



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

February 13, 2001

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

RE: **EM-VER-015-010126** - Cellco partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1000 Trumbull Avenue, Bridgeport, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on February 8, 2001, 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, subject to the issuance of a building permit.

The proposed modifications are to be implemented as specified here and in your notice dated January 26, 2001. 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,


Mortimer A. Gelston
Chairman

MAG/RKE/laf

- c: Honorable Joseph P. Ganim, Mayor, City of Bridgeport
Michael P. Nidoh, City Planner, City of Bridgeport
Ms. Melanie J. Howlett, Assistant City Attorney, City of Bridgeport
Sandy M. Carter, Verizon Wireless
Ronald C. Clark, Nextel Communications
Julie M. Cashin, Esq., Hurwitz & Sagarin LLC

CITY ATTORNEY
Mark T. Anastasi

DEPUTY CITY ATTORNEY
John D. Guman, Jr.

ASSOCIATE CITY ATTORNEYS

John H. Barton
John P. Bohannon, Jr.
Barbara Brazzel-Massaró
Russell D. Liskov
John R. Mitola
Ronald J. Pacacha

CITY OF BRIDGEPORT
OFFICE OF THE CITY ATTORNEY

999 Broad Street
Bridgeport, Connecticut 06604-4328



ASSISTANT CITY ATTORNEYS

Melanie J. Howlett
Arthur C. Laske III
R. Christopher Meyer
Raymond B. Rubens
Stephen J. Sedensky, Jr.

LEGAL ADMINISTRATOR
Kathleen Pacacha

Telephone (203) 576-7647
Facsimile (203) 576-8252

RECEIVED

FEB - 9 2001

CONNECTICUT
SITING COUNCIL

February 7, 2001

Via Facsimile and Overnight Mail

Joel M. Rinebold
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Petition No. EM-VER-015-010126 – Cellco Partnership d/b/a Verizon Wireless - Notice of Intent to Modify an Existing Telecommunications Facility located at 1000 Trumbull Avenue, Bridgeport, Connecticut

Dear Mr. Rinebold:

I am in receipt on January 29, 2001, of a copy of the petition to the Connecticut Siting Council filed by Cellco Partnership d/b/a as Verizon Wireless ("Petition") on behalf as cited above. Please enter my appearance on behalf of the City of Bridgeport ("City") in this matter.

The City has no objection to the Siting Council approving Verizon's request to locate six (6) additional panel antennas below the height of the existing tower located at 1000 Trumbull Avenue, on the following conditions:

VERIZON shall prepare and submit to the City a statement that the proposed equipment is necessary to provide service to customers utilizing Verizon's services within the City limits;

The Siting Council confirms that when Verizon adds the existing radio electromagnetic frequency power density levels from all antenna and equipment owned by FCC licenses holders at this location to the levels from the equipment installations proposed under this application, the **total levels** will be within the Federal guidelines;

VERIZON shall obtain a Surety Bond in an amount to be determined by the Office of the City Attorney for the future removal of these antennas and associated equipment in the event VERIZON ceases to use them for a period of six months;

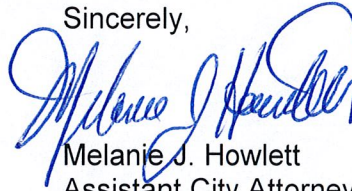
The Siting Council approval shall be granted to VERIZON, the FCC License holder and not to Cellco Partnership d/b/a Verizon;

The VERIZON approval shall not be transferable or assignable to another entity without Siting Council approval; and

VERIZON shall obtain a building permit from the City before the antennas are installed.

