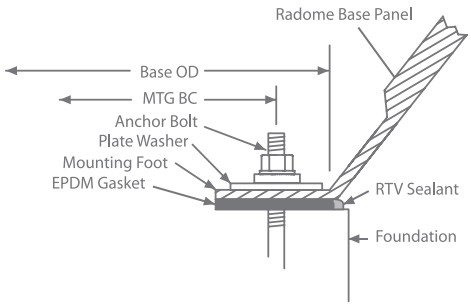
RISER WALL / RADOME COLLAR

A riser constructed out of steel, fiberglass, or both which is bolted together for a quick height adjustment is available. Depending on its height, this item can also serve as a ring wall eliminating additional civil work such as construction of a concrete or block wall. The wall can have the same finish as the radome including color, if desired. Hardware for securing the radome to the riser as well as securing the segments together is provided. Anchor bolts for securing the riser to the foundation are NOT included but can be provided in a separate kit.



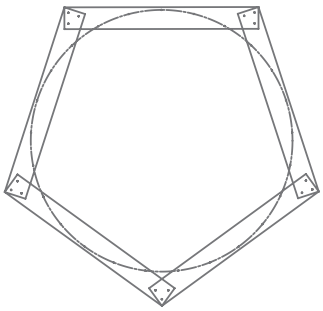
ANCHOR BOLT HARDWARE

An anchoring system used to secure the radome to its foundation is an available option. The type of kit supplied varies based on customer requirements. For concrete, concrete block, or other foundations where only top-side access is possible, blind style anchors can be installed during initial fabrication of the foundation or after the concrete has properly cured. For applications such as metal decking or foundations where access to both sides of the foundation is possible, through bolts can be supplied.



ANCHOR BOLT TEMPLATE

An anchor bolt template is used to properly locate the radome anchor bolts in the foundation. We can supply either an electronic CAD file to be used by the customer for fabrication of the template at no cost or a fabricated template can be provided. Template segments are bolted together using hardware supplied with the kit forming a complete circle duplicating the radome base interface pattern.

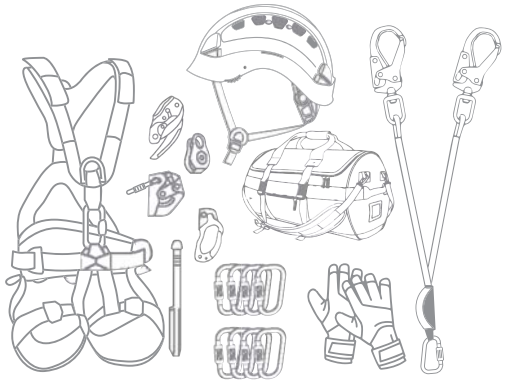


CLIMBERS KIT

The climber kit is used by maintenance personnel for scaling the exterior of the radome to perform maintenance activities. The climber's kit includes an array of items necessary to work in a safe manner. It is strongly recommended that all personnel using the kit be professionally trained in rope access methods.

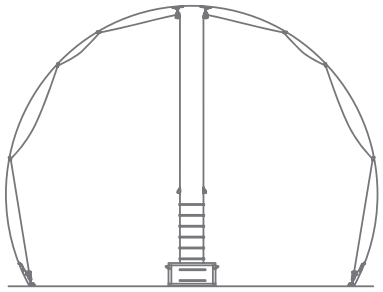
TYPICAL KIT INCLUDES:

Helmet	Gloves	Climbing Rope (2 x 100')
Full Body Harness	Ascenders	Descender
Fall Arrest Device		



ROPE LADDER

For access to the radome top cap to perform maintenance activities from inside the radome, we offer a removable rope ladder. The rope ladder has a 300lb max capacity and comes with a weatherproof storage box for when the ladder is not in use.

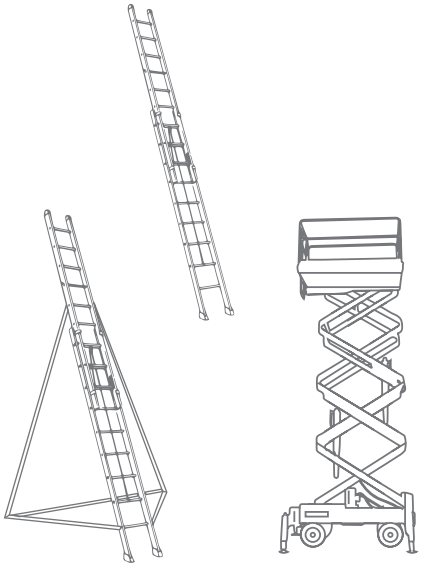


EXTENSION LADDER

For access to the radome top cap to perform maintenance activities from inside the radome, a segmented extension ladder with hooks for attaching to a ladder bar is available. The ladder is an aluminum 2 section unit capable of up to 40ft reach.

