DMC50 series VHF Antennas

The unique design of this blade antenna offers mechanical properties far exceeding those of any competitive product and offers the best available electrical performance. The DMC50 is the lowest cost, lightest weight and strongest blade antenna in current use on commercial jet aircraft.

Features

- Maximum protection against corona and direct impact p-static
- Unique ruggedness (withstands 10 G at resonance for one million cycles)
- Lightning protection of associated equipment as well as antenna
- Factory replaceable leading edge
- An extra strength version for use on unimproved runway (stainless steel leading edge; weight increase 14 oz) (Model designation change –/S)
- Hot air duct for use, when required, in top locations directly forward of a jet engine as on the Boeing 727 or a Douglas DC-10

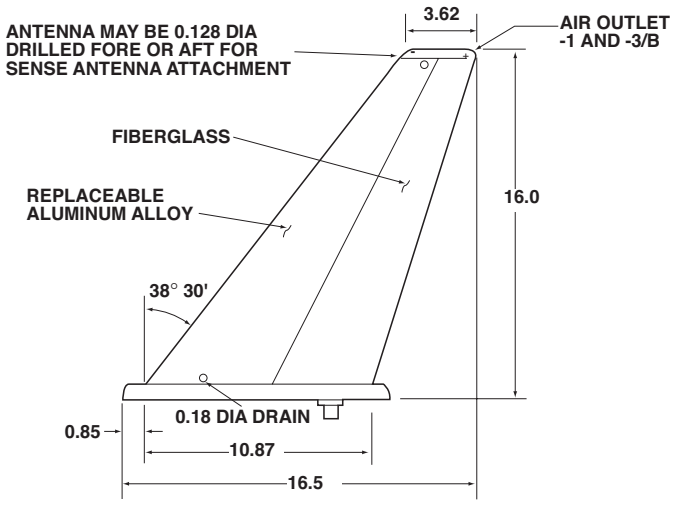
P/N DMC50

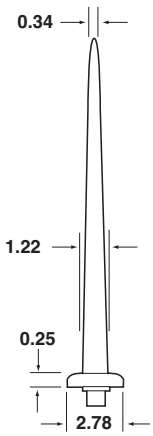
Specifications

Electrical	
Frequency Range	116 to 156 MHz
VSWR	< 2:1
Power Rating	-1 & -3/B models 1 kW CW; -2 & -11A models 500 W CW @ 75,000'
Impedance RF	50 OHMS
DC	Short Circuit
Polarization	Vertical
Radiation Pattern	Omnidirectional (equivalent to a vertical stub)

Mechanical	
Weight	< 3.5 lbs.
Drag (35,000' Mach 0.89)	3 lbs.
Lightning Protection	Exceeds the requirements of spec MIL-A-9094C
Erosion Resistance	The antennas have metal leading edges
FAA	TSO-37d, -38d, CAT F2 ABCXXFXXSXXXXXXXXXX

Environmental	
Side Load	12 psi
Vibration	10 G at res for 1 million cycles
Shock	30 G
Hot Air Duct	Antenna will operate 1 hr. minimum with 400°F air; withstand 500°F air continuously in atmosphere below 32°F





OUTLINE DIMENSIONS

Inches

-1 SHOWN

CONSULT FACTORY FOR AVAILABLE MOUNTING BOLT PATTERNS

Specifications subject to change without notice.

DM C50-17 VHF Antenna

The DM C50-17 series VHF Communication Antennas have incorporated design improvements to enhance corona threshold, corrosion protection, and drag characteristics.

The DM C50-17 series provides the lightest weight and strongest blade antenna at lower cost for current use on commercial jet aircraft.

In addition to its low initial price, further cost reductions are realized due to the weight and drag reduction of the antenna. The fuel saving per ship-set is calculated to be 160.5 gallons per aircraft per year.

The DM C50-17 antenna has been selected as original equipment for the Boeing 757 and 767, and 777 aircraft. Other models in the DM C50-17 series can also be used on Boeing 707, 727, 737, 747; Douglas DC-8, DC-9, and DC-10; Aerospatiale A300 series; and other commercial aircraft. Many of the DM C50-17 series are interchangeable with other types of antennas presently in use.

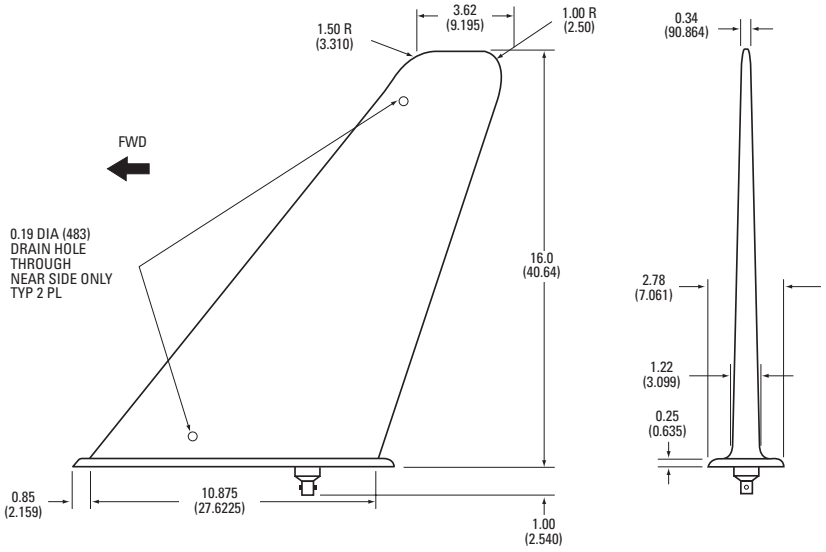
P/N DM C50-17

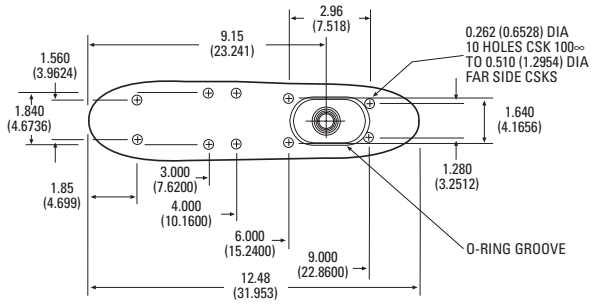
Specifications

Electrical	
Frequency Range	116 to 156 MHz
VSWR	2.0:1
Power	1 kW CW
Impedance	50 OHMS
Polarization	Vertical
Radiation Pattern	Omnidirectional
	(equivalent to a vertical stub)
Mechanical	
Weight	3.3 lbs.
Connectors	C Female

OUTLINE DIMENSIONS

Inches (Centimeters)





Specifications subject to change without notice.

DM C57-1 Low Profile Metal Blade Radio Telephone Antenna

The DM C57-1 antenna has achieved a design breakthrough that has not compromised performance. Previous designs were 6 to 7" high and heavier. The DM C57-1 is only three and a half inches high and weighs 8 ounces.

The DM C57-1 operates with all airborne radio telephone systems in the 450-470 MHz frequency range. Reduced maintenance costs are achieved through the use of this low profile, all metal blade as a result of its unequalled mechanical strength and built-in reliability. The DM C57-1 is currently in use and field proven on business and commercial aircraft. This low drag antenna has extremely high side load strength and its construction is completely sealed to prevent damage from moisture, Skydrol, or other contaminants.

P/N DM C57-1

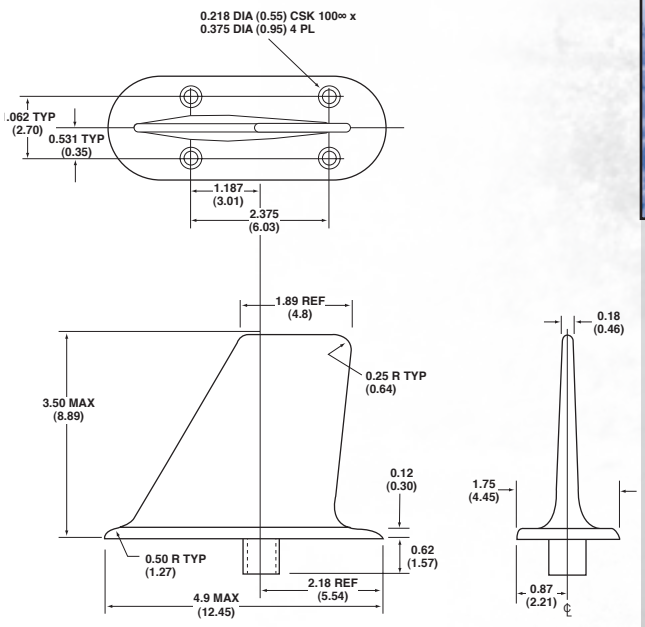
Specifications

Electrical	
FrequencyRange	450 to 470 MHz
VSWR	< 2.0:1 454 to 459 MHz < 2.5:1 450 to 470 MHz
Efficiency	> 85%
Impedance	50 OHMS
Power	100 Watts
Polarization	Vertical
Radiation Pattern	Omnidirectional
Gain	Equal to quarter wave stub

Mechanical	
Connector	N (female)
Weight	8 oz. maximum (0.22 Kg)
Finish	White
Max Air Speed	0.85 Mach
Temp Range	-65°F to +250°F
Altitude	70,000'
Drag	5.5 oz. @ 25,000' @ 0.85 Mach

OUTLINE DIMENSIONS

Inches (Centimeters)



Specifications subject to change without notice.

DM C60 Series VHF Antennas

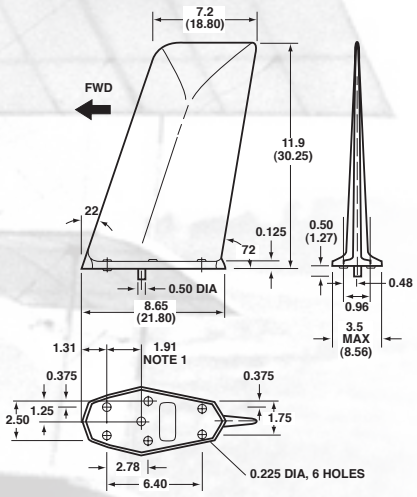
The DM C60 is a vertically polarized VHF communications antenna designed for either top or bottom fuselage mounting. The antenna covers the frequency range of 118-137 MHz (-1) or 116-152 MHz (-17) for both transmitting and receiving applications. Electrical elements of the antenna are completely sealed by foamed-in-place resin within an outer fiberglass housing. As a result, the antenna is rugged enough for use on both commercial and general aviation aircraft.

P/N DM C60-

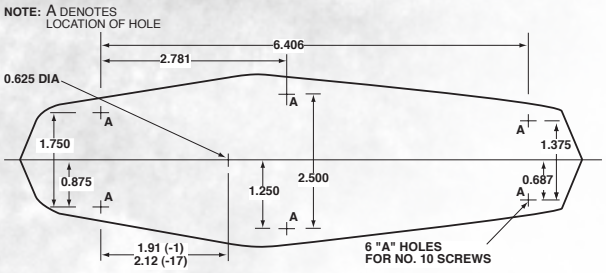
Specifications

Electrical	
Frequency Range -1	118 to 137 MHz
Frequency Range -17	116 to 152 MHz
VSWR	2.0:1 maximum
Power	50 Watts
Impedance	50 OHMS
Polarization	Vertical
Radiation Pattern	Omnidirectional
Gain	Equivalent to a quarter wave stub
Drag, Sea Level @ 250 MPH	0.5 lbs.
Side Load Strength	To 3 psi
Altitude Performance	35,000'
TSO	C37d & C38d
D0160C ENV CAT.	F2-ABCXXXXXXXXXXXXXXXX
DC Resistance	Grounded
Mechanical	
Weight	1.6 lbs.
Finish	White
Connectors	BNC (female)

OUTLINE DIMENSIONS
Inches (Centimeters)



Notes: 1. DM C60-1 AS SHOWN
DM C60-17-1 DIMENSION IS
2.12 IN. MAX (5.33 cm)



Specifications subject to change without notice.

DM C63 Series VHF Antenna

The DM C63 series antennas are VHF communication antennas designed for high mechanical strength with machine tapered aluminum alloy radiating elements. These vertically polarized antennas cover the frequency range of 118-137 or 138-174 MHz for both transmitting and receiving applications.

