

STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

IN RE: :  
: :  
APPLICATION OF CELLCO PARTNERSHIP : DOCKET NO. 347  
D/B/A VERIZON WIRELESS FOR A :  
CERTIFICATE OF ENVIRONMENTAL :  
COMPATIBILITY AND PUBLIC NEED FOR :  
THE CONSTRUCTION, MAINTENANCE :  
AND OPERATION OF A WIRELESS :  
TELECOMMUNICATIONS FACILITY AT :  
THE GAYLORDSVILLE VOLUNTEER FIRE :  
DEPARTMENT, NEW MILFORD, :  
CONNECTICUT : DECEMBER 11, 2007

PRE-FILED TESTIMONY OF DAVID A. CROTTY

**1.Q. Please describe your position with Cellco Partnership d/b/a Verizon Wireless.**

A. I have been working as a radio frequency (RF) engineer for Cellco Partnership d/b/a Verizon Wireless (“Cellco” or the “Company”) since 1999. My principal responsibilities include radio frequency design for Cellco’s Litchfield County Connecticut PCS wireless network. Prior to joining Cellco, I worked for four years as a radio frequency engineer for Sprint PCS.

**2.Q. What does your testimony address?**

A. The purpose of my testimony is to provide information relating to Cellco’s application for a certificate of environmental compatibility and public need for the proposed Gaylordsville Volunteer Fire Department (“GVFD”) facility (Council Docket No. 347) and Cellco’s overall objectives in New Milford.

**3.Q. Did you assist with the preparation of the Council’s Docket No. 347 Application?**

A. Yes.

**4.Q. Is there any information in the Application that you would like to update or amend?**

A. Yes. The language contained in Section III.B.2. of the Application narrative (pp. 8-9) should be updated to read as follows:

*1. System Design and Equipment*

*a. System Design*

*Cellco's wireless system in general and the proposed Watertown West Facility, in particular, have been designed and developed to allow Cellco to achieve and to maintain high quality, reliable wireless service without interruption from dropped calls and interference.*

*The system design provides for frequency reuse and hand-off, is capable of orderly expansion and is compatible with other wireless systems. The resulting quality of service compares favorably with the quality of service provided by conventional wireline telephone service. The wireless system is designed to assure a true cellular configuration of base transmitters and receivers in order to cover the proposed service area effectively while providing the highest quality of service possible. Cell site transmissions are carefully tailored to the FCC's technical standards with respect to coverage and interference and to minimize the amount of power that is radiated.*

*Mobile telephone switching offices ("MTSOs") in Windsor and Wallingford are interconnected and operate Cellco's wireless systems in Connecticut as a single network, offering the subscriber uninterrupted use of the system while traveling throughout the State. This network is further interconnected with the local exchange company ("LEC") and inter-lata (long distance) carriers network.*

*Cellco has designed its wireless system in conformity with applicable standards and constraints for wireless systems. Cellco's system is also designed to minimize the need for additional cell sites in the absence of additional demand or unforeseen circumstances.*

**b. Cellular System Equipment**

*The key elements of the cellular system are the two MTSOs located in Windsor and Wallingford and the various connector cell sites around the state. Cellco's CDMA wireless networks are deployed on two platforms: the earlier AUTOPLEX system, using Series II base stations, and the newer FLEXENT CDMA system, using smaller, more compact modular base stations. Because the Series II base stations are no longer manufactured, the newer CDMA systems, using smaller, more compact modular base stations are used for all current installations.*

*The major electronic components of each cell site are radio frequency transmission and receiving equipment and cell site controller equipment. Cellco's cellular system uses Lucent Flexent® Modular Cell 4.0B cell site equipment to provide complete cell site control and performance monitoring. This equipment is capable of expanding in modules to meet system growth needs. The cell site equipment primarily provides for: message control on the calling channel; call setup and supervision; radio frequency equipment control; internal diagnostics; response to remote and local test commands; data from the mobile or portable unit in both directions and on all channels; scan receiver control; transmission of power control commands; rescanning of all timing; and commands and voice channel assignment. Additional information with respect to the Lucent Flexent® Modular Cell 4.0B equipment is contained in Attachment 8.*

Copies of the specifications for the Lucent Flexent® Modular Cell 4.0B equipment are included as Attachment 1.

