STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

April 20, 2005

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-054-054A-079-113-060-050329** -Cellco Partnership d/b/a Verizon Wireless notice of intent to modify existing telecommunications facilities located at Birch Mountain Road, Glastonbury; Three Mile Road, Glastonbury; North Main Street, Marlborough; Cosgrove Road, Willington; and 74 Goodrich Lane, Portland, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on April 19, 2005, the Connecticut Siting Council (Council) acknowledged your notice to modify these existing telecommunications facilities, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated March 29, 2005 and additional information dated April 4, 2005, including the placement of all necessary equipment and shelters within the tower compounds. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to existing facility sites that would not increase tower heights, extend the boundaries of the tower sites, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power densities measured at the tower site boundaries to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. These facilities have also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on these towers.

This decision is under the exclusive jurisdiction of the Council. Any additional change to any of these facilities will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: See Attached List

G:\EM\BAM-VERIZON\GLASTONB\dc041905(multiplesites).DOC

CSC
CONNECTICUT SITING COUNCIL

Recipient List:

The Honorable Susan Karp, Chairman Town Council, Town of Glastonbury
Kenith Leslie, Community Development Director, Town of Glastonbury
The Honorable Nancy S. Bader, First Selectman, Town of Marlborough
Peter F. Hughes, Zoning Enforcement Officer, Town of Marlborough
The Honorable Susan S. Bransfield, First Selectman, Town of Portland
Nancy Mueller, Town Planner, Town of Portland
The Honorable Michael Eldridge, First Selectman, Town of Willington
Susan Jorgensen, Zoning Enforcement Officer, Town of Willington
Thomas J. Regan, Brown Rudnick Berlack Israels, LLP
Stephen J. Humes, Esq., McCarter & English LLP
Christopher B. Fisher, Esq., Cuddy & Feder, LLP
Thomas F. Flynn III, Nextel Communications Inc.
Jeffrey W. Barbadora, Crown Atlantic Company LLC
Michael Austin, Pinnacle Site Development, Inc.
Robert Francis, Cordless Data Transfer, Inc.
Brian Benito, Bureau of Police Support, Telecommunications

ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

April 4, 2005

Via Hand Delivery

RECEIVED
APR - 4 2005
CONNECTICUT
SITING COUNCIL

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Address Clarification-Notice of Exempt Modification – Antenna Swap**
47 Boston Turnpike, Willington, CT

Dear Mr. Phelps:

On March 29, 2005, we submitted, on behalf of Cellco Partnership an exempt modification for the above referenced tower site. It has come to our attention that the address listed above is not the correct address. The correct site address for this antenna modification is Cosgrove Road.

We apologize for any confusion this may have caused. We are sending a copy of this correspondence to the Town of Willington for their file as well.

Please contact me should you have any questions.

Sincerely,

Kenneth C. Baldwin

cc: Susan Yorgensen, Town of Willington Town Planner
Sandy M. Carter

EM-VER-054-054A-079-113-160-050329

ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

March 29, 2005

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
Birch Mountain Road, Glastonbury, CT
Three Mile Road, Glastonbury, CT
North Main Street, Marlborough, CT
47 Boston Turnpike, Willington, CT
74 Goodrich Lane, Portland, CT

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at each of the sites referenced above. As described below, Cellco now intends to modify each of these facilities.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to chief elected or appointed official in each affected municipality.

Birch Mountain Road Facility, Glastonbury, Connecticut

Cellco's existing Birch Mountain Road facility consists of twelve (12) cellular antennas on a tower owned by M&R Gassner Family III, LLC. Cellco now intends to modify its facility by removing the existing cellular antennas and replacing them with six (6) new cellular antennas and six (6) PCS antennas at the same level on the tower. Attached behind Tab 1 are specifications for the existing cellular antennas and the proposed cellular and PCS antennas for the facility and a new general power density table.

Three Mile Road Facility, Glastonbury, Connecticut

Cellco's existing Three Mile Road facility consists of twelve (12) cellular antennas on a tower owned by Crown Atlantic Company, LLC. Cellco now intends to modify its facility by removing the existing cellular antennas and replacing them with six (6) new cellular antennas and six (6) PCS antennas at the same level on the tower. Attached behind Tab 2 are specifications for the existing cellular antennas and the proposed cellular and PCS antennas for the facility and a new general power density table.

North Main Street Facility, Marlborough, Connecticut

Cellco's existing North Main Street facility consists of twelve (12) cellular antennas on a tower owned by Crown Atlantic Company, LLC. Cellco now intends to modify its facility by removing six (6) cellular antennas and replacing them with six (6) PCS antennas at the same level on the tower. Attached behind Tab 3 are specifications for the existing cellular antennas and the proposed PCS antennas for the facility and a new general power density table.

47 Boston Turnpike Facility, Willington, Connecticut

Cellco's existing Boston Turnpike facility consists of twelve (12) cellular antennas on a tower owned by Crown Atlantic Company, LLC. Cellco now intends to modify its facility by removing six (6) cellular antennas and replacing them with six (6) PCS antennas at the same level on the tower. Attached behind Tab 4 are specifications for the existing cellular antennas and the proposed PCS antennas for the facility and a new general power density table.

74 Goodrich Lane Facility, Portland, Connecticut

Cellco's existing Goodrich Lane facility consists of twelve (12) cellular antennas on a tower owned by Crown Atlantic Company, LLC. Cellco now intends to modify its facility by removing six (6) cellular antennas and replacing them with six (6) PCS antennas at the same level on the tower. Attached behind Tab 5 are specifications for the existing cellular antennas and the proposed PCS antennas for the facility and a new general power density table.

The planned modifications to each of these facilities fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in any increase in the overall height of the existing structures. Cellco's replacement antennas will be mounted at the same level on each tower.

