

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5665 www.comsearch.com

PCN Date: 09/07/2011

Prev Job Num: 100511COMSFB08

Job Number: 110907COMSCT06

RCN Number: 11090755

Administrative Information

ALTAMONT PS CA

City/County /Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WLV548
Licensee Code 5165A1
Licensee Name New Cingular Wireless PCS LLC - N C
Radio Service / Station Class CF -- Point-to-Point Microwave, Common Carrier

SOUTH VASCO CA

City/County /Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WPQP799
Licensee Code 5165A1
Licensee Name New Cingular Wireless PCS LLC - N C
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' <u>45.0</u> " N	37 ° 45' <u>51.7</u> " N
Longitude (NAD 83)	121 ° 39' 43.3" W	121 ° 44' <u>40.4</u> " W
Ground Elevation (m/ft-AMSL)	451.10 / 1480.0	398.37 / 1307.0
Antenna Structure Registration #		
Path Azimuth (°)	<u>308.380</u>	<u>128.329</u>
Path Length (km / miles)		<u>9.276</u> / <u>5.764</u>

Transmit Antenna

Manufacturer	GB3180	87059A
Model	GABRIEL ELECTRONICS	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	HE6-180B	VHLP2.5-18
Centerline (m / ft - AGL)	48.2 / 0.70 / -0.37	41.0 / 1.50 / 0.31
	4.57 / 15.0	1.83 / 6.0

Receive Antenna

Same As Transmit

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Diversity Receive Antenna

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Radio Information

Manufacturer	TEMT61	TEMT61
Model	Alcatel-Lucent USA, Inc.	Alcatel-Lucent USA, Inc.
Model Description	95MPR18-O32F10-37	95MPR18-O32F10-37
Emission Designator / Modulation	9500 MPR Outdoor Fixed Modulation	9500 MPR Outdoor Fixed Modulation
Loading	10M0D7W 32 QAM	10M0D7W 32 QAM
Stability (%)	1 CH DIG 37320.000	1 CH DIG 37320.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	17.0	17.0
Received Level (dBm)	<u>-33.4</u>	<u>-33.4</u>
EIRP (dBm)	62.9	58.0
Fixed Loss: Tx / Common (dB)	0.0 / 2.3	0.0 / 0.0
Free Space Loss (dB)		<u>137.3</u>

Transmit Frequencies (MHz)

19385.0000V(1)

17825.0000V(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 09/07/2011
Job Number 110907COMSCT06

Prev Job Num: 110420COMSAN01
RCN Number: 11090755

Administrative Information

NIAC ALPHA CA
City/County /San Diego
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WPTL751
Licensee Code CINWSC
Licensee Name New Cingular Wireless PCS LLC -San
Radio Service / Station Class CF -- Point-to-Point Microwave, Common Carrier

AREA 52 TANK CA

City/County /San Diego
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQME605
Licensee Code CINWSC
Licensee Name New Cingular Wireless PCS LLC -San
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	33 °24' <u>57.4</u> " N	33 °23' 49.4" N
Longitude (NAD 83)	117 °31' <u>28.9</u> " W	117 °30' <u>31.7</u> " W
Ground Elevation (m/ft-AMSL)	251.76 / 826.0	122.83 / 403.0
Antenna Structure Registration #	1253919	
Path Azimuth (°)	<u>144.793</u>	<u>324.801</u>
Path Length (km / miles)		<u>2.564</u> / <u>1.593</u>

Transmit Antenna

Manufacturer	87059A	87059A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2.5-18	VHLP2.5-18
Centerline (m / ft - AGL)	41.0 / 1.50 / <u>-3.36</u>	41.0 / 1.50 / 3.35
	<u>28.96</u> / <u>95.0</u>	<u>7.62</u> / <u>25.0</u>

Receive Antenna

Same As Transmit

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Diversity Receive Antenna

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Radio Information

Manufacturer	TEMT63	TEMT63
Model	Alcatel-Lucent USA, Inc.	Alcatel-Lucent USA, Inc.
Model Description	95MPR18-O32F30-114	95MPR18-O32F30-114
Emission Designator / Modulation	9500 MPR Outdoor Fixed Modulation HP	9500 MPR Outdoor Fixed Modulation HP
Loading	30M0D7W 32 QAM	30M0D7W 32 QAM
Stability (%)	1 CH DIG 114000.000	1 CH DIG 114000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	17.0	17.0
Received Level (dBm)	-41.6	-41.6
EIRP (dBm)	48.5	53.0
Fixed Loss: Tx / Common (dB)	0.0 / 9.5	0.0 / 5.0
Free Space Loss (dB)		<u>126.1</u>

