B – Building Common

Room Name: **WSP Antenna Equipment Room**
Space Number: B4.0
Occupancy: --
Quantity: 1
Assignable SF: 80sf

Description	Storage for WSP radio equipment and access to conduit for roof-top antennas.
Adjacency	Convenient to WSP divisions.
Structure	--
Finishes	
Floor	Resilient flooring
Walls	Painted gypsum board
Ceiling	None required
Ceiling Height	Open to structure
Plumbing	--
HVAC	24/7 Cooling for electronic equipment.
Lighting	--
Electrical Power	--
Telephone/Data	Conduit pathways to roof and floor IDF.
Fire Protection	Sprinklered
FF&E	--
Furniture/Equip	
Tech Equip	Two (2) 19” or 23” RF equipment racks for WSP radios/batteries.
AV Equip	--
Security	High security – Card reader required
Other Requirements	Adjacent to roof and floor IDF, room could be located within the mechanical penthouse if it can be secure, weather tight and accessible to WSP.

1063 Block Project
WSP Rooftop Antennas / Dishes
January 20, 2014

The following outlines / clarifies the planned rooftop antennas and dishes for the rooftop by the Washington State Patrol.

The following outlines the anticipated equipment. Attached to this are the specifications / cut sheets to further explain the requirements. The Washington State Patrol will furnish and install all equipment. The Design Build Proposer shall furnish conduit pathways to the Antenna Equipment room (noted below) and required power at the mounting locations and equipment room.

- The current plans for Microwave (MW) into and out of the new 1063 building include the following dishes:
  - 1ea. SU6-107BC microwave dish. This antenna is 6 feet in diameter. The intended azimuth is approximately 73.4° true north connecting to the water tower at the corner of 7th and Fir in Olympia.
  - 1ea. SU3-190BB microwave dish. This antenna is 3 feet in diameter. The intended azimuth is approximately 130.8° true north connecting to the Highways License Building.
- The current plans for Land Mobile Radio (LMR) include the following antennas:
  - 1ea. Telewave F2 antenna tuned in the 150-172 MHz band.
  - 1ea. RFI CC807-6 antenna in the 700 MHz band and a Discone antenna.

The following outlines the planned installation and mounting of the antennas and dishes noted above.

- Spec sheets for all the intended antennas are attached.
- These plans would allow all the antennas to be installed on a non-penetrating roof structure.
- The approximate size of this is 12 feet wide, 8 feet tall and 8 feet deep. The structure is a series of angle iron with mounting poles for the antennas (drawing attached).
- The structure is held down by a series of cinder blocks strapped to the base.
- The entire antenna structure and array can be concealed behind gray Kevlar canvas's and mounted fiberglass poles for support. This would conceal the structure on the roof.

- The location currently determined is the northern half of the roof, given we don't have the design specs for the building. This location may move depending on building design.
- No obstructions to the azimuth of the microwave dishes can be allowed and Omni obstructions to the LMR antennas will degrade coverage.
- The primary coverage will be to the South and East areas of the Capitol campus.
- MW Waveguide and LMR Hardline access to an equipment room below and near to the antenna array is also required.
- A minimum size equipment room would be 8' x 10' to accommodate two 19" or 23" RF equipment racks for WSP radios/batteries and will need HVAC and 24/7 generator backup power. See Attached Room Criteria sheet for the Antenna Equipment Room.
    - Antenna Equipment Room will require conduit pathways to the roof sufficient for planned cable plus 100% capacity.
    - Room shall be located adjacent to roof and IDF room.
    - The equipment may also be added to an IDF in the WSP space or to the dedicated WSP server room. Additional space for racks and wall mount equipment must be added to planned IDF space.
    - Antenna racks will require fiber and copper connections to hardware in the IDF and MDF space.
    - A 4 ft service zone will be maintained at the front and rear of the equipment cabinets and at the end of each row of equipment cabinets. Cabling termination hardware will mount to the painted ¾ inch fire-rated plywood backboard on the wall opposite the rear of the equipment cabinet(s) facing the equipment cable connections. The walls of the room shall be covered with 3/4 inch fire resistant plywood painted on all sides with light color fire resistant paint. Care should be taken to assure that the fire rating stamp of the plywood be visible for inspection prior to installation. Entry door opens out, automatically closes, and is secured by an access-logging keycard entry system
    - The electrical distribution will be from two panels located in the room, one normal utility and one from the generator system. Connected to each of these panels will be an overhead bus system for electrical distribution to the equipment cabinets. Within the equipment cabinets vertically mounted distributions units will provide the individual outlets for the equipment connections. Quad receptacle normal power convenience outlets will be installed on 6 foot centers along all permitted walls. Two stand-by power quad outlets will be provided on walls expected to support wall mounted active components.

CC807 Series

7/800 MHz Corporate Collinear Antennas

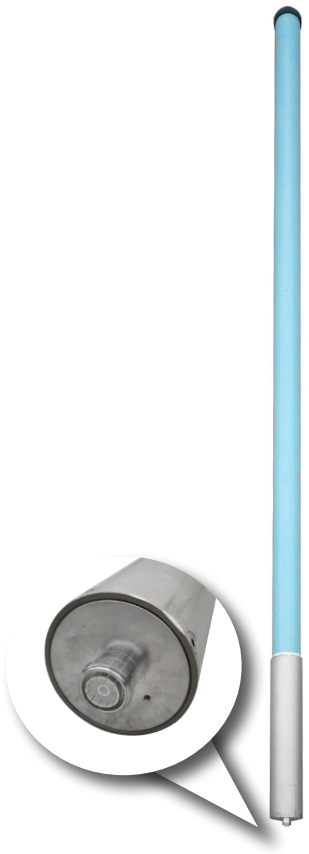
746-870 MHz

These industry leading PIM and PIP rated collinear arrays allow site operators to combine, with complete integrity, a large number of communications services into a single, low profile collinear antenna array.

The true corporate feed of these arrays maintains total pattern integrity over a very broad operating bandwidth, similar to that previously available only in exposed dipole configurations. This is now achieved in the preferred form factor of a fully enclosed fiberglass radome. The corporate collinears employ a unique corporate phasing system enabling precision control of the element placements ensuring phase purity resulting in exceptional bandwidth and electrical performance .

Gain is maximized and side lobes reduced dramatically. In a patent pending design approach the individual dipole elements including matching network are fabricated entirely of a flexible circuit board. The dipole elements are soldered to a brass support tube which is directly connected to the mounting tube and the lightning spike at the top of the antenna.

The result of this unique, incredibly strong design is:



- Peak Instantaneous Power rating (PIP) 25 kW
- Passive Intermodulation rating (PIM) -150 dBc
- High continuous power rating
- Extraordinary bandwidth characteristics with superior pattern control
- Field invertible (most models)

USA patent: 7,365,698

Australia patent: 2005904524

RFI
2023 Case Parkway North
Twinsburg, OH 44087
Phone: 330 486 0706
Fax: 330 486 0705

1063 Block Replacement Project
Addendum 7 - Attachment 3.3

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7/800 MHz Corporate Collinear Antennas

746-870 MHz

These industry leading PIM and PIP rated collinear arrays allow site operators to combine, with complete integrity, a large number of communications services into a single, low profile collinear antenna array.