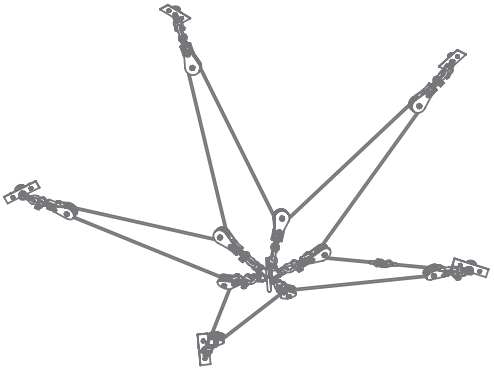
FEED SERVICE ACCESS

To provide access to the feed, we offer an extension ladder with outriggers. This only provides immediate access for performing maintenance activities; it does not include a platform for maintenance personnel to stand on or for storage of tools and equipment. An alternative means for providing access and a work platform is a scissors lift, or similar device, specifically designed and approved for the purpose of providing an elevated work platform.



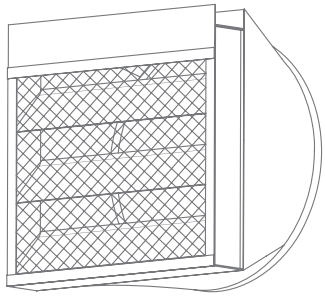
INTERIOR HOIST SLING

The interior hoist sling consists of a wire rope and pulley system secured to the interior of the radome at 5-points. The system is designed to lift a load up to 455 kg [1,000 lbs]. The sling is self-leveling to distribute the applied loads minimizing possible damage to the radome. The hoist is not included in the kit.



VENTILATION SYSTEMS

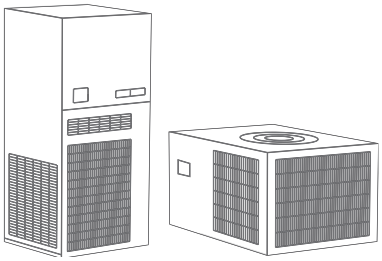
Passive ventilation systems are available to dissipate heat and minimize the effects of condensation. A typical ventilation system consists of louvered vents located in the base of the radome and a passive gravity ventilator in the zenith panel. The systems are equipped with bird or insect screens. Powered systems including intake fans, recirculation fans, exhaust fans, dehumidification units, or electrical heaters are available upon request.



AIR CONDITIONING

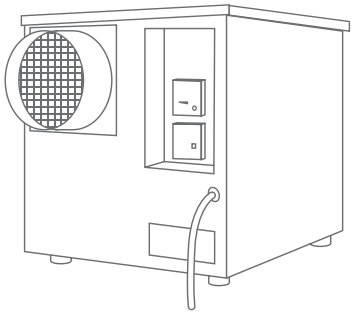
An air conditioner provides lower internal temperatures and a limited level of dehumidification to help with corrosion, mold growth, and condensation. For environments with high ambient temperatures and extreme moisture and/or salt laden conditions, it is recommended that a refrigerant or desiccant-type dehumidification system be employed along with an air conditioner. In environments with mild ambient temperatures and high humidity, use of an air conditioner is not recommended for dehumidification purposes.

ITIRCS uses established prediction methods to determine system capacity. Inputs to this model are: Radome size, wall construction, color, equipment heat generation, climatic data, and desired internal temperature.



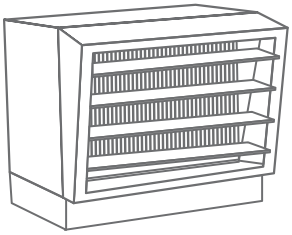
DEHUMIDIFICATION

Dehumidification is required whenever there is a need to prevent corrosion, mold growth, and condensation. Where installations are located in extreme moisture and/or salt laden environmental conditions, ITIRCS can provide a refrigerant or desiccant-type dehumidification system.



HEATING

Electric forced air heating units are available to provide elevated temperatures above ambient levels inside the radome. Heating systems are intended to provide interior temperatures adequate for internal equipment performance. They are not intended to provide personnel comfort or as a means of melting snow or ice from the radome exterior.