The DM C63-1/A and DM C63-4/A are designed for mounting on top of the fuselage. The DM C63-2 and DM C63-3/A are low profile "bentback" radiating element designs for mounting on the bottom of the fuselage. They are well suited for helicopter installations.

All DM C63 series antennas are supplied with a gasket and a doubler plate.

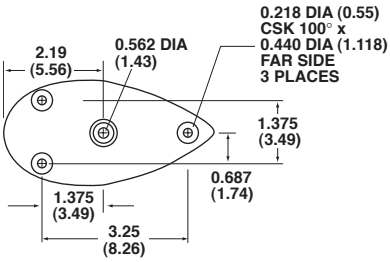
P/N DM C63-

Specifications

Electrical	
Frequency Range	118 to 137 MHz; DM C63-1/A, DM C63-2/A 138 to 174 MHz; DM C63-3/A, DM C63-4/A
VSWR	2.0:1 DM C63-1/A 3.0:1 DM C63-2 3.5:1 DM C63-3/A 3.0:1 DM C63-4/A
Power	50 Watts
Impedance	50 OHMS
Polarization	Vertical
Radiation Pattern	Omnidirectional
Gain	Equivalent l/4 stub
TSO	C37d & C38d
Mechanical	
Weight	8 oz.
Finish	White
Connectors	BNC (female)
Environmental	
Per D0160c	F2-ABCXXXXXXXXXXXXXXXX

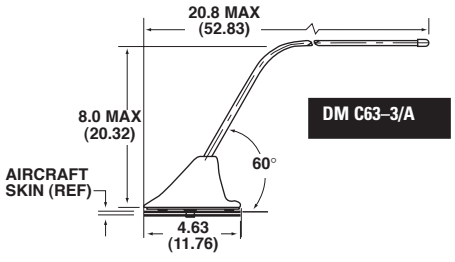
OUTLINE DIMENSIONS

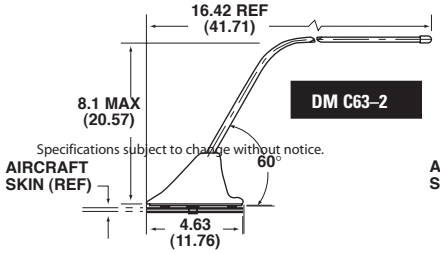
Inches (Centimeters)

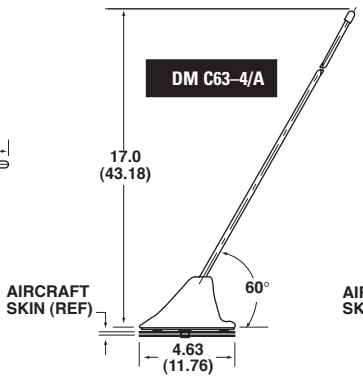


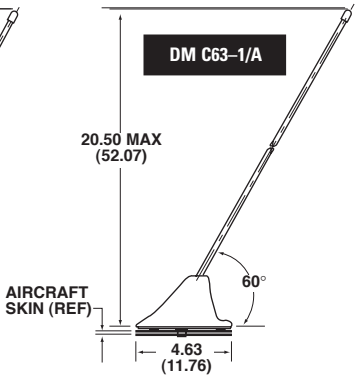
Notes:

1. 0.032 thick core gasket supplied with antenna
2. Doubler plate supplied with antenna









Specifications subject to change without notice.

DM C70 Series VHF 360/720 Channel Broadband Antennas

The DM C70 series VHF Communication Antennas are designed for top or bottom installation on high-performance, single, twin and turbo engine fixed and rotary wing aircraft. These uniquely designed antennas offer mechanical strength and high-electrical efficiency to provide maximum reliability and full 360/720 channel transceiver operation. The lightweight profile is unobtrusive, resists icing and offers low drag.

The DM C70-3 is directly interchangeable with the following part numbers: C598501-0104, VF 10-210, CI 109, and CI 121.

The DM C70-4 which supersedes the DM C70-2, is specifically designed for bottom installations, where ground clearance does not permit the use of other DM C70 series antennas. The DM C70-4 provides a higher degree of efficiency to assure maximum performance from your transceiver.

The DM C70-6, and DM C70-9 variants of the DM C70-1/A, have a different mounting hole pattern and connector location. All other characteristics remain the same.

P/N DM C70-

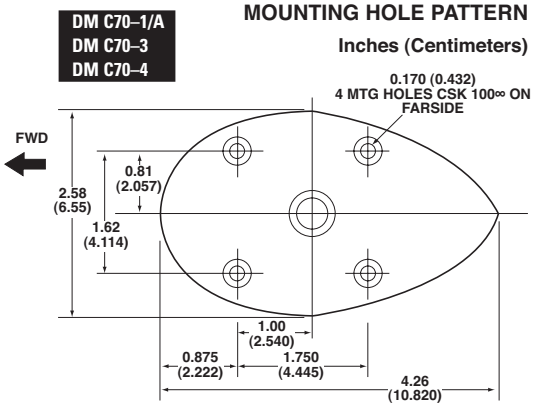
Specifications

Electrical	
Frequency Range	118 to 137 MHz
VSWR	2.0:1 DM C70, -1/A, -3, -6, -9 2.5:1 DM C70-4
Polarization	Vertical
Power	50 Watts
Impedance	50 OHMS
Radiation Patterns	Omnidirectional
Connectors	BNC (female)
Mechanical	
Weight	12 oz. (0.34 Kg)
Finish	White polyurethane
TSO	C37d, C38d
D0160c ENV CAT	F2-ABCXWFDXSXXXXXXXXXX
Speed Rating	DM C70-1/A, -4, -6, -9, 400 MPH DM C70-3, 250 MPH

Specifications subject to change without notice.

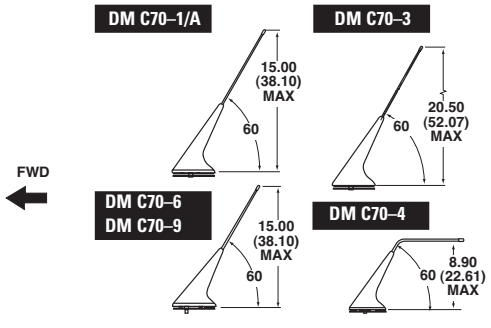
MOUNTING HOLE PATTERN

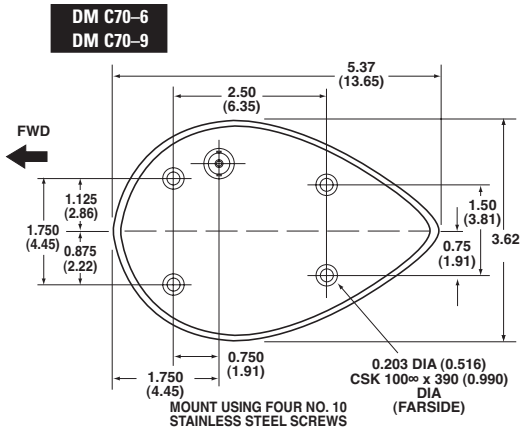
Inches (Centimeters)



OUTLINE DIMENSIONS

Inches (Centimeters)





Notes: 1. 0.080 MIN Thk gasket supplied with antenna. 0.130 MAX

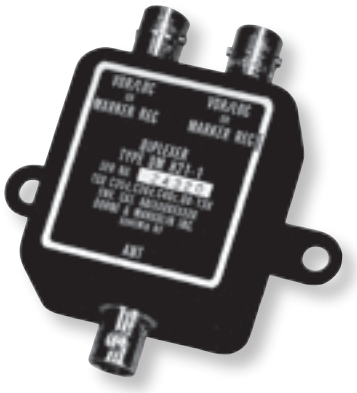
2. Doubler plate supplied with antenna.

DM H21 through DM H24
Antenna Couplers

These Antenna Couplers are specifically designed to couple multiple receiver systems to a single antenna with a minimum of insertion loss. The couplers are designed to electronically split the received signals equally between the systems. In this manner, a single antenna may feed redundant systems or serve a dual-function role (e.g., Glide Slope and VOR/LOC).

The ruggedly built couplers are housed in aluminum cases with all circuit elements fully encapsulated. General specifications applicable to all couplers are provided in this sheet, while Table 1 indicates the recommended function of the particular type.

P/N DM H21-
P/N DM H22-
P/N DM H23-
P/N DM H24-



Specifications

Electrical	
Frequency Range	108 to 118 MHz 329 to 335.3 MHz
VSWR	< 1.5:1
Impedance	50 OHMS
Isolation	VOR/LOC—VOR/LOC > 20 dB VOR/LOC from glide slope > 40 dB Glide slope from VOR/LOC > 14 dB
Insertion Loss	Glide slope port DM H22-1 0.5 dB max & DM H23-1 VOR/LOC port, DM H22-1 0.5 dB max VOR/LOC ports, DM H21-1, 3.5 dB maximum including power split DM H23-1 & glide slope Ports DM H24-1
TSO	C34c, C35d, C36d, C40c
Mechanical	
Weight	4 oz. maximum

OUTLINE DIMENSIONS

Inches

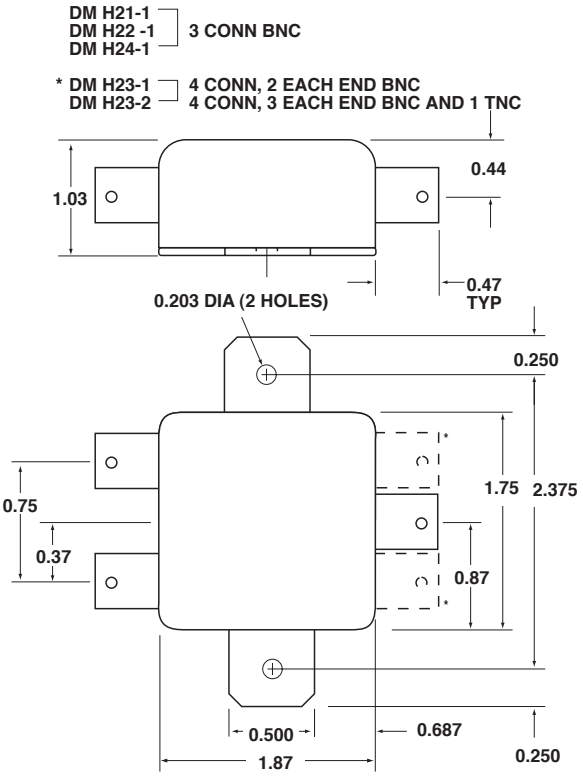


TABLE 1

Coupler	Frequency (MHz)	VSWR	Weight	Description
DM H21-1	108-118	1.5:1	0.25 lbs	Dual VOR or dual marker beacon will permit operation of two NAV receivers from one VOR antenna or two marker beacon receivers from one marker beacon antenna.
DM H22-1	108-118 329-335.3	1.5:1	0.25 lbs	Single VOR and single GS will permit operation of one NAV and one glide slope receiver from one VOR antenna.
DM H23-1	108-118 329-335.3	1.5:1	0.25 lbs	Dual VOR and single GS permits operation of two NAV and one glide slope receiver from one VOR/LOC antenna.
DM H24-1	329-335.3	1.5:1	0.25 lbs	Dual glide slope permits operation of two glide slope receivers from one glide slope antenna.

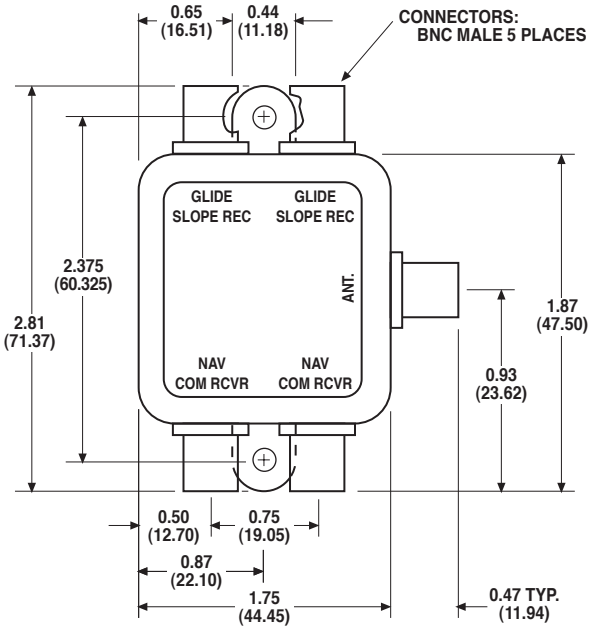
Specifications subject to change without notice.

