

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number: 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC031B CA
City/County Parkway-South Sacram/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC996D CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °31' 16.0~ N	38 °32' 19.4~ N
Longitude (NAD 83)	121 °26' 34.0~ W	121 °24' 30.2~ W
Ground Elevation (m/ft-AMSL)	8.80 / 28.9	12.90 / 42.3
Antenna Structure Registration #	1014065	
Path Azimuth (°)	56.887	236.908
Path Length (km / miles)	3.580 / 2.224	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.25	38.7 / 2.10 / 0.22
	29.57 / 97.0	10.67 / 35.0

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	TEMO85	TEMO85
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC322V02	18HD50HFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	11.5	11.5
Received Level (dBm)	-40.1	-40.1
EIRP (dBm)	50.2	50.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.0

Transmit Frequencies (MHz)	19575.0000H(6)	19675.0000H(8)	18015.0000H(6)	18115.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC037B CA
 City/County /Sacramento
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC064B CA

Gold River/Sacramento
 Engineering Proposal / PRIMARY OPERATION
 CLESP3
 Clearwire Spectrum Holdings III, LL
 FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 38.2~ N	38 °37' 38.7~ N
Longitude (NAD 83)	121 °15' 20.7~ W	121 °13' 35.7~ W
Ground Elevation (m/ft-AMSL)	36.60 / 120.1	40.90 / 134.2
Antenna Structure Registration #	1269709	
Path Azimuth (°)	53.696	233.714
Path Length (km / miles)	3.152 / 1.958	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.03
Centerline (m / ft - AGL)	15.24 / 50.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -42.0	-42.0
EIRP (dBm) 47.2	47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.9	

Transmit Frequencies (MHz)

17965.0000V(5)	18065.0000V(7)	19525.0000V(5)	19625.0000V(7)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information**CA-SAC048A CA****CA-SAC0696A CA**

City/County

Davis/Yolo

/Yolo

Status / License Basis

Engineering Proposal / PRIMARY OPERATION

Engineering Proposal / PRIMARY OPERATION

Call Sign

Licensee Code

CLESP3

CLESP3

Licensee Name

Clearwire Spectrum Holdings III, LL

Clearwire Spectrum Holdings III, LL

Radio Service / Station Class

MG -- Microwave Industrial/Business Pool

FXO -- Fixed

Site Information

Latitude (NAD 83)

38 °32' 49.2~ N

38 °31' 54.1~ N

Longitude (NAD 83)

121 °43' 44.9~ W

121 °46' 30.1~ W

Ground Elevation (m/ft-AMSL)

13.00 / 42.7

18.60 / 61.0

Antenna Structure Registration #

1241425

Path Azimuth (°)

247.005

66.976

Path Length (km / miles)

4.347 / 2.701

Transmit Antenna

87012A

87012A

Manufacturer

ANDREW CORPORATION

ANDREW CORPORATION

Model

VHLP2-18

VHLP2-18

Gain (dBi) / Beamwidth (°) / Tilt (°)

38.7 / 2.10 / 0.30

38.7 / 2.10 / -0.33

Centerline (m / ft - AGL)

27.43 / 90.0

45.72 / 150.0

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

TEM032

TEM032

Manufacturer

DRAGONWAVE INC

DRAGONWAVE INC

Model

18HD50HFC271V02

18HD50HFC271V02

Model Description

HORIZON DUO

HORIZON DUO

Emission Designator / Modulation

47M8D7W

128 QAM

47M8D7W

128 QAM

Loading

1 CH DIG 271000.000

1 CH DIG 271000.000

Stability (%)

0.001

0.001

Nominal	Coordinated	Maximum
13.0		
-40.3		
51.7		

Nominal	Coordinated	Maximum
13.0		
-40.3		
51.7		

Power (dBm)

13.0

13.0

Received Level (dBm)

-40.3

-40.3

EIRP (dBm)

51.7

51.7

Fixed Loss: Tx / Common (dB)

0.0 / 0.0

0.0 / 0.0

Free Space Loss (dB)

130.7

Transmit Frequencies (MHz)

19375.0000H(2)

19475.0000H(4)

17815.0000H(2)

17915.0000H(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0502C CA
City/County Davis/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0696A CA

/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 1.7~ N	38 °31' 54.1~ N
Longitude (NAD 83)	121 °46' 9.7~ W	121 °46' 30.1~ W
Ground Elevation (m/ft-AMSL)	15.50 / 50.9	18.60 / 61.0
Antenna Structure Registration #	1271469	1241425
Path Azimuth (°)	187.158	7.154
Path Length (km / miles)	3.965 / 2.464	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.37	38.7 / 2.10 / -0.39
22.56 / 74.0	45.72 / 150.0