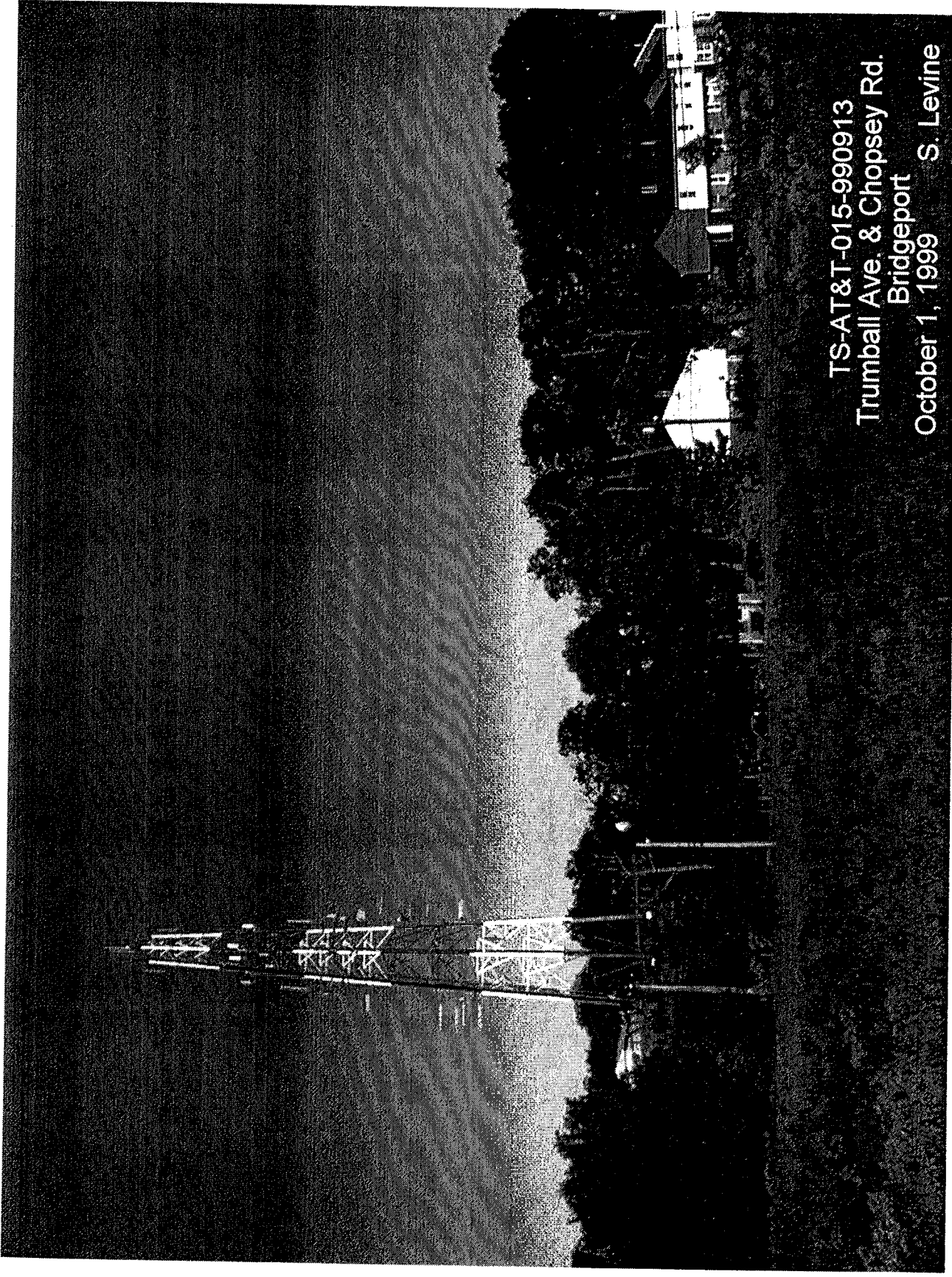
If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,



Melanie J. Howlett
Assistant City Attorney

Cc: William Shaw - Bridgeport Clerk Planning & Zoning Commission
Ken Baldwin-Attorney for Verizon Wireless
Mark Anastasi, City Attorney
Barbara Brazzel-Massaró, Associate City Attorney



TS-AT&T-015-990913
Trumbull Ave. & Chopsey Rd.
Bridgeport
October 1, 1999 S. Levine



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

January 30, 2001

Honorable Joseph P. Ganim
Mayor
City of Bridgeport
City Hall
999 Broad Street
Bridgeport, CT 06604

RE: **EM-VER-015-010126** - Cellco partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1000 Trumbull Avenue, Bridgeport, Connecticut.

Dear Mr. Ganim:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for February 8, 2001, at 2:00 p.m. in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

A handwritten signature in black ink, appearing to read "Joel M. Rinebold".

Joel M. Rinebold
Executive Director

JMR/RKE/rgg

Enclosure: Notice of Intent

c: Ms. Melanie J. Howlett, Assistant City Attorney, City of Bridgeport
Michael P. Nidoh, City Planner, City of Bridgeport

EM-VER-015-010126

January 26, 2001

Via Hand Delivery

Mr. Joel M. Rinebold
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RECEIVED

JAN 26 2001

CONNECTICUT
SITING COUNCIL

**Re: Notice of Exempt Modification
1000 Trumbull Avenue
Bridgeport, Connecticut**

Dear Mr. Rinebold:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") intends to add additional antennas on to the existing "facility" tower at 1000 Trumbull Avenue in Bridgeport, Connecticut. 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 Bridgeport Mayor, Joseph P. Ganim.

This tower is currently shared by Cellco and multiple other carriers. Cellco's existing facility consists of six (6) panel-type antennas attached at the 150-foot level on the existing 240-foot tower and a single-story equipment shelter near the base of the tower. Cellco now intends to add six (6) additional panel-type antennas on the tower (two antennas per sector) bringing the total number of panel antennas to twelve (12), at the same 150-foot level on the tower. There are no changes proposed to any ground mounted structures or equipment.

The planned modifications to the 1000 Trumbull Avenue facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the overall height of the existing tower. Cellco's additional antennas will continue to be mounted at the 150-foot level on the existing 240-foot tower.

ROBINSON & COLE LLP

Mr. Joel M. Rinebold
January 26, 2001
Page 2

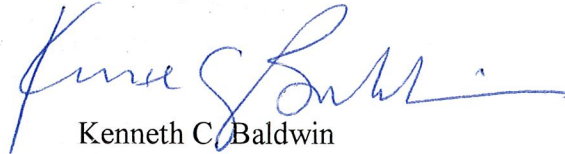
2. The installation of six (6) additional panel antennas does not effect any ground level equipment or structure and therefore will not require an extension of facility boundaries.

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

4. The operation of the additional antennas does not result in an increase in existing radio frequency ("RF") power density levels at the facility. Updated RF power density calculations were therefore not performed for Cellco or other uses at this facility.

