

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

Web Site: www.ct.gov/csc

March 5, 2004

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

RE: **EM-VER-034-051-085-097-103-117-040219** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify existing telecommunications facilities located at 281 Woodhouse Road, Fairfield; 48 Newtown Road, Danbury; Route 34/Washington Avenue, Newtown; 50 Rockland Road, Norwalk; 230 Guinea Road, Monroe; 100 Old Redding Road, Redding, Connecticut.

Dear Attorney Baldwin:

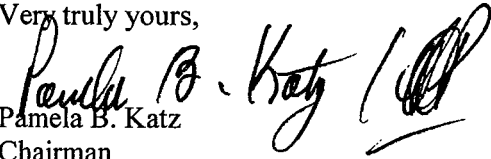
At a public meeting held on March 4, 2004, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated February 19, 2004. 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 an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility 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
Chairman

PBK/cm

c: See attached list

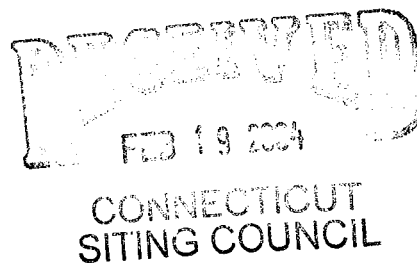
Honorable Kenneth A. Flatto, First Selectman, Town of Fairfield
Joseph E. Devonshuk, Town Planner, Town of Fairfield
Honorable Natalie T. Ketcham, First Selectman, Town of Redding
Tom Gormley, Zoning Enforcement Officer, Town of Redding
Honorable Andrew J. Nunn, First Selectman, Town of Monroe
Daniel A. Tuba, Planning Administrator, Town of Monroe
Honorable Alex A. Knopp, Mayor, City of Norwalk
Michael Greene, Director of Planning & Zoning, City of Norwalk
Honorable Herbert C. Rosenthal, First Selectman, Town of Newtown
Gary Frenette, Zoning Enforcement Officer, Town of Newtown
Honorable Mark D. Boughton, Mayor, City of Danbury
Dennis Elpern, City Planner, City of Danbury

860-275-5597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

February 19, 2004

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**

Fairfield – 281 Woodhouse road, Fairfield, CT
Germantown – 48 Newtown Road, Danbury, CT
Newtown – Route 34/Washington Avenue, Newtown, CT
Norwalk – 50 Rockland Road, Norwalk, CT
Monroe – 230 Guinea Road, Monroe, CT
Topstone – 100 Old Redding Road, Redding, CT

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) has established telecommunications facilities at each of the above-referenced tower sites. In each case, Cellco has received approval to install twelve (12) panel-type cellular antennas on the existing tower. Cellco now intends to modify each of these facilities by simply replacing six (6) of the cellular antennas with six (6) PCS antennas.

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 the chief elected officials in each municipality.



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HART1-1159917-1

S. Derek Phelps
February 19, 2004
Page 2

As the Council knows, on May 23, 2003, Cellco acquired, from Northcoast Communications, a license to provide PCS service throughout Connecticut. The proposed modifications to each of the above referenced tower sites will allow Cellco to provide its customers in Connecticut, with enhanced wireless voice and data services. While these modifications are not significant, Cellco feels compelled to present these modifications to the Council for review.

The planned modifications to the above-referenced 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 any of the existing tower structures. Cellco's replacement antennas will be mounted at the same level as its existing antennas.
2. The proposed modifications will not affect any ground-mounted equipment and 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 facilities that exceed the Federal Communications Commission (FCC) adopted safety standard. Attached to this notice are RF Power Density calculations for both the Cellco cellular and PCS antennas at each of the sites identified.

Also attached, behind each power density calculation table, are the specifications for the existing cellular and proposed PCS antennas to be used at each of these sites. Please note that in each case the existing cellular antennas are in fact heavier and have a larger wind area than the proposed PCS antennas. An updated structural analysis is therefore not required for the proposed modifications.



S. Derek Phelps
February 19, 2004
Page 3

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

cc: Kenneth A. Flatto, First Selectman, Town of Fairfield
Herbert C. Rosenthal, First Selectman, Town of Newtown
Mark D. Boughton, Mayor, City of Danbury
Alex Knopp, Mayor, City of Norwalk
Andrew J. Nunn, First Selectman, Town of Monroe
Natalie J. Ketchum, First Selectman, Town of Redding
Sandy M. Carter, Verizon Wireless



General Power Density

Site Name: Fairfield, CT
 Tower Height: 162 Ft. rad center

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure [*] (mW/cm ²)	Fraction of MPE (%)
Verizon	880	9	200	1800	162	0.0247	0.56733	4.35%
Verizon	1900	3	285	855	162	0.0117	1	1.17%
Total Percentage of Maximum Permissible Exposure								5.52%

*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/cm² = milliwatts per square centimeter
 ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