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

TEMQ58	TEMQ58
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC215V02	18HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-44.0	-44.0
47.2	47.2
0.0 / 0.0	0.0 / 0.0
129.9	

Transmit Frequencies (MHz)

19575.0000V(6)	19675.0000V(8)	18015.0000V(6)	18115.0000V(8)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0508C CA
City/County Davis/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC175A CA

/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 13.0~ N	38 °35' 20.0~ N
Longitude (NAD 83)	121 °41' 42.0~ W	121 °43' 30.0~ W
Ground Elevation (m/ft-AMSL)	10.40 / 34.1	11.40 / 37.4
Antenna Structure Registration #		
Path Azimuth (°)	326.282	146.263
Path Length (km / miles)	4.709 / 2.926	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.52	38.7 / 2.10 / -0.55
18.29 / 60.0	60.96 / 200.0

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

TEMQ58	TEMQ58
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC215V02	18HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-45.5	-45.5
47.2	47.2
0.0 / 0.0	0.0 / 0.0
131.4	

Transmit Frequencies (MHz)

19375.0000V(2)	19475.0000V(4)	17815.0000V(2)	17915.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC052A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC025A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °31' 43.7~ N	38 °31' 44.9~ N
Longitude (NAD 83)	121 °23' 57.6~ W	121 °21' 30.1~ W
Ground Elevation (m/ft-AMSL)	12.90 / 42.3	18.70 / 61.4
Antenna Structure Registration #		
Path Azimuth (°)	89.394	269.419
Path Length (km / miles)	3.573 / 2.220	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.42	38.7 / 2.10 / -0.45
15.24 / 50.0	36.58 / 120.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
11.5	11.5
-40.1	-40.1
50.2	50.2
0.0 / 0.0	0.0 / 0.0
129.0	

Transmit Frequencies (MHz)

17965.0000H(5)	18065.0000H(7)	19525.0000H(5)	19625.0000H(7)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0520C CA
City/County /Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC032A CA

West Sacramento/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °29' 14.0~ N	38 °31' 18.7~ N
Longitude (NAD 83)	121 °33' 15.8~ W	121 °32' 19.0~ W
Ground Elevation (m/ft-AMSL)	4.40 / 14.4	4.60 / 15.1
Antenna Structure Registration #		1015152
Path Azimuth (°)	19.688	199.698
Path Length (km / miles)	4.084 / 2.538	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.23	38.7 / 2.10 / -0.26
29.87 / 98.0	46.94 / 154.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
15.5	15.5
-37.2	-37.2
54.2	54.2
0.0 / 0.0	0.0 / 0.0
130.1	

Transmit Frequencies (MHz)

18015.0000H(6)	18115.0000H(8)	19575.0000H(6)	19675.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0535B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC005A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 19.4~ N	38 °37' 57.3~ N
Longitude (NAD 83)	121 °31' 8.9~ W	121 °29' 46.4~ W
Ground Elevation (m/ft-AMSL)	5.10 / 16.7	3.50 / 11.5
Antenna Structure Registration #		
Path Azimuth (°)	59.638	239.652
Path Length (km / miles)	2.313 / 1.437	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.03
Centerline (m / ft - AGL)	19.20 / 63.0
	19.81 / 65.0

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

TEMQ57	TEMQ57
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50SFC322V02	18HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -42.3	-42.3
EIRP (dBm) 44.2	44.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.2	

Transmit Frequencies (MHz)	19525.0000H(5)	19625.0000H(7)	17965.0000H(5)	18065.0000H(7)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0535B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0534A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 19.4~ N	38 °38' 56.8~ N
Longitude (NAD 83)	121 °31' 8.9~ W	121 °31' 8.7~ W
Ground Elevation (m/ft-AMSL)	5.10 / 16.7	5.30 / 17.4
Antenna Structure Registration #		
Path Azimuth (°)	0.092	180.092
Path Length (km / miles)	3.003 / 1.866	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.11
Centerline (m / ft - AGL)	19.20 / 63.0
24.38 / 80.0	

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.0	8.0
Received Level (dBm) -42.1	-42.1
EIRP (dBm) 46.7	46.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.5	

Transmit Frequencies (MHz)	19375.0000V(2)	19475.0000V(4)	17815.0000V(2)	17915.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