2. The proposed modifications will not affect ground-mounted equipment and therefore will not require the extension of the site boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The proposed modifications will not result in radio frequency (RF) power density levels at the facility that exceed the Federal Communications Commission (FCC) adopted safety standard.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facilities constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures

cc: Richard J. Johnson, Town of Glastonbury Town Manager
Nancy S. Bader, Town of Marlborough First Selectwoman
Michael L. Eldredge, Town of Willington First Selectman
Susan S. Bransfield, Town of Portland First Selectwoman
Sandy M. Carter

DECIBEL PRODUCTS
An Allen Telecom Company

844H90EXYBAM

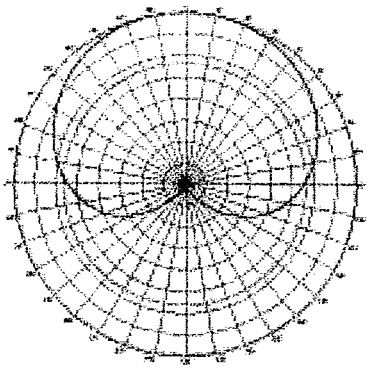
12 dBd
Log Periodic Antenna

824-896 MHz

dB Director®

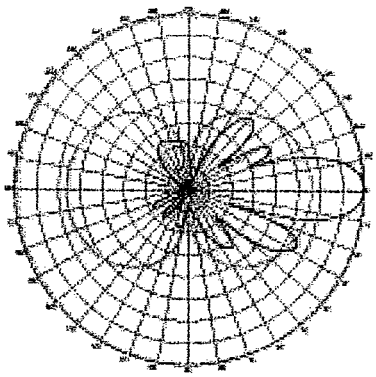
90°

- **Superior Azimuth pattern roll off, reducing sector to sector interference, improving call capacity.**
- **Extremely rugged, reliable design yet lightweight with low wind load.**

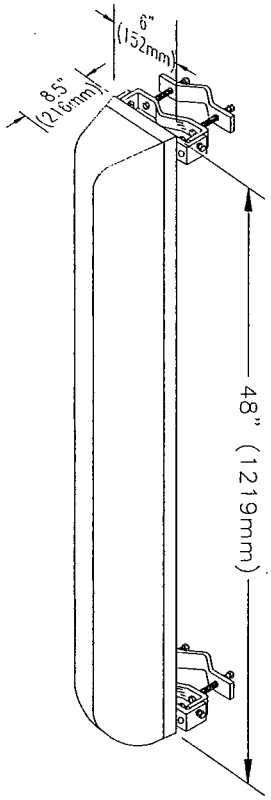


Azimuth (Horizontal)

Elevation (Vertical)



Scale: 10° radials, 5 dB per division



Electrical

Frequency:	824-896 MHz
Polarization:	Vertical
Gain:	12 dBd (14.1 dBi)
Azimuth BW:	90°
Elevation BW:	15.5°
USLS:	> 18 dB
Front-to-Back Ratio:	40 dB
VSWR:	1.22:1
PIM:	-150 dBc (2 tone, 20 watt)
Impedance:	50 Ohms
Max. Input Power:	500 Watts
Lightning Protection:	All metal parts are grounded

Mechanical

Weight:	10 lbs (4.5 kg)
Dimensions:	48" x 6" x 8.5" (1219 x 152 x 216 mm)
Max. Wind Area:	2.8 ft² (0.26 m²)
Max. Wind Load:	80 lbf (356N) 35.9 kp (at 100 mph)
Max. Wind Speed:	125 mph (201 km/h)
Radiators:	Brass
Reflector:	Pass. Aluminum
Radome:	ABS, UV Resistant
Mounting Hardware:	Galvanized Steel
Connector:	7/16 DIN (Back)
Color:	Gray

Mounting Options

Standard:	DB380 pipe mount kit included.
Downtilt:	DB5083 downtilt brackets, optional.

8635 Stemmons Freeway • Dallas, Texas U.S.A. 75247-3701
Dallas/Ft.Worth Area Tel: 214.631.0310 • Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342 • Fax: 1.800.229.4706
www.decibelproducts.com
dbtech@decibelproducts.com

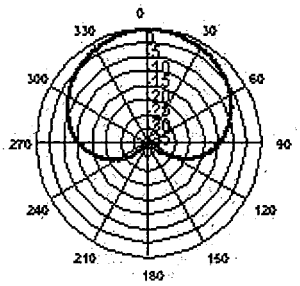
ISO9001 Compliant

099089-052 05/02-B

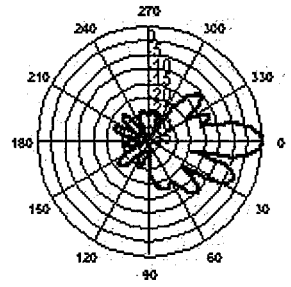
DECIBEL® Base Station Antennas	844G80VTA-SX 12.5 dBd, Directed Dipole Antenna 806-896 MHz	806-896 MHz GEN3VPOL™

- Field adjustable electrical downtilt, featuring linear phase shifter, no wheels or gears
- Excellent azimuth pattern shaping, 15-20% reduction in cell-to-cell overlap
- Outstanding first upper side lobe suppression
- Air dielectric feed system, no screws, rivets, welds or solder in RF element feed path

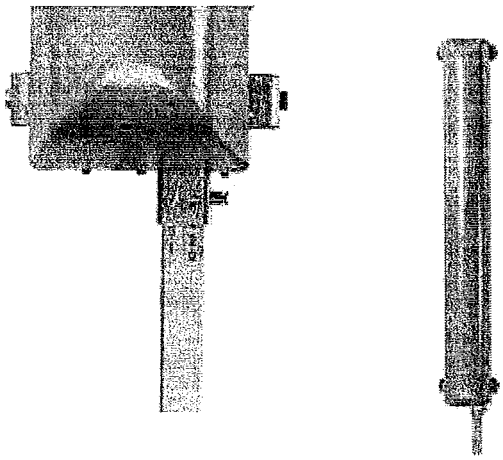
80°



Horizontal 846 MHz (Tilt=0)



Vertical 846 MHz (Tilt=0)