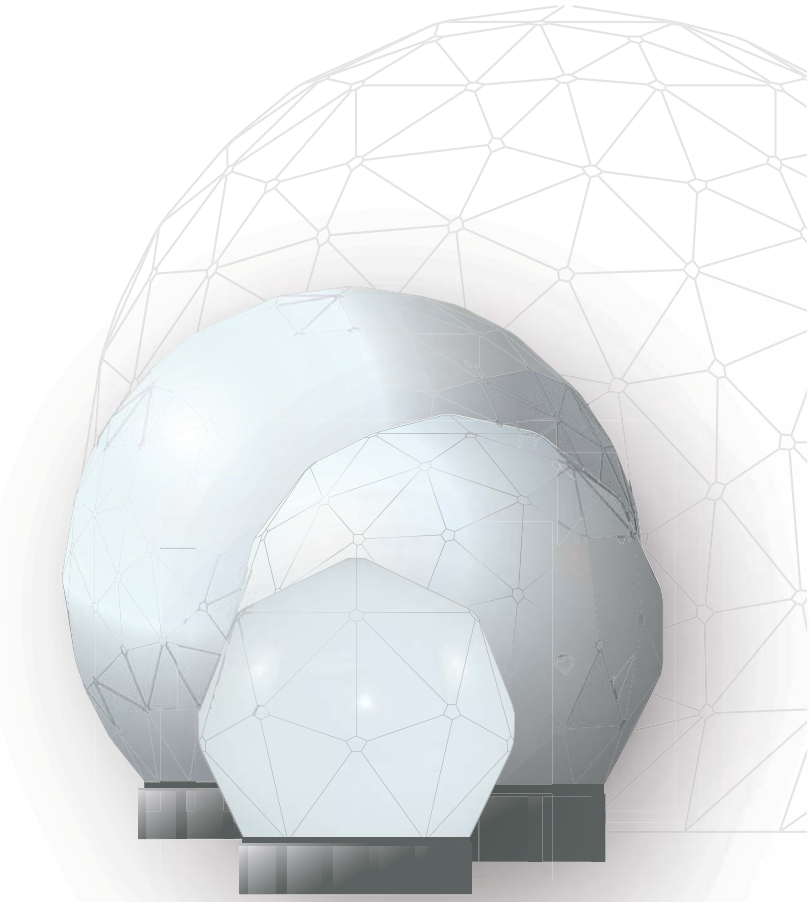
NEW PRODUCT OFFERINGS

ITIRCS is pleased to announce our new product offerings. We understand the need for constant improvement and are excited to announce a solution for metal space frame radomes, custom shape and size sandwich radomes, and metal towers designed to support our radomes.

METAL SPACE FRAME RADOMES

ITIRCS has developed an advanced Metal Space Frame Radome (MSFR) to meet customer demand in this market sector. The new radome has been specifically designed for broadband RF performance from L-band to beyond Ka-band operation. New materials for the outer skin have been integrated into a rigid aluminum frame creating, what we believe to be, the best solution for durability and customization currently on the market.

ITIRCS developed this new product line to address customer demand for increased competition in the broadband marketplace. ITIRCS prides itself on constant communication with our customers who have played a big part in the development phase of the new radome.

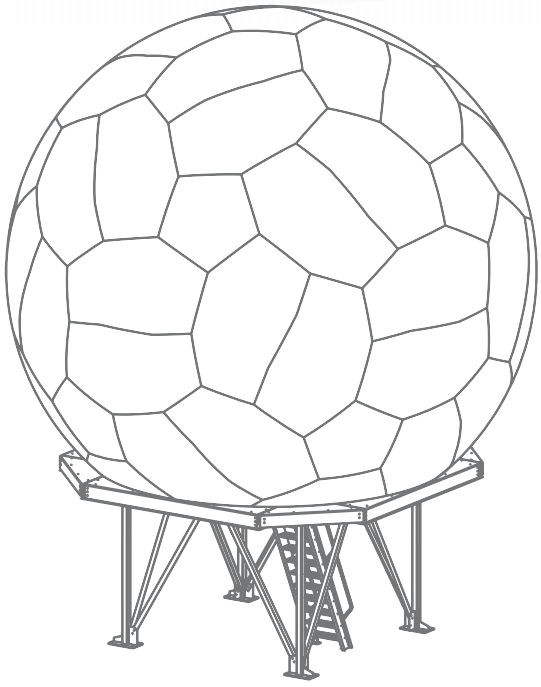


CUSTOM RADOMES

ITIRCS can provide radomes for just about any land or shipboard application including various sizes and shapes. With in-house tooling capability, we strive to keep development costs low for custom, one-off projects.

RADOME TOWERS

ITIRCS is working with several tower manufacturers to develop a tower solution that is optimized for use with our radomes. Our goal is to provide a turnkey solution for system integrators, antenna manufacturers, and end users—a one-stop-shop for your tower and radome needs. By offering both products, we feel savings can be made on the coordination and installation phases of this operation.