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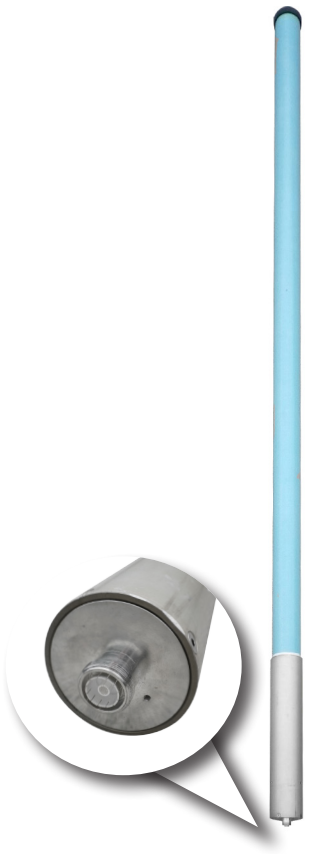

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Addendum 7 - Attachment 3.3

CC807 Series

7/800 MHz Corporate Collinear Antennas

746-870 MHz

Electrical Specifications

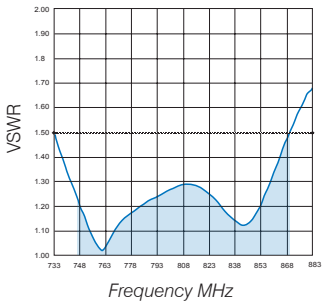
Model Number	CC807-03	CC807-06	CC807-08	CC807-11
Nominal Gain *dBd (dBi)*	3 (5.1)	6 (8.1)	8 (10.1)	10.5 (12.6)
Frequency *MHz*	746 - 870			
Tuned Bandwidth *MHz*	124			
VSWR	<1.5 :1			
Nominal Impedance Ω	50			
Downtilt	N/A	0° Std - 5° *(1)*	0° Std - 5° *(1)*	0° Std - 5° *(1)*
Vertical Beamwidth°	28	17	9	4.5
Horizontal Beamwidth	Omni +/- 0.5dB			
Input Power *Watts*	250	500	500	500
Passive IM 3rd order (2x20W) *dBc*	-150			
Peak Instantaneous Power *kW*	25			

Mechanical Specifications

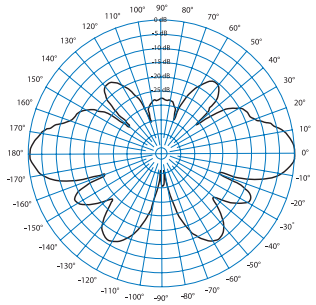
Model Number		CC807-03	CC807-06	CC807-08	CC807-11
Construction		Composite fiberglass sky blue radome aluminum mounting tube			
Length *inches*		48	69	114	206
Weight lbs		9	16	27	49
Radome Diameter *inches*		3			
Shipping Weight *lbs*		18	25	40	88
Shipping Dimensions *inches*	H	6			
	W	6			
	L	56	75	119	220
Termination		7/16" DIN fixed female			
Invertible Mounting		Yes *(2)*			
Suggested Clamps (not included)		UC1143			
Projected area *ft²*	No ice	0.9	1.4	2.5	4.9
	with ice	1.2	1.7	3.1	6.2
Lateral (Thrust) @ 100mph *lbs*		22	34	62	121
Wind Gust Rating *mph*		>150			
Torque @ 100mph *ft-lbs*		15	54	205	761

Note (1) Pre-set downtilt variations of 5 degrees are available in the following models CC807-08, CC807-11. Simply add -T5 at the end of the model being ordered. E.g. CC807-08-T5, CC807-11-T5
(2) Downtilt versions can not be field inverted.

Typical VSWR Response



Typical - E Plane



RFI
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1063 Block Replacement Project
Addendum 7 - Attachment 3.3

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7/800 MHz Corporate Collinear Antennas

746-870 MHz

Electrical Specifications

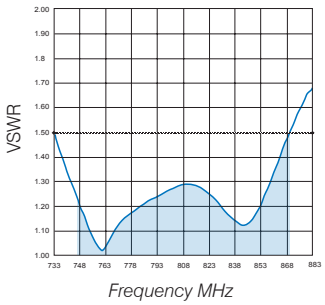
Model Number	CC807-03	CC807-06	CC807-08	CC807-11
Nominal Gain *dBd (dBi)*	3 (5.1)	6 (8.1)	8 (10.1)	10.5 (12.6)
Frequency *MHz*	746 - 870			
Tuned Bandwidth *MHz*	124			
VSWR	<1.5 :1			
Nominal Impedance Ω	50			
Downtilt	N/A	0° Std - 5° *(1)*	0° Std - 5° *(1)*	0° Std - 5° *(1)*
Vertical Beamwidth°	28	17	9	4.5
Horizontal Beamwidth	Omni +/- 0.5dB			
Input Power *Watts*	250	500	500	500
Passive IM 3rd order (2x20W) *dBc*	-150			
Peak Instantaneous Power *kW*	25			

Mechanical Specifications

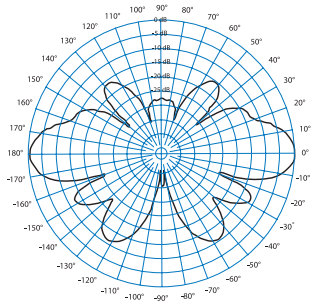
Model Number		CC807-03	CC807-06	CC807-08	CC807-11
Construction		Composite fiberglass sky blue radome aluminum mounting tube			
Length *inches*		48	69	114	206
Weight lbs		9	16	27	49
Radome Diameter *inches*		3			
Shipping Weight *lbs*		18	25	40	88
Shipping Dimensions *inches*	H	6			
	W	6			
	L	56	75	119	220
Termination		7/16" DIN fixed female			
Invertible Mounting		Yes *(2)*			
Suggested Clamps (not included)		UC1143			
Projected area *ft²*	No ice	0.9	1.4	2.5	4.9
	with ice	1.2	1.7	3.1	6.2
Lateral (Thrust) @ 100mph *lbs*		22	34	62	121
Wind Gust Rating *mph*		>150			
Torque @ 100mph *ft-lbs*		15	54	205	761

Note (1) Pre-set downtilt variations of 5 degrees are available in the following models CC807-08, CC807-11. Simply add -T5 at the end of the model being ordered. E.g. CC807-08-T5, CC807-11-T5
(2) Downtilt versions can not be field inverted.