For the foregoing reasons, Cellco respectfully submits that the proposed addition of six (6) panel antennas at the 1000 Trumbull Avenue, Bridgeport facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



Kenneth C. Baldwin

KCB/kmd
Enclosures

cc: Joseph P. Ganim, Bridgeport Mayor
Attorney Melanie Howlett, City Attorney's Office
Sandy M. Carter

**VERIZON WIRELESS: NORTH BRIDGEPORT
W.O. 2786.01
EXISTING 240' SELF-SUPPORTING TOWER
BRIDGEPORT, CT
STRUCTURAL ANALYSIS REPORT
SEPTEMBER 8, 2000**

1.0 INTRODUCTION

The existing 240 foot self-supporting tower located at 1000 Trumbull Avenue in Bridgeport, CT serves the needs of several communications companies. Verizon Wireless anticipates installing additional antennas on this tower in the near future.

Tectonic Engineering Consultants, P.C. has performed an inspection and a structural analysis of the tower. The analysis was to verify the adequacy of the tower for supporting a new configuration of Verizon Wireless antennas and cables in addition to the existing equipment in accordance with current code requirements.

1.1 Information Provided

For the purpose of the analysis, Tectonic was able to retrieve the following information from our files:

1. "270' SSMW TOWER FOR CLINTON TOWER SERVICE", Rohn drawing no. C880398, file no. 23253DB, dated 1/28/88.
2. "265' (300' FUTURE) SSMW TOWER ASSEMBLY FOR CLINTON TOWER SERVICE", Rohn drawing no. C880400RI, file no. 23253DB, dated 3/9/88 (revised drawing of C880398 with modified tower height).

2.0 ORIGINAL TOWER DESIGN

2.1 Tower Structure

The tower was designed by Rohn in 1988. It is a three-legged self-supporting tower. The tower was originally designed for a height of 265' with a 35' long future extension, resulting in a total height of 300'. The tower is K-braced for its entire height. Secondary bracing members are present in the sections from the base to the 120' level. Horizontal internal sub-bracing members are present in all sections for the entire tower height.

The tower is comprised of two (2) 30' long sections and nine (9) 20' long sections for a total height of 240'. All leg and bracing members are steel pipe.

The existing tower is 40'-4" wide at the base, tapering uniformly to a width of approximately 10'-7" at the top.

A diagram of the structure is presented in Figure1, attached.

2.2 Loading Criteria

The original design was based on ANSI/EIA-222-D-1986 using a basic wind speed of 85 mph with no ice and reduced wind speed in conjunction with 1/2" radial ice. The tower was designed to support the following loads:

ELEV. (FT)	ANTENNA TYPE	PROJECTED AREA (SF)
265	(6) 3' ANTENNAS W/3' SIDE ARM	50.0 (TOTAL)
265	(2) 10' H.P. DISHES (SPACED 180° APART)	185.0 (TOTAL)
252	(6) 3' ANTENNAS W/3' SIDE ARMS	50.0 (TOTAL)
250	(2) 10' H.P. DISHES (SPACED 180° APART)	185.0 (TOTAL)
235	(6) 3' ANTENNAS W/3' SIDE ARMS	50.0 (TOTAL)
Note: 1. Step bolts are provided on all three legs. 2. Two (2) 29-hole waveguide ladders from 10' to the top of tower are provided.		

2.3 Tower Foundation

No specific information regarding the original foundation design is provided. Foundation design reactions are listed on the Rohn drawing.

3.0 EXISTING CONDITION

3.1 Field Inspection

The tower was inspected by representatives of Tectonic on August 29, 2000 to confirm existing antennas and equipment. Several photographs were taken to document the existing configuration and conditions.

Based on our inspection, the tower legs and braces are in good condition. The tower appears to be galvanized and is painted in alternating bands of orange and white. The paint on the tower members is mostly intact. No damage or significant deformation of the tower was observed.

Each of the K-bracing members in the sections from 0' to 30', 100' to 120', and 140' to 150' are reinforced with a single 2-1/2" equal leg angle welded to their entire length.

The exposed portion of the concrete foundations appears to be in good condition. We therefore expect that the tower is capable of supporting its original design loads.

3.2 Existing Antennas and Equipment

At the time of our inspection, the tower was found to be supporting the items listed below. The north leg of the tower is designated as leg B, while the southeast and southwest legs are designated as C and A, respectively.