ELECTRICAL		MECHANICAL	
Frequency (MHz):	806-896	**Weight:**	11.5 lbs (5.2 kg)
Polarization:	Vertical	**Dimensions (LxWxD):**	48 X 10 X 8.5 in (1219 X 254 X 216 mm)
Gain (dBd/dBi):	12.5/14.6	**Max. Wind Area:**	0.97 ft² (0.09 m²)
Azimuth BW:	80°	**Max. Wind Load (@ 100mph):**	53 lbf (236 N)
Elevation BW:	16°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	0-16°	**Radiator Material:**	Aluminum
USLS* (dB):	>15	**Reflector Material:**	Aluminum
Front-to-Back Ratio* (dB):	35	**Radome Material:**	ABS, UV Resistant
VSWR:	<1.4:1	**Mounting Hardware Material:**	Galvanized Steel
IM Suppression - Two 20 Watt Carriers:	-145 dBc	**Connector Type:**	7-16 DIN - Female (Back)
Impedance:	50 Ohms	**Color:**	Light Gray
Max Input Power:	500 Watts	**Standard Mounting Hardware:**	DB380 Pipe Mount Kit, included
Lightning Protection:	DC Ground	**Downtilt Mounting Hardware:**	DB5083, optional
		Opt. Mounting Hardware:	DB5084-AZ Azimuth Wall Mount

ANDREW®

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Date: 5/20/2004
* - Indicates Typical Values

DECIBEL®
Base Station Antennas

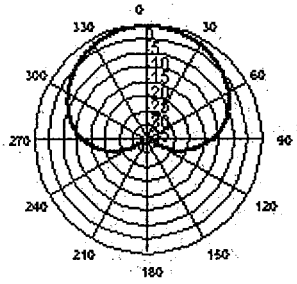
950G85VTE-M

17.1 dBi, Directed Dipole Antenna
1850-1990 MHz

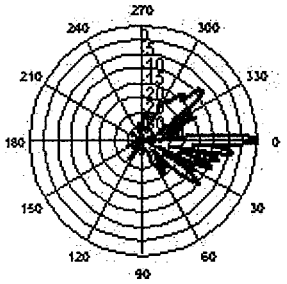
1850-1990 MHz
MaxGain™
dB Director®
VARI-TILT®

85°

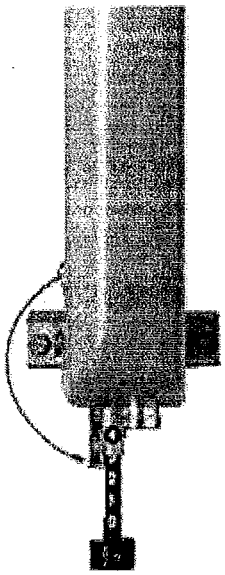
- Field adjustable electrical downtilt, featuring linear phase shifter, no wheels or gears
- Exceptional elevation and azimuth pattern shaping
- Strong Front to Back and Front to Side ratio reduces soft hand-offs



Horizontal 1970 MHz (Tilt=0)



Vertical 1970 MHz (Tilt=0)



ELECTRICAL		MECHANICAL	
Frequency (MHz):	1850-1990	**Weight:**	12 lbs (5.4 kg)
Polarization:	Vertical	**Dimensions (LxWxD):**	60 X 3.5 X 7.5 in (1524 X 89 X 190 mm)
Gain (dBd/dBi):	15/17.1	**Max. Wind Area:**	1.61 ft² (0.15 m²)
Azimuth BW:	85°	**Max. Wind Load (@ 100mph):**	90 lbf (400 N)
Elevation BW:	7°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	0-7°	**Radiator Material:**	Low Loss Circuit Board
USLS* (dB):	>15	**Reflector Material:**	Aluminum
Front-to-Back Ratio* (dB):	40	**Radome Material:**	ABS, UV Resistant
VSWR:	<1.4:1	**Mounting Hardware Material:**	Galvanized Steel
IM Suppression - Two 20 Watt Carriers:	-145 dBc	**Connector Type:**	7-16 DIN - Female (Bottom)
Impedance:	50 Ohms	**Color:**	Light Gray
Max Input Power:	250 Watts	**Standard Mounting Hardware:**	DB390 Pipe Mount Kit, included
Lightning Protection:	DC Ground	**Downtilt Mounting Hardware:**	DB5098, optional
Opt Electrical Tilt:	0°	**Opt. Mounting Hardware:**	DB5094-AZ Azimuth Wall Mount

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Date: 4/29/2004
* - Indicates Typical Values

General Power Density

Site Name: Glastonbury , CT
Tower Height: 155 ft rad center

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	869	9	200	1800	155	0.0269	0.5793	4.65%
Verizon	1900	3	200	600	155	0.0090	1	0.90%
Total Percentage of Maximum Permissible Exposure								5.55%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

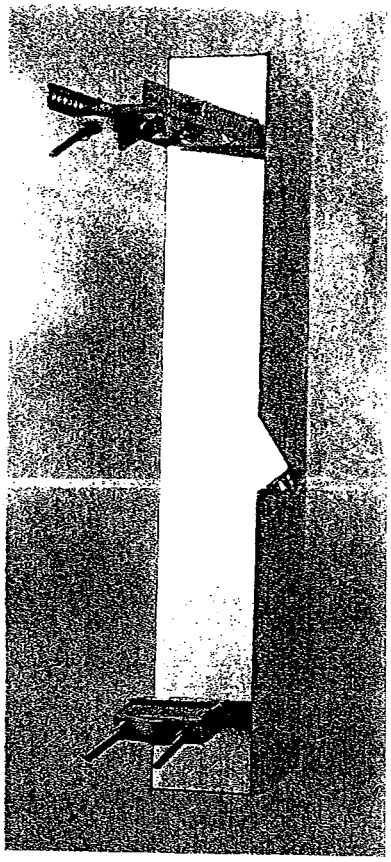
Absolute worst case scenario, maximum values used.

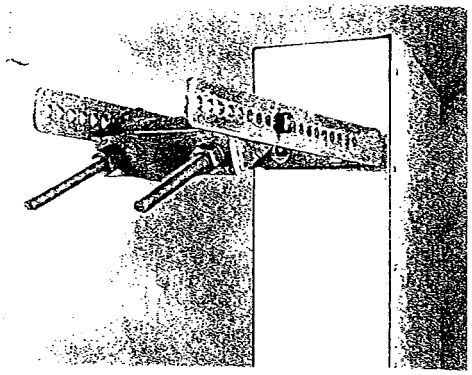
ALP-E 9011-Din

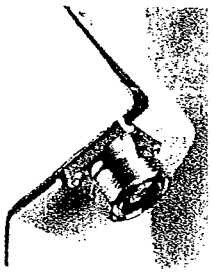
Enhanced Log Periodic Antenna

Features:

- ❑ Small Size
- ❑ Aesthetically Pleasing
- ❑ Suitable For TDMA/CDMA
- ❑ High Return Loss
- ❑ Low Intermodulation
- ❑ High FTB
- ❑ Broadbanded
- ❑ Side-lobe Suppression
- ❑ Sturdy Design
- ❑ Down-Tilt Brackets Incl.