Typical VSWR Response



Typical - E Plane



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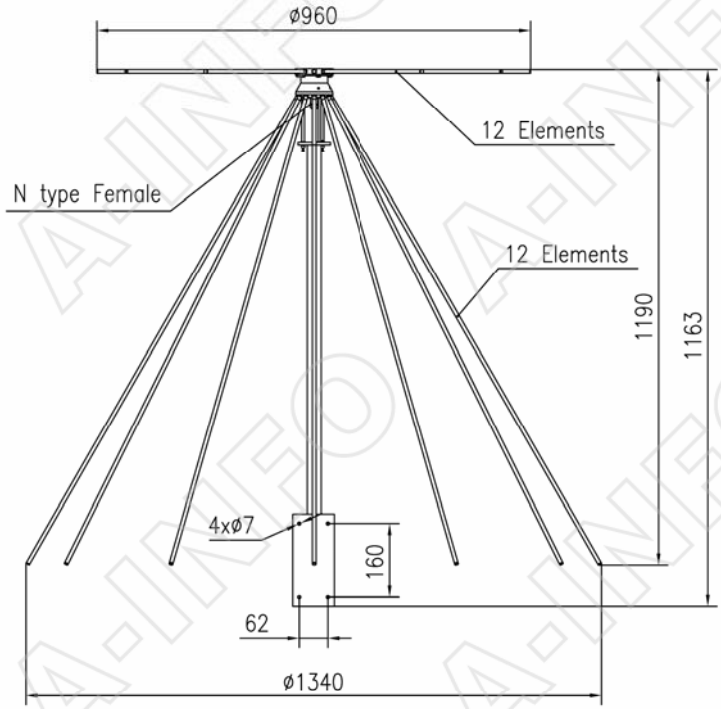
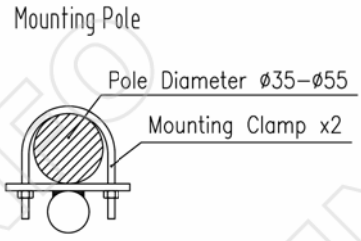
1063 Block Replacement Project
Addendum 7 - Attachment 3.3

Technical Specification

Frequency Range(MHz)	70 - 1000
Gain(dB)	3 Typ.
Polarization	Linear
VSWR	2.0:1 Typ.
Power(W)	300 CW
Connector	N-Female
Size(mm) Φ x H	Φ1340 x 1163
Net Weight(Kg)	3.5 Around

Outline Drawing (Size: mm)





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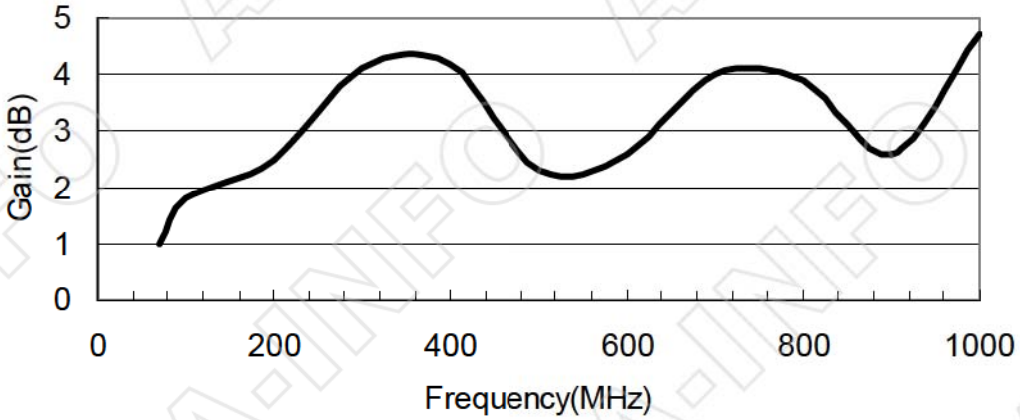
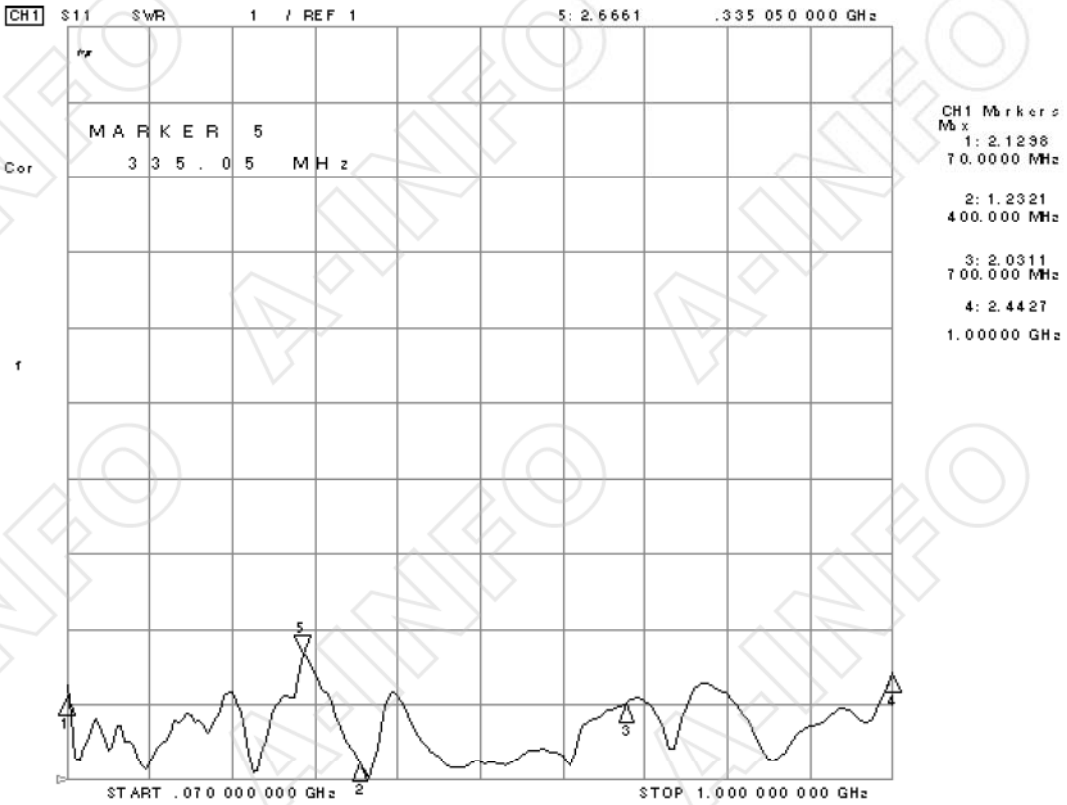
Test Results