**5.Q. Please describe Cellco’s existing coverage in the Town of New Milford and Cellco’s future network development plans, to the extent that information is available.**

A. Cellco currently maintains four cell sites in New Milford. These sites were established as a part of the initial roll out of Cellco’s PCS network into Litchfield County which began in 2003. Each of these existing facilities involves the co-location of antennas on existing structures in Town; three existing telecommunications towers and one CL&P transmission line structure. Information on each of these existing facilities is provided below.

	<u>Cellco Site Name</u>	<u>Owner</u>	<u>Location</u>	<u>Tower Height</u>	<u>Cellco Antenna Height</u>
1.	New Milford West	Spectrasite	4 Elkington Farm Road	150’	133’
2.	New Milford	Sprint	86 Boardman Road	150’	130’
3.	New Milford East	Sprint	399 Chestnut Land Road	160’	140’
4.	New Milford South	CL&P	Hilltop View Lane	150’	140’

In addition to these existing sites Cellco has recently filed an Application with the Council for a new tower site at the Northville Volunteer Fire Department at 359 Litchfield Road in New Milford. Cellco also maintains existing cell sites in the boarder towns of Kent, Washington (recently approved), Brookfield and Sherman.

**6.Q. What is Cellco’s coverage objective in northwest New Milford?**

A. As described in the Application, the primary objective for the New Milford NW cell site is to provide coverage along Route 7 and portions of Route 55 between Cellco’s existing New Milford West cell site and Kent South cell site.

**7.Q. Does the proposed New Milford NW cell site at the GVFD satisfy Cellco’s objectives in this area?**

A. The proposed cell site satisfies a significant portion of Cellco's coverage objectives in the area. Following an extensive review of existing structures and other raw land alternatives in the area, I am confident that there is no single site that could satisfy Cellco's entire coverage objective in the northwest New Milford. From the New Milford NW facility Cellco will provide reliable coverage along a 2.4 mile portion of Route 7 and a 0.9 mile portion of Route 55.

**8.Q. Would Cellco be able to provide seamless coverage to this area with a taller tower at the GVFD site?**

A. No. Topography along Route 7 in the northwest portion of New Milford is fairly severe. Route 7 runs along the Housatonic River. As depicted on the topographic maps included in the Application (Application p. ii and Tab 1, p. 2), significant variations in ground elevation are common in this area. These conditions present significant challenges to RF engineers trying to design a network and select individual cell sites. Cellco evaluated the use of a taller tower, up to 150', at the GVFD site. Due to the topography in the area, and the way Route 7 meanders through the Housatonic River valley, a taller tower did not provide Cellco with significantly better coverage than it could achieve at 120' as proposed in the Application.

**9.Q. Why does Cellco believe that this site, at the GVFD is the most appropriate location for it New Milford NW cell site?**

A. First and foremost, the GVFD site works, from an RF design perspective. While not covering the entire area between its two adjacent sites, a significant portion of the existing gap in northwest New Milford would be covered by the proposed cell site. Second, Cellco prefers, whenever possible, to lease land from municipalities and emergency service entities for new tower sites. Cellco's recent tower proposals in New Milford (Northville Volunteer Fire Department site),

Sterling (Town of Sterling parcel), Watertown (Town transfer station property) and Kent (Town transfer station property) are other examples of this effort. By installing a tower at the GVFD, Cellco can satisfy a significant portion of its coverage objectives in the area; provide the GVFD with lease payments; and give emergency service entities in New Milford an opportunity to enhance their own emergency service communications networks. The GVFD site is identified in the recently developed Town of New Milford Communications Center Project and Radio System Needs Assessment dated August 15, 2007, as a tower location that can ultimately benefit the Town's emergency services communications network.

**10.Q. Has Cellco settled on the location of the additional facilities referred to above that will be needed to fill in those gaps that remain after the installation of the GVFD site?**

A. No. Cellco is currently exploring alternative sites to the north and south of the Gaylordsville area, including the potential use of CL&P structures.

**11.Q. Does this conclude your testimony?**

A. Yes.

The statements above are true and accurate to the best of my knowledge.

12/11/07  
Date

David A. Crotty  
David A. Crotty

Subscribed and sworn before me this 11<sup>th</sup> day of December, 2007.