The distance between the center of the bolts (on the back of the antenna) are shown in the drawing above.

Bolt diameter is: **3/8-16** [comes with lock nut].

Frequency Range:	**800-900 MHz**
Impedance:	**50 ohm**
Connector Type:	**7/16 Din**
Return Loss:	**20 dB**
Polarization:	**Vertical**
Gain:	**> 11 dBd**
Front To Back Ratio:	**> 30 dB**
Side-Lobe Suppression:	**18 dB**
Intermodulation (2x25W):	**IM3 > 146 dB**
	IM5 > 153 dB
	IM7/9 > 163 dB
Power Rating:	**500 W**
H-Plane (-3 dB point):	**85 - 92°**
V-Plane (-3 dB point):	**16 - 18°**
Lightning Protection:	**DC Grounded**

Overall Height:	**43 in**	**[1092 mm]**
Width:	**6.5 in**	**[165 mm]**
Depth:	**8 in**	**[203 mm]**
Weight Including Tilt-Brackets:	**20 lbs**	**[9.1 Kg]**
Rated Wind Velocity:	**113 mph**	**[180 Km/h]**
Wind Area (CxA/Side):	**2.3 sq. ft.**	**[0.22 sq.m]**
Lateral Thrust At Rated Wind Worst Case:	**112 lbs**	**[500 N]**

Radiating Elements:	**Aluminum**
Extrusion:	**Aluminum**
Radome:	**Grey PVC**
Tilt-Bracket:	**Hot Dip Galvanized Steel**
Antenna Bolts:	**Stainless Steel**

The ALP-E 9011-Din is made in U.S.A.

DECIBEL
Base Station Antennas

DB844G65ZAXY

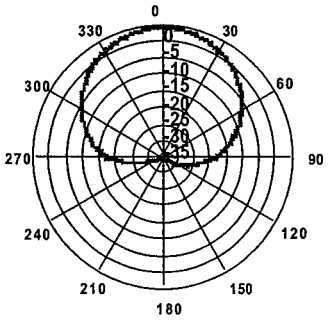
13.5 dBd, Directed Dipole, No Screen Antenna
806-896, 870-960 MHz

806-896 MHz
870-960 MHz

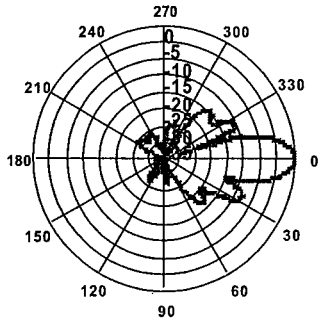
GEN3VPOL™
ZoneMaster™

65°

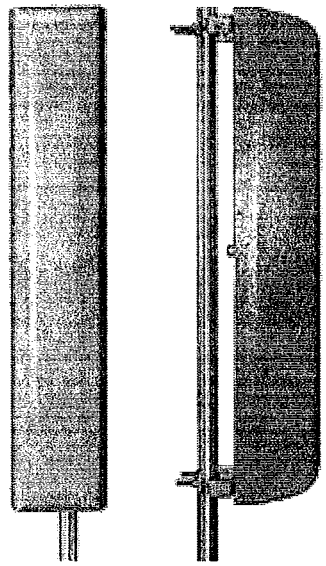
- Excellent azimuth roll-off, reducing sector to sector interference and reducing soft hand-offs
- Air dielectric feed system, no screws, rivets, welds or solder in RF element feed path
- Strong upper side lobe suppression
- Low profile appearance and low wind loading profile for easier zoning approvals



Horizontal 880 MHz (Tilt=0)



Vertical 880 MHz (Tilt=0)



ELECTRICAL			MECHANICAL	
Frequency (MHz):	806-896	870-960	**Weight:**	12 lbs (5.4 kg)
Polarization:	Vertical	Vertical	**Dimensions (LxWxD):**	48 X 10 X 8.5 in (1219 X 254 X 216 mm)
Gain (dBd/dBi):	13.5/15.6	13.8/15.9	**Max. Wind Area:**	0.97 ft² (0.09 m²)
Azimuth BW:	65°	65°	**Max. Wind Load (@ 100mph):**	53 lbf (236 N)
Elevation BW:	15°	15°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	0°	0°	**Radiator Material:**	Aluminum
USLS* (dB):	>15	>15	**Reflector Material:**	Aluminum
Null Fill* (dB):	20-25	20-25	**Radome Material:**	ABS, UV Resistant
Front-to-Back Ratio* (dB):	40	40	**Mounting Hardware Material:**	Galvanized Steel
VSWR:	<1.33:1	<1.33:1	**Connector Type:**	7-16 DIN-Female (Back)
Impedance:	50 Ohms	50 Ohms	**Color:**	Light Gray
Max Input Power:	500 Watts	500 Watts	**Standard Mounting Hardware:**	DB380 Pipe Mount Kit, included
Lightning Protection:	DC Ground	DC Ground	**Downtilt Mounting Hardware:**	DB5083, optional
Opt Electrical Tilt:	6°	6°	**Opt. Mounting Hardware:**	DB5084-AZ Azimuth Wall Mount

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Warranty: Five years
Date: 4/23/2004
* - Indicates Typical Values

DECIBEL
Base Station Antennas

948F65T2ZE-M

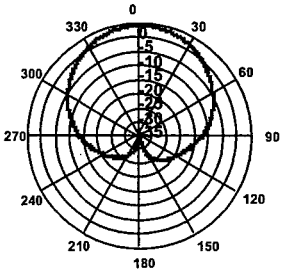
17.2 dBi, Directed Dipole, No Screen Antenna
1850 -1990 MHz