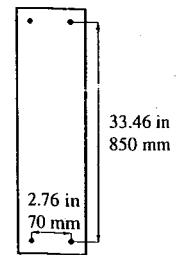
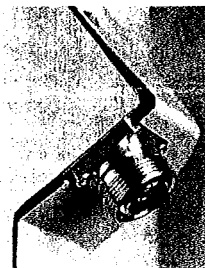
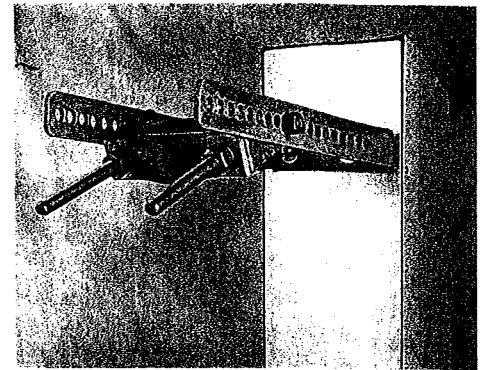
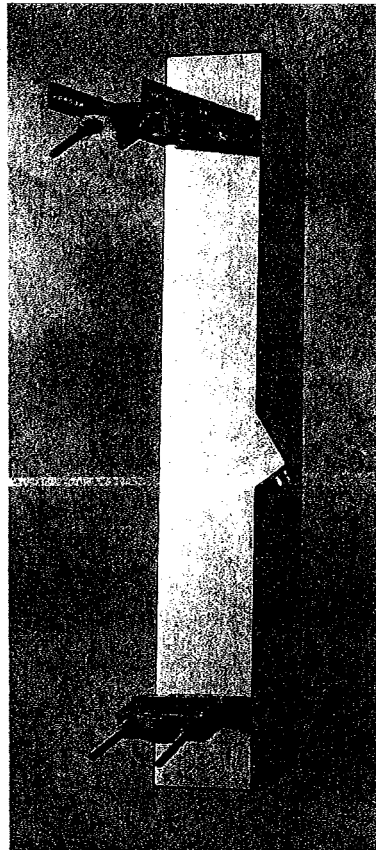


ALP-E 9011-Din

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

948F85T2E-M

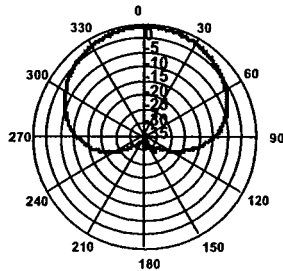
16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

1850-1990 MHz

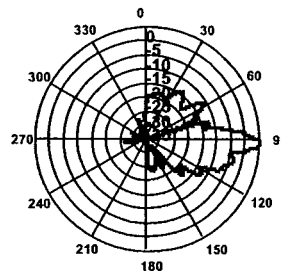
dB Director®
MaxFill™

- 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

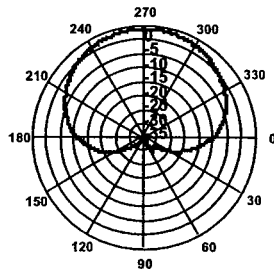
85°



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
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:	2.3 ft² (0.21 m²)
Max. Wind Load (@ 100mph):	92 lbf (409 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Low Loss Circuit Board
Reflector Material:	Passivated 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

Date: 1/23/2004
* - Indicates Typical Values

dbtech@andrew.com

General Power Density

Site Name: Germantown, CT
 Tower Height: 90 Ft. rad center

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure (mW/cm ²)	Fraction of MPE (%)
Verizon	880	9	200	1800	90	0.0799	0.56733	14.09%
Verizon	1900	3	285	855	90	0.0380	1	3.80%
Total Percentage of Maximum Permissible Exposure								17.88%

*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

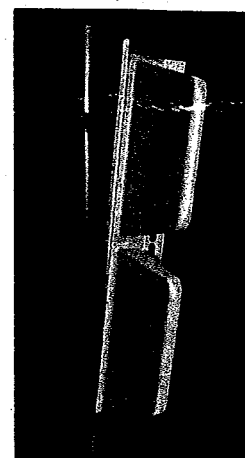
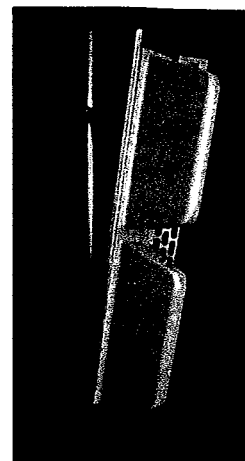
MHz = Megahertz
 mW/cm² = milliwatts per square centimeter
 ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.