1. Gain



2. VSWR



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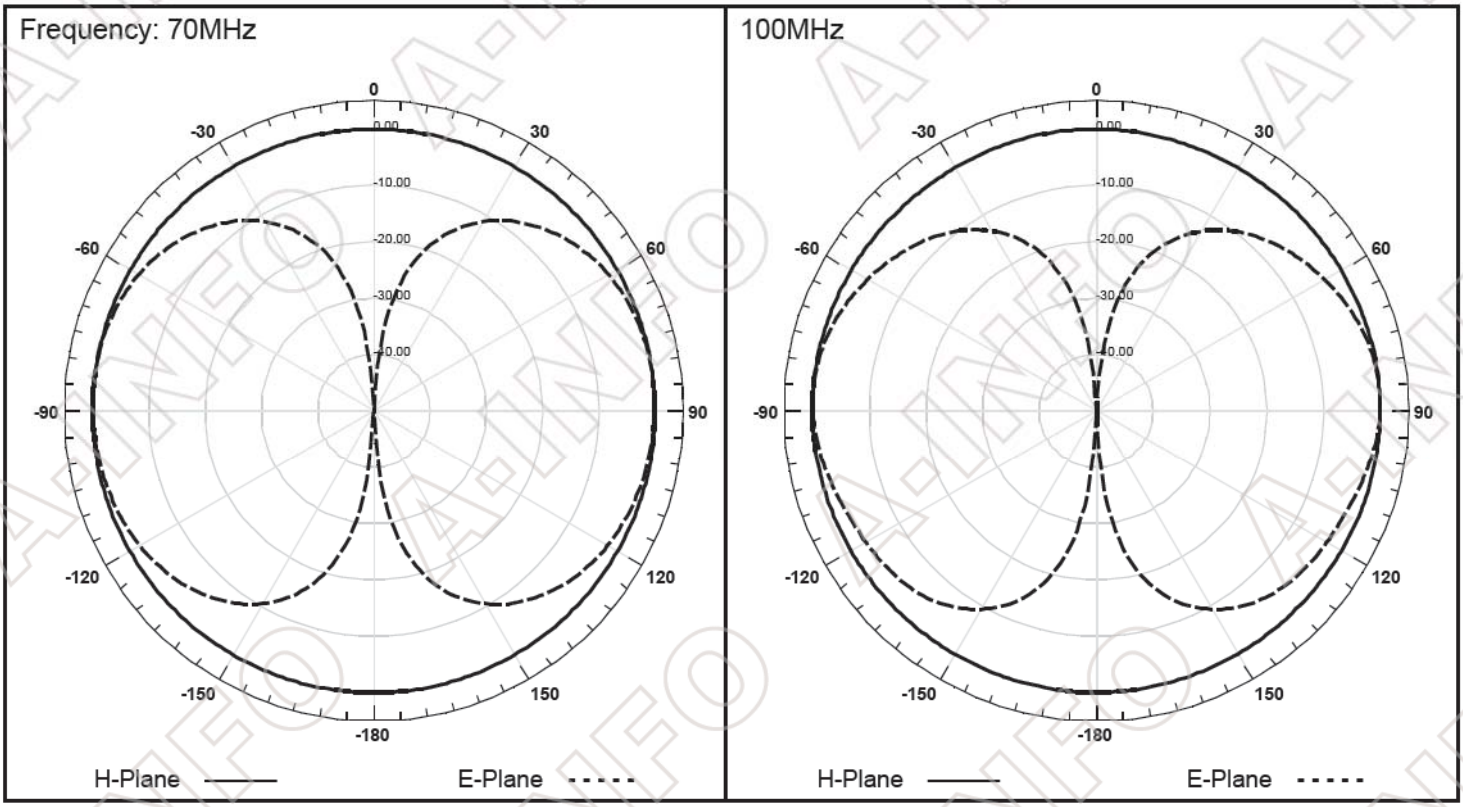
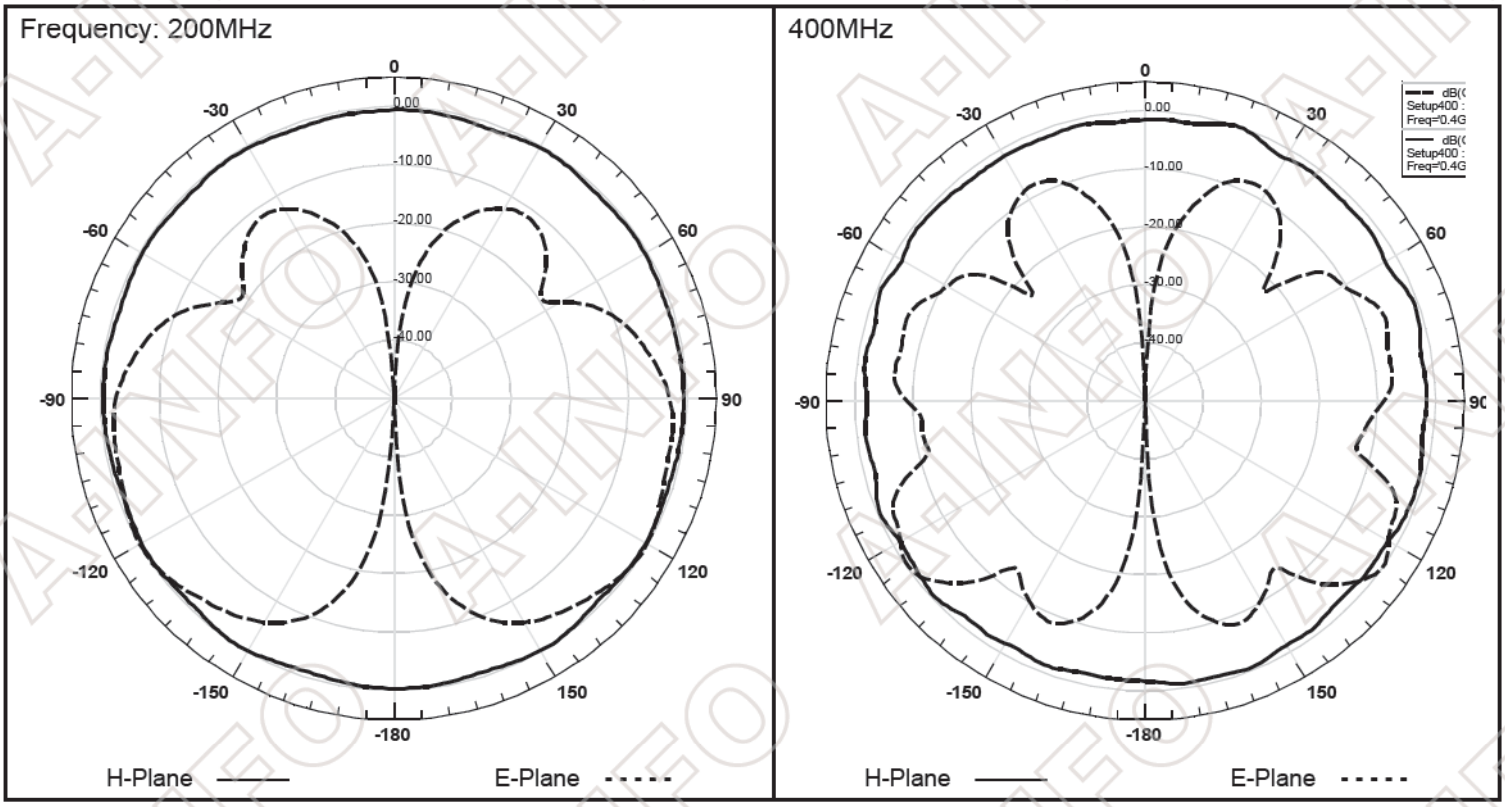
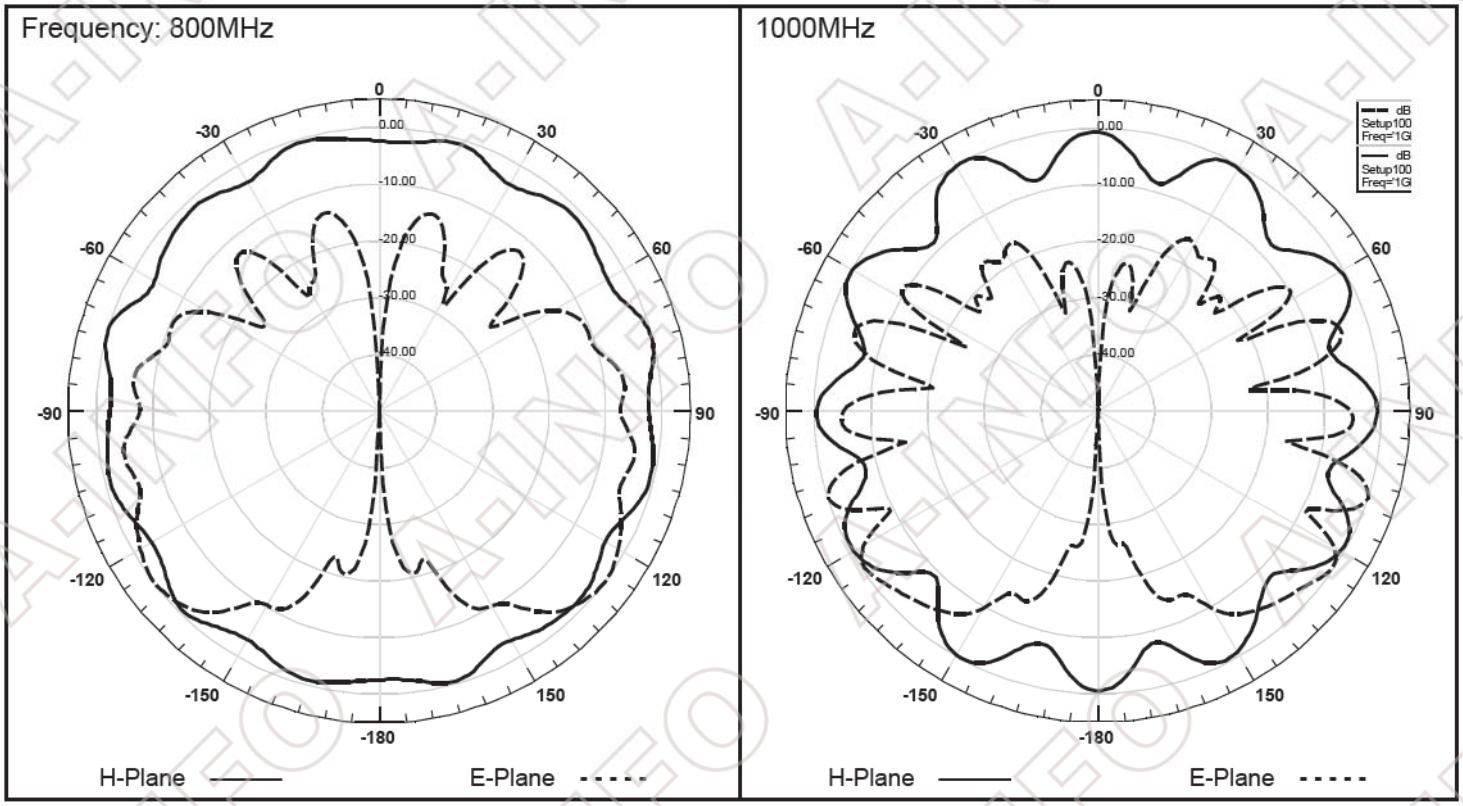
3. Pattern