- 1 Celwave PD1110 or similar whip antenna at the 240' level (base), pipe mounted on the middle of the horizontal member at the top on face A-C
- 1 1-5/8" diameter coaxial cable to 240' on the waveguide ladder on the outer face of A-C
- 1 Beacon at the 240' level, mounted on leg A
- 1 Celwave PD1110 or similar whip antenna at approximately the 239' level (base), mounted on a 3'-6" side arm on leg C
- 1 1-5/8" diameter coaxial cable to 239' on the waveguide ladder on the outer face of A-C
- 1 Celwave PD156S or similar yagi antenna at approximately the 239' level (centerline), mounted on a 3'-6" side arm on leg C
- 1 7/8" diameter coaxial cable to 239' on the waveguide ladder on the outer face of A-C
- 1 Scala OGB9-900 whip antenna at approximately the 235' level (base), mounted on a 3'-9" side arm on leg C
- 1 1-5/8" diameter coaxial cable to 235' on the waveguide ladder on the outer face of A-C
- 1 Celwave PD83 whip antenna at the 232' level (base), mounted on a 4' side arm on leg A
- 1 7/8" diameter coaxial cable to 232' on the waveguide ladder on the outer face of A-C
- 1 Sinclair SRL-420 or similar whip antenna at approximately the 229' level (base), mounted on a 3' side arm on leg B
- 1 7/8" diameter coaxial cable to 229' on the waveguide ladder on face A-B
- 1 Decibel DB806D-Y whip antenna at the 223' level (base), mounted on a 3' side arm on leg B
- 1 1-5/8" diameter coaxial cable to 223' on the waveguide ladder on the outer face of A-C
- 1 Decibel DB806D-Y whip antenna at the 223' level (base), mounted on a 4' side arm on leg A
- 1 1-5/8" diameter coaxial cable to 223' on the waveguide ladder on the outer face of A-C
- 1 Decibel DB212 antenna at the 217' level (centerline), mounted on leg B

- 1 1/2" diameter coaxial cable to 217' on the waveguide ladder on the outer face of A-C
- 1 Decibel DB264 (four elements) antenna at approximately the 199' level (centerline), mounted on a 4' side arm on leg B
- 1 7/8" diameter coaxial cable to 199' on the waveguide ladder on the outer face of A-C
- 1 Celwave PD10108 yagi antenna at the 196' level (centerline), mounted on leg A
- 1 3/8" diameter coaxial cable to 196' on the waveguide ladder on the outer face of A-C
- 1 Celwave PD688S yagi antenna at the 196' level (centerline), mounted on leg A
- 1 7/8" diameter coaxial cable to 196' on the waveguide ladder on the outer face of A-C
- 1 Celwave PD688S yagi antenna at the 194' level (centerline), mounted on leg A
- 1 7/8" diameter coaxial cable to 194' on the waveguide ladder on the outer face of A-C
- 6 EMS RS90-10-00DA-2 panel antennas at approximately the 187' level (centerline), mounted two (2) per sector on three (3) 8' wide frames on legs A, B & C
- 12 1-1/4" diameter coaxial cables to 187' on the waveguide ladder on the inside face of A-C
- 6 Allgon 7184.05 panel antennas at approximately the 174' level (centerline), pipe mounted two (2) per tower face on three tower faces
- 6 1-5/8" diameter coaxial cables to 174' on the waveguide ladder on face B-C
- 9 Allgon 7184.14 panel antennas (AT&T) at the 165' level (centerline), mounted three (3) per sector on three (3) 12' wide frames with tie backs on legs A, B & C
- 9 1-5/8" diameter coaxial cables to the 165' level, installed on the existing waveguide ladder on face B-C
- 1 Sinclair SRL-488 or similar whip antenna at the 165' level (base), mounted on the corner of the above 12' wide frame on leg C
- 2 7/8" diameter coaxial cables to 165' on the waveguide ladder on the outer face of A-C
- 1 7/8" diameter coaxial cable to 159' on the waveguide ladder on the outer face of A-C (dead ended)
- 1 7/8" diameter coaxial cable to 159' on the waveguide ladder on the outer face of A-C (dead ended)
- 3 Decibel DB844H90E-XY antennas (Verizon) at the 151' level (centerline), mounted one (1) each on three (3) 6' side arms on legs A, B & C
- 3 7/8" diameter coaxial cables to 151' on the waveguide ladder on face A-B
- 3 Decibel DB844H90E-XY antennas (Verizon) at the 146' level (centerline), mounted one (1) each on three (3) 6' side arms on legs A, B & C

- 3 7/8" diameter coaxial cables to 146' on the waveguide ladder on face A-B
- 3 Side lights at the 140' level, mounted one (1) each on three (3) legs
- 1 Scientific Atlanta 17-element yagi (AU-17) antenna at approximately the 132' level (centerline), mounted a 3' side arm on leg C
- 1 3/8" diameter coaxial cable to 132' on the waveguide ladder on face B-C
- 1 Scientific Atlanta (4) 17-element yagi antennas at approximately the 135' level (centerline), mounted a 3' side arm on leg B
- 1 3/8" diameter coaxial cable to 132' on the waveguide ladder on face B-C
- 1 Scientific Atlanta QCD-UHF yagi antenna at the 130' level (centerline), mounted a 3' side arm on leg A
- 1 3/8" diameter coaxial cable to 130' on the waveguide ladder on face B-C
- 1 Celwave ASP-700 or similar whip antenna at approximately the 118' level (centerline), mounted on a 3'-9" side arm on leg C
- 1 7/8" diameter coaxial cable to 118' on the waveguide ladder on the outer face of A-C
- 1 Scientific Atlanta QCS-2 yagi antenna at the 117' level (centerline), mounted on a 3' side arm on leg B
- 3 3/8" diameter coaxial cables to 117' on the waveguide ladder on face B-C
- 1 Scala OGB9 or similar whip antenna at the 106' level (base), mounted on a 3' side arm on leg A
- 1 7/8" diameter coaxial cable to 106' on the waveguide ladder on the outer face of A-C
- 1 Scientific Atlanta 17-element yagi (AU-17) antenna at the 98' level (centerline), mounted on a 3' side arm on leg B
- 1 3/8" diameter coaxial cable to 98' on the waveguide ladder on face B-C
- 1 Scientific Atlanta QCS-4 yagi antenna at the 90' level (centerline), mounted on a 3' side arm on leg A
- 4 3/8" diameter coaxial cable to 90' on the waveguide ladder on the outer face of A-C
- 1 Scientific Atlanta QCD-7 yagi antenna at the 90' level (centerline), mounted on a 3' side arm on leg B
- 1 3/8" diameter coaxial cable to 90' on the waveguide ladder on face B-C
- 1 Empty sidearm at the 82' level on leg B
- 1 GPS antenna at the 56' level, mounted on face A-C
- 1 1/2" diameter coaxial cable to 56' on the waveguide ladder on the inside face of A-C
- 1 Channel Master 4' diameter dish antenna at the 21' level, mounted on face A-C
- 1 1/2" diameter coaxial cable to the antenna
- Step bolts on all three (3) legs