Electrical Specifications

	7129.16 (A-800-85-15i)	7130.14 (A-800-95-11i)
Gain	13 dBd (15 dBi)	9 dBd (11 dBi)
Polarization	linear, vertical	linear, vertical
VSWR, 50Ω	<1.5:1 (806 MHz to 824 MHz)	<1.5:1 (806 MHz to 824 MHz)
VSWR, 50Ω	<1.4:1 (824 MHz to 896 MHz)	<1.4:1 (824 MHz to 896 MHz)
Horizontal 3dB beamwidth	85°	95°
Vertical 3dB beamwidth	15°	30°
Custom electrical downtilts	0°	0°
40 degree cone Front-to-back ratio	>30 dB	>28 dB
Suppression of first upper side lobe	>17 dB	>15 dB
Maximum CW input power	500W	500W
Two tone intermodulation 3rd order	<-103 dBm for 2x20W (146 dBc at 2x43 dBm)	<-103 dBm for 2x20W (146 dBc at 2x43 dBm)



Mechanical Specifications

	7/16 DIN or Type N side mounted	
Connector	7/16 DIN or Type N side mounted	
Height	52" (1320 mm)	26.8" (680 mm)
Width	13" (330 mm)	11.4" (290 mm)
Depth	11.4" (290 mm)	11.4" (290 mm)
Weight	17.6 lbs (8 kg)	9.9 lbs (4.5 kg)
Survival wind speed	156 mph (70 m/s)	156 mph (70 m/s)
Maximum wind area	4.5 sq.ft (0.42 sq.m)	1.7 sq.ft (0.16 sq.m)
Maximum wind load @100mph	118 lbf (526 N)	44.6 lbf (199 N)

*All metallic components DC grounded for Lightning Protection

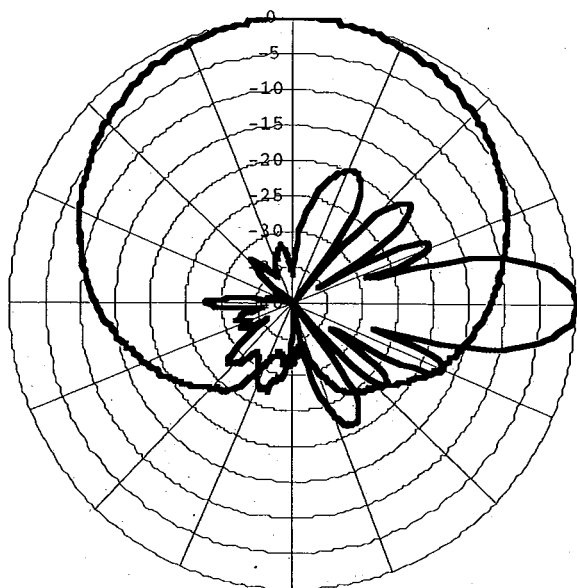
Mounting Hardware Options for Installation

- | | | |
|---|-----------------------|-----------------------|
| 1) Pole mount | 2165.10 | 2165.10 |
| 2) Combined pole mount/downtilt bracket | 7254.10 (-1° to +24°) | 7254.10 (-2° to +49°) |

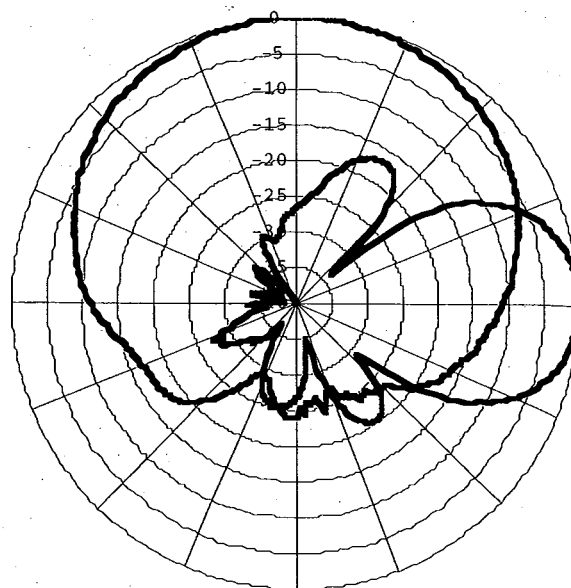
Comments

Gain is typical within frequency band.
 Front-to-back ratio is defined within 20° from the backwards direction in any plane.
 Sidelobe suppression and null fill is relative to peak of main beam.
 Radome color is NCS 2502-B (RAL 7035)(gray).

For a complete list of released models pertaining to gain, electrical downtilt and connector placement, please see the quick reference guide on page 22.



Typical Horizontal and Vertical 7129.16 Patterns



Typical Horizontal and Vertical 7130.14 Patterns

A poster displaying a comparison of antenna patterns has been included at the back of the catalog.



QUICK REFERENCE GUIDE

Antenna

40 Degree 800 MHz ALP

Gain	Part Number	Description	Page
7 dBd	7131.30.33.00	A-800-40-14i-15-D	23
	7131.30.05.00	A-800-40-14i-15-N	23
11 dBd	7131.20.33.00	A-800-40-16i-0-D	23
	7131.20.05.00	A-800-40-16i-0-N	23
16 dBd	7131.16.33.00	A-800-40-18i-0-D	23
	7131.16.05.00	A-800-40-18i-0-N	23

95 Degree 800 MHz ALP

Gain	Part Number	Description	Page
9 dBd	7130.14.33.00	A-800-95-11i-0-D	27
	7130.14.05.00	A-800-95-11i-0-N	27
12 dBd	7130.16.33.00	A-800-95-14i-0-D	28
	7130.16.05.00	A-800-95-14i-0-N	28
16 dBd	7130.16.33.06	A-800-95-14i-6-D	28
	7130.18.33.00	A-800-95-16i-0-D	28
	7130.18.05.00	A-800-95-16i-0-N	28