1850-1990 MHz

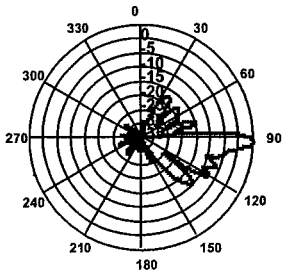
dB Director®
MaxFill™
ZoneMaster™

65°

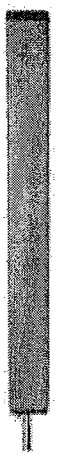
- Exceptional azimuth roll-off reducing soft hand-offs and improving capacity
- Excellent upper side lobe suppression
- Deep null filling below the horizon assures improved signal intensity
- Low profile appearance and low wind loading profile for easier zoning approvals

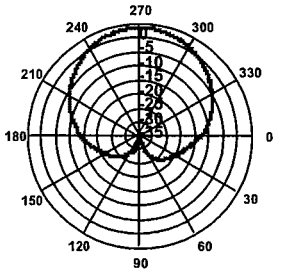


Azimuth 1950 MHz (Tilt=2)



Vertical 1950 MHz (Tilt=2)





Horizontal 1950 MHz (Tilt=2)

ELECTRICAL		MECHANICAL	
Frequency (MHz):	1850-1990	**Weight:**	9.5 lbs (4.3 kg)
Polarization:	Vertical	**Dimensions (LxWxD):**	48 X 6.5 X 4 in (1219 X 165 X 102 mm)
Gain (dBd/dBi):	15.1/17.2	**Max. Wind Area:**	1.18 ft² (0.11 m²)
Azimuth BW:	65°	**Max. Wind Load (@ 100mph):**	67 lbf (298 N)
Elevation BW:	8°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	2°	**Radiator Material:**	Low Loss Circuit Board
USLS* (dB):	>16	**Reflector Material:**	Aluminum
Null Fill* (dB):	15	**Radome Material:**	ABS, UV Resistant
Front-to-Back Ratio* (dB):	40	**Mounting Hardware Material:**	Galvanized Steel
VSWR:	<1.33:1	**Connector Type:**	7-16 DIN - Female (Bottom)
IM Suppression - Two 20 Watt Carriers:	-150 dBc	**Color:**	Light Gray
Impedance:	50 Ohms	**Standard Mounting Hardware:**	DB390 Pipe Mount Kit, included
Max Input Power:	250 Watts	**Downtilt Mounting Hardware:**	DB5098, optional
Lightning Protection:	DC Ground	**Opt. Mounting Hardware:**	DB5094-AZ Azimuth Wall Mount
Opt Electrical Tilt:	4°,6°		

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Warranty: Five Years
Date: 4/8/2004
* - Indicates Typical Values

General Power Density

Site Name: E. Glastonbury , CT
Tower Height: 149 ft rad center

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	869	9	200	1800	149	0.0292	0.5793	5.03%
Verizon	1900	3	200	600	149	0.0097	1	0.97%
Total Percentage of Maximum Permissible Exposure								6.01%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

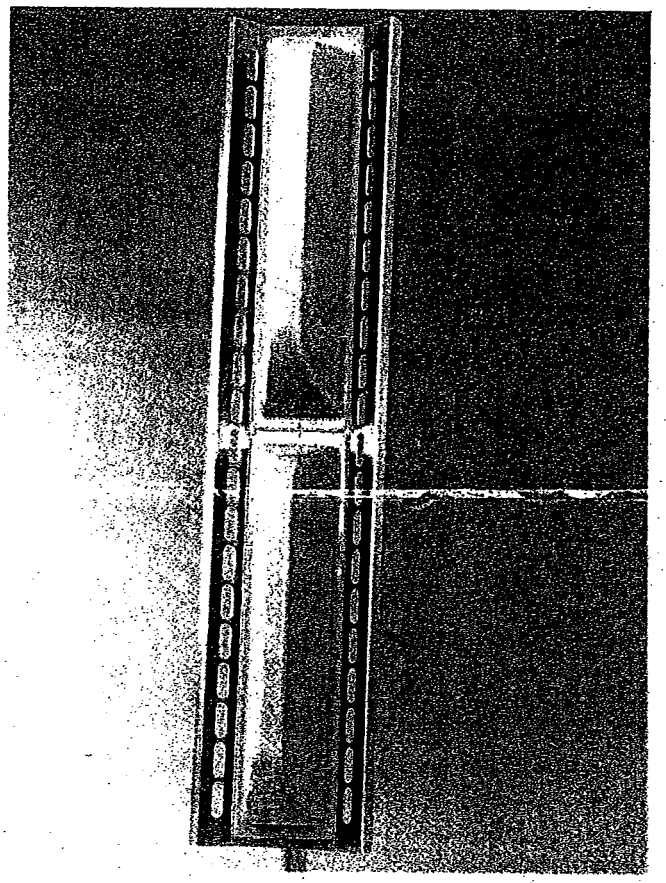
verizonwireless

Swedcom Corporation

ALP 9212-N

Log-Periodic Reflector Antenna

92 Degrees 12 dBd



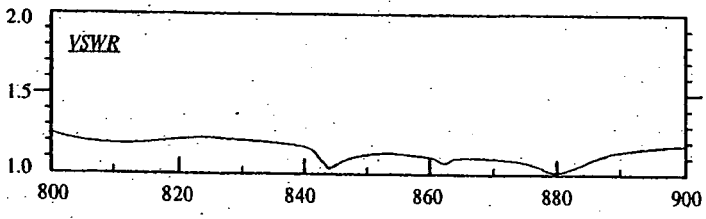
Features:

- ❑ **Broadbanded. (800-900 MHz)**
- ❑ **Low backlobe radiation. Front-to-back ratio better than 28 dB**
- ❑ **Low Intermodulation Products.**
- ❑ **Low Wind-load.**
- ❑ **Low weight.**
- ❑ **Small size.**
- ❑ **Rugged design.**

Please see the following pages including radiation patterns/tables for *ALP 9212-N.*

Electrical Specifications:

Frequency range:	806-896 MHz
Impedance:	50 ohm
Connector:	N-female or 7/8" EIA
VSWR:	Typ. 1.3:1 max 1.5:1
Polarization:	Vertical
Gain:	12 dBd
Front to back ratio:	>28 dB
Side-lobe supression:	>18 dB
Intermodulation: (2x25W):	IM3 >146 dB IM5 >153 dB IM7 & IM9 >163 dB
Power Rating:	500 W
H-Plane: -3 dB	95 °
E-Plane: -3 dB	15 °
Lightning Protection:	DC Grounded



Mechanical Specifications:

Overall Height:	52 in	(1320 mm)
Width:	11.4 in	(290 mm)
Depth:	11.4 in	(290 mm)
Weight including brackets:	26.7 lbs	(12 Kg)
Rated wind velocity:	113 mph	(180 Km/h)
Wind Area (CxA/Front):	3.9 sq.ft	(0.36 sq.m)
Lateral thrust at rated wind		
Worst case:	570 N	

Materials:

Radiating elements:	Aluminum
Element housing:	Grey PVC
Back-plate:	Aluminum
Mounting hardware	
clamps:	Hot dip galvanized steel
bolts:	Stainless steel

*Manufactured by: **Allgon System AB***

DECIBEL
Base Station Antennas

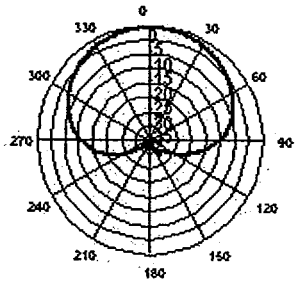
948F85T2E-M

16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

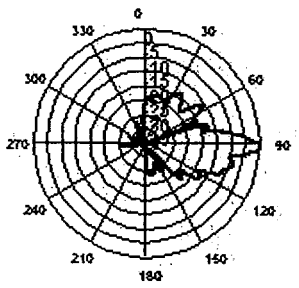
1850-1990 MHz
MaxFill™
dB Director®

85°

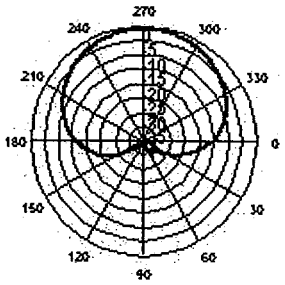
- Exceptional azimuth roll-off reducing soft hand-offs and improving capacity
- Excellent upper side lobe suppression
- Deep null filling below the horizon assures improved signal intensity
- Low profile appearance and low wind loading profile for easier zoning approvals



Azimuth 1850 MHz (Tilt=2)



Vertical 1850 MHz (Tilt=2)



Horizontal 1850 MHz (Tilt=2)

ELECTRICAL		MECHANICAL	
Frequency (MHz):	1850-1990	**Weight:**	8.5 lbs (3.9 kg)
Polarization:	Vertical	**Dimensions (LxWxD):**	48 X 3.5 X 7 in (1219 X 89 X 178 mm)
Gain (dBd/dBi):	14/16.1	**Max. Wind Area:**	1.18 ft² (0.11 m²)
Azimuth BW:	85°	**Max. Wind Load (@ 100mph):**	65 lbf (289 N)
Elevation BW:	8°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	2°	**Radiator Material:**	Low Loss Circuit Board
USLS* (dB):	>18	**Reflector Material:**	Aluminum
Null Fill* (dB):	15	**Radome Material:**	ABS, UV Resistant
Front-to-Back Ratio* (dB):	40	**Mounting Hardware Material:**	Galvanized Steel
VSWR:	<1.33:1	**Connector Type:**	7-16 DIN - Female (Bottom)
IM Suppression - Two 20 Watt Carriers:	-150 dBc	**Color:**	Light Gray
Impedance:	50 Ohms	**Standard Mounting Hardware:**	DB390 Pipe Mount Kit, included
Max Input Power:	250 Watts	**Downtilt Mounting Hardware:**	DB5098, optional
Lightning Protection:	DC Ground	**Opt. Mounting Hardware:**	DB5094-AZ Azimuth Wall Mount
Opt Electrical Tilt:	0°,4°,6°		

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Date: 4/29/2004
* - Indicates Typical Values

General Power Density

Site Name: Marlborough , CT
Tower Height: 158 ft rad center

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	869	9	200	1800	158	0.0259	0.5793	4.48%
Verizon	1900	3	200	600	158	0.0086	1	0.86%
Total Percentage of Maximum Permissible Exposure								5.34%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992
t

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

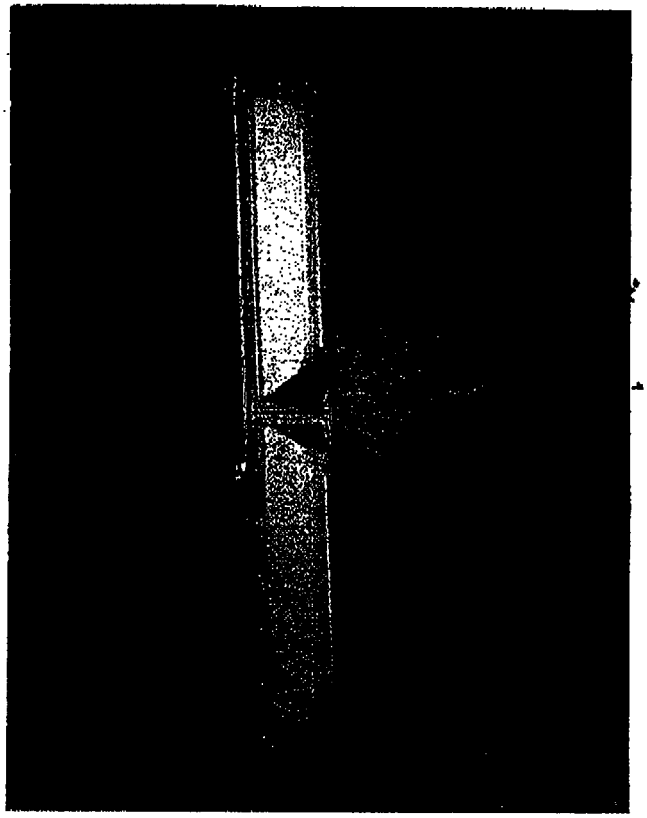
Absolute worst case scenario, maximum values used.