4.0 PROPOSED INSTALLATION

Verizon Wireless is proposing to install the following items on the tower:

Option 1

- 12 Decibel DB844H90E-XY antennas at the 151' level (centerline), mounted four (4) per sector on three (3) 12' wide gate booms on legs A, B & C, and removing the existing six (6) antennas and mounts at the 146' and the 151' levels
- 12 1-5/8" diameter coaxial cables to 151' on the waveguide ladder on face A-B, and removing the existing six (6) 7/8" diameter coaxial cables to the 146' and the 151' levels from the waveguide ladder on face A-B

Option 2

- Replacing the above twelve (12) antennas in Option 1 with three (3) Metawave antennas, mounted one each on the same 12' wide gate booms

5.0 STRUCTURAL ANALYSIS**5.1 Current Loading Criteria**

In accordance with the provisions ANSI/TIA/EIA-222-F-1996 "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", a basic wind speed of 85 mph applies to Fairfield County, CT, where the tower is located. The Connecticut supplement to the BOCA National Building Code – 1996 requires a wind speed of 80 mph within the Town of Bridgeport. Therefore, the higher wind speed of 85 mph was used in our analysis.

Ice loads have been established based on a 0.5" radial ice thickness in accordance with industry standard practice. A reduced wind speed of 74 mph is used in conjunction with this ice load.

5.2 Procedure

The tower has been analyzed with a general purpose, three-dimensional structural analysis program. The analysis included the following:

1. Analysis of the existing tower with the proposed antenna configuration (Option 1) and all other existing antennas and cables, using current loading criteria with:
 - a) a wind speed of 85 mph and no ice
 - b) a wind speed of 74 mph in conjunction with 0.5" radial ice

2. Analysis of the existing tower with the proposed antenna configuration (Option 2) and all other existing antennas and cables, using current loading criteria with:

- a) a wind speed of 85 mph and no ice
- b) a wind speed of 74 mph in conjunction with 0.5" radial ice

5.3 Assumptions

Several assumptions were made in order to perform the analysis. Each of these is considered by Tectonic to be both reasonable and consistent with current standards of practice.

1. Tower member sizes and yield strength are as indicated in the Rohn drawing.
2. All bracing members are considered as pin-ended for simplicity, and connections are not modeled.
3. The connection of the tower to its foundation is considered as pinned.

5.4 Results

Tower member forces have been calculated using current loading criteria and the member capacities have been determined. The existing reinforcement of the K-bracing members has been taken into account for the calculations of their capacities.

Under the proposed installation Option 1, the results of our analysis for the most critical members are summarized as follows:

<u>Member</u>	<u>% of Capacity</u>
Tower Leg	41%
Diagonal Brace	86%
Horizontal Strut	89%

The resulting foundation reactions are as follows:

	<u>Rohn Orig.</u>	<u>Current</u>	<u>Percentage</u>
	<u>Design</u>	<u>Analysis</u>	
Max. compression (kips)	452.6	273.0	60
Max. uplift (kips)	381.1	223.3	59
Total shear (kips)	79.0	69.7	88
Max. O.T.M (kip-ft)	14355.0	8430.7	59

Under the proposed installation Option 2, the results of our analysis for the most critical members are summarized as follows:

<u>Member</u>	<u>% of Capacity</u>
Tower Leg	42%
Diagonal Brace	87%
Horizontal Strut	91%

The resulting foundation reactions are as follows:

	<u>Rohn Orig. Design</u>	<u>Current Analysis</u>	<u>Percentage</u>
Max. compression (kips)	452.6	276.6	61
Max. uplift (kips)	381.1	226.8	60
Total shear (kips)	79.0	70.5	89
Max. O.T.M (kip-ft)	14355.0	8555.6	60