DM H69-1 Quadraplexer
Antenna Coupler

The DM H69-1 provides in one small lightweight component the ability to operate dual NAVS and dual Glide Slope receivers from one VOR antenna. As with our coupler series, the DM H69-1 is designed to couple multiple systems to the single antenna with minimum insertion loss but with more than adequate isolation to prevent intersystem cross-talk.

The ruggedly built DM H69-1 is housed in an aluminum case and all circuit components are fully encapsulated for vibration protection as well as waterproof protection.

P/N DM H69-1



Specifications

Electrical	
Frequency Range	108 to 118 MHz; 329 to 335.3 MHz
VSWR	2.0:1 maximum
Impedance	50 OHMS
Insertion Loss	VOR 1 dB maximum; GS 1 dB maximum
Isolation	VOR 18 dB minimum VOR-GS 20 dB minimum
GS-GS	18db minimum
Connectors	BNC (male)
Mechanical	
Weight	5 oz.
Environmental	
Environmental Category	MIL-E-5400 Class II Vibration Curve 1A

DM N4-4 Antenna System

The DM N4-4 Antenna System has been designed to minimize bearing errors in the reception of VOR and ILS signals. It provides considerably more gain at the horizon (particularly during banks) than do fuselage mounted "deerhorn" or "vee" antennas. It has substantially greater discrimination against vertically polarized signals; and when properly installed on helicopters, it provides much greater rejection of rotor modulation than can be obtained with these other antennas. As a result, it provides better signal to noise ratios and smaller errors than is otherwise available.

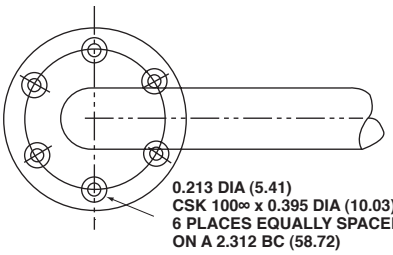
The DM N4-4 Antenna consists of two (approximately semicircular) center-fed half-loops and a cable harness. Because the DM N4-4 has been designed specifically for light planes and helicopters, lightweight rugged construction has been stressed. It is built of round magnesium tubing and weighs only 2 pounds.

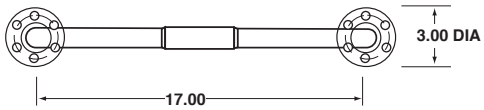
P/N DM N4-4

Specifications

Electrical	
Frequency Range	108 to 122 MHz
VSWR	< 5.0 to 1
Gain	0 ± 2 dB
Impedance	50 OHMS
Polarization	Horizontal
Efficiency	95%
Radiation Pattern	Omnidirectional in the azimuth plane. Approx cos. Ø in the vertical plane.

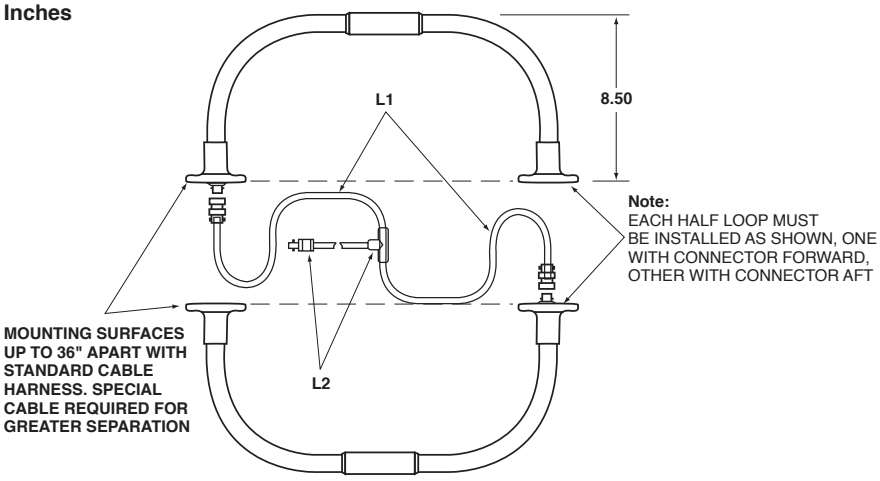
Mechanical	
Weight (without cable)	2 lbs.
Connectors	BNC
Military	MIL-E-5400 MIL-T-5422
FAA	TSO-C40a





OUTLINE DIMENSIONS

Inches



Specifications subject to change without notice.

DM N4-7 & DM N4-8 VOR/LOC
Balanced Loop Antennas

Increased VOR/LOC range and minimized bearing errors can be achieved with any airborne VOR receiver through the use of these DM N4-7 and DM N4-8.

Each DM N4 system utilizes two center-fed, half-loops and a cable harness, enabling "closed loop" current flow. This provides better signal-to-noise ratios and higher rejection of cross-polarized signals. In terms of system performance, this means that smaller signals can be received and bearing errors, particularly those induced by banking, are greatly reduced.

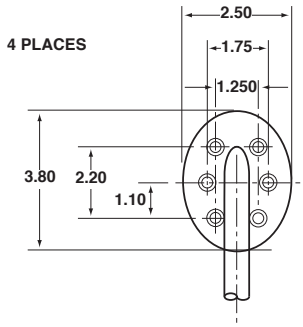
These rugged antennas have been selected and service proven on such aircraft as the Lockheed Jet-star, P-3A, and C-141 Starlifter, Bell UH1B helicopter, Sikorsky H34 helicopter, Convair 340, Aero Commander, North American Sabreliner, Douglas DC-3, Beech King Air and many other corporate and commercial aircraft.

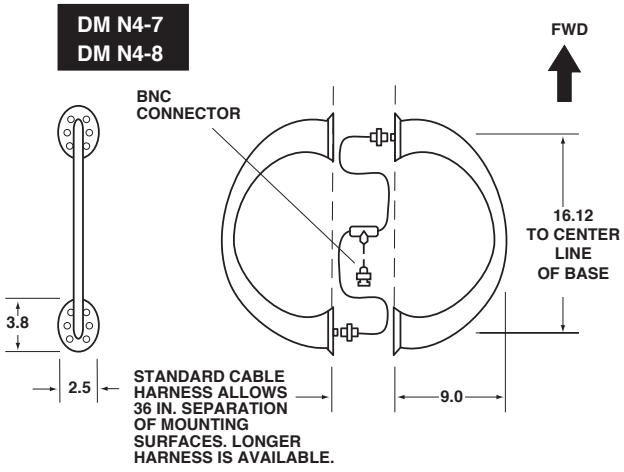
P/N DM N4-7
P/N DM N4-8

Specifications

Electrical	
Frequency Range	108 to 122 MHz
VSWR	<5.0:1
Polarization	Horizontal
Gain (Rel to Isotropic)	0 ± 2 dB
Efficiency	95%
Impedance	52 OHMS
Mechanical	
Weight	4.2 lbs. DM N4-7 4.2 lbs. DM N4-8
Connector	BNC DM N4-7 BNC DM N4-8
Military	MIL-E-5400 MIL-T-5422 MIL-F-17555 MIL-T-18303 MIL-T-18307
FAA	TSO C40a

OUTLINE DIMENSIONS
Inches





Specifications subject to change without notice.

DM N4-15 & DM N4-33 Low Drag, VOR/LOC Balanced Loop, Antennas

The DM N4-15 and DM N4-33 Antennas are designed for use on high-performance aircraft where aerodynamic drag and component weight must be held at a minimum. These systems provide increased range and reduced bearing error, versus dipole type installations. Rugged metal edges provide erosion resistance; flush glass fiber housings ensure smooth airflow and reduced drag; and each assembly is foam-filled for maximum reliability.

The DM N4-15 is intended, primarily, for new aircraft installations, but can be installed, as a retrofit, when dual-antenna capability is required.

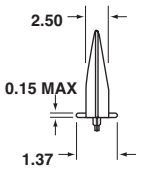
The DM N4-33 is intended for retrofit, or antenna modifications, on existing aircraft and is designed for ease of installation. Dual-antenna capability can be obtained by using a DM Hybrid Coupler (H21 series).

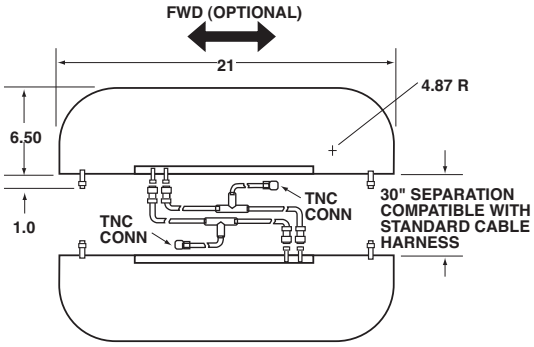
P/N DM N4-15
P/N DM N4-33

Specifications

Electrical	
Frequency Range	108 to 118 MHz
VSWR	5:1 maximum
Polarization	Horizontal
Impedance	50 OHMS
Connectors	TNC
Radiation Pattern	Omnidirectional in the azimuth plane, approx. cos Ø in the vertical plane

Mechanical	
Weight	5.5 lbs. DM N4-15 5.2 lbs. DM N4-33
Construction	Erosion resistant metal edged fiberglass housing, foam filled with leading & trailing edge erosion protection
FAA	TSO-C40a

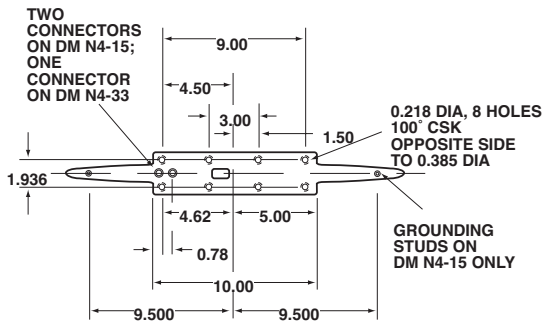




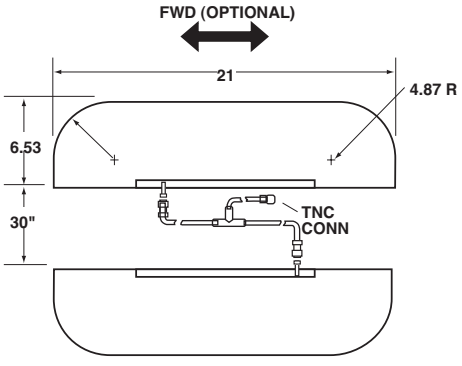
DM N4-15 DUAL CONNECTOR

OUTLINE DIMENSIONS

Inches (Centimeters)



MOUNTING BASE



DM N4-33 SINGLE CONNECTOR

Specifications subject to change without notice.

DM N4-17 series VOR/LOC/ Glide Slope Antennas

The DM N4-17 VOR/LOC/Glide slope antenna is designed for general aviation, commercial, and military aircraft that operate up to Mach 1.0. The DM N4-17 is designed and qualified to provide a low-cost, lightweight, low-drag antenna for state-of-the-art avionics systems.

The antenna is not only TSO'd, its performance parameters exceed the environmental specifications of MIL-E-5400 Class 3 equipment. Therefore, the DM N4-17 can be installed on single engine to jet engine aircraft.

The balanced loop design of the DM N4-17 assures an omnidirectional radiation pattern at the horizon to obtain the maximum signal for standard VOR and area navigation, which in turn provides more receiving distance and reliable system performance.

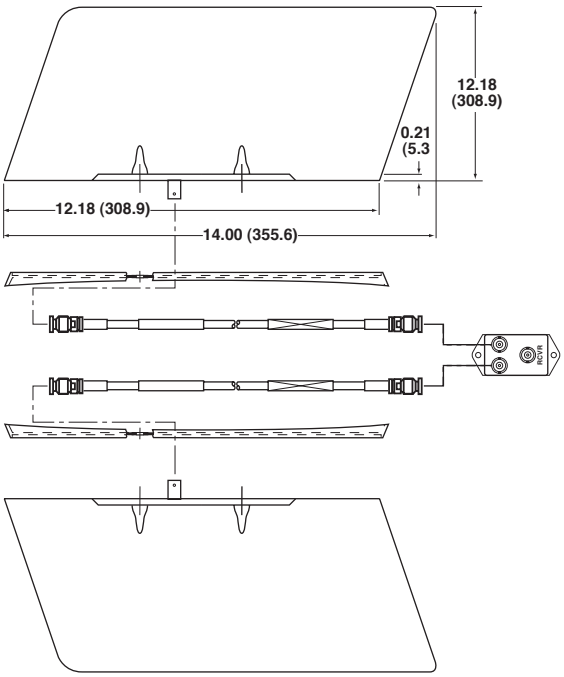
The standard system is the DM N4-17/N, which consists of two antenna elements (DM N4-17-1/N), two feed cables and gaskets (DM U212-1 and DM U235-1 respectively), and a phasing coupler (DM N4-17-2). Dual output couplers (DM N4-17-4) are available as well.