Frequency: 70MHz
100MHz
0
30
60
90
120
150
-180
-150
-120
-90
-60
-30
0.00
-10.00
-20.00
-30.00
-40.00
H-Plane
E-Plane


Frequency: 200MHz
400MHz
0
30
60
90
120
150
-180
-150
-120
-90
-60
-30
0.00
-10.00
-20.00
-30.00
-40.00
H-Plane
E-Plane



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NOTES:

1. SEE SHEET 2 FOR BALLAST LOADING FORMULA.

2. THE MOUNTING FRAME IS DESIGNED TO ACCEPT A MAXIMUM OF FOUR ANTENNA MOUNTS.

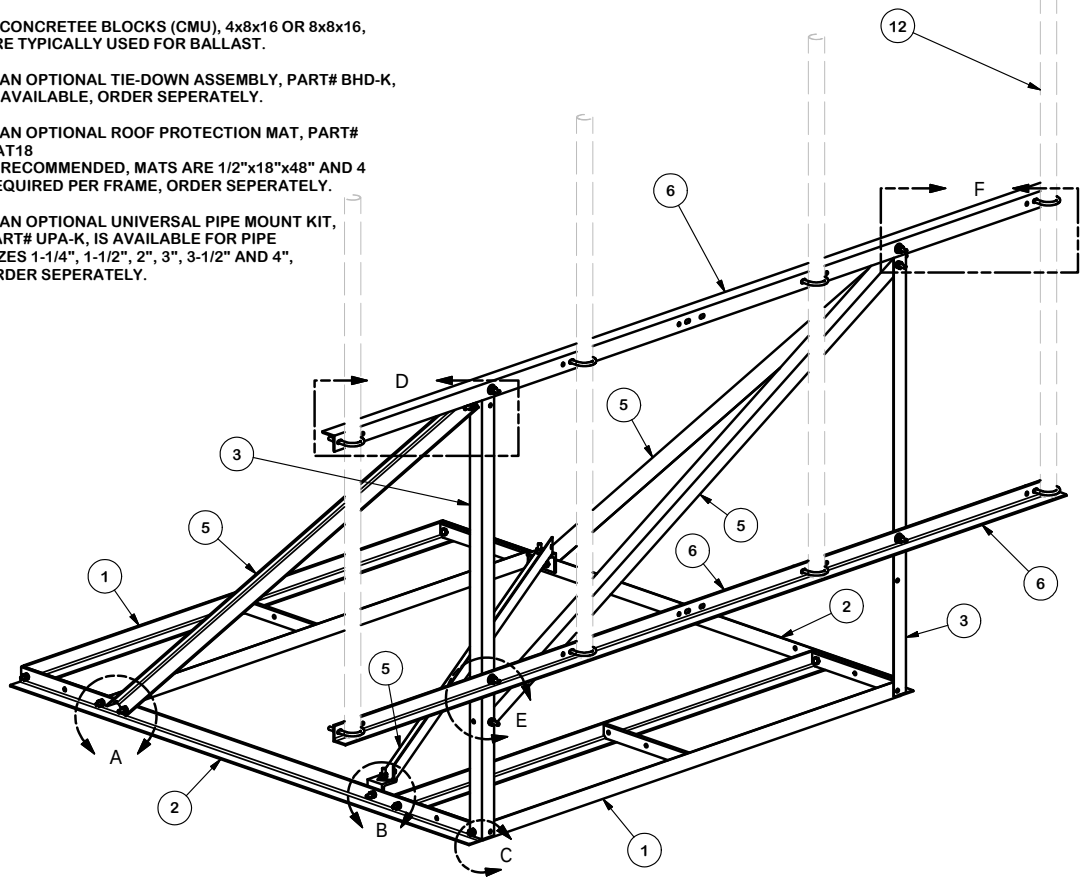
3. CONCRETEE BLOCKS (CMU), 4x8x16 OR 8x8x16, ARE TYPICALLY USED FOR BALLAST.