New Path

Job Number 100107COMSTI01

RCN Number: 10010700

Administrative Information**CA-SAC0539B CA**

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC111D CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 10.5~ N	38 °37' 11.7~ N
Longitude (NAD 83)	121 °29' 55.6~ W	121 °27' 13.7~ W
Ground Elevation (m/ft-AMSL)	5.30 / 17.4	8.50 / 27.9
Antenna Structure Registration #		1252390
Path Azimuth (°)	89.445	269.473
Path Length (km / miles)		3.917 / 2.434

Transmit Antenna

87012A
Manufacturer ANDREW CORPORATION
Model VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / 0.41
Centerline (m / ft - AGL) 14.33 / 47.0

87012A
Manufacturer ANDREW CORPORATION
Model VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / -0.43
Centerline (m / ft - AGL) 39.93 / 131.0

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

TEMQ58
Manufacturer DRAGONWAVE INC
Model 18HD50SFC215V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM
Loading 1 CH DIG 215000.000
Stability (%) 0.001

	Nominal	Coordinated	Maximum
Power (dBm)		8.5	
Received Level (dBm)		-43.9	
EIRP (dBm)		47.2	

TEMQ58
Manufacturer DRAGONWAVE INC
Model 18HD50SFC215V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM
Loading 1 CH DIG 215000.000
Stability (%) 0.001

	Nominal	Coordinated	Maximum
Power (dBm)		8.5	
Received Level (dBm)		-43.9	
EIRP (dBm)		47.2	

Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 129.8

0.0 / 0.0

Transmit Frequencies (MHz)	17815.0000H(2)	17915.0000H(4)	19375.0000H(2)	19475.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC003A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0550B CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 54.0~ N	38 °40' 16.7~ N
Longitude (NAD 83)	121 °28' 41.0~ W	121 °30' 37.0~ W
Ground Elevation (m/ft-AMSL)	8.20 / 26.9	3.80 / 12.5
Antenna Structure Registration #	1060000	
Path Azimuth (°)	312.289	132.269
Path Length (km / miles)	3.791 / 2.355	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.39	38.7 / 2.10 / 0.36
34.14 / 112.0	13.72 / 45.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
13.0	13.0
-39.1	-39.1
51.7	51.7
0.0 / 0.0	0.0 / 0.0
129.5	

Transmit Frequencies (MHz)

18015.0000V(6)	18115.0000V(8)	19575.0000V(6)	19675.0000V(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC011A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC013A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 7.7~ N	38 ° 44' 16.8~ N
Longitude (NAD 83)	121 ° 16' 58.9~ W	121 ° 18' 10.5~ W
Ground Elevation (m/ft-AMSL)	49.90 / 163.7	41.10 / 134.8
Antenna Structure Registration #		1013305
Path Azimuth (°)	227.775	47.762
Path Length (km / miles)		2.335 / 1.451

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.37	38.7 / 2.10 / 0.36
33.53 / 110.0	27.43 / 90.0

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

TEMQ57	TEMQ57
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC322V02	18HD50SFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-42.4	-42.4
44.2	44.2
0.0 / 0.0	0.0 / 0.0
125.3	

Transmit Frequencies (MHz)

17965.0000V(5)	18065.0000V(7)	19525.0000V(5)	19625.0000V(7)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC011A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0630A CA

Citrus Heights/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 7.7~ N	38 ° 43' 5.9~ N
Longitude (NAD 83)	121 ° 16' 58.9~ W	121 ° 16' 53.2~ W
Ground Elevation (m/ft-AMSL)	49.90 / 163.7	50.20 / 164.7
Antenna Structure Registration #		
Path Azimuth (°)	177.900	357.901
Path Length (km / miles)	3.758 / 2.335	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.34	38.7 / 2.10 / 0.31
33.53 / 110.0	11.89 / 39.0

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

TEMQ58	TEMQ58
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC215V02	18HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-43.5	-43.5
47.2	47.2
0.0 / 0.0	0.0 / 0.0
129.4	

Transmit Frequencies (MHz)

18015.0000H(6)	18115.0000H(8)	19575.0000H(6)	19675.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC011A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC181A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 7.7~ N	38 ° 44' 3.2~ N
Longitude (NAD 83)	121 ° 16' 58.9~ W	121 ° 14' 55.6~ W
Ground Elevation (m/ft-AMSL)	49.90 / 163.7	52.80 / 173.2
Antenna Structure Registration #		
Path Azimuth (°)	123.730	303.752
Path Length (km / miles)	3.581 / 2.225	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.19	38.7 / 2.10 / 0.16
33.53 / 110.0	19.81 / 65.0