60 Degree 800 MHz ALP

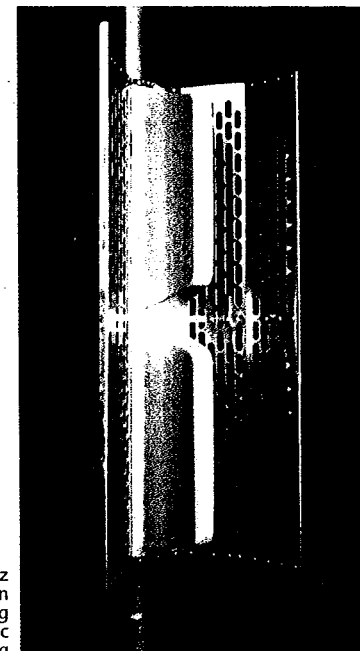
Gain	Part Number	Description	Page
9 dBd	7125.14.33.00	A-800-60-13i-0-D	24
	7125.14.05.00	A-800-60-13i-0-N	24
14 dBd	7125.16.33.00	A-800-60-16i-0-D	24
	7125.16.05.00	A-800-60-16i-0-N	24
15 dBd	7125.16.33.06	A-800-60-16i-6-D	24
	7125.18.33.00	A-800-60-18i-0-D	25
	7125.18.05.00	A-800-60-18i-0-N	25

110 Degree 800 MHz ALP

Gain	Part Number	Description	Page
9 dBd	7120.20.05.00	A-800-110-11i-0-N	29
16 dBd	7120.16.33.00	A-800-110-13i-0-D	29
	7120.16.05.00	A-800-110-13i-0-N	29

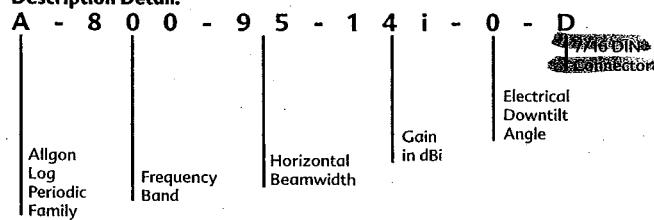
85 Degree 800 MHz ALP

Gain	Part Number	Description	Page
7 dBd	7129.12.33.00	A-800-85-9i-0-D	25
9 dBd	7129.14.33.00	A-800-85-11i-0-D	26
	7129.14.05.00	A-800-85-11i-0-N	26
10 dBd	7129.32.33.00	A-800-85-12i-10-D	26
	7129.32.05.00	A-800-85-12i-10-N	26
11 dBd	7129.20.33.00	A-800-85-13i-0-D	26
	7129.20.05.00	A-800-85-13i-0-N	26
15 dBd	7129.16.33.00	A-800-85-15i-0-D	27
	7129.16.05.00	A-800-85-15i-0-N	27



800 MHz
Allgon
Log
Periodic
Antenna

Description Detail:



Antennas may be ordered using part number or description.



DECIBEL
Base Station Antennas

948F85T2E-M

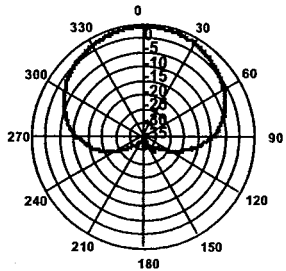
16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

1850-1990 MHz

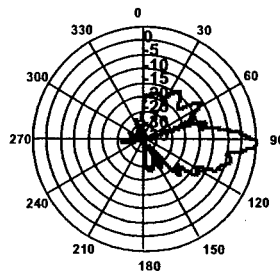
**dB Director®
MaxFill™**

- 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

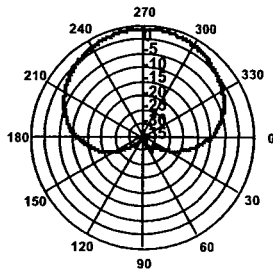
85°



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
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:	2.3 ft² (0.21 m²)
Max. Wind Load (@ 100mph):	92 lbf (409 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Low Loss Circuit Board
Reflector Material:	Passivated 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

Date: 1/23/2004
* - Indicates Typical Values

dbtech@andrew.com

General Power Density

Site Name: Newtown, CT
 Tower Height: 185 Ft. rad center

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure ² (mW/cm ²)	Fraction of MPE (%)
Verizon	880	9	200	1800	185	0.0189	0.56733	3.33%
Verizon	1900	3	285	855	185	0.0090	1	0.90%
Total Percentage of Maximum Permissible Exposure								4.23%

*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/cm² = milliwatts per square centimeter
 ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.