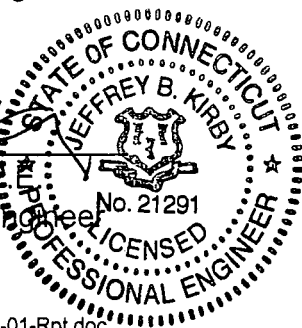
6.0 CONCLUSIONS AND RECOMMENDATIONS

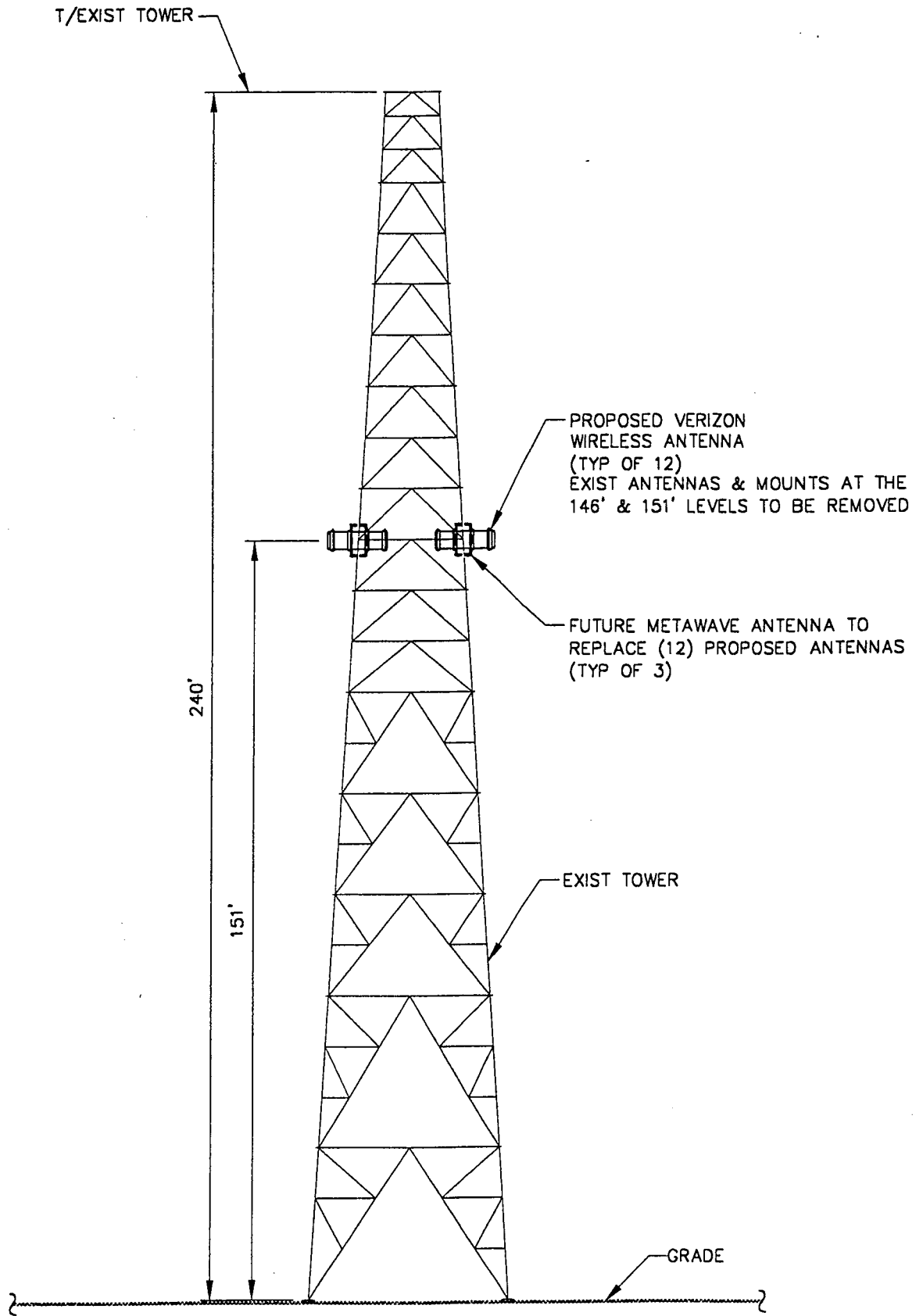
As a result of our analysis, we find that the existing tower and its foundation have sufficient capacity to permit the installation of either option for the proposed Verizon Wireless antennas and cables. No structural problems for the tower or its foundation are anticipated, and no modifications are necessary.

Any further changes to the antenna configuration or other appurtenances should be reviewed with respect to their effect on structural loads prior to implementation.

Prepared by: Quan He Fan
 Quan He Fan
 Staff Structural Engineer

Reviewed by: Jeffrey B. Kirby Date: 9/8/00
 Jeffrey B. Kirby, P.E.
 Chief Structural Engineer





NOTE: EXISTING ANTENNAS AND EQUIPMENT ARE NOT SHOWN FOR CLARITY.