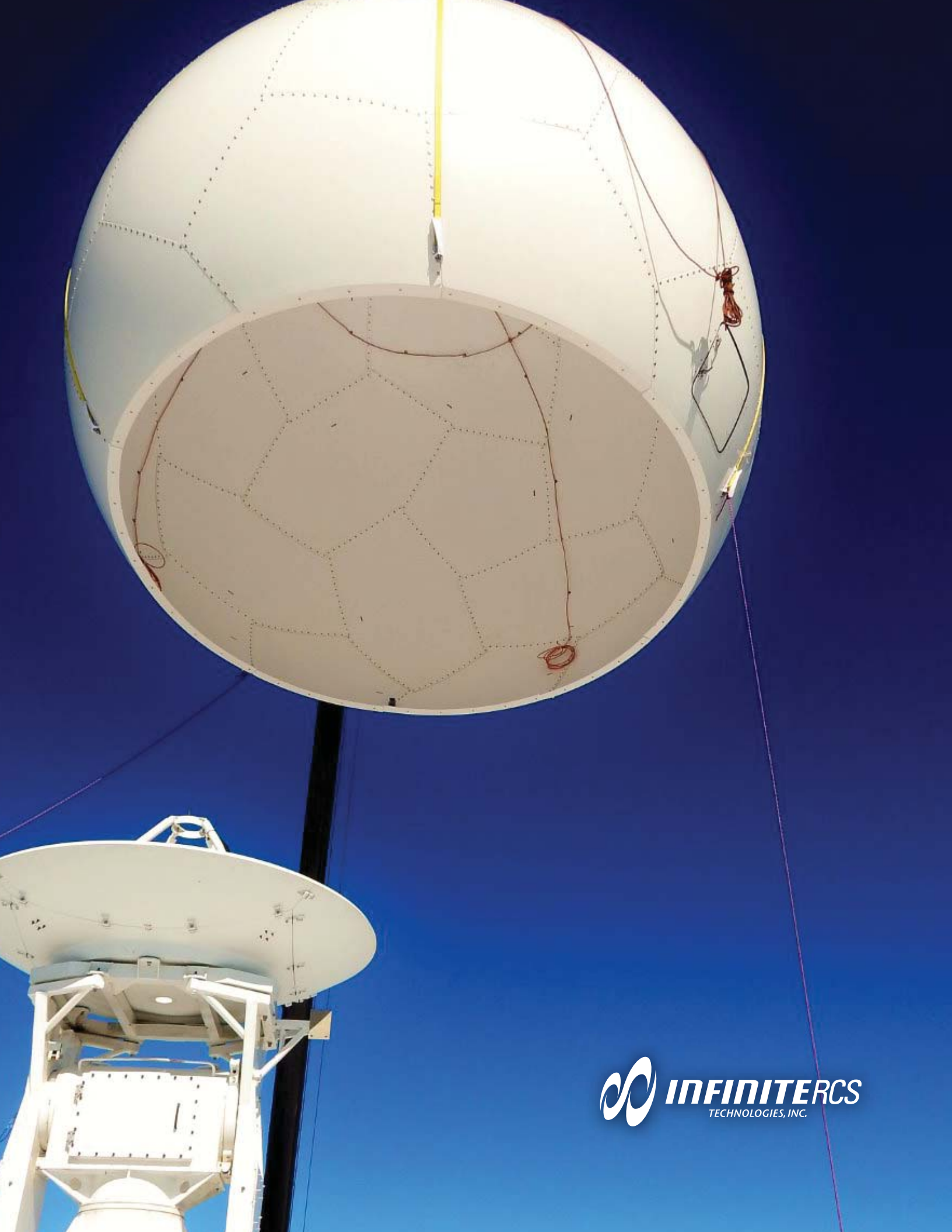


Tower designs will vary

INSTALLATION SERVICES

All ITIRCS radomes are furnished with installation, operation, maintenance, and repair manuals that follow best commercial practices. The installation guide will assist the end user in completing an installation.

ITIRCS can also provide the services of qualified radome installation crews worldwide. Our crews have experience in the installation and maintenance of all sizes of ITIRCS radomes in the most challenging environments and conditions. Our crews are trained and certified to complete the project quickly and safely.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ITIRCS headquarters are in Clearfield, Utah USA. It currently employs a staff of highly trained specialists in fields including electromagnetic analysis, composite structural design, structural analysis, technical data development, and composites manufacturing.

All ITIRCS radomes are manufactured in the United States by a wholly owned facility dedicated exclusively to the manufacture of ITIRCS radomes and composite products.

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