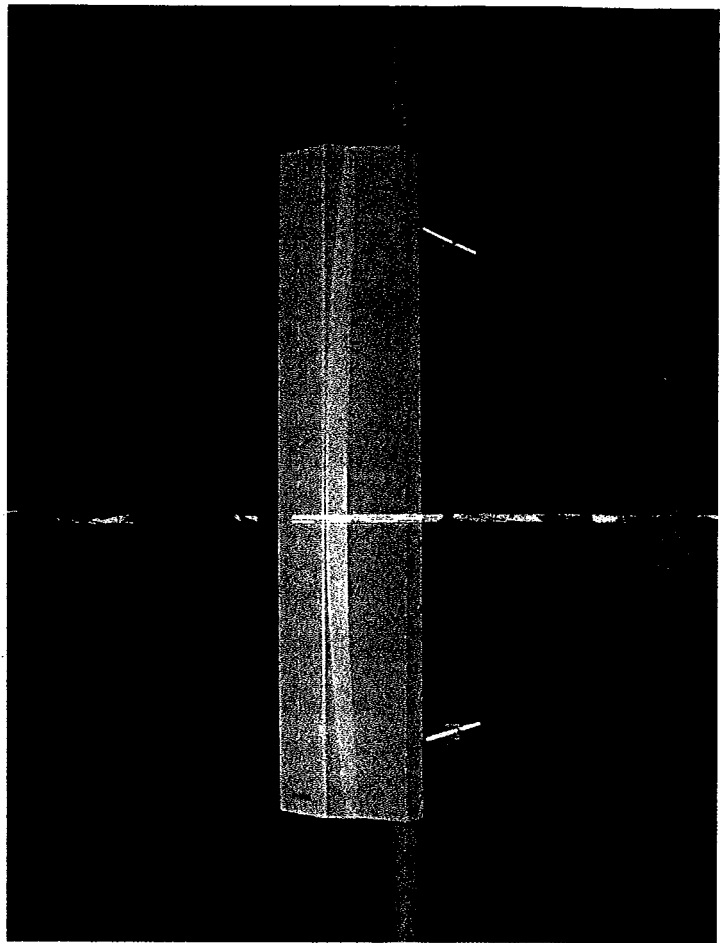
SC 9012-Din

Enhanced Log-Periodic Antenna

Features:

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

• connector on backplane



Electrical Specification

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

Mechanical Specification

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]
Wind load measured up to:	150 mph	[240 Km/h]
Wind Area (Side of antenna):	2.3 sq. ft.	[0.22 sq.m]
Lateral Thrust At 113 mph/ 180Km/h (Worst Case):	112 lbs	[500 N]

Materials

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

The SC 9012-Din is made in U.S.A.

DECIBEL®
Base Station Antennas

948F85T2E-M

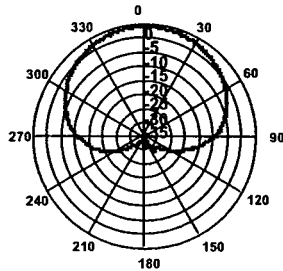
16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

1850-1990 MHz

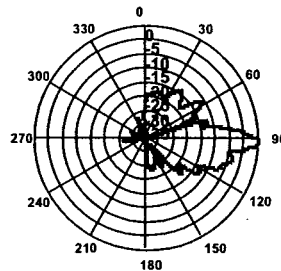
dB Director®
MaxFill™

- 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

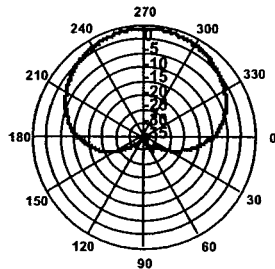
85°



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:	2.3 ft² (0.21 m²)
Azimuth BW:	85°	Max. Wind Load (@ 100mph):	92 lbf (409 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:	Passivated 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	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°, 6°		



Andrew Corporation
8635 Stemmons Freeway
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Tel: 214.631.0310

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

Date: 1/23/2004
* - Indicates Typical Values

dbtech@andrew.com

General Power Density

Site Name: Norwalk, CT
 Tower Height: 129 Ft. rad center

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure* (mW/cm ²)	Fraction of MPE (%)
Verizon	880	9	200	1800	129	0.0389	0.56733	6.86%
Verizon	1900	3	285	855	129	0.0185	1	1.85%
Total Percentage of Maximum Permissible Exposure								8.70%

*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/cm² = milliwatts per square centimeter
 ERP = Effective Radiated Power
 Absolute worst case scenario, maximum values used.



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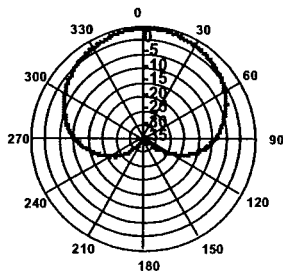
DB844H80E-XY

12.5 dBd, Directed Dipole Antenna
806-896, 870-960 MHz

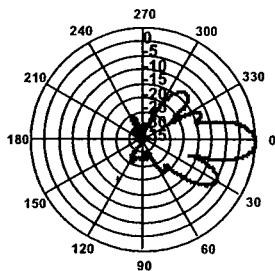
806-896 MHz
870-960 MHz

- Excellent azimuth roll-off, 15-20% reduction in cell to cell overlap
- Superior front to back ratio
- Low profile, low wind load for easy zoning
- Outstanding field record, with thousands of units deployed, world wide

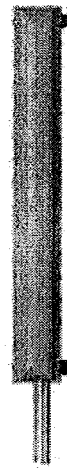
80°



Horizontal 835 MHz (Tilt=0)