FIGURE 1

Site Name: N. Bridgeport
 Coordinates: 41-13-10 N

73-12-08 W

Site #: 109
 GEL: 218'

Site Information	ALPHA	BETA	GAMMA
CHANNEL COUNT	12	14	10
LAC COUNT	PW	PW	PW
ANTENNA TYPE	APL869012	APL866513	APL866513
QUANTITY	4	4	4
ORI. DEG. TN	30°	150°	270°
DOWN TILT (DEG.)	0°	10°	8°
RAD CTR (FT AGL)	150'	150'	150'
ERP (WATTS)	40	16	40
CDMA CARRIER	5	5	5
FEEDLINE SIZE	7/8	7/8	7/8
FEEDLINE LENGTH	≈180'	≈180'	≈180'
JUMPER SIZE	1/2"	1/2"	1/2"
JUMPER LENGTH	10'	10'	10'
T-1 SPAN COUNT	4		

A	X	ALPHA	A	X	BETA	A	X	GAMMA
		COLOR CODE			COLOR CODE			COLOR CODE
A1	RX1	RED	A5	RX1	BLUE	A9	RX1	GREEN
A2	TX1	RED/WHITE	A6	TX1	BLUE/WHITE	A10	TX1	GREEN/WHITE
A3	TX2	RED/RED/WHITE	A7	TX2	BLUE/BLUE/WHITE	A11	TX2	GREEN/GREEN/WHITE
A4	RX2	RED/RED	A8	RX2	BLUE/BLUE	A12	RX2	GREEN/GREEN
*	*	1 GPS ANTENNA See attached spec. sheet.						

NOTES:

- 1) Cell site ground elevation, radiation centers, and coordinates are to be verified by site survey.
- 2) 4 ft minimum spacing between each antenna on all three sectors
- 3) All drawings are NOT to scale.

PLEASE SEE ATTACHED ANTENNA CONFIGURATIONS

APPROVALS	INITIALS	DATE
Prepared By : Michael Cafasso RF Engineer	<i>WPC</i>	10/14/00
Sharon D'Ambra System Design Manager	<i>SLD</i>	10-16-00
Mark Gauger Construction Manager		
Sandy Carter Regulatory Manager		

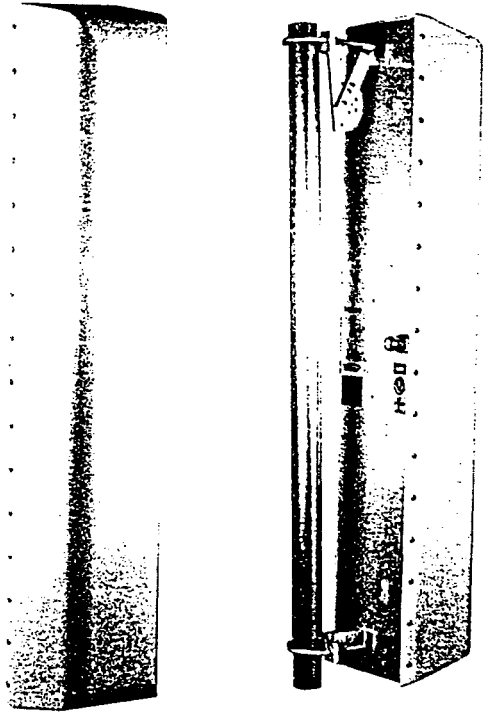
Maximizer™ Directional Panel Antenna

Antennas

APL8665* Series

The Celwave Maximizer series is a log periodic dipole array which uses a patent pending design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use Celwave's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths.

- **45 dB front-to-back ratio**
Reduces co-channel interference.
- **Monolithic construction**
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- **No solder joints**
For high reliability.
- **Surface treated components**
To prevent galvanic corrosion.
- **UV stabilized radome**
Assures long life without radome deterioration due to UV exposure.



APL8665* Series

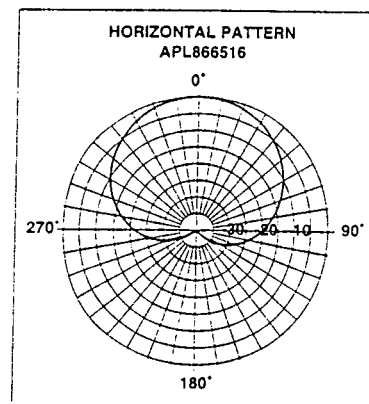
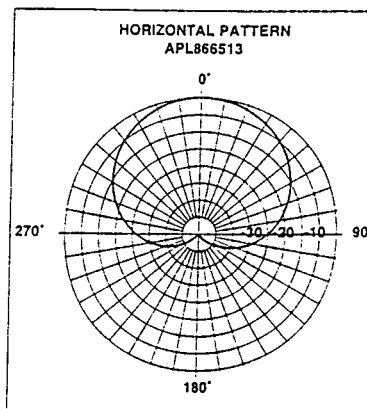
Order Information