Transmit Frequencies (MHz) 19675.0000V(13)

18115.0000V(13)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 09/07/2011
Job Number 110907COMSCT06

Prev Job Num: 0110090201
RCN Number: 11090756

Administrative Information	DEL NORTE CA	MONUMENT CA
City/County	Eureka/Humboldt	/Humboldt
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WPUC912	WPUC908
Licensee Code	EDGNCA	EDGNCA
Licensee Name	Edge Wireless LLC- Northern Califo	Edge Wireless LLC- Northern Califo
Radio Service / Station Class	CF -- Point-to-Point Microwave, Common Carrier	FXO -- Fixed

Site Information

Latitude (NAD 83)	40 ° 47' <u>27.4</u> " N	40 ° 25' <u>12.3</u> " N
Longitude (NAD 83)	124 ° 10' <u>56.8</u> " W	124 ° 5' <u>1.8</u> " W
Ground Elevation (m/ft-AMSL)	3.00 / 9.8	932.70 / 3060.0
Antenna Structure Registration #	1033287	
Path Azimuth (°)	<u>168.512</u>	<u>348.576</u>
Path Length (km / miles)	<u>42.020</u> / <u>26.110</u>	

Transmit Antenna

Manufacturer	51290A	51290A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	PAR6-65A RF	PAR6-65A RF
Centerline (m / ft - AGL)	38.8 / 1.80 / <u>1.11</u>	38.8 / 1.80 / <u>-1.39</u>
	<u>21.34</u> / <u>70.0</u>	<u>7.62</u> / <u>25.0</u>

Receive Antenna

Same As Transmit

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Diversity Receive Antenna

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Radio Information

Manufacturer	TEM867	TEM867
Model	Aviat Networks, Inc.	Aviat Networks, Inc.
Model Description	HRS-CX-06G28D1	HRS-CX-06G28D1
Emission Designator / Modulation	CONSTELLATION (6GHZ, 28DS1)	CONSTELLATION (6GHZ, 28DS1)
Loading	10M0D7W 64 QAM	10M0D7W 64 QAM
Stability (%)	672 CH DIG 47000.000	672 CH DIG 47000.000
	0.0003	0.0003
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	29.5	29.5
Received Level (dBm)	-40.4	-40.4
EIRP (dBm)	64.5	65.6
Fixed Loss: Tx / Common (dB)	0.5 / 3.3	0.5 / 2.2
Free Space Loss (dB)		<u>141.5</u>

Transmit Frequencies (MHz) 6755.0000H(2)

6595.0000H(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

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PCN Date: 09/07/2011

Prev Job Num: 110113COMSAN03

Job Number 110907COMSCT06

RCN Number: 11090755

Administrative Information**SD486 SAN ON CA****I5 REST STOP CA**

City/County

/San Diego

/San Diego

Status / License Basis

Engineering Proposal / PRIMARY OPERATION

Engineering Proposal / PRIMARY OPERATION

Call Sign

WLV980

WPSQ351

Licensee Code

CINWSC

CINWSC

Licensee Name

New Cingular Wireless PCS LLC -San

New Cingular Wireless PCS LLC -San

Radio Service / Station Class

CF -- Point-to-Point Microwave, Common Carrier

FXO -- Fixed

Site Information

Latitude (NAD 83)

33 °21' 16.3 " N

33 °16' 11.6" N

Longitude (NAD 83)

117 °31' 26.5 " W117 °26' 8.8 " W

Ground Elevation (m/ft-AMSL)

102.00 / 334.6

22.25 / 73.0

Antenna Structure Registration #

1257286

Path Azimuth (°)

138.775318.824

Path Length (km / miles)

12.476 / 7.752**Transmit Antenna**

70440A

70440A

Manufacturer

ANDREW CORPORATION

ANDREW CORPORATION

Model

VHLPX4-11B

VHLPX4-11B

Gain(dBi) / Beamwidth(°) / Tilt(°)

40.4 / 1.50 / -0.36

40.4 / 1.50 / 0.27

Centerline (m / ft - AGL)

4.57 / 15.015.85 / 52.0**Receive Antenna**

Same As Transmit

Manufacturer

Model

Gain (dBi) / Beamwidth (°)

Centerline (m / ft - AGL)

Diversity Receive Antenna

Manufacturer

Model

Gain (dBi) / Beamwidth (°)

Centerline (m / ft - AGL)

Radio Information

TEMU27

TEMU27

Manufacturer

Alcatel-Lucent USA, Inc.

Alcatel-Lucent USA, Inc.