P/N DM N4-17/N—VOR/LOC/GS Single output
P/N DM N4-17/P—VOR/LOC Dual output
P/N DM N4-17/S—VOR/LOC/GS Single output

Specifications

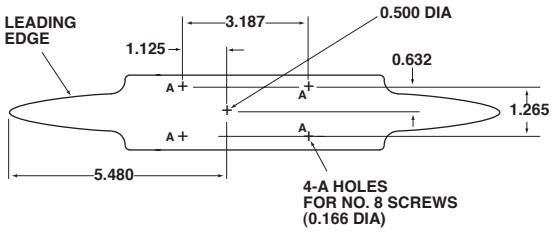
Electrical	
Frequency	108 to 118 MHz VOR/LOC 329 to 335.3 MHz Glide slope
VSWR	5.0:1 maximum
Polarization	Horizontal
Gain	0 ± 2 dB
Impedance	50 OHMS
Radiation Pattern	Omnidirectional VOR/LOC Forward pointing glide slope
Lightning Protection	DC short
Mechanical	
Weight	1.32 lbs.
Connector	BNC (female*)
Cable Length	27"*
Side Load	17 psi
FAA Approval	C34e, C36e, C40c
D0138 ENV. CAT.	AA5XXXXXHDXS

** Consult Dallas Avionics for other connector types and cable lengths.*
Specifications subject to change without notice.



OUTLINE DIMENSIONS

Inches (Centimeters)



DM N4-45 VOR/LOC Antenna

The DM N4-45 continues the DM N4-15 tradition to provide superior VOR/ILS systems performance for high-performance aircraft where aerodynamic drag and weight must be held to a minimum.

The DM N4-45 has been designed from the ground up to incorporate latest developments in structural materials, but retaining the electrical performance so many have come to expect from a balanced loop VOR/LOC antenna.

The complete DM N4-45 fit and function have not changed the form from that of the DM N4-15. While identical in all outward appearances, it incorporates a new integrated radiating boot material design for today's environment.

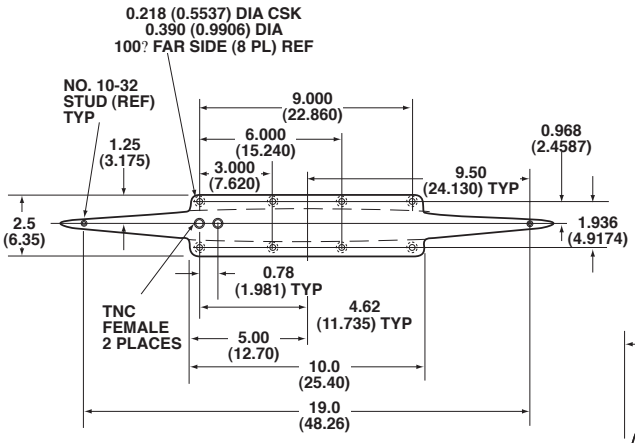
P/N DM N4-45

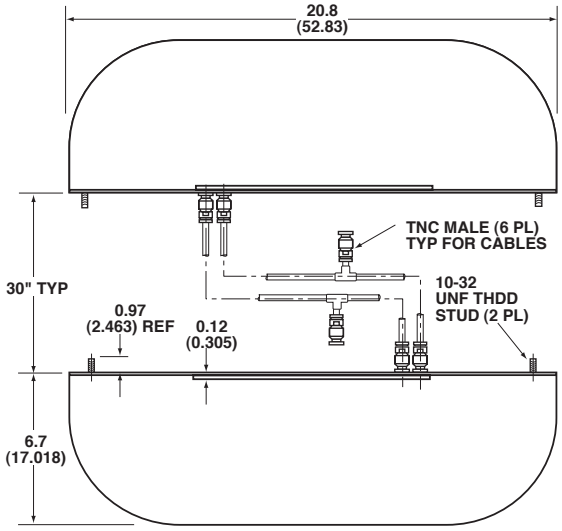
Specifications

Electrical	
Frequency Range	108 to 118 MHz
VSWR	5.0:1
Polarization	Horizontal
Impedance	50 OHMS
Connectors	TNC (female)
Radiation Pattern	Omnidirectional
Mechanical	
Weight	5.5 lbs. (2.46 Kg)

OUTLINE DIMENSIONS

Inches (Centimeters)





Specifications subject to change without notice.

DM N9 Series Localizer/ VOR/Glide Slope Antennas

The DM N9 series antenna provides a dual band design for both Localizer/VOR and Glide Slope systems for installation within nose radomes on high performance aircraft.

The design incorporates common radiating elements into a single monolithic structure for mounting either on a bulkhead within a radome or to the radome directly. The antenna is designed with the radiating elements attached to a single curved dielectric window to provide support. In some cases, reinforcing ribs provide structural rigidity and mounting adaptability to the bulkhead for mechanical attachment and electrical grounding to the airframe.

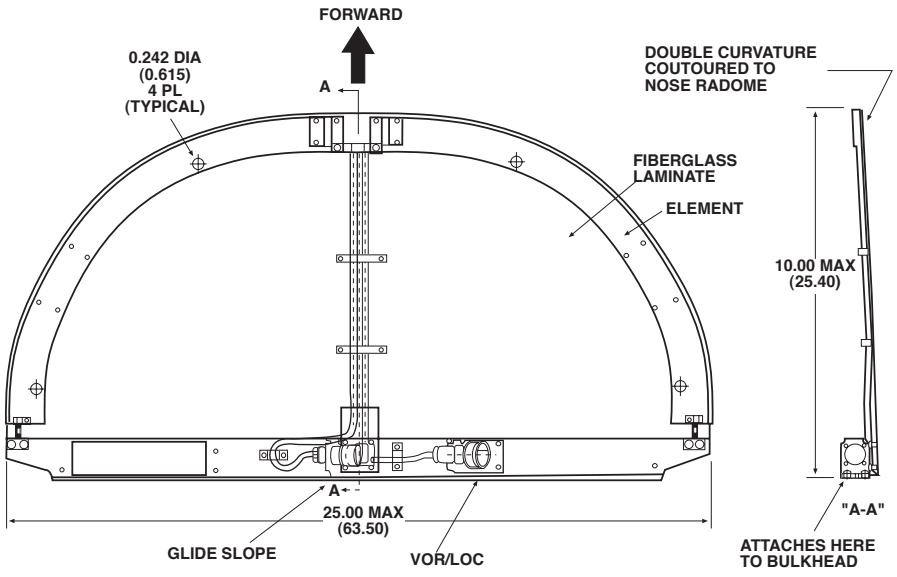
The DM N9 series is a balanced bent-back dipole antenna which renders it immune from the nose radar motion. In addition to excellent Localizer and Glide Slope patterns, many users utilize the Localizer output for forward-looking VOR as well.

P/N DM N9

Specifications

Electrical	
Frequency Range	108 to 118 MHz Localizer/VOR 328.6 to 335.4 MHz Glide Slope
VSWR	< 5.0:1 (immune to de-tuning from radar motion)
Radiation Pattern	Single broad lobe forward of aircraft
Polarization	Horizontal
Mechanical	
Mounting	On inner surface of nose radome or bulkhead within radome
Weight	< 2.0 lbs. (0.9 Kg)
Connectors	Consult factory
Military	MIL-E-5400

Inches (Centimeters)



Specifications subject to change without notice.

DM N23-1/C VOR Antenna

The DM N23-1/C, designed for the Boeing 737 aircraft, provides a concept that can be incorporated in many aircraft designs to provide integral VHF navigation systems performance.

The electrical design provides two receiver operation with performance assured for CAT. III conditions. The omnidirectional radiation patterns in the horizontal plane also assure signal levels are more than required for R-NAV systems use.

The DM N23-1/C Balanced Loop Array is designed for installation on the tip of the Boeing 737's vertical stabilizer. Unlike most vertical stabilizer VOR antennas, the DM N23-1/C is not freestanding. Rather the DM N23-1/C antenna system forms a structural component and exterior skin of the stabilizer.

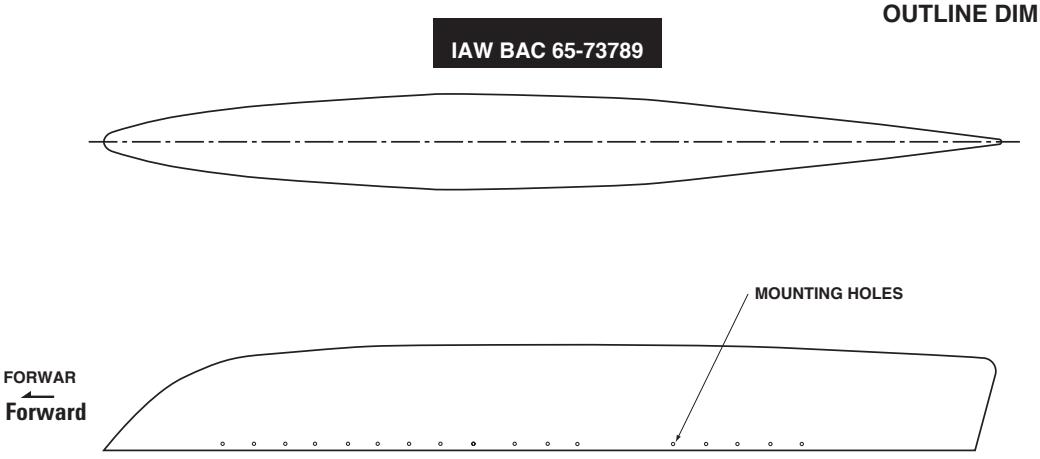
Lightning diverters and static discharges are integrated into the antenna system. In addition, both the leading and trailing edges are designed to be replaceable, thereby extending the service life of the antenna system.

P/N DM N23-1C

Specifications

Mechanical	
Frequency Range	108 to 118 MHz
VSWR	2.3:1
Impedance	50 OHMS
Polarization	Horizontal
Radiation Pattern	Omnidirectional
Isolation	7.5 dB
Electrical	
Weight Connectors (2)	C (female)
Part Numbers	Antenna system DM N23-1/C Antenna element DM N23-1/C-3 Tip, leading edge DM N23-1/A-1 Tip, trailing edge DM N23-1/A-5
Boeing Part Number	10-61333-3

OUTLINE DIMENSIONS



Specifications subject to change without notice.

DM N42-1 VOR/LOC Loop Antenna

The DM N42-1 is a tail-mounted antenna for use with VOR, localizer and glide slope receivers. It has been specially designed to provide the outstanding electrical performance of a balanced, center-fed loop at minimum cost. The input balun transformer is permanently sealed inside the center housing. Output cables extend from this transformer, through each side bar, to the feed points at the bulge on each element. This unusual configuration permits reliable, economical installation on aircraft that cruise at speeds up to 230 mph. When properly installed, the antenna receives the horizontally polarized VOR and localizer signals with uniform high sensitivity from all directions around the aircraft over the full VOR/localizer band. Because of the inherent characteristics of all balanced loop-type antennas, vertically polarized, error-producing signals are rejected. The antenna also has excellent forward reception over the glide slope band (329 to 335 MHz) and can be used for this function by adding a DMH22-1 coupler to the system.

P/N DMN42-1

Items supplied:

- DM N42-1 antenna
- Leading edge mounting bracket
- Grommet
- BNC connector UG 89C/U.