Item Number	Frequency Range MHz
APL866516	806 - 894
APL866513	806 - 894

Maximizer™ Directional Panel Antenna



ELECTRICAL SPECIFICATIONS	APL866513	APL866516
Frequency Range - MHz	806-894	806-894
Gain - dBd (dBi)	13.0 (15.1)	16.0 (18.1)
Bandwidth - MHz for 1.5:1 VSWR	88	88
Horizontal Beamwidth - Degrees	65	65
Vertical Beamwidth - @ 1 /2 Power Points - Degrees	15	8
Null Fill - dB Typ.	17	-
Upper Sidelobe Suppression - dB Typ.	20	18
Polarization	Vertical	Vertical
Front-To-Back Ratio - dB	45	45
Maximum Power Input - Watts	500	500
Lightning Protection	Direct Ground	Direct Ground
Termination - Direct Fixed	N-female or 7/16 DIN-female	N-female or 7/16 DIN-female
Electrical Downtilt - Degrees	0,-6,-9	0
3rd Order IMD @ 16 x 41 dBm: - dBm	-100	-100
MECHANICAL SPECIFICATIONS		
Dimensions - WxDxH - in. (mm)	9.2 X 8.0 X 48.0 (234 X 203 X 1219)	9.2 X 8.0 X 93.0 (233.7 X 203.2 X 2362)
Weight w/o Mtg. Hardware - lbs. (kg)	15.7 (7.1)	31.4 (14.3)
Weight w/ Mtg. Hardware - lbs. (kg)	18 (8.2)	34.8 (15.8)
Radiating Element Material	Aluminum Alloy	Aluminum Alloy
Radome Material	UV Stabilized High Impact ABS	UV Stabilized High Impact ABS
Reflector Material	5052-H32 Aluminum	5052-H32 Aluminum
Max Wind Loading Area (Flat Plate Equivalent) ft ² (m ²)	4.05 (0.377)	7.9 (0.73)
Rated Wind Speed - mph (km/hr)	112 (181)	112 (181)
Maximum Thrust @ Rated Wind - lbf (N)	203 (903)	396 (1761)
Side Wind Loading Area (FPE) - ft ² (m ²)	2.67 (0.248)	5.17 (0.48)
Side Thrust @ Rated Wind - lbf (N)	133.5 (594)	259 (1152)
Mounting Hardware - Supplied	Fixed: APM19-1	Fixed: 10238
Mounting Hardware - Optional	Downtilt: APM21-3, Panning: APM31-1	Downtilt: 10228-25
SHIPPING SPECIFICATIONS		
Shipping Weight - lbs. (kg)	20 (9.0)	36 (16.3)
Shipping Dimensions of Antenna - WxDxH - in. (mm)	13.75x13.5x62.75 (350x343x1594)	13.75x14.0x103.5 (350x356x2629)
Shipping Dimensions of Accessory - WxDxH in. (mm)	2x9x4 (305x229x102)	Packed w/antenna
Shipping Mode	UPS	Common Carrier



Maximizer™ Directional Panel Antennas

APL8690* Series

The Celwave Maximizer series is a log periodic dipole array which uses a patent pending design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use Celwave's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths.

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APL8690* Series

Order Information

Item Number	Frequency Range MHz
APL869012	806 - 894
APL869009	806 - 894

Maximizer™ Directional Panel Antennas



ELECTRICAL SPECIFICATIONS	APL869009	APL869012
Frequency Range - MHz	806-894	806-894
Gain - dBd (dBi)	9.0 (11.1)	12.0 (14.1)
Bandwidth - MHz for 1.5:1 VSWR	88	88
Horizontal Beamwidth - Degrees	90	90
Vertical Beamwidth - @ 1/2 Power Points - Degrees	30	15
Null Fill - dB Typ.	-	-
Upper Sidelobe Suppression - dB Typ.	-	-
Polarization	Vertical	Vertical
Front-To-Back Ratio - dB	45	45
Maximum Power Input - Watts	500	500
Lightning Protection	Direct Ground	Direct Ground
Termination - Direct Fixed	N-female or 7/16 DIN-female	N-female or 7/16 DIN-female
Electrical Downtilt - Degrees	0	0, -6
3rd Order IMD @ 16 x 41dBm: - dBm	-100	-100

MECHANICAL SPECIFICATIONS

Dimensions - WxDxH - in. (mm)	6.0 X 8.0 X 24.0 (152.6 X 203.2 X 609.6)	6.0 X 8.0 X 48.0 (152.6 X 203.2 X 1219.2)
Weight w/o Mtg. Hardware - lbs. (kg)	3.24 (1.5)	6.32 (2.87)
Weight w/ Mtg. Hardware - lbs. (kg)	4.45 (2.02)	8.2 (3.72)
Radiating Element Material	Aluminum Alloy	Aluminum Alloy
Radome Material	UV Stabilized High Impact ABS	UV Stabilized High Impact ABS
Reflector Material	5052-H32 Aluminum	5052-H32 Aluminum
Max Wind Loading Area (Flat Plate Equivalent) - ft ² (m ²)	1.0 (0.093)	2.0 (0.186)
Rated Wind Speed - mph (km/hr)	125 (201.25)	125 (201.25)
Maximum Thrust @ Rated Wind - lbf (N)	63 (278)	125 (556)
Side Wind Loading Area (FPE) - ft ² (m ²)	1.34 (0.124)	2.67 (0.248)
Side Thrust @ Rated Wind - lbf (N)	83 (371)	166 (741)
Mounting Hardware - Supplied	Fixed: APM18-1	Fixed: APM19-1
Mounting Hardware - Optional	Downtilt: APM20-2, Panning: APM30-1	Downtilt: APM21-3, Panning: APM31-1

SHIPPING SPECIFICATIONS

Shipping Weight - lbs. (kg)	8.5 (3.8)	17.5 (7.87)
Shipping Dimensions of Antenna - WxDxH - in. (mm)	8 X 12 X 26 (203.2 X 305 X 660)	8 X 12 X 50 (203.2 X 305 X 1270)
Shipping Dimensions of Accessory - WxDxH in. (mm)	Packed w/antenna	Packed w/antenna
Shipping Mode	UPS	UPS