Model

95MPR11-H128F30-160

95MPR11-H128F30-160

Model Description

9500 MPR Indoor Fixed Modulation

9500 MPR Indoor Fixed Modulation

Emission Designator / Modulation

30M0D7W 128 QAM

30M0D7W 128 QAM

Loading

1 CH DIG 160170.000

1 CH DIG 160170.000

Stability (%)

0.001

0.001

Nominal Coordinated Maximum

Nominal Coordinated Maximum

Power (dBm)

27.0

27.0

Received Level (dBm)

-34.6

-34.6

EIRP (dBm)

63.9

63.9

Fixed Loss: Tx / Common (dB)

0.0 / 3.5

0.0 / 3.5

Free Space Loss (dB)

135.4**Transmit Frequencies (MHz)**

10995.0000V(8)

11485.0000V(8)

Microwave Path Data Sheet

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PCN Date: 09/07/2011
Job Number 110907COMSCT06

Prev Job Num: 101230COMSAN03
RCN Number: 11090755

Administrative Information

City/County
Status / License Basis
Call Sign
Licensee Code
Licensee Name
Radio Service / Station Class

SD137-LIMA CA

Camp Pendleton North/San Diego
Engineering Proposal / PRIMARY OPERATION
WPTL475
CINWSC
New Cingular Wireless PCS LLC -San
CF -- Point-to-Point Microwave, Common Carrier

MASS-3 CA

/San Diego
Engineering Proposal / PRIMARY OPERATION
WPTS888
CINWSC
New Cingular Wireless PCS LLC -San
FXO -- Fixed

Site Information

Latitude (NAD 83) 33 °18' 26.6" N
Longitude (NAD 83) 117 °19' 27.9" W
Ground Elevation (m/ft-AMSL) 173.10 / 567.9
Antenna Structure Registration # 1238789
Path Azimuth (°) 241.809
Path Length (km / miles) 6.577 / 4.086

33 °16' 45.7" N
117 °23' 11.9 " W
170.08 / 558.0
1229519
61.775

Transmit Antenna

70440A
Manufacturer ANDREW CORPORATION
Model VHLPX4-11B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.4 / 1.50 / -0.06
Centerline (m / ft - AGL) 7.62 / 25.0

70440A
ANDREW CORPORATION
VHLPX4-11B
40.4 / 1.50 / 0.02
6.10 / 20.0

Receive Antenna

Same As Transmit

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Diversity Receive Antenna

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft - AGL)

Radio Information

TEMB48
Manufacturer Aviat Networks, Inc.
Model HRS-CX-11G155M
Model Description CONSTELLATION (11GHz, 155/180)
Emission Designator / Modulation 30M0D7W 128 TCM
Loading 2016CH DIG 172560.000
Stability (%) 0.0003
Nominal Coordinated Maximum
Power (dBm) 25.0
Received Level (dBm) -33.8
EIRP (dBm) 60.2
Fixed Loss: Tx / Common (dB) 0.0 / 5.2
Free Space Loss (dB) 129.8

TEMB48
Aviat Networks, Inc.
HRS-CX-11G155M
CONSTELLATION (11GHz, 155/180)
30M0D7W 128 TCM
2016CH DIG 172560.000
0.0003
Nominal Coordinated Maximum
25.0
-33.8
60.8
0.0 / 4.6

Transmit Frequencies (MHz) 11245.0000V(2)

10755.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 09/07/2011
Job Number 110907COMSCT06

Prev Job Num: 070111COMSKN01
RCN Number: 11090755

Administrative Information

ORLAND CA
City/County /Tehama
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WMN206
Licensee Code 5165A1
Licensee Name New Cingular Wireless PCS LLC – N C
Radio Service / Station Class CF -- Point-to-Point Microwave, Common Carrier

CHICO CA

Chico/Butte
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WPJA740
Licensee Code 5165A1
Licensee Name New Cingular Wireless PCS LLC – N C
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	39 °50' <u>41.4</u> " N	39 °42' 49.7" N
Longitude (NAD 83)	122 °11' 46.7" W	121 °48' 32.2" W
Ground Elevation (m/ft-AMSL)	89.00 / 292.0	<u>62.40</u> / <u>204.7</u>
Antenna Structure Registration #	1013364	<u>1278710</u>
Path Azimuth (°)	<u>113.549</u>	<u>293.796</u>
Path Length (km / miles)		<u>36.233</u> / <u>22.514</u>

Transmit Antenna

Manufacturer	M82050	M82500
Model	MARK ANTENNA	MARK ANTENNA
	MHP-60A72 LF	P-60A72
Gain(dBi) / Beamwidth(°) / Tilt(°)	38.8 / 1.80 / -0.14	38.9 / 1.80 / -0.11
Centerline (m / ft – AGL)	28.96 / 95.0	47.24 / 155.0