Vertical 835 MHz (Tilt=0)



ELECTRICAL

Frequency (MHz):	806-896	870-960
Polarization:	Vertical	Vertical
Gain (dBd/dBi):	12.5/14.6	12.8/14.9
Azimuth BW:	80°	80°
Elevation BW:	15°	15°
Beam Tilt:	0°	0°
USLS* (dB):	>15	>15
Front-to-Back Ratio* (dB):	40	40
VSWR:	<1.5:1	<1.5:1
Impedance:	50 Ohms	50 Ohms
Max Input Power:	500 Watts	500 Watts
Lightning Protection:	DC Ground	DC Ground
Opt Electrical Tilt:	6°	6°

MECHANICAL

Weight:	14 lbs (6.4 kg)
Dimensions (LxWxD):	48 X 6.5 X 8 in (1219 X 165 X 203 mm)
Max. Wind Area:	2.6 ft² (0.24 m²)
Max. Wind Load (@ 100mph):	104 lbf (463 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Brass
Reflector Material:	Passivated Aluminum
Radome Material:	ABS, UV Resistant
Mounting Hardware Material:	Galvanized Steel
Connector Type:	7-16 DIN - Female (Back)
Alt. Connectors:	N Type - Female
Color:	Light Gray
Standard Mounting Hardware:	DB380 Pipe Mount Kit, included
Downtilt Mounting Hardware:	DB5083, optional
Opt. Mounting Hardware:	DB5084-AZ Azimuth Wall Mount



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Date: 1/26/2004
* - Indicates Typical Values

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Vertically Polarized, Log Periodic 80° / 16 dBi

LPA-185080/8CF ___ 2°

When ordering, replace "___" with connector type.

Mechanical specifications

Length	1204 mm	47.4 in
Width	104 mm	4.1 in
Depth	150 mm	5.9 in
⁴⁾ Weight	3.2 kg	7.0 lbs
Wind Area		
Front	0.125 m ²	1.35 ft ²
Side	0.144 m ²	1.55 ft ²
Rated Wind Velocity (Safety factor 2.0)		
	>658 km/hr	>409 mph
Wind load @ 100 mph (161 km/hr)		
Front	202 N	45 lbs
Side	211 N	47 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting & Downtilting:

Wall mounted or pole tower mount with mounting brackets.

Mounting bracket kit #26799997

Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

Frequency Range	1850-1990 MHz
Impedance	50Ω
³⁾ Connector	NE, E-DIN
¹⁾ VSWR	≤1.4:1
Polarization	Vertical
¹⁾ Gain	16 dBi
²⁾ Power Rating	250 W
¹⁾ Half Power Angle	
H-Plane	80°
E-Plane	8°
¹⁾ Lobe Tilt	2°
¹⁾ Null Fill	10%
Lightning Protection	Direct Ground

¹⁾ Typical Values

²⁾ Power Rating limited by connector only.

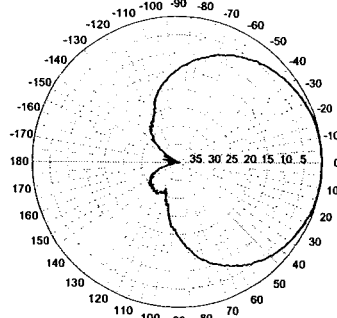
³⁾ NE indicates an elongated N Connector.

E-DIN indicates an elongated DIN Connector.

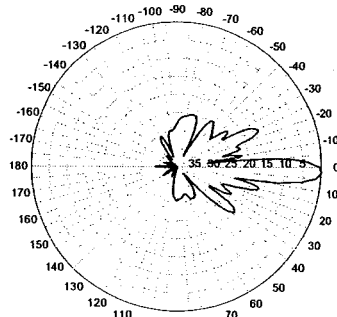
⁴⁾ The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern¹⁾



Horizontal



Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.



1850-1990 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connector only.

CF Denotes a Center-Fed Connector.

1850-1990 MHz



Revision Date: 12/15/03

Vertically Polarized, Log Periodic 80° / 16 dBi

LPA-185080/8CF ___ 2°

When ordering, replace "___" with connector type.

Mechanical specifications

Length	1204 mm	47.4 in
Width	104 mm	4.1 in
Depth	150 mm	5.9 in
⁴⁾ Weight	3.2 kg	7.0 lbs
Wind Area		
Front	0.125 m ²	1.35 ft ²
Side	0.144 m ²	1.55 ft ²
Rated Wind Velocity (Safety factor 2.0)		
	>658 km/hr	>409 mph
Wind load @ 100 mph (161 km/hr)		
Front	202 N	45 lbs
Side	211 N	47 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting & Downtilting:

Wall mounted or pole tower mount with mounting brackets.

Mounting bracket kit #26799997

Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

Frequency Range	1850-1990 MHz
Impedance	50Ω
³⁾ Connector	NE, E-DIN
¹⁾ VSWR	≤1.4:1
Polarization	Vertical
¹⁾ Gain	16 dBi
²⁾ Power Rating	250 W
¹⁾ Half Power Angle	
H-Plane	80°
E-Plane	8°
¹⁾ Lobe Tilt	2°
¹⁾ Null Fill	10%
Lightning Protection	Direct Ground

¹⁾ Typical Values

²⁾ Power Rating limited by connector only.