4. AN OPTIONAL TIE-DOWN ASSEMBLY, PART# BHD-K, IS AVAILABLE, ORDER SEPERATELY.

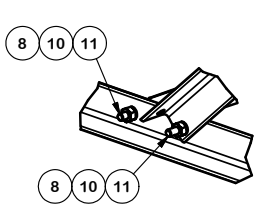
5. AN OPTIONAL ROOF PROTECTION MAT, PART# MAT18 IS RECOMMENDED, MATS ARE 1/2"x18"x48" AND 4 REQUIRED PER FRAME, ORDER SEPERATELY.

6. AN OPTIONAL UNIVERSAL PIPE MOUNT KIT, PART# UPA-K, IS AVAILABLE FOR PIPE SIZES 1-1/4", 1-1/2", 2", 3", 3-1/2" AND 4", ORDER SEPERATELY.

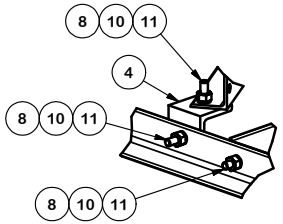
ACCEPTS 2-3/8" DIA. PIPES 10'-6" MAX. LENGTH



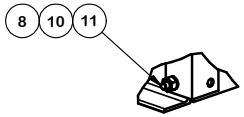
PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-232696	BALLAST TRAY WELDMENT - SITE PRO 1		66.53	133.06
2	2	X-232699	SIDE BASE ANGLE 95" LENGTH - SITE PRO 1		25.76	51.52
3	2	X-232700	VERTICAL ANGLE 70-9/16" LENGTH - SITE PRO 1		19.08	38.15
4	2	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET		1.84	3.68
5	4	X-232702	SUPPORT ANGLE 99-1/8" LENGTH - SITE PRO 1		26.94	107.75
6	2	X-233157	HORIZONTAL FACE ANGLE 149-1/4" LENGTH - SITE PRO 1		40.24	80.48
7	8	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	5.25
8	21	G1202	1/2" x 2" HDG HEX BOLT GR5		0.18	3.69
9	20	G12FW	1/2" HDG USS FLATWASHER		0.03	0.68
10	37	G12LW	1/2" HDG LOCKWASHER		0.01	0.51
11	37	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	2.65
12	B	C	2-3/8" O.D. VERTICAL MOUNTING PIPE	D	E	F



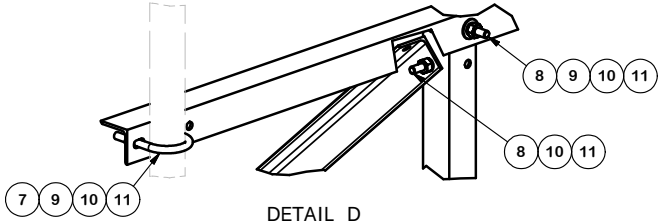
DETAIL A



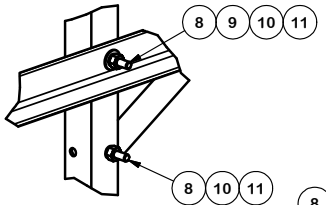
DETAIL B



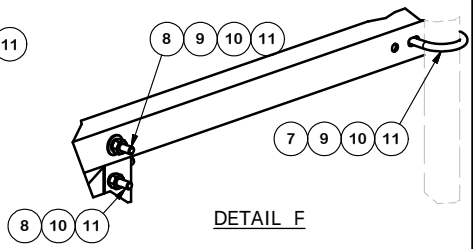
DETAIL C



DETAIL D



DETAIL E



DETAIL F

TABLE						
ASSEMBLY "A"	QTY "B"	PART "C"	LENGTH "D"	UNIT WT. "E"	NET WT. "F"	TOTAL WEIGH
RTW-12	0	---	---	---	---	427.01
RTW-12-3-96	3	P296	96"	30.76	92.28	519.29
RTW-12-3-126	3	P2126	126"	41.37	124.11	551.12
RTW-12-4-96	4	P296	96"	30.76	123.04	550.05
RTW-12-4-126	4	P2126	126"	41.37	165.48	592.49

REVISION HISTORY				
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	ADDED VARIABLE TABLE		KC8	06/06/2012
A	UPDATE BALLAST EQUATION	4893	BMC	5/17/2011

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
12' NON-PENETRATING
ROOF MOUNT
SITE PRO 1

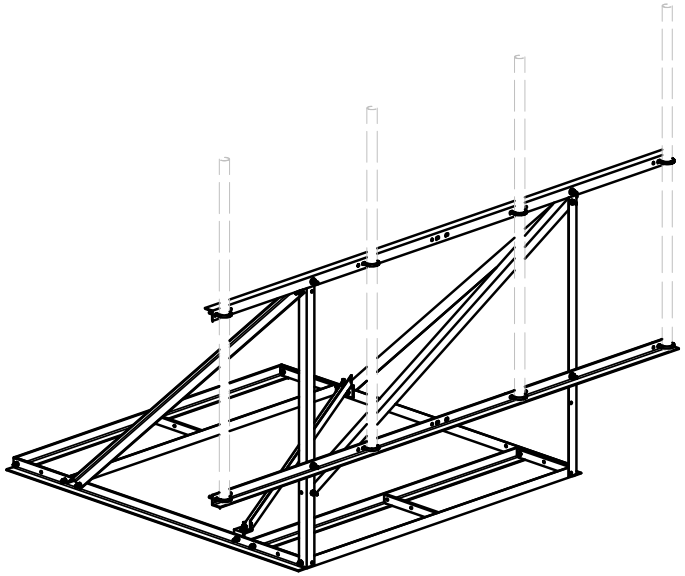
SITE PRO 1
A valmont COMPANY

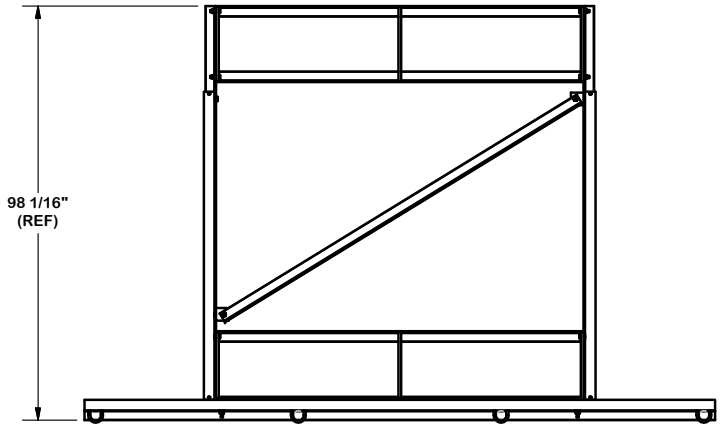
Engineering Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4893	RH18 12/14/2010		SEE ASSEMBLY "A"	1 OF 2