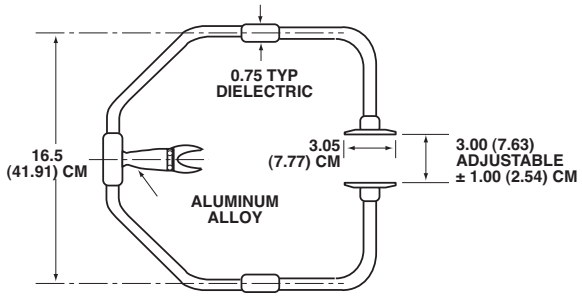
Specifications

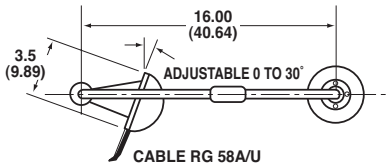
Electrical	
Frequency Range	108 to 118 MHz 329 to 335.3
VSWR	< 5:1
Polarization	Horizontal
Impedance	50 OHMS
Radiation Pattern	Omnidirectional VOR/LOC Forward pointing glide slope

Mechanical	
DC Resistance	Open circuited
Weight	1.0 lbs
Connector	BNC (female)
Finish	White
Mounting Place Adjustment	0° to 30°
TSO	C40a, C34b, C36c
DO138 ENV. CAT.	JAJ XXXX
Drag, Sea Level @ 250 mph	0.5 lbs.

OUTLINE DIMENSIONS

Inches (Centimeters)





Specifications subject to change without notice.

DM N48 Series VOR/LOC Balanced Loop Antennas

The DM N48 series balanced loop design assures an omnidirectional radiation pattern at the horizon to obtain the maximum signal for standard VOR and area navigation systems installed in lightweight aircraft, medium twins, and helicopters operating up to 250 mph.

The DM N48-3 antenna utilizes a phasing coupler which enables ease of installation if an access panel is not available or if the vertical stabilizer is so narrow at the point of installation it makes it necessary to install the antenna with both cable leads forward or aft.

Dual VOR receiver operation is obtained when the antennas are used with the DM H21-1 diplexer.

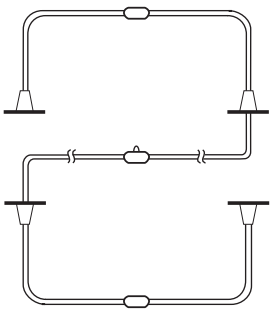
P/N DM N48

Specifications

Electrical	
Frequency Range	108 to 118 MHz
VSWR	5.0:1
Impedance	50 OHMS
Polarization	Horizontal
Radiation Pattern	Omnidirectional

Mechanical	
Weight	1.12 lbs (0.51 Kg)
Connector	BNC (male)
Finish	White polyurethane
DC Resistance	Open circuit

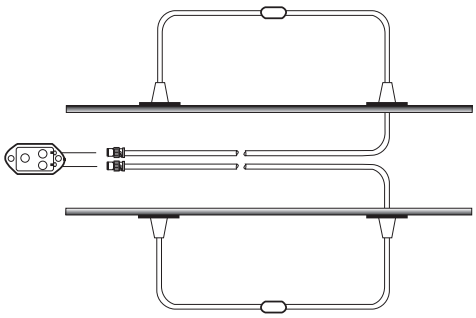
DM N48–1



MANDATORY INSTALLATION ORIENTATION-DM N48-1

(Cable leads must be at 180° to each other as shown)

DM N48–3



MANDATORY INSTALLATION ORIENTATION-DM N48-3

(Cable leads must be connected to phasing coupler as shown)

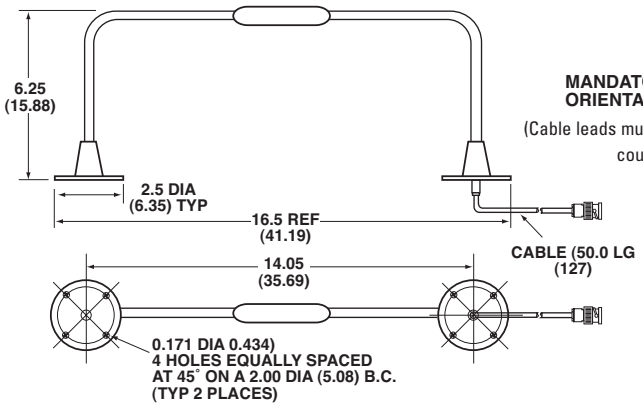
OUTLINE DIMENSIONS AND MOUNTING HOLE PATTERN

Inches (Centimeters)

Notes:

1. Antenna lead cables are precut.
   DO NOT ALTER CABLE LENGTH
2. For new installations it is recommended to use double shielded coax (particularly important in helicopters.)

DM N48–1–1
Antenna Element



Specifications subject to change without notice.

DM N56-1 VOR Antenna

The DM N56-1, designed for the Boeing 757 and 767 aircraft, provides a concept that can be incorporated in many aircraft designs to provide integral VHF navigation systems performance.

The DM N56-1 free standing, balanced-loop array is mounted on the tip of a vertical stabilizer and covered with a structural fiberglass housing forming the fin tip. This approach provides a lightweight antenna system utilizing available space for maximum efficiency.

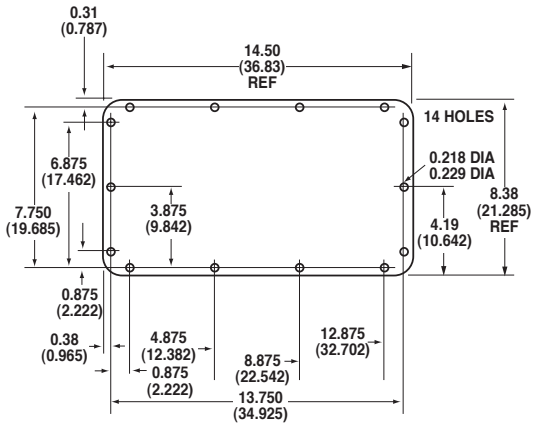
The electrical design provides two receiver operation with performance assured for CAT. III conditions. The omnidirectional radiation patterns in the horizontal plane also assure signal levels are more than required for R-NAV systems use.

P/N DMN56-1

Specifications

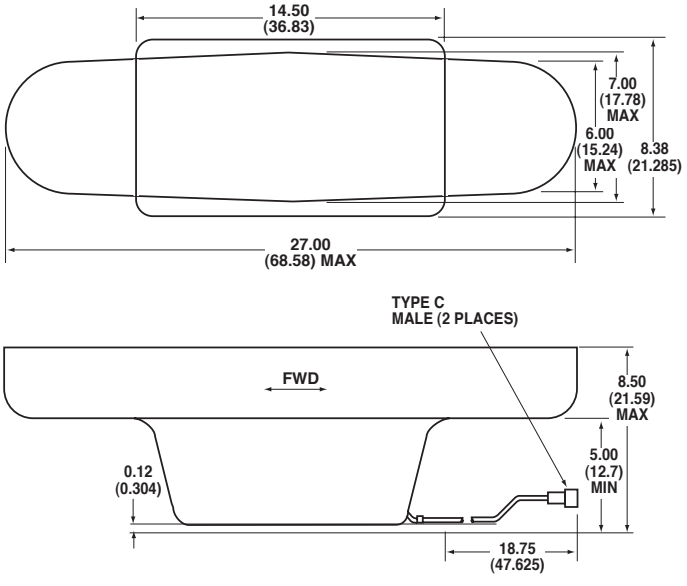
Electrical	
Frequency Range	108 to 118 MHz
VSWR	6.0:1
Impedance	50 OHMS
Polarization	Horizontal
Radiation Pattern	Omnidirectional
Isolation	8 dB
TSO	C40a, D0106A
Mechanical	
Weight	5.25 lbs. (2.34 Kg)
Connectors	C (male)
Part Number	261D1318-1
Boeing Part Number	S220T114-101
Environmental	

D2AD1XXFXXXXXXXX



OUTLINE DIMENSIONS

Inches (Centimeters)



Specifications subject to change without notice.

DM N27 Series Marker Beacon Antennas

The DM N27 Antennas are rugged, lightweight antennas for the reception of 75 MHz marker beacon signals.

These low-drag antennas are designed for simple external mounting and require no cutting of airframe structural members. The largest hole required in the skin is for the connector.

Moisture proofing is assured by the dielectric foam filled, white polyester-fiberglass radomes. These skydrol resistant housings are fitted with metal leading edges for erosion protection.

The DM N27 antennas are designed to meet the performance specifications of antennas AT-134 and AT-536.

P/N DM N27

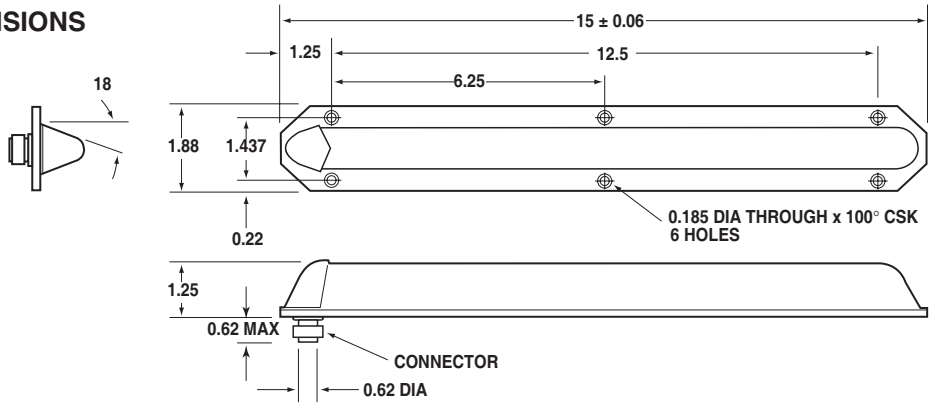
Specifications

Electrical	
Frequency Range	74.75 to 75.25 MHz
Center Frequency	75.0 MHz
VSWR (at midband)	< 1.5:1 < 5.0:1 (74.8-75.2 MHz)
VSWR curve stable	-65° to +160°F
Gain (Relative to isotropic)	-9 dB
Impedance	50 OHMS
Polarization	Horizontal

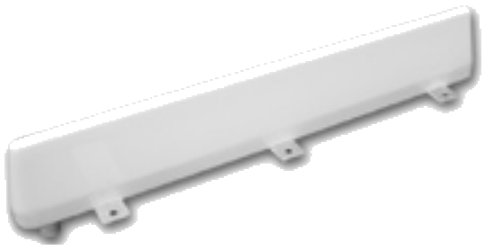
Mechanical	
Connector	TNC (female) DM N27-1 C (female) DM N27-2 BNC (female) DM N27-3
Weight	10 oz.
Type of Construction	Dielectric foam filled fiberglass housing with metal leading edge
Military	Qualified to MIL-T-5422E
FAA	TSO C35c
D0108 ENV CAT.	ABAAAAX

OUTLINE DIMENSIONS

Inches



Specifications subject to change without notice.



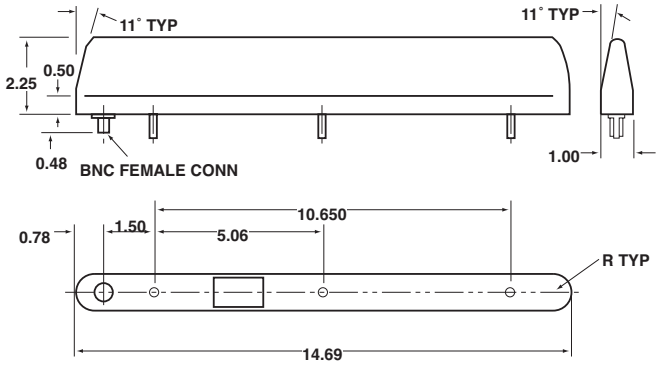
DM N43 Series Antennas

The DM N43-1, DM N43-3, and DM N43-4 are low silhouette antennas for use with 75 MHz marker beacon receivers. When properly mounted on the underside of an aircraft, the antennas provide a broad, single-lobed pattern directed downward. The radiation is polarized parallel to the long dimension of the antenna. Electrical elements of the antenna are completely sealed by foamed-in-place resin within a plastic housing. As a result, the DM N43-1 is rugged enough for use on all subsonic aircraft.