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

TEMT93	TEMT93
DRAGONWAVE INC	DRAGONWAVE INC
18HS50HFC364V02	18HS50HFC364V02
HORIZON DUO	HORIZON DUO
47M1D7W 256 QAM	47M1D7W 256 QAM
1 CH DIG 364000.000	1 CH DIG 364000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
19.5	19.5
-32.1	-32.1
58.2	58.2
0.0 / 0.0	0.0 / 0.0
129.0	

Transmit Frequencies (MHz) 17965.0000H(5)

19525.0000H(5)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC013A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC202A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 44' 16.8~ N	38 ° 42' 57.6~ N
Longitude (NAD 83)	121 ° 18' 10.5~ W	121 ° 19' 37.3~ W
Ground Elevation (m/ft-AMSL)	41.10 / 134.8	41.70 / 136.8
Antenna Structure Registration #	1013305	1236079
Path Azimuth (°)	220.654	40.639
Path Length (km / miles)	3.219 / 2.000	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.18	38.7 / 2.10 / 0.16
27.43 / 90.0	17.37 / 57.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
9.0	9.0
-41.7	-41.7
47.7	47.7
0.0 / 0.0	0.0 / 0.0
128.1	

Transmit Frequencies (MHz)

19375.0000H(2)	19475.0000H(4)	17815.0000H(2)	17915.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC022A CA
City/County Vineyard/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0575A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °27' 11.9~ N	38 °28' 54.6~ N
Longitude (NAD 83)	121 °20' 58.8~ W	121 °22' 9.2~ W
Ground Elevation (m/ft-AMSL)	23.50 / 77.1	14.50 / 47.6
Antenna Structure Registration #	1221711	
Path Azimuth (°)	331.685	151.672
Path Length (km / miles)	3.597 / 2.235	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / -0.65	38.7 / 2.10 / 0.62
Centerline (m / ft - AGL) 50.29 / 165.0	19.51 / 64.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.5	11.5
Received Level (dBm) -40.1	-40.1
EIRP (dBm) 50.2	50.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.0	

Transmit Frequencies (MHz)	19575.0000V(6)	19675.0000V(8)	18015.0000V(6)	18115.0000V(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC022A CA
City/County Vineyard/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC197A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °27' 11.9~ N	38 °26' 18.3~ N
Longitude (NAD 83)	121 °20' 58.8~ W	121 °23' 16.3~ W
Ground Elevation (m/ft-AMSL)	23.50 / 77.1	10.50 / 34.4
Antenna Structure Registration #	1221711	
Path Azimuth (°)	243.645	63.622
Path Length (km / miles)	3.721 / 2.312	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.69	38.7 / 2.10 / 0.67
50.29 / 165.0	19.11 / 62.7

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
12.0	12.0
-39.9	-39.9
50.7	50.7
0.0 / 0.0	0.0 / 0.0
129.3	

Transmit Frequencies (MHz)

19525.0000V(5)	19625.0000V(7)	17965.0000V(5)	18065.0000V(7)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0543C CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0535B CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 56.4~ N	38 °37' 19.4~ N
Longitude (NAD 83)	121 °29' 4.1~ W	121 °31' 8.9~ W
Ground Elevation (m/ft-AMSL)	5.90 / 19.4	5.10 / 16.7
Antenna Structure Registration #		
Path Azimuth (°)	283.231	103.209
Path Length (km / miles)	3.101 / 1.927	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.27
Centerline (m / ft - AGL)	33.53 / 110.0
	19.20 / 63.0

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

TEMQ58	TEMQ58
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50SFC215V02	18HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -41.8	-41.8
EIRP (dBm) 47.2	47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.7	

Transmit Frequencies (MHz)	18015.0000H(6)	18115.0000H(8)	19575.0000H(6)	19675.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0552A CA
City/County Laguna/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0516B CA

Laguna West-Lakeside/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 42.6~ N	38 °25' 35.8~ N
Longitude (NAD 83)	121 °26' 30.3~ W	121 °28' 56.0~ W
Ground Elevation (m/ft-AMSL)	7.10 / 23.3	4.10 / 13.5
Antenna Structure Registration #		
Path Azimuth (°)	266.617	86.592
Path Length (km / miles)	3.540 / 2.200	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.13	38.7 / 2.10 / 0.11
19.51 / 64.0	15.24 / 50.0