Receive Antenna

Same As Transmit

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft – AGL)

Diversity Receive Antenna

Manufacturer	M82050	M82500
Model	MARK ANTENNA	MARK ANTENNA
	MHP-60A72 LF	P-60A72
Gain (dBi) / Beamwidth (°)	38.8 / 1.80	38.9 / 1.80
Centerline (m / ft – AGL)	16.76 / 55.0	35.10 / 115.2

Radio Information

Manufacturer	27CH01	27CH01
Model	Aviat Networks, Inc.	Aviat Networks, Inc.
Model Description	BCK9GKDVM6-4564-1	BCK9GKDVM6-4564-1
Emission Designator / Modulation	DVM6 Excell	DVM6 Excell
Loading	10M0D7W 64 QAM	10M0D7W 64 QAM
Stability (%)	672 CH DIG 46681.000	672 CH DIG 46681.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	28.0	28.0
Received Level (dBm)	-37.8	-37.8
EIRP (dBm)	64.8	64.9
Fixed Loss: Tx / Common (dB)	0.0 / 2.0	0.0 / 2.0
Free Space Loss (dB)		<u>139.5</u>

Transmit Frequencies (MHz) 6286.1900H(11)

6034.1500H(11)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 09/07/2011
Job Number 110907COMSCT06

Prev Job Num: 100805COMSFB01
RCN Number: 11090755

Administrative Information

LAC273 CA
City/County /San Bernardino
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WMJ339
Licensee Code NWCNLA
Licensee Name New Cingular Wireless PCS – Los Ang
Radio Service / Station Class CF -- Point-to-Point Microwave, Common Carrier

LAC481 CA

City/County /San Bernardino
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WPTE349
Licensee Code NWCNLA
Licensee Name New Cingular Wireless PCS – Los Ang
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83) 34 °38' 38.7 " N
Longitude (NAD 83) 116 °37' 30.3 " W
Ground Elevation (m/ft-AMSL) 1812.95 / 5948.0
Antenna Structure Registration #
Path Azimuth (°) 80.383
Path Length (km / miles) 44.013 / 27.349

Latitude (NAD 83) 34 °42' 34.0" N
Longitude (NAD 83) 116 °9' 5.0" W
Ground Elevation (m/ft-AMSL) 646.40 / 2120.7
Antenna Structure Registration # 1248205
Path Azimuth (°) 260.653

Transmit Antenna

41729A
Manufacturer ANDREW CORPORATION
Model UHX6-59L RF
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.8 / 1.80 / -1.67
Centerline (m / ft – AGL) 6.71 / 22.0

41729A
Manufacturer ANDREW CORPORATION
Model UHX6-59L RF
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.8 / 1.80 / 1.37
Centerline (m / ft – AGL) 7.62 / 25.0

Receive Antenna

Same As Transmit

Manufacturer
Model
Gain (dBi) / Beamwidth (°)
Centerline (m / ft – AGL)

Diversity Receive Antenna

41729A
Manufacturer ANDREW CORPORATION
Model UHX6-59L RF
Gain (dBi) / Beamwidth (°) 38.8 / 1.80
Centerline (m / ft – AGL) 12.19 / 40.0

41729A
Manufacturer ANDREW CORPORATION
Model UHX6-59L RF
Gain (dBi) / Beamwidth (°) 38.8 / 1.80
Centerline (m / ft – AGL) 15.24 / 50.0

Radio Information

TEMU53
Manufacturer Alcatel-Lucent USA, Inc.
Model 95MPR61-H128F30-160
Model Description 9500 MPR Indoor Fixed Modulation
Emission Designator / Modulation 30M0D7W 128 QAM
Loading 1 CH DIG 160000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 31.0
Received Level (dBm) -36.6
EIRP (dBm) 67.8
Fixed Loss: Tx / Common (dB) 0.0 / 2.0
Free Space Loss (dB) 141.2

TEMU53
Manufacturer Alcatel-Lucent USA, Inc.
Model 95MPR61-H128F30-160
Model Description 9500 MPR Indoor Fixed Modulation
Emission Designator / Modulation 30M0D7W 128 QAM
Loading 1 CH DIG 160000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 31.0
Received Level (dBm) -36.6
EIRP (dBm) 67.8
Fixed Loss: Tx / Common (dB) 0.0 / 2.0

Transmit Frequencies (MHz) 5945.2000V(11T)

6197.2400V(21T)