Kenneth C. Baldwin  
Kenneth C. Baldwin  
Commissioner of the Superior Court

# Lucent CDMA Modular Cell 4.0B Indoor For CDMA Networks



Lucent CDMA Modular Cell 4.0B is a high capacity base station equipped with the state-of-the-art technologies developed by Bell Labs. The product brings you outstanding carrier density and immediate OPEX savings. This indoor product can support up to 8 carriers/3 sectors per frame. It is twice the density of Modular Cell 4.0 (indoor). Modular Cell 4.0B offers full spectrum coverage in a single frame, dramatically simplifying growth patterns. As the leader in spread spectrum technology, Lucent Technologies continues to introduce innovations to the market: Multi-Carrier Radio (15MHz), Block Filters/Wideband Filters, and 40W Power Amplifier Modules are the latest assets integrated in the base station.

## Features

The Modcell 4.0B indoor version offers a small footprint with exceptional carrier density in a standard ETSI cabinet.

- Indoor Single Frame Configuration
- 1-8 carriers per frame at 3 sectors (will support up to 11 carriers with Auxiliary Amplifier Frame)
- Dual Band: one cell to the ECP & mobile
- Close Loop Gain Control
- Timing and Controller Redundancy
- Integrated Power option
- Support CDMA2000™1X, and EV-DO Rev.0, with future support to EV-DO Rev. A
- IP Backhaul and Ethernet Backhaul capable
- 6-Sector option ready
- Intelligent Antenna option ready

## Benefits

- Optimized for highest carrier density, smooth growth in one frame
- Conserves indoor footprint, reducing hardware and floor space requirements
- Minimizes configuration complexity
- Software-Only Carrier Add at certain carrier counts
- Flexible channel growth planning
- Designed to use existing power supply
- Grow CDMA carriers on only 2 antennas/sector
- Multi-Carrier Radio (15MHz), Block Filters/Wideband Filters, and 40W Power Amplifier Modules



# Technical Specifications

Description	Specification
1. <b>Configurations</b>	3, 4 and 6 1–8 per frame at 3 sectors (up to 11 with Auxiliary Amplifier Frame)
a. Sectors	
b. Carriers	
2. <b>CDMA Channel Card Capacity</b>	12 slots; CMU IVB capable
3. <b>T1, E1 Facilities</b>	Maximum of 20 per cabinet when equipped with URC-II's
4. <b>User Alarms</b>	7 Power Alarms, 25 User Alarms
5. <b>GPS Antenna</b>	Yes
6. <b>Air Interface Standards</b>	T1A/E1A 95-A plus TSB-74; T1A/E1A 95-B for 850 MHz; CDMA 2000
7. <b>Frequency Bands</b>	850MHz/1900 MHz; 300 to 2100 MHz capable
8. <b>Vocoder</b>	8 Kbps; 8 Kbps EVRC; 13 Kbps; SMV-ready
9. <b>Environmental Cabinet Housing</b>	Standard ETSI cabinet; UL50 compliant; zero rear clearance
10. <b>Cabinet Access</b>	Front Access
11. <b>Operating Temperature Range</b>	Range: -5 to +40°C (continuous)
12. <b>Dimensions</b>	600 mm W x 600 mm D x 1880 mm H (23.6 x 23.6 x 74) inches
13. <b>Estimated Installed Weight</b>	365 kg (785 lbs.) DC [8 carriers in one cabinet]
14. <b>Power Options</b>	Integrated Power, AC 120/240 Volt Input, -48V or +24 V DC Conversion Non-integrated Power requires either + 24 VDC Input or - 48 VDC Input
15. <b>Power Consumption</b>	2167 W 5449 W 10026 W
a. 3 Carrier/3 Sectors	
b. 6 Carrier/3 Sectors	
c. 11 Carrier/3 Sectors	
16. <b>RF Power (at J4)</b>	25 W per carrier (850) FCC Rated short-term average 20 W per carrier (850) FCC Rated long-term average 20 W per carrier (1900) FCC Rated short-term average 16 W per carrier (1900) FCC Rated long-term average
17. <b>Minimal Antenna Configuration</b>	2 antennas/sector
18. <b>Filter</b>	Block and Wide Band Dual Duplex
19. <b>Growth Frame</b>	PCS AUX Frame, Dual Band Growth Frame
20. <b>Operational Accessories</b>	Integrated Power
21. <b>Channel Elements</b>	Channel pooling across sectors or carriers

To learn more about our comprehensive portfolio, please contact your Lucent Technologies Sales Representative or visit our web site at <http://www.lucent.com>.

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