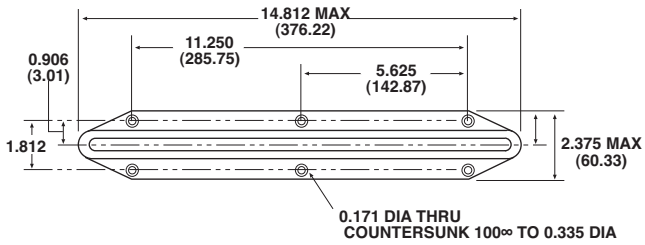
P/N DM N43-1
P/N DM N43-3
P/N DM N43-4

OUTLINE DIMENSIONS

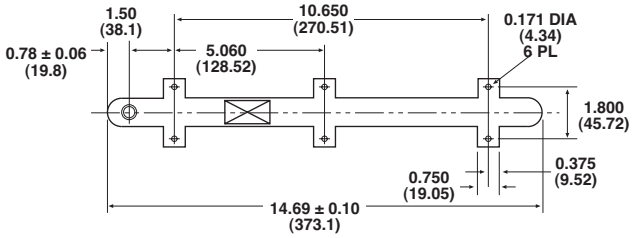
Inches (Centimeters)



DM N43-1



DM N43-4



DM N43-3

Specifications

Electrical	
Frequency	74.75 to 75.25 MHz
VSWR	< 5:1
	< 2:1 @ 75 MHz
Gain	-10 dB
Impedance	50 OHMS
Polarization	Horizontal
Radiation Pattern	Hemispherical
DC Resistance	Grounded
Mechanical	
Connector	BNC (female UG-89)
Weight	1.0 lbs.
Finish	White
Environmental	
FAA	TSO C35c
D0138 ENV. CAT.	JAJ XXX
Drag, Sea Level @ 250 MPH	< 0.5 lbs.

Specifications subject to change without notice.

DM N25 Series Glide Slope Antennas

The DM N25 series of glide slope antennas employ a grounded, center-fed loop as the radiating element. The resulting radiation patterns are symmetrical. The DM N25-2 is a dual connector version which incorporates a hybrid. This circuitry effectively isolates the two associated receiving systems providing protection against disablement of both systems in the event of failure in one system. The radiation pattern associated with each DM N25-2 antenna port is identical, so that no coupler drop-out problem during automatic landing occurs.

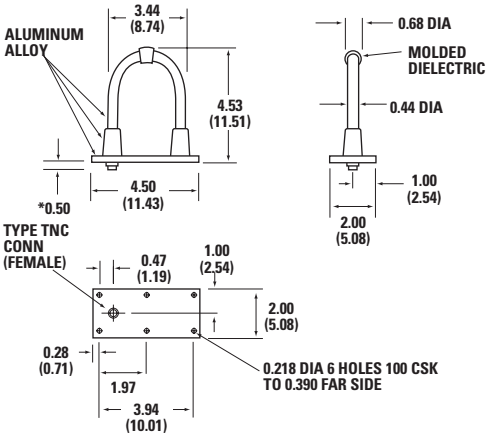
All DM N25 series antennas provide complete lightning protection for the associated receivers. They are suitable for mounting either externally, or within a nose radome. The inherent 180° pattern beam may be modified slightly by the geometry surrounding the installation. The DM N25 antennas are recommended for installations in close proximity to radar dish installations since the antenna's (glide slope) sensitivity is relatively unaffected by dish motion.

P/N DM N25

DM N25–1
DM N25–3

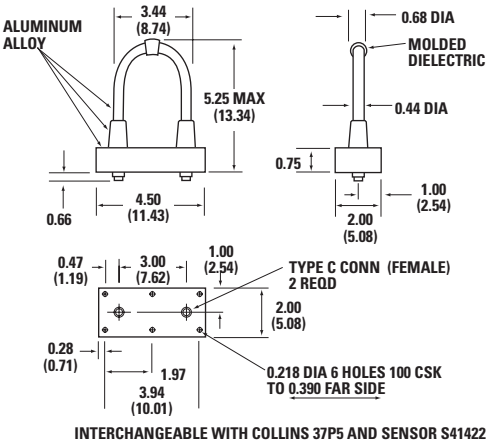
OUTLINE DIMENSIONS

Inches (Centimeters)



INTERCHANGEABLE WITH COLLINS 37P4

DM N25–2



INTERCHANGEABLE WITH COLLINS 37P5 AND SENSOR S41422

Specifications

Electrical	
Frequency Range	329 to 335.3 MHz
VSWR	5:1 DM N25-1 3:1 DM N25-2 3:1 DM N25-3 (AT-983)
Gain	0 dB
Polarization	Horizontal
Impedance	50 OHMS
Mechanical	
Weight	(0.23 Kg) 8 oz. DM N25-1 (0.39 Kg) 14 oz. DM N25-2 (0.23 Kg) 8 oz. DM N25-3 (AT-983)
Connectors	TNC (female) DM N25-1 C (female) DM N25-2 N (female) pressurized DM N25-3 (AT-983)
Type of Construction	All aluminum with dielectric sealed feed point.
Military	Qualified for vibration, humidity, temperature-altitude shock & salt spray per MIL-T-5422E
FAA	TSO C34b

Note:
*DM N25-3 (AT-983) is identical in configuration to DM N25-1 except that DM N25-3 is provided with a pressurized type N connector and the connector height is 0.88 (2 PL).

Specifications subject to change without notice.

DM N41-1 Glide Slope Antenna

The DM N41-1 is a center-fed, loop-type antenna which covers the frequency range of 329 to 335.3 MHz for use with glide slope receivers. When the antenna is mounted on a metal surface, from which there is a forward view, it provides a broad, single radiation lobe, pointing forward. The antenna structure consists of a rugged aluminum die casting.

Because of the high signal output of the DM N41-1, it is well-suited for use with a coupler, such as the H24-1, for dual-receiver installations.

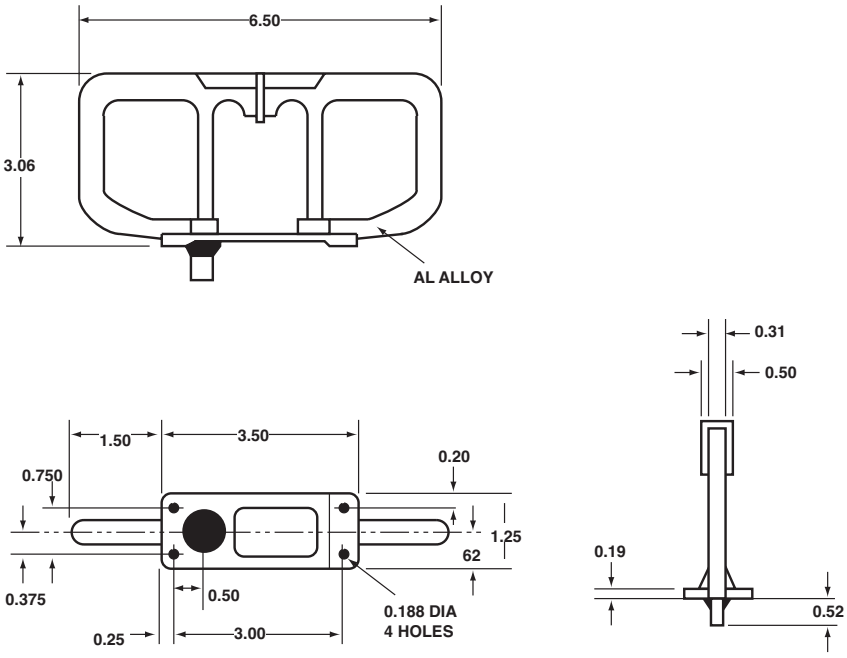
P/N DM N41-1

Specifications

Electrical	
Frequency Range	329-335.3 MHz
VSWR	< 5:1
Gain	0 dB
Polarization	Horizontal
Radiation Patterns	Hemispherical
DC Resistance	Open circuited
Impedance	50 OHMS
Mechanical	
Weight	0.5 lbs.
Connector	BNC (female UG-89)
Finish	White
Environmental	
Drag, Sea Level @ 250 mph	< 0.5 lbs.
FAA	TSO C34c
D0138 ENV. CAT.	AAJXXXX

OUTLINE DIMENSIONS

Inches



Specifications subject to change without notice.

DM N102-2 GPS Antenna

The DM N102-2 GPS antenna has been designed to meet ARINC 743A active antenna requirements and takes advantage of the latest in micro-strip and microcircuit technology.

An integral preamplifier/filter assembly provides 33 dB of gain. DC bias is provided through the RF Coaxial Connector.

P/N DM N102-2

Specifications

Electrical

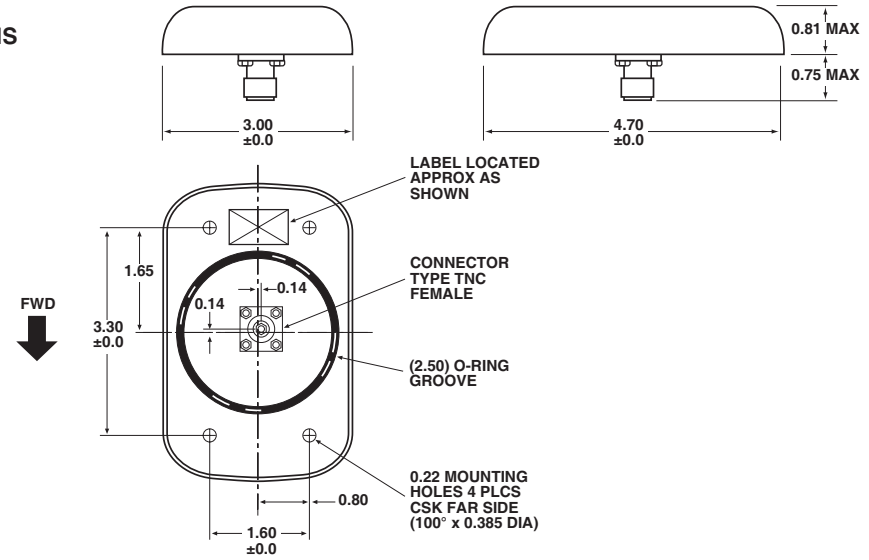
Frequency	1575.42 MHz	
VSWR	2.0:1	
Polarization	RHCP	
Impedance	50 OHMS	
Antenna Gain (Typical)	2 dBic @ zenith	
Gain Coverage (minimum)	-2.0 dBic	0° ≤ Ø ≤ 75°
	-3.0 dBic	75° ≤ Ø ≤ 80°
	-4.5 dBic	80° ≤ Ø ≤ 85°
	-7.5 dBic	Ø = 90° (horizon)
Gain (preamp)	33.0 ± 3 dB	
Noise Figure	2.0 dB	
Power Handling	1 Watt	
Voltage	+12VDC	
Current	100 mA maximum	
Lightning Protection	DC grounded	

Mechanical

Connector	TNC
Weight	9 oz. (nominal)
Finish (Radome)	Skydrol-resistant, white valox
Finish (Base)	Chemfilm MIL-C-5541
Reference Documents	ARINC 743A, D0-160c, D0-228, TSO C144

OUTLINE DIMENSIONS

Inches



Specifications subject to change without notice.

DM NI24 & DM NI29 Series
L-Band Blade Antennas

These L-Band blades utilize a new concept of antenna design and manufacture which makes them ideal for commercial as well as military application. The radiating element is encapsulated in an epoxy dielectric body by a transfer molding process. This simple design has several notable advantages:

- **Moisture Proof**—The antenna is impervious to moisture penetration either by direct immersion or by extended exposure to high-humidity conditions.
- **Rugged Design**—The interlocked mounting base and radiating element, molded into the dielectric body, are a completely unified, integral, and rugged assembly.
- **Economy**—The molding process is a high-production technique, substantially reducing antenna cost.

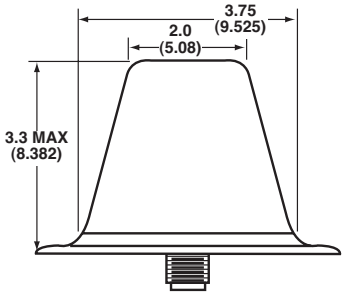
The antennas have been used with various equipment such as DME, IFF, TACAN, TELEMETRY, and BEACON. The DM NI29-15, DM NI29-19, and DM NI29-18, have been designed to provide ideal performance for various Flight-Fone Systems.

P/N DM NI24
P/N DM NI29

OUTLINE DIMENSIONS

Inches (Centimeters)

Mounting Hole Pattern



DM NI24 Series

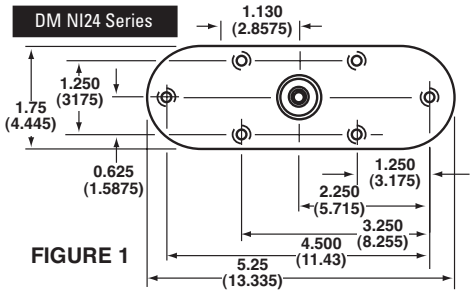


FIGURE 1

Notes:

1. DM NI24, has six No. 6 mounting holes (0.144 dia CSK 100 x 0.28 dia)
2. DM NI29 Series has four mounting holes (0.196 dia CSK 100 x 0.385 dia).