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	CEK 7/10/2012	RTW-12



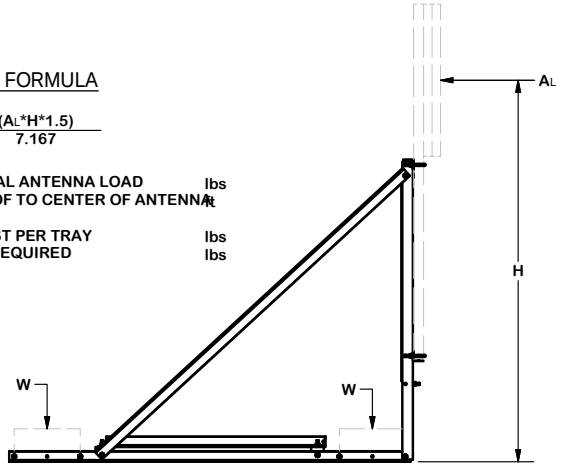


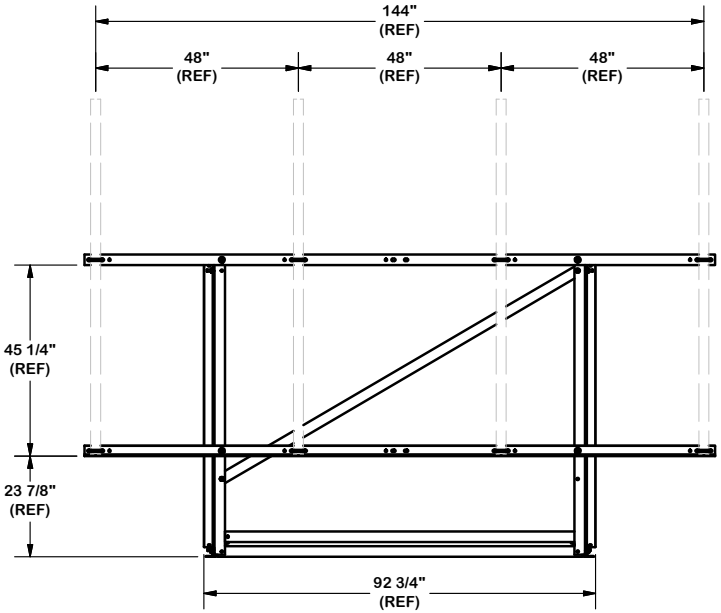
BALLAST FORMULA

$$W = \frac{(A_L * H * 1.5)}{7.167}$$

A_L = TOTAL HORIZONTAL ANTENNA LOAD lbs
H = HEIGHT FROM ROOF TO CENTER OF ANTENNA ft

W = REQUIRED BALLAST PER TRAY lbs
W (2) = TOTAL BALLAST REQUIRED lbs





TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			
B	ADDED VARIABLE TABLE		KC8	06/06/2012
A	UPDATE BALLAST EQUATION	4893	BMC	5/17/2011

DESCRIPTION: 12' NON-PENETRATING ROOF MOUNT SITE PRO 1

SITE PRO 1 — A valmont COMPANY

Engineering Support Team: 1-888-753-7446

Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4893	RH18 12/14/2010		SEE ASSEMBLY "A"	2 OF 2

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	CEK 7/10/2012	RTW-12

Technical Data Sheet **SU3-190BB**

SlimLine Ultra High Performance Antenna, Single Polarized, 3 ft
17.7 - 19.7 GHz

Product Description

RFS SlimLine® Antennas are designed for microwave systems in all common frequency ranges from 6 GHz to 25 GHz. The antennas are cost-effective products for microwave point-to-point transmission links. The antennas utilise a conventional feed system and are available in Standard and Ultra High performance radiation characteristic. The Ultra High performance antennas are available in single polarised (SU) as well as in dual polarised versions (SUX). Antennas with Ultra High Performance radiation characteristics are required for use in networks where there is a very high interference potential. Antennas are available in 3 ft (0.9m) to 6 ft (1.8m) diameters. All antennas include a radome which is specially shaped (2ft) or flexible (3 to 6 ft) to minimise its impact on the antenna's electrical characteristics. The antennas are easy to install. A side strut is required for 3ft and 4ft-antennas if part of delivery and 6 ft-antennas.

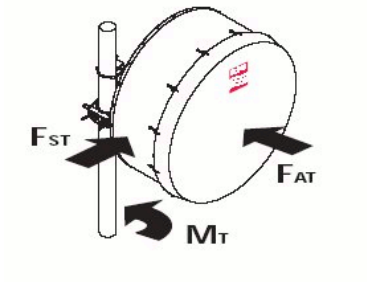
Antenna

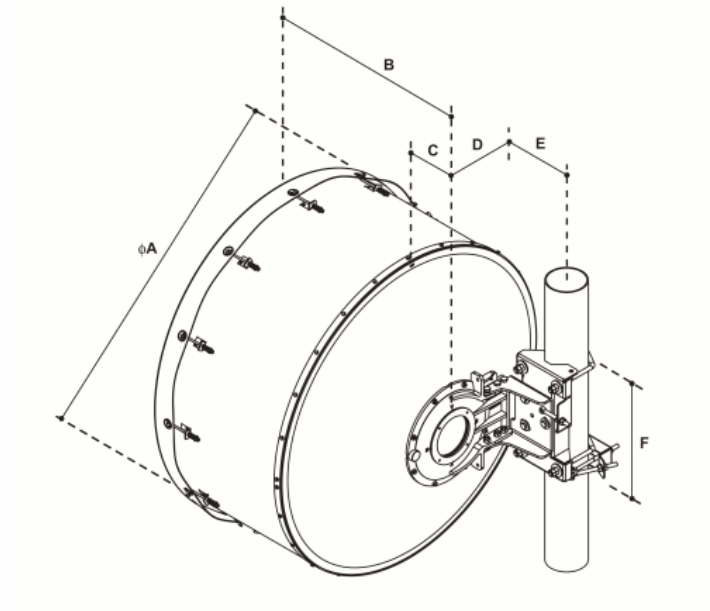
Technical Features

Product Type	Point to point antennas
Frequency, GHz	17.7 - 19.7
Diameter, ft (m)	3 (0.9)
Profile	SlimLine
Performance	Ultra High
Polarization	Single
Regulatory Compliance	Standard, EN 302217, FCC
3dB beamwidth, (degrees)	1.3
Antenna Input	PBR 220
Low Band Gain, dBi	41.6
Mid Band Gain, dBi	42.1
High Band Gain, dBi	42.6
F/B Ratio, dB	63
XPD, dB	32
Max VSWR / R L, dB	1.20 / 20.8
FCC Standard	A
ETSI Standard	Range 2, class 2
Elevation Adjustment, degrees	± 15
Azimuth Adjustment, degrees	± 5
Polarization Adjustment, degrees	± 5
Pressure, bar (psi)	0.3 (4.3)
Radome	Included
Antenna color	White
Mounting Pipe Diameter minimum, mm (in)	90 (3.6)
Mounting Pipe Diameter maximum, mm (in)	114 (4.5)
Approximate Weight, kg (lb)	23 (50.5)
Survival Windspeed, km/h (mph)	200 (125)
Operational Windspeed, km/h (mph)	110 (68)