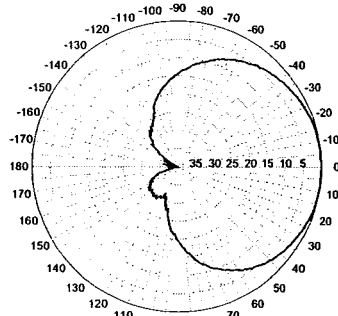
³⁾ NE indicates an elongated N Connector.

 E-DIN Indicates an elongated DIN Connector.

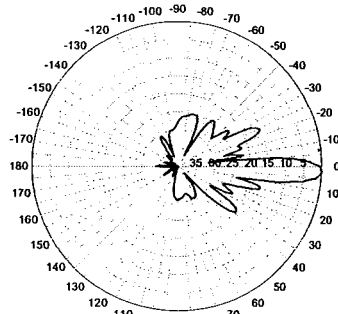
⁴⁾ The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern¹⁾



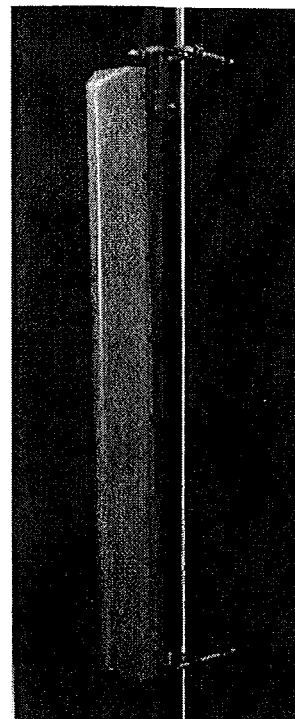
Horizontal



Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.



1850-1990 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
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- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connector only.

CF Denotes a Center-Fed Connector.

1850-1990 MHz



Revision Date: 12/15/03

General Power Density

Site Name: Monroe, CT
 Tower Height: 212 Ft. rad center

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure [*] (mW/cm ²)	Fraction of MPE (%)
Verizon	880	9	200	1800	212	0.0144	0.56733	2.54%
Verizon	1900	3	285	855	212	0.0068	1	0.68%
Total Percentage of Maximum Permissible Exposure								3.22%

*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/cm² = milliwatts per square centimeter
 ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

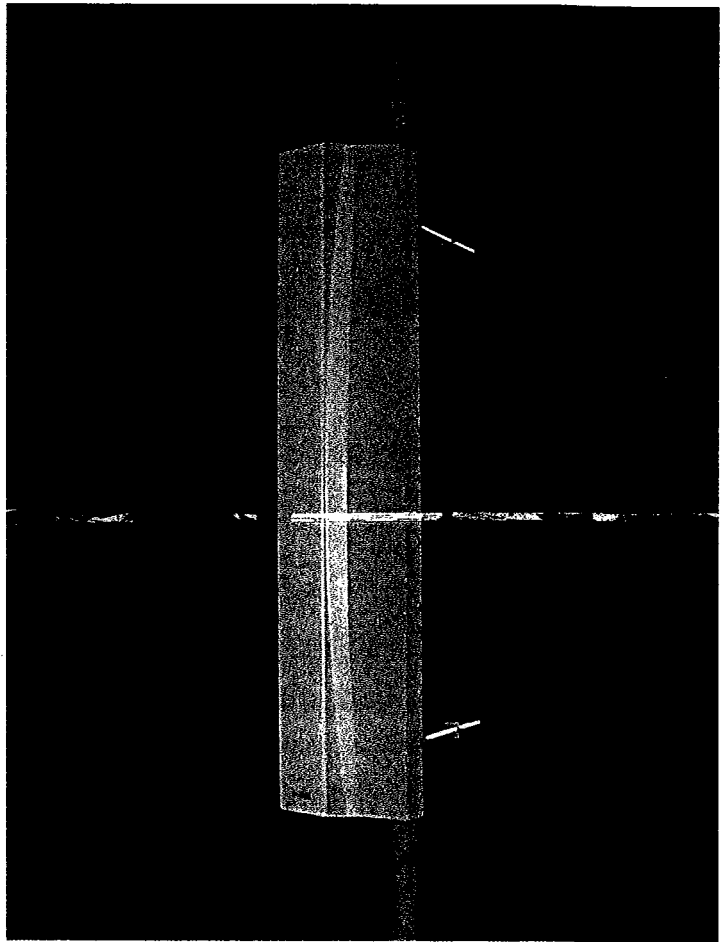


SC 9012-Din

Enhanced Log-Periodic Antenna

Features:

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



Electrical Specification

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

Mechanical Specification

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]
Wind load measured up to:	150 mph	[240 Km/h]
Wind Area (Side of antenna):	2.3 sq. ft.	[0.22 sq.m]
Lateral Thrust At 113 mph/ 180Km/h (Worst Case):	112 lbs	[500 N]

Materials

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

The SC 9012-Din is made in U.S.A.