DM NI29 Series

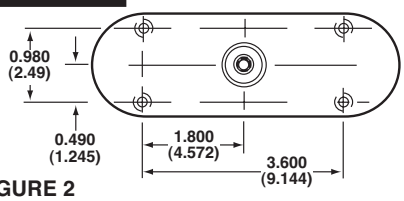


FIGURE 2

Specifications

Electrical	
Frequency Range	849 to 1220 MHz
VSWR	0.85 to 0.90 (1.4:1) 0.90 to 1.10 (1.7:1) 1.10 to 1.22 (2.0:1)
Gain	Typically within 0.5 dB of a matched l/4 stub
Polarization	Vertical
Power	100 Watts average 4.0 kW peak
Radiation Patterns	Similar to l/4 stub

Mechanical	
Connector	N (female)
Weight	6 oz.
Aero Drag	13 oz. sea level, Mach 0.5 30 oz. sea level, Mach 0.8
ARINC	532 D (ATC Transponder) 521 D (DME)
FAA	TSO-C66 (DME) TSO-C74 (ATC Transponder)
ENV. CAT.	ABAXXXXCL1
Mounting Pattern	NI24-15, Figure 1 NI24-19, Figure 1 NI29-18, Figure 2

Specifications subject to change without notice.

DM NI50 Series Antennas

Reduced maintenance costs are achieved through the use of this low-profile, all-metal blade as a result of its unequalled mechanical strength and built-in reliability. Currently in use on business, commercial and military jet aircraft, the DM NI50 antennas have clear advantages over the other current designs:

- Extremely high side load strength guards against breakage by ground handling gear.
- Completely sealed construction prevents failure from moisture intrusion.
- Lightning protection circuits prevent damage to antenna and safeguard electronic equipment.

Models of the DM NI50 antenna are directly interchangeable with virtually all L-Band blade and flush mounting antennas currently in service on commercial and military aircraft.

P/N DM NI50

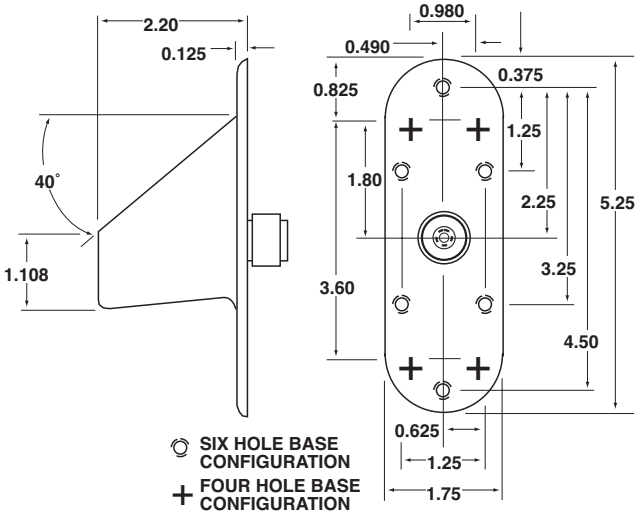
Note: The DM NI50 are L-Band blade antennas. The first dash number indicates a physical difference, i.e., connector type or mounting configuration. The second dash number indicates antenna color. For example, the DM NI50-2-1 has a -2 which indicates a Type C female connector with No. 10 mounting screws in 4 places. The -1 indicates that the color is international orange. The DM NI50-3-2 has a -3 which indicates a Type C female connector with No. 6 mounting screws in 6 places. The -2 indicates that the color is glossy white.

Specifications

Electrical	
Frequency Range	960 to 1220 MHz
VSWR	< 1.7:1 960 to 1220 < 1.5:1 1000 to 1100
Gain	0 dB average at horizon
Polarization	Vertical
Impedance RF	50 OHMS DC Short circuit
Power	3 kW peak 100 Watts peak
Mechanical	
Weight	4 oz.
Finish	See color chart
Environmental	
Areo Drag,	2 oz., sea Level, Mach 0.5 4.5 oz., sea Level, Mach 0.8
Side Load	Will withstand 175 lbs.
Military	MIL-T-5422E
ARINC	532 E (ATC Transponder) 521 D (DME)
FAA	TSO-C74 (ATC Transponder) TSO-C66a (DME)

OUTLINE DIMENSIONS

Inches



Specifications subject to change without notice.

TABLE 1. MOUNTING DATA FOR DM NI50 ANTENNAS

ANTENNA TYPE	MATING CONNECTOR TYPE	ATTACHING* HARDWARE	QTY	HARDWARE CLEARANCE
DM NI50-2	C MALE	NO. 10 SCREW	4	0.213 IN.
DM NI50-3	C MALE	NO. 6 SCREW	6	0.171 IN.
DM NI50-4	HN MALE	NO. 6 SCREW	6	0.171 IN.
DM NI50-6	N MALE	NO. 6 SCREW	6	0.171 IN.
DM NI50-8	HN MALE	NO. 10 SCREW	4	0.213 IN.
DM NI50-9	TNC MALE	NO. 10 SCREW	4	0.213 IN.
DM NI50-10	N MALE	NO. 6 SCREW	6	0.171 IN.

*** ATTACHING HARDWARE TO BE STAINLESS STEEL**

COLOR CHART	
-1	INTERNATIONAL ORANGE
-2	GLOSSY WHITE
-3	LUSTERLESS WHITE
-4	LUSTERLESS BLACK
-5	LUSTERLESS GREY
-6	GLOSSY RED

DM NI52 Series Antennas

The DM NI52 series are suitable for use with ATC, FACAN, DME, IFF and other systems requiring L-Band Operation.

Reduced maintenance costs are achieved through the use of this low profile, all metal blade as a result of its unequalled mechanical strength and built in reliability. Currently in use on business, commercial and military jet aircraft, the DM NI52 antenna has clear advantages over other current designs:

- Extremely high side load strength guards against breakage by ground handling gear.
- Completely sealed construction prevents failure from moisture incursion.
- Lightning protection circuits prevent damage to antenna and safeguard electronic equipment.

P/N DM NI52

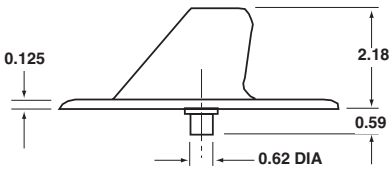
Specifications

Electrical	
Frequency	960 to 1,220 MHz
VSWR	< 1.7:1 960 to 1,220 < 1.5:1 1,000 to 1,100
Gain	0 dB average @ horizon
Power	3 kW peak
Average	100 Watts
Impedance RF	50 OHMS
DC	Short Circuit
Polarization	Vertical

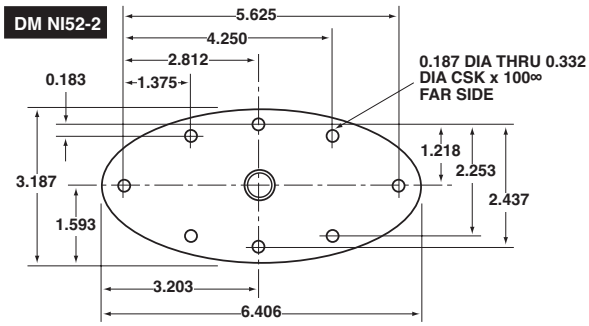
Mechanical	
Weight	6 oz.
Aero Drag	2 oz., sea Level, Mach 0.5: 4.5 oz., sea Level, Mach 0.8:
Side Load	Will withstand 175 lbs.
Military	MIL-T-5422E
ARINC	(ATC Transponder) 532D (DME) 521D
FAA	(ATC Transponder) TSO C74 (DME) TSO C66a

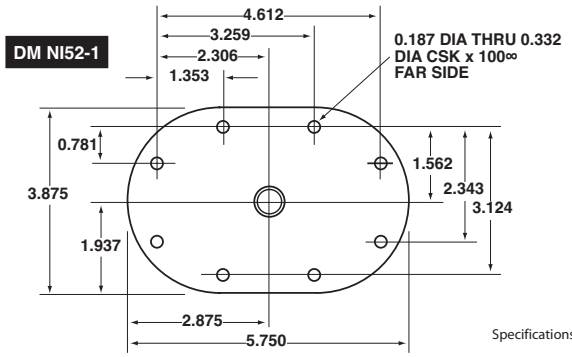
OUTLINE DIMENSIONS

Inches



TYPICAL ELEVATION OUTLINE





Specifications subject to change without notice.

DM NI70 Series DME/ATC Transponder Antennas

The DM NI70 L-Band antennas offer more than sufficient bandwidth (950 to 1,220 MHz) for use with civil aviation ATC transponders and distance measuring equipment (DME). The antenna provides omnidirectional, vertically polarized coverage when installed on the top, or bottom, of an aircraft. Its streamlined shape assures minimum aerodynamic drag. Structurally, the antenna consists of a single metal element.

P/N DM NI70

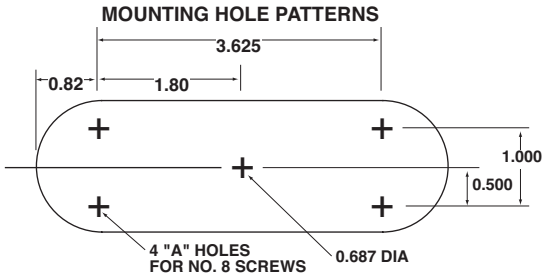
Specifications

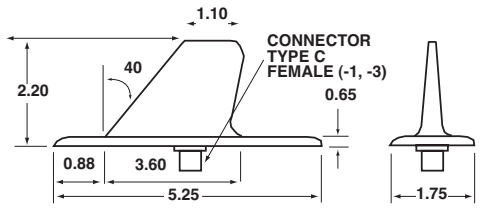
Electrical	
Frequency Range	950 to 1220 MHz
VSWR	< 1.7:1 950 to 1220 MHz < 1.5:1 1000 to 1100 MHz
Gain	Equivalent to a quarter wave stub
Polarization	Vertical
Power	2 kW peak
Radiation Patterns	Omnidirectional
DC Resistance	Open circuited
Impedance	50 OHMS
Mechanical	
Weight	0.25 lbs.
Connector	C (female) DM NI70-1, DM NI70-3 BNC (female) DM NI70-2
Finish	White
Environmental	
TSO C66a	ENV. CAT. JAJXXXX
TSO C74b	ENV. CAT. JAJXXXX CAT. II
Drag, Sea Level @ 250 mph	0.5 lbs.

OUTLINE DIMENSIONS

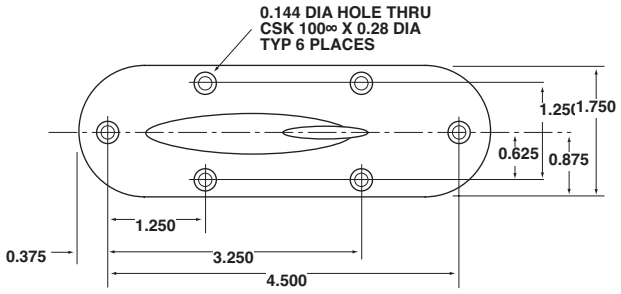
Inches

DM NI70-1
DM NI70-2





DM NI70-3



Specifications subject to change without notice.

DM 1601354 L-Band Antenna

The DM 1601354 L-Band Antenna has been designed for BCAS characteristics to provide more stringent radiation pattern directivity to assure reliable system performance.