SlimLine Ultra High Performance Antenna, Single Polarized, 3 ft
17.7 - 19.7 GHz

F_{ST} Side force max. at 110 km/h (68 mph), N (lb)	270 (60)
F_{AT} Axial force max. at 110 km/h (68 mph), N (lb)	540 (120)
M Torque max. at 110 km/h (68 mph), Nm (ft lb)	180 (135)
F_{ST} Side force max. at 200 km/h (125 mph), N (lb)	890 (200)
F_{AT} Axial force max. at 200 km/h (125 mph), N (lb)	1800 (403)
M Torque max. at 200 km/h (125 mph), Nm (ft lb)	600 (455)





All dimensions in mm (in)

ØA	B	C	ØD for mounting pipe diam. 219 (8.5)	114 (4.5)	89 (3.5)	51 (2.0)	E	F
970 (38.3)	620 (24.5)	170 (6.8)		317 (12.5)	299 (11.8)		100 (3.9)	365 (14.4)

Notes

no notes

Documentation

Reflector installation
NMT532-02.pdf
Feed installation
NMT543-01.pdf
Radiation pattern: (NSMA format)
SU3-190B, 970410.txt
Radiation pattern: (PDF Format)
SU3-190B, 970410.pdf

Technical Data Sheet **SU6-107BC**

SlimLine Ultra High Performance Antenna, Single Polarized, 6 ft
10.7 - 11.7 GHz

Product Description

RFS SlimLine® Antennas are designed for microwave systems in all common frequency ranges from 6 GHz to 25 GHz. The antennas are cost-effective products for microwave point-to-point transmission links. The antennas utilise a conventional feed system and are available in Standard and Ultra High performance radiation characteristic. The Ultra High performance antennas are available in single polarised (SU) as well as in dual polarised versions (SUX). Antennas with Ultra High Performance radiation characteristics are required for use in networks where there is a very high interference potential. Antennas are available in 3 ft (0.9m) to 6 ft (1.8m) diameters. All antennas include a radome which is specially shaped (2ft) or flexible (3 to 6 ft) to minimise its impact on the antenna's electrical characteristics. The antennas are easy to install. A side strut is required for 3ft and 4ft-antennas if part of delivery and 6 ft-antennas.

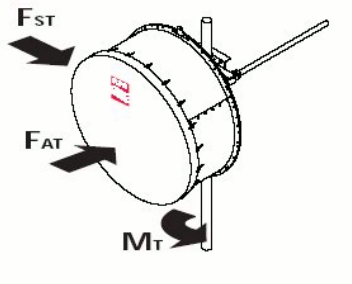
Antenna

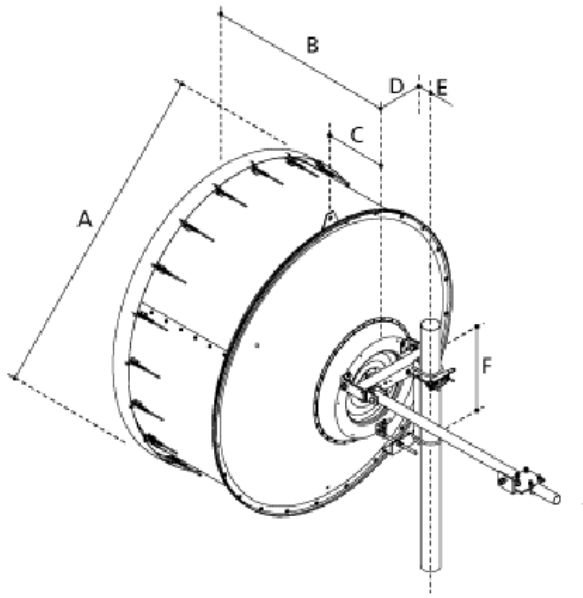
Technical Features

Product Type	Point to point antennas
Frequency, GHz	10.7 - 11.7
Diameter, ft (m)	6 (1.8)
Profile	SlimLine
Performance	Ultra High
Polarization	Single
Regulatory Compliance	Standard, EN 302217, FCC
3dB beamwidth, (degrees)	1
Antenna Input	CPR90G
Low Band Gain, dBi	43.7
Mid Band Gain, dBi	44
High Band Gain, dBi	44.5
F/B Ratio, dB	70
XPD, dB	32
Max VSWR / R L, dB	1.15 / 23.1
FCC Standard	A
ETSI Standard	Range 1, class 3
Elevation Adjustment, degrees	± 5
Azimuth Adjustment, degrees	± 5
Polarization Adjustment, degrees	± 5
Pressure, bar (psi)	0.3 (4.3)
Radome	Included
Antenna color	White
Mounting Pipe Diameter minimum, mm (in)	114 (4.5)
Mounting Pipe Diameter maximum, mm (in)	114 (4.5)
Approximate Weight, kg (lb)	95 (209)
Survival Windspeed, km/h (mph)	200 (125)
Operational Windspeed, km/h (mph)	190 (118)

SlimLine Ultra High Performance Antenna, Single Polarized, 6 ft
10.7 - 11.7 GHz

F_{ST} Side force max. at 110 km/h (68 mph), N (lb)	1125 (252)
F_{AT} Axial force max. at 110 km/h (68 mph), N (lb)	2270 (508)
M Torque max. at 110 km/h (68 mph), Nm (ft lb)	860 (640)
F_{ST} Side force max. at 200 km/h (125 mph), N (lb)	3715 (832)
F_{AT} Axial force max. at 200 km/h (125 mph), N (lb)	7500 (1680)
M Torque max. at 200 km/h (125 mph), Nm (ft lb)	2835 (2100)





All dimensions in mm (in)

ØA	B	C	ØD for mounting pipe diam. 219 (8.5)	114 (4.5)	89 (3.5)	51 (2.0)	E	F
2000 (79)	1242 (48.9)	364 (14.3)		175 (6.9)			283 (11.1)	590 (23.2)

Notes

includes 1 sway bar (2.0 m x Ø60 mm)

Documentation

Complete Antenna installation
NMT628-00.pdf

Radiation pattern: (NSMA format)
SU6-107B, 980322.txt
Radiation pattern: (PDF Format)
SU6-107B, 980322.pdf

Telewave F2 Series Antenna

Features

Frequency (continuous) 148-174 MHz

Gain 2.5 dBd

Power rating (typ.) 500 watts

Impedance 50 ohms

VSWR 1.5:1 or less

Pattern Omni directional

Vertical beam width 38°

Termination Recessed N-Female 7-16 DIN-F opt.

Dimensions (L x base diam.) in. 60 x 2.75

Weight (antenna + clamps) 13 lb.

Shipping weight 16 lb.

Wind rating / with 0.5" ice 200 / 150 MPH

Maximum exposed area 1.3 ft.²

Lateral thrust at 100 MPH 50 lb.

Bending moment at top clamp 67 ft. lb.

(100 MPH, 40 PSF flat plate equiv.)

Walker & Associates
940-433-5615
www.wa-rep.com

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

The Telewave **ANT150F2** is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to DC ground for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a high-tech ruggedized radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The F2 series antenna comes in a wide array of frequencies starting at 118 KHz and ending at 960KHz