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

TEMT97	TEMT97
DRAGONWAVE INC	DRAGONWAVE INC
18HS50SFC215V02	18HS50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
12.5	12.5
-39.0	-39.0
51.2	51.2
0.0 / 0.0	0.0 / 0.0
128.9	

Transmit Frequencies (MHz) 17865.0000V(3)

19425.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

New Path

Job Number 100107COMSTI01

RCN Number: 10010700

Administrative Information**CA-SAC0554A CA****CA-SAC0560A CA**

City/County

Laguna/Sacramento

Elk Grove/Sacramento

Status / License Basis

Engineering Proposal / PRIMARY OPERATION

Engineering Proposal / PRIMARY OPERATION

Call Sign

Licensee Code

CLESP3

CLESP3

Licensee Name

Clearwire Spectrum Holdings III, LL

Clearwire Spectrum Holdings III, LL

Radio Service / Station Class

MG -- Microwave Industrial/Business Pool

FXO -- Fixed

Site Information

Latitude (NAD 83)

38 °25' 7.6~ N

38 °25' 11.9~ N

Longitude (NAD 83)

121 °25' 42.9~ W

121 °23' 30.4~ W

Ground Elevation (m/ft-AMSL)

8.70 / 28.5

10.80 / 35.4

Antenna Structure Registration #

Path Azimuth (°)

87.626

267.649

Path Length (km / miles)

3.217 / 1.999

Transmit Antenna

87012A

87012A

Manufacturer

ANDREW CORPORATION

ANDREW CORPORATION

Model

VHLP2-18

VHLP2-18

Gain (dBi) / Beamwidth (°) / Tilt (°)

38.7 / 2.10 / 0.01

38.7 / 2.10 / -0.03

Centerline (m / ft - AGL)

19.20 / 63.0

18.29 / 60.0

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

TEM085

TEM085

Manufacturer

DRAGONWAVE INC

DRAGONWAVE INC

Model

18HD50HFC322V02

18HD50HFC322V02

Model Description

HORIZON DUO

HORIZON DUO

Emission Designator / Modulation

45M8D7W

256 QAM

45M8D7W

256 QAM

Loading

1 CH DIG 322000.000

1 CH DIG 322000.000

Stability (%)

0.001

0.001

Nominal Coordinated Maximum

Nominal Coordinated Maximum

Power (dBm)

9.0

9.0

Received Level (dBm)

-41.7

-41.7

EIRP (dBm)

47.7

47.7

Fixed Loss: Tx / Common (dB)

0.0 / 0.0

0.0 / 0.0

Free Space Loss (dB)

128.1

Transmit Frequencies (MHz)

17815.0000V(2)

17915.0000V(4)

19375.0000V(2)

19475.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0567B CA
City/County Florin/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC031B CA

Parkway-South Sacram/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °29' 28.2~ N	38 °31' 16.0~ N
Longitude (NAD 83)	121 °26' 23.6~ W	121 °26' 34.0~ W
Ground Elevation (m/ft-AMSL)	7.30 / 24.0	8.80 / 28.9
Antenna Structure Registration #	1272046	1014065
Path Azimuth (°)	355.666	175.664
Path Length (km / miles)	3.334 / 2.071	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.31	38.7 / 2.10 / -0.34
12.19 / 40.0	29.57 / 97.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
10.0	10.0
-41.0	-41.0
48.7	48.7
0.0 / 0.0	0.0 / 0.0
128.4	

Transmit Frequencies (MHz)

17965.0000H(5)	18065.0000H(7)	19525.0000H(5)	19625.0000H(7)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0570B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC027A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °28' 28.6~ N	38 °28' 44.4~ N
Longitude (NAD 83)	121 °25' 46.2~ W	121 °23' 42.7~ W
Ground Elevation (m/ft-AMSL)	8.30 / 27.2	10.20 / 33.5
Antenna Structure Registration #		
Path Azimuth (°)	80.746	260.767
Path Length (km / miles)	3.033 / 1.885	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.16	38.7 / 2.10 / -0.18
24.08 / 79.0	31.09 / 102.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
15.5	15.5
-34.6	-34.6
54.2	54.2
0.0 / 0.0	0.0 / 0.0
127.5	

Transmit Frequencies (MHz)

19375.0000H(2)	19475.0000H(4)	17815.0000H(2)	17915.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0628B CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC004A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 57.3~ N	38 °40' 21.1~ N
Longitude (NAD 83)	121 °17' 17.9~ W	121 °19' 55.1~ W
Ground Elevation (m/ft-AMSL)	53.40 / 175.2	30.80 / 101.0
Antenna Structure Registration #		1058155
Path Azimuth (°)	280.944	100.917
Path Length (km / miles)		3.870 / 2.405