DECIBEL
Base Station Antennas

948F85T2E-M

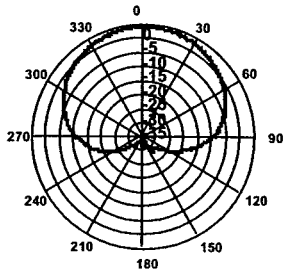
16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

1850-1990 MHz

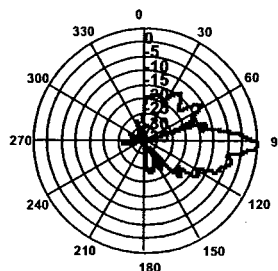
**dB Director®
MaxFill™**

- 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

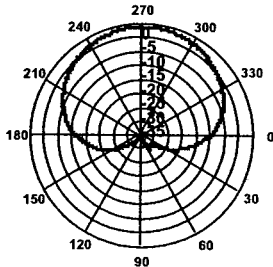
85°



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
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:	2.3 ft² (0.21 m²)
Max. Wind Load (@ 100mph):	92 lbf (409 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Low Loss Circuit Board
Reflector Material:	Passivated 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



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Fax: 1.800.229.4706
www.andrew.com

Date: 1/23/2004
* - Indicates Typical Values

dbtech@andrew.com

General Power Density

Site Name: Topstone, CT
 Tower Height: 174 Ft. rad center

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure ^s (mW/cm ²)	Fraction of MPE (%)
Verizon	880	9	200	1800	174	0.0214	0.56733	3.77%
Verizon	1900	3	285	855	174	0.0102	1	1.02%
Total Percentage of Maximum Permissible Exposure								4.78%

*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/cm² = milliwatts per square centimeter
 ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

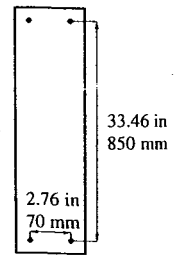
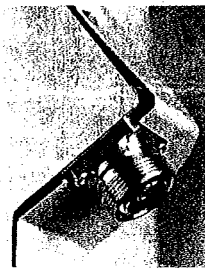
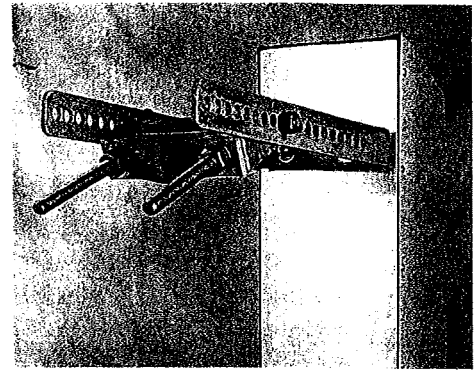
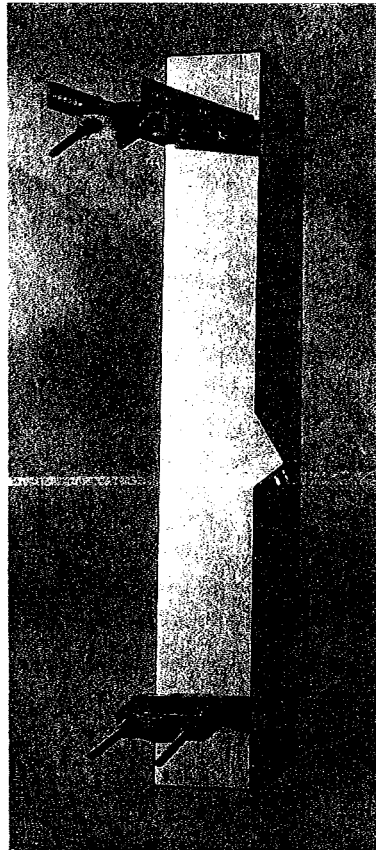


ALP-E 9011-Din

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

948F85T2E-M

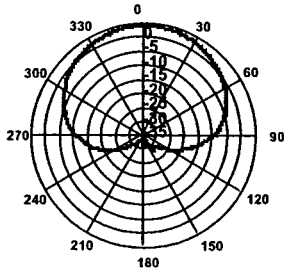
16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

1850-1990 MHz

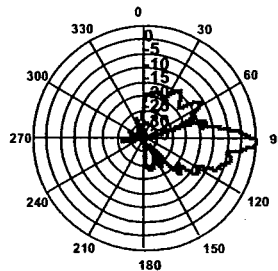
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- Low profile appearance and low wind loading profile for easier zoning approvals

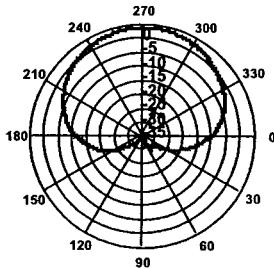
85°



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
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:	2.3 ft² (0.21 m²)
Max. Wind Load (@ 100mph):	92 lbf (409 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Low Loss Circuit Board
Reflector Material:	Passivated 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



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Date: 1/23/2004
* - Indicates Typical Values

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