Swedcom Corporation

ALP 110 11-N

Log-Periodic Reflector Antenna

110 Degrees 11 dBd



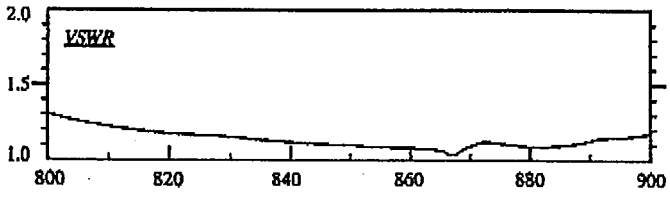
Features:

- ❑ **Broadbanded. (800-900 MHz)**
- ❑ **Low backlobe radiation. Front-to-back ratio better than 26 dB**
- ❑ **Low Intermodulation Products.**
- ❑ **Low Wind-load.**
- ❑ **Low weight.**
- ❑ **Small size.**
- ❑ **Rugged design.**

Please see the following pages including radiation patterns/tables for *ALP 110 11-N.*

Electrical Specifications:

Frequency range:	806-896 MHz
Impedance:	50 ohm
Connector:	N-female or 7/8" EIA
VSWR:	Typ. 1.3:1 max 1.5:1
Polarization:	Vertical
Gain:	11 dBd
Front to back ratio:	>26 dB
Side-lobe supression:	>17 dB
Intermodulation: (2x25W):	IM3 >146 dB
	IM5 >153 dB
	IM7 & IM9 >163 dB
Power Rating:	500 W
H-Plane: -3 dB	110 °
E-Plane: -3 dB	15 °
Lightning Protection:	DC Grounded



Mechanical Specifications:

Overall Height:	52 in	(1320 mm)
Width:	8.3 in	(210 mm)
Depth:	11.4 in	(290 mm)
Weight including brackets:	24.5 lbs	(11 Kg)
Rated wind velocity:	113 mph	(180 Km/h)
Wind Area (CxA/Front):	3.7 sq.ft	(0.34 sq.m)
Lateral thrust at rated wind		
Worst case:	530 N	

Materials:

Radiating elements:	Aluminum
Element housing:	Grey PVC
Back-plate:	Aluminum
Mounting hardware	
clamps:	Hot dip galvanized steel
bolts:	Stainless steel

Manufactured by: Allgon System AB

DECIBEL
Base Station Antennas

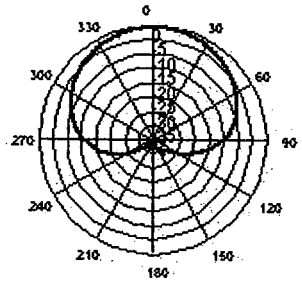
948F85T2E-M

16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

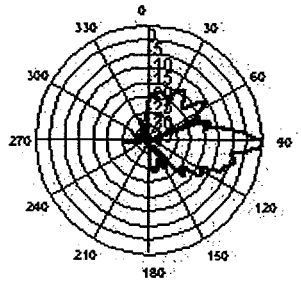
1850-1990 MHz
MaxFill™
dB Director®

850

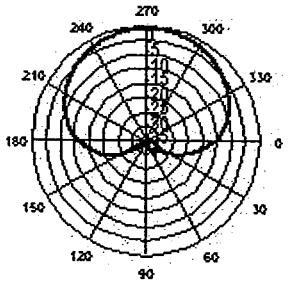
- Exceptional azimuth roll-off reducing soft hand-offs and improving capacity
- Excellent upper side lobe suppression
- Deep null filling below the horizon assures improved signal intensity
- Low profile appearance and low wind loading profile for easier zoning approvals



Azimuth 1850 MHz (Tilt=2)



Vertical 1850 MHz (Tilt=2)



Horizontal 1850 MHz (Tilt=2)

ELECTRICAL	
Frequency (MHz):	1850-1990
Polarization:	Vertical
Gain (dBd/dBi):	14/16.1
Azimuth BW:	85°
Elevation BW:	8°
Beam Tilt:	2°
USLS* (dB):	>18
Null Fill* (dB):	15
Front-to-Back Ratio* (dB):	40
VSWR:	<1.33:1
IM Suppression - Two 20 Watt Carriers:	-150 dBc
Impedance:	50 Ohms
Max Input Power:	250 Watts
Lightning Protection:	DC Ground
Opt Electrical Tilt:	0°,4°,6°

MECHANICAL	
Weight:	8.5 lbs (3.9 kg)
Dimensions (LxWxD):	48 X 3.5 X 7 in (1219 X 89 X 178 mm)
Max. Wind Area:	1.18 ft² (0.11 m²)
Max. Wind Load (@ 100mph):	65 lbf (289 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Low Loss Circuit Board
Reflector Material:	Aluminum
Radome Material:	ABS, UV Resistant
Mounting Hardware Material:	Galvanized Steel
Connector Type:	7-16 DIN - Female (Bottom)
Color:	Light Gray
Standard Mounting Hardware:	DB390 Pipe Mount Kit, included
Downtilt Mounting Hardware:	DB5098, optional
Opt. Mounting Hardware:	DB5094-AZ Azimuth Wall Mount

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Date: 4/29/2004
* - Indicates Typical Values

General Power Density

Site Name: Willington , CT
Tower Height: 138 ft rad center

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	869	9	200	1800	138	0.0340	0.5793	5.87%
Verizon	1900	3	200	600	138	0.0113	1	1.13%
Total Percentage of Maximum Permissible Exposure								7.00%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992
t