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.05	38.7 / 2.10 / 0.02
16.46 / 54.0	36.58 / 120.0

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

TEMQ58	TEMQ58
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC215V02	18HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-43.8	-43.8
47.2	47.2
0.0 / 0.0	0.0 / 0.0
129.7	

Transmit Frequencies (MHz)	19375.0000V(2)	19475.0000V(4)	17815.0000V(2)	17915.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0637A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0634A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 37.8~ N	38 ° 43' 37.7~ N
Longitude (NAD 83)	121 ° 16' 11.5~ W	121 ° 15' 29.4~ W
Ground Elevation (m/ft-AMSL)	57.80 / 189.6	52.90 / 173.6
Antenna Structure Registration #		
Path Azimuth (°)	164.645	344.653
Path Length (km / miles)	3.840 / 2.386	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -0.19	38.7 / 2.10 / 0.16
26.52 / 87.0	19.81 / 65.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
13.0	13.0
-39.2	-39.2
51.7	51.7
0.0 / 0.0	0.0 / 0.0
129.6	

Transmit Frequencies (MHz)

19525.0000V(5)	19625.0000V(7)	17965.0000V(5)	18065.0000V(7)
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Microwave Path Data Sheet

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0638A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC136A CA

Fair Oaks/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 48.4~ N	38 ° 39' 12.6~ N
Longitude (NAD 83)	121 ° 15' 37.7~ W	121 ° 17' 25.7~ W
Ground Elevation (m/ft-AMSL)	59.30 / 194.6	60.40 / 198.2
Antenna Structure Registration #		
Path Azimuth (°)	221.481	41.462
Path Length (km / miles)	3.943 / 2.450	

Transmit Antenna

87012A	87059A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2.5-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / 0.02	41.0 / 1.50 / -0.05
Centerline (m / ft - AGL) 22.56 / 74.0	23.77 / 78.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.0	11.0
Received Level (dBm) -39.1	-39.1
EIRP (dBm) 49.7	52.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.8	

Transmit Frequencies (MHz)	17815.0000V(2)	17915.0000V(4)	19375.0000V(2)	19475.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0646B CA

City/County /Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0647A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 49' 54.5~ N	38 ° 47' 39.6~ N
Longitude (NAD 83)	121 ° 17' 13.1~ W	121 ° 17' 36.2~ W
Ground Elevation (m/ft-AMSL)	53.60 / 175.9	43.30 / 142.1
Antenna Structure Registration #		
Path Azimuth (°)	187.633	7.629
Path Length (km / miles)	4.197 / 2.608	

Transmit Antenna

87012A
Manufacturer ANDREW CORPORATION
Model VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / -0.26
Centerline (m / ft - AGL) 24.08 / 79.0

87012A
Manufacturer ANDREW CORPORATION
Model VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / 0.23
Centerline (m / ft - AGL) 16.46 / 54.0

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

TEMQ58
Manufacturer DRAGONWAVE INC
Model 18HD50SFC215V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM
Loading 1 CH DIG 215000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 8.5
Received Level (dBm) -44.5
EIRP (dBm) 47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 130.4

TEMQ58
Manufacturer DRAGONWAVE INC
Model 18HD50SFC215V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM
Loading 1 CH DIG 215000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 8.5
Received Level (dBm) -44.5
EIRP (dBm) 47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0

Transmit Frequencies (MHz)

19575.0000H(6)	19675.0000H(8)	18015.0000H(6)	18115.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information	CA-SAC0652C CA	CA-SAC0654A CA
City/County	Lincoln/Placer	/Placer
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
Licensee Code	CLESP3	CLESP3
Licensee Name	Clearwire Spectrum Holdings III, LL	Clearwire Spectrum Holdings III, LL
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °52' 21.3~ N	38 °52' 17.9~ N
Longitude (NAD 83)	121 °18' 31.5~ W	121 °15' 12.3~ W
Ground Elevation (m/ft-AMSL)	42.00 / 137.8	106.30 / 348.8
Antenna Structure Registration #		
Path Azimuth (°)	91.233	271.268
Path Length (km / miles)	4.803 / 2.984	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / 0.77	38.7 / 2.10 / -0.80
	18.29 / 60.0	19.51 / 64.0

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	TEMQ58	TEMQ58
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50SFC215V02	18HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-45.6	-45.6
EIRP (dBm)	47.2	47.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		131.5