Features of the DM NI50 series have still been retained to provide:

- Extremely high side-load strength guards against breakage by ground handling gear
- Completely sealed construction prevents failure from moisture incursion
- Lightning protection circuits prevent damage to antenna and safeguards electronic equipment

P/N DM 1601354

Specifications

Electrical	
Frequency Range	960 to 1220 MHz
VSWR	1.8:1 @ 960 to 1220 MHz 1.42:1 @ 1000 to 1100 MHz
Gain	See below
Impedance	50 OHMS
Polarization	Vertical
Power (CW)	250 W CW
Power (Peak)	3 kW
Radiation Pattern	See below
DC Resistance	Short circuit
Model No.	DM 1601354
Part No.	DM 1601354-001 (Yellow) DM 1601354-002 (Orange)
Boeing Part No.	S22OT116-101

Mechanical	
Connectors	C (female)
Weight	0.32 lbs. (0.15 Kg)

Radiation Pattern & Gain

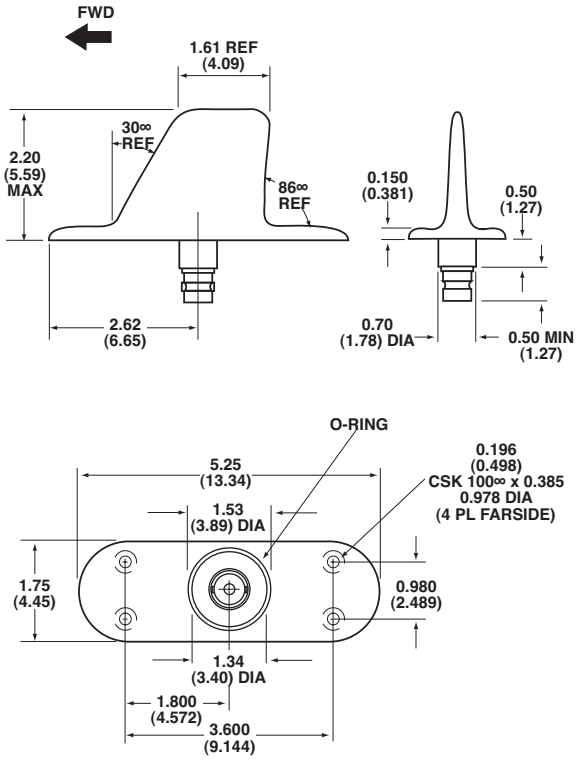
The radiation pattern is an adjusted omnidirectional pattern. It has some directivity in the forward direction to improve the gain in the most needed forward direction for ASAS, BCAS, and TCAS. This adjustment in pattern and in gain purposely improves the reception and transmission characteristics while still meeting the following ARINC characteristics:

- 709-1 (DME)
- 718 (ATC Transponder)
- 730 (ASAS)

By making the radiation pattern slightly eccentric rather than perfectly omnidirectional, the forward gain approximates that of a vertically polarized quarter wave stub. The rearward gain is within 2.5 dB below the forward gain.

OUTLINE DIMENSIONS

Inches (Centimeters)



Specifications subject to change without notice.

DM PN19 Series Radio Altimeter Antennas

The DM PN19-1-1 and DM PN19-2-1 utilize micro-strip technology to provide an extremely low-profile antenna. This fully functional series was developed to be a high-quality, low-cost, lightweight, and near conformal antenna. The dielectric insert and radiating elements are recessed into a complete four-sided metal housing. This exclusive design feature protects the dielectric surface from the air stream for increased erosion protection in addition to preventing water intrusion and delamination.

P/N DM PN19

Specifications

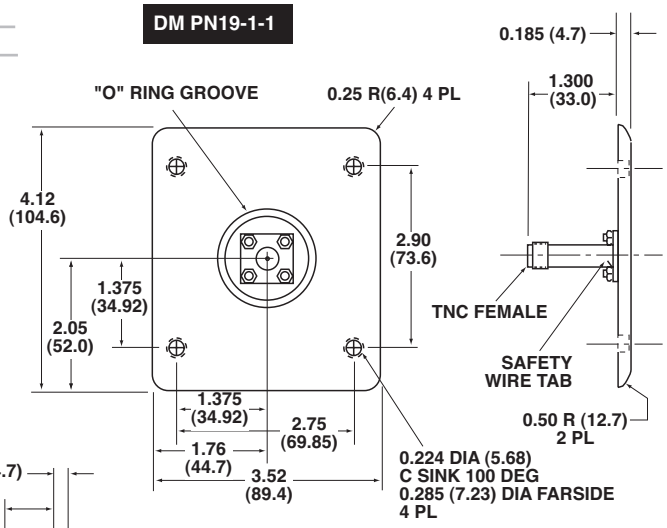
Electrical	
Frequency	4,200 to 4,400 MHz
VSWR	< 2.0:1 4,200 to 4,400 MHz maximum < 1.8:1 4,275 to 4,325 MHz maximum
Polarization	Linear
Gain	10 dB
Impedance	50 OHMS

Mechanical	
Weight	5 oz. maximum
Connectors	TNC (female)
Dimensions	See drawing
Temperature	-55°C to +85°C operating
Altitude	-1,000' to +70,000'
Lightning Protection	DC Short
Vibration	10 G's
Approvals	FAA TSO C87, ARINC 707/552 DO160C...E1-ABC¢XWHDNSXXXXXXXXXX MIL-E-5400

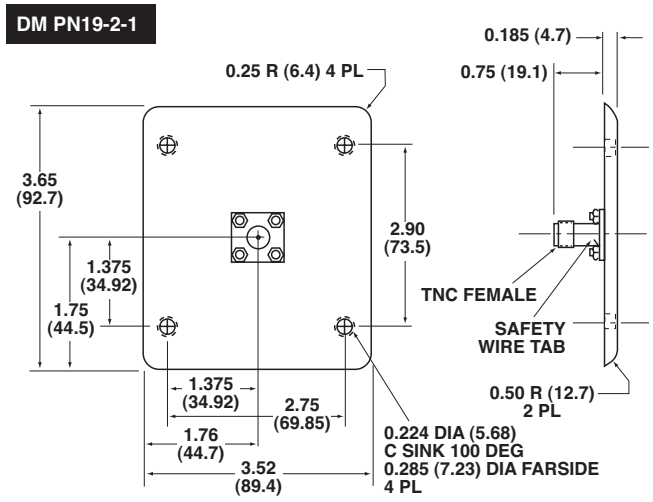
OUTLINE DIMENSIONS

Inches (Centimeters)

DM PN19-1-1



DM PN19-2-1



Specifications subject to change without notice.

DM NI7 Series L-Band Flush Antennas

The DM NI7 series of L-Band annular slot antennas is the result of 20-years of continuous experience in the design and production of this type of antenna.

Smaller Aperture—provides more signal at angles near the horizon; regardless of aircraft attitude.

Moisture Proofing—ensures that DM NI7 antennas will not fail because of the condensation which is inevitable with aircraft. Each unit is sealed and plastic foam-filled. All materials have been carefully selected and isolated to prevent galvanic corrosion.

Cabin Pressurization—is not jeopardized. The DM NI 7 antennas will successfully withstand 25 psi when suitably gasketed. Their rugged construction ensures that they will not be adversely affected by the most severe vibrations encountered in flight.

P/N DM N17

Specifications

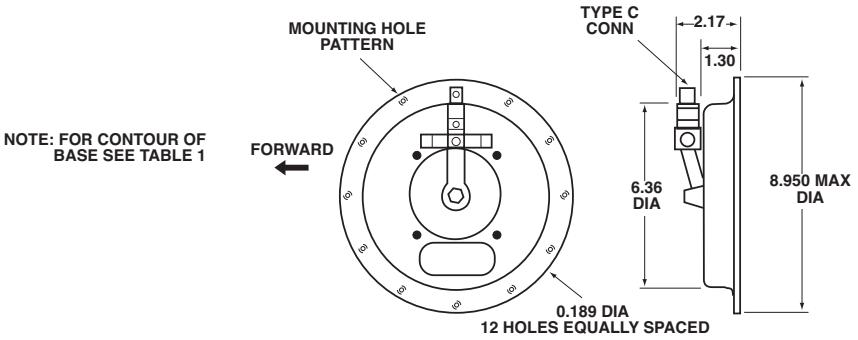
Electrical	
Frequency Range	960 to 1220 MHz
VSWR	1.5:1 960 to 1220 MHz 1.4:1 1030 to 1090 MHz
Impedance	50 OHMS
Polarization	Vertical
Mechanical	
Weight	21 oz.
Connector	See table 1
Corrosion Resistance	Impervious to Skydrol hydraulic fluid or other normal corrosive aircraft fluids.
ARINC	532 D (ATC Transponder) 521 D (DME)
Military	MIL-E-5400 MIL-T-5422C
Immersion tested to AT-720/A only	MIL-E-5272A MIL-A-256612
FAA	TSO-C74 (ATC transponder) TSO-C66 (DME)

TABLE 1. MOUNTING DATA

ANTENNA TYPE	MATING CONNECTOR TYPE	RADIUS OF BASE
DM NI 7	C MALE	71.50 R
DM NI 7-2	HN MALE	20.00 R
DM NI 7-8	HN MALE	71.50 R
DM NI 7-9	C MALE	71.50 R

OUTLINE DIMENSIONS

Inches



Specifications subject to change without notice.

DM ELT 14-1-1 Emergency Locator Transmitter

The DM ELT 14-1-1 emergency locator transmitter is approved to FAA TSO-C91a for automatic fixed (AF) equipment. The DM U237-1-1 adapter plate is furnished with the ELT to allow easy upgrade from our DM ELT 8 and DM ELT 6-series ELT's, as well as competitor's models.

The DM U231 series remote control/indicators allow the operator to manually turn the transmitter on for test or emergency landing purposes, RESET the transmitter and place the transmitter in the normal "Armed" mode.

P/N DM ELT 14-1-1

Specifications

Electrical	
Frequency Range	121.5/243.0 MHz
Peak Effective Radiated Power	50 mW for 50-hrs.
Power Supply	DM U158-1 replaceable alkaline battery pack
Modulation Characteristics	Audio downward swept tone Range > 700 Hz between 1600-300 Hz maximum
Bandwidth	25 KHz
Flight Deck—Remote	Visual alert & control switch

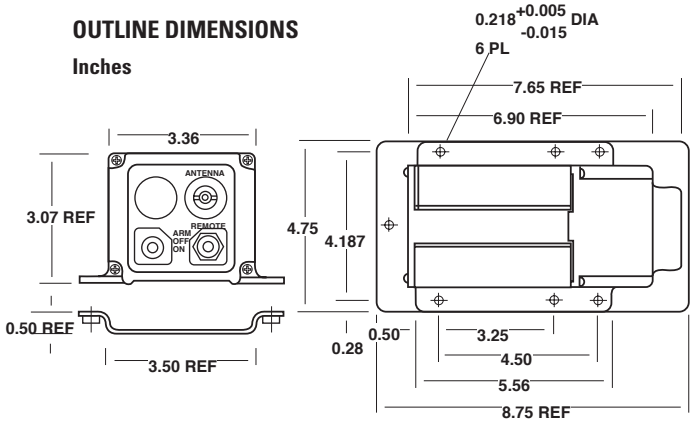
Mechanical	
Operating Temperature Range	-20°C to +55°C
Storage Temperature Range	-55°C to +85°C
Altitude	55,000'
G-switch Activation	3 fps £ Δ V £ 4 fps
Weight	4.5 lbs. (2.0 Kg) maximum
Antenna(s)	See accessories list
Remote Control/Indicator	See accessories list

Accessories

P/N DM ELT 14-1-1	Emergency locator transmitter, with DM U158-1 and DM U237-1-1
P/N DM ELT 14-2-1	Emergency locator transmitter without DM U158-1 or DM U237-1-1
P/N DM U231-1	Remote control/indicator, surface mounted
P/N DM U231-2	Remote control/indicator, panel mounted
P/N DM U242-1	Cable kit for DM U231-series (15' length)
P/N DM ELT 14.2	ELT antenna, flexible, for use with DM ELT 14 transmitter
P/N DM ELT 14.3	Coaxial cable for DM ELT 14.2 (46" length)
P/N DM ELT 14.4	Coaxial cable for DM ELT 14.2 (79" length)
P/N DM Q18-1/A	ELT antenna, rigid (250 MPH rated), three-hole mount
P/N DM Q18-3	ELT antenna, rigid (400 MPH rated), 4-hole mount
P/N DM U60-1	Coaxial cable for DM Q18-series (50" length)
P/N DM U60-2	Coaxial cable for DM Q18-series (120" length)
P/N DM U158-1	Alkaline battery pack for DM ELT 14-1-1
P/N DM U258-1	Power cell for DM U231-1
P/N DM U264-1	Power cell for DM U231-2
P/N DM U237-1-1	Adapter plate for DM ELT 14-1-1; Retrofit for DM ELT 8.1, DM ELT 6.1, and competitor's ELT'S

OUTLINE DIMENSIONS

Inches



Specifications subject to change without notice.