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

verizonwireless

DECIBEL PRODUCTS
An Allen Telecom Company

844H90EXYBAM

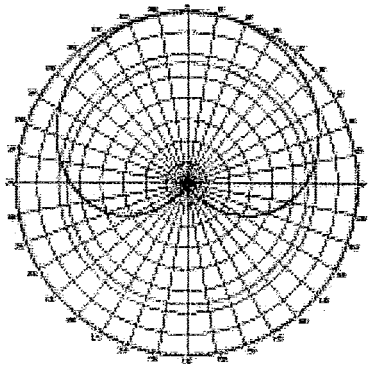
12 dBd
Log Periodic Antenna

824-896 MHz

dB Director®

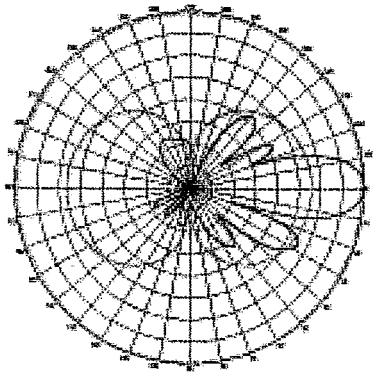
90°

- **Superior Azimuth pattern roll off, reducing sector to sector interference, improving call capacity.**
- **Extremely rugged, reliable design yet lightweight with low wind load.**

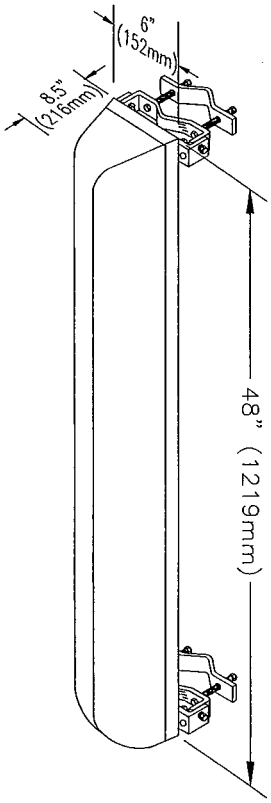


Azimuth (Horizontal)

Elevation (Vertical)



Scale: 10° radials, 5 dB per division



Electrical

Frequency:	824-896 MHz
Polarization:	Vertical
Gain:	12 dBd (14.1 dBi)
Azimuth BW:	90°
Elevation BW:	15.5°
USLS:	> 18 dB
Front-to-Back Ratio:	40 dB
VSWR:	1.22:1
PIM:	-150 dBc (2 tone, 20 watt)
Impedance:	50 Ohms
Max. Input Power:	500 Watts
Lightning Protection:	All metal parts are grounded

Mechanical

Weight:	10 lbs (4.5 kg)
Dimensions:	48" x 6" x 8.5" (1219 x 152 x 216 mm)
Max. Wind Area:	2.8 ft² (0.26 m²)
Max. Wind Load:	80 lbf (356N) 35.9 kp (at 100 mph)
Max. Wind Speed:	125 mph (201 km/h)
Radiators:	Brass
Reflector:	Pass. Aluminum
Radome:	ABS, UV Resistant
Mounting Hardware:	Galvanized Steel
Connector:	7/16 DIN (Back)
Color:	Gray

Mounting Options

Standard:	DB380 pipe mount kit included.
Downtilt:	DB5083 downtilt brackets, optional.

8635 Stemmons Freeway • Dallas, Texas U.S.A. 75247-3701
Dallas/Ft.Worth Area Tel: 214.631.0310 • Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342 • Fax: 1.800.229.4706
www.decibelproducts.com
dbtech@decibelproducts.com

099089-052 05/02-B

ISO9001 Compliant

DECIBEL
Base Station Antennas

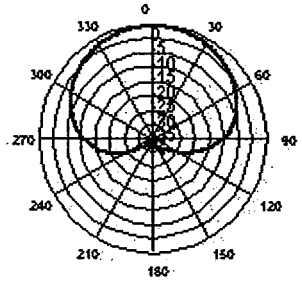
948F85T2E-M

16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

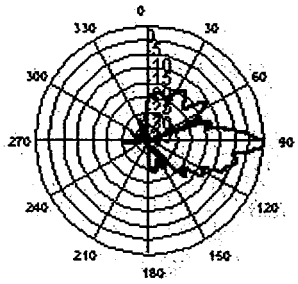
1850-1990 MHz
MaxFill™
dB Director®

85°

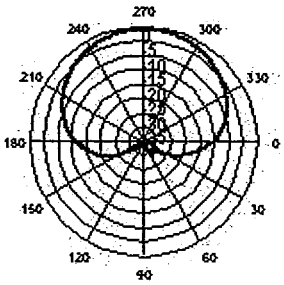
- Exceptional azimuth roll-off reducing soft hand-offs and improving capacity
- Excellent upper side lobe suppression
- Deep null filling below the horizon assures improved signal intensity
- Low profile appearance and low wind loading profile for easier zoning approvals



Azimuth 1850 MHz (Tilt=2)



Vertical 1850 MHz (Tilt=2)



Horizontal 1850 MHz (Tilt=2)

ELECTRICAL	
Frequency (MHz):	1850-1990
Polarization:	Vertical
Gain (dBd/dBi):	14/16.1
Azimuth BW:	85°
Elevation BW:	8°
Beam Tilt:	2°
USLS* (dB):	>18
Null Fill* (dB):	15
Front-to-Back Ratio* (dB):	40
VSWR:	<1.33:1
IM Suppression - Two 20 Watt Carriers:	-150 dBc
Impedance:	50 Ohms
Max Input Power:	250 Watts
Lightning Protection:	DC Ground
Opt Electrical Tilt:	0°,4°,6°

MECHANICAL	
Weight:	8.5 lbs (3.9 kg)
Dimensions (LxWxD):	48 X 3.5 X 7 in (1219 X 89 X 178 mm)
Max. Wind Area:	1.18 ft² (0.11 m²)
Max. Wind Load (@ 100mph):	65 lbf (289 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Low Loss Circuit Board
Reflector Material:	Aluminum
Radome Material:	ABS, UV Resistant
Mounting Hardware Material:	Galvanized Steel
Connector Type:	7-16 DIN - Female (Bottom)
Color:	Light Gray
Standard Mounting Hardware:	DB390 Pipe Mount Kit, included
Downtilt Mounting Hardware:	DB5098, optional
Opt. Mounting Hardware:	DB5094-AZ Azimuth Wall Mount

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Date: 4/29/2004
* - Indicates Typical Values

General Power Density

Site Name: Portland, CT
Tower Height: 163 FT

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	880	9	200	1800	163	0.0244	0.586	4.16%
Verizon	1900	3	200	600	163	0.0081	1	0.81%
Total Percentage of Maximum Permissible Exposure								**4.97%**

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power