Transmit Frequencies (MHz) 17965.0000H(5) 18065.0000H(7) 19525.0000H(5) 19625.0000H(7)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0666C CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC001A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 36.9~ N	38 °38' 6.8~ N
Longitude (NAD 83)	121 °10' 1.3~ W	121 °11' 59.3~ W
Ground Elevation (m/ft-AMSL)	80.00 / 262.5	47.40 / 155.5
Antenna Structure Registration #		
Path Azimuth (°)	251.994	71.973
Path Length (km / miles)	3.001 / 1.865	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.47
Centerline (m / ft - AGL)	16.76 / 55.0
	24.38 / 80.0

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

TEMT93	TEMT93
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HS50HFC364V02	18HS50HFC364V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M1D7W 256 QAM	47M1D7W 256 QAM
Loading 1 CH DIG 364000.000	1 CH DIG 364000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 19.5	19.5
Received Level (dBm) -30.5	-30.5
EIRP (dBm) 58.2	58.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.4	

Transmit Frequencies (MHz) 19575.0000V(6)

18015.0000V(6)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0682A CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0666C CA

City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 57.4~ N	38 °38' 36.9~ N
Longitude (NAD 83)	121 °8' 5.8~ W	121 °10' 1.3~ W
Ground Elevation (m/ft-AMSL)	109.70 / 359.9	80.00 / 262.5
Antenna Structure Registration #		
Path Azimuth (°)	228.378	48.358
Path Length (km / miles)	3.736 / 2.322	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.84
Centerline (m / ft - AGL)	42.67 / 140.0
	16.76 / 55.0

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

TEMQ19	TEMQ19
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50SFC171V02	18HD50SFC171V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 10.0	10.0
Received Level (dBm) -42.0	-42.0
EIRP (dBm) 48.7	48.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.4	

Transmit Frequencies (MHz)	18015.0000H(6)	18115.0000H(8)	19575.0000H(6)	19675.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0684A CA
City/County El Dorado Hills/El Dorado
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0683A CA

City/County El Dorado Hills/El Dorado
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 21.5~ N	38 ° 41' 28.6~ N
Longitude (NAD 83)	121 ° 5' 11.8~ W	121 ° 5' 22.8~ W
Ground Elevation (m/ft-AMSL)	240.20 / 788.1	241.50 / 792.3
Antenna Structure Registration #		
Path Azimuth (°)	184.367	4.365
Path Length (km / miles)	3.492 / 2.170	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.54
Centerline (m / ft - AGL)	40.84 / 134.0

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

TEMT97	TEMT97
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HS50SFC215V02	18HS50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -38.9	-38.9
EIRP (dBm) 51.2	51.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.8	

Transmit Frequencies (MHz) 19425.0000V(3)

17865.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC069B CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC011A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 11.9~ N	38 ° 45' 7.7~ N
Longitude (NAD 83)	121 ° 17' 31.4~ W	121 ° 16' 58.9~ W
Ground Elevation (m/ft-AMSL)	49.70 / 163.1	49.90 / 163.7
Antenna Structure Registration #		
Path Azimuth (°)	12.395	192.400
Path Length (km / miles)	3.656 / 2.272	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.29	38.7 / 2.10 / -0.31
14.63 / 48.0	33.53 / 110.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
11.5	11.5
-40.3	-40.3
50.2	50.2
0.0 / 0.0	0.0 / 0.0
129.2	

Transmit Frequencies (MHz)

19375.0000V(2)	19475.0000V(4)	17815.0000V(2)	17915.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0690A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC024A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °28' 27.0~ N	38 °29' 54.7~ N
Longitude (NAD 83)	121 °29' 45.0~ W	121 °27' 51.8~ W
Ground Elevation (m/ft-AMSL)	4.60 / 15.1	4.90 / 16.1
Antenna Structure Registration #	1057286	1012438
Path Azimuth (°)	45.403	225.423
Path Length (km / miles)	3.852 / 2.394	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.37
Centerline (m / ft - AGL)	41.15 / 135.0
	15.24 / 50.0

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

TEMQ58	TEMQ58
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50SFC215V02	18HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -43.7	-43.7
EIRP (dBm) 47.2	47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.6	

Transmit Frequencies (MHz)	19375.0000H(2)	19475.0000H(4)	17815.0000H(2)	17915.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0691A CA
City/County Fair Oaks/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC997C CA

Rancho Cordova/Sacramento
Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 24.6~ N	38 °36' 26.0~ N
Longitude (NAD 83)	121 °16' 28.0~ W	121 °16' 9.2~ W
Ground Elevation (m/ft-AMSL)	64.00 / 210.0	34.60 / 113.5
Antenna Structure Registration #		
Path Azimuth (°)	172.910	352.913
Path Length (km / miles)	3.685 / 2.290	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.14
Centerline (m / ft - AGL)	17.68 / 58.0
	38.71 / 127.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.0	12.0
Received Level (dBm) -39.8	-39.8
EIRP (dBm) 50.7	50.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.2	

Transmit Frequencies (MHz)	19525.0000H(5)	19625.0000H(7)	17965.0000H(5)	18065.0000H(7)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC072C CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC111D CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 47.0~ N	38 °37' 11.7~ N
Longitude (NAD 83)	121 °24' 1.2~ W	121 °27' 13.7~ W
Ground Elevation (m/ft-AMSL)	20.90 / 68.6	8.50 / 27.9
Antenna Structure Registration #		1252390
Path Azimuth (°)	256.859	76.826
Path Length (km / miles)	4.782 / 2.971	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.17	38.7 / 2.10 / -0.20
12.19 / 40.0	39.93 / 131.0

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

TEMQ19	TEMQ19
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC171V02	18HD50SFC171V02
HORIZON DUO	HORIZON DUO
45M8D7W 32 QAM	45M8D7W 32 QAM
1 CH DIG 171000.000	1 CH DIG 171000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
10.0	10.0
-44.1	-44.1
48.7	48.7
0.0 / 0.0	0.0 / 0.0
131.5	

Transmit Frequencies (MHz)

18015.0000V(6)	18065.0000V(7)	19575.0000V(6)	19625.0000V(7)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC100B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC063A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 43.9~ N	38 °35' 55.7~ N
Longitude (NAD 83)	121 °30' 11.0~ W	121 °27' 40.4~ W
Ground Elevation (m/ft-AMSL)	8.50 / 27.9	8.40 / 27.6
Antenna Structure Registration #		
Path Azimuth (°)	84.285	264.311
Path Length (km / miles)	3.662 / 2.276	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.30
Centerline (m / ft - AGL)	36.27 / 119.0
	17.98 / 59.0

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

TEMT98	TEMT98
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HS50SFC271V02	18HS50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.0	11.0
Received Level (dBm) -40.8	-40.8
EIRP (dBm) 49.7	49.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.2	

Transmit Frequencies (MHz) 17815.0000H(2)

19375.0000H(2)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC108A CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC119A CA

City/County Carmichael/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 44.7~ N	38 °36' 55.9~ N
Longitude (NAD 83)	121 °17' 30.0~ W	121 °19' 35.9~ W
Ground Elevation (m/ft-AMSL)	30.00 / 98.4	37.20 / 122.0
Antenna Structure Registration #		
Path Azimuth (°)	276.480	96.458
Path Length (km / miles)	3.065 / 1.905	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / 0.48	38.7 / 2.10 / -0.50
	15.85 / 52.0	35.05 / 115.0

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	TEMO85	TEMO85
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC322V02	18HD50HFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.0	8.0
Received Level (dBm)	-42.2	-42.2
EIRP (dBm)	46.7	46.7
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.6

Transmit Frequencies (MHz)	17815.0000V(2)	17915.0000V(4)	19375.0000V(2)	19475.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC131A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0659A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 44' 22.1~ N	38 ° 44' 18.0~ N
Longitude (NAD 83)	121 ° 16' 22.2~ W	121 ° 13' 57.8~ W
Ground Elevation (m/ft-AMSL)	51.50 / 169.0	68.10 / 223.4
Antenna Structure Registration #		
Path Azimuth (°)	92.064	272.089
Path Length (km / miles)	3.490 / 2.168	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / 0.66	38.7 / 2.10 / -0.68
Centerline (m / ft - AGL) 13.72 / 45.0	38.10 / 125.0

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

TEMT93	TEMT93
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HS50HFC364V02	18HS50HFC364V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M1D7W 256 QAM	47M1D7W 256 QAM
Loading 1 CH DIG 364000.000	1 CH DIG 364000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 19.5	19.5
Received Level (dBm) -31.9	-31.9
EIRP (dBm) 58.2	58.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.8	

Transmit Frequencies (MHz) 17865.0000H(3)

19425.0000H(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC139D CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0690A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °28' 28.9~ N	38 °28' 27.0~ N
Longitude (NAD 83)	121 °27' 28.0~ W	121 °29' 45.0~ W
Ground Elevation (m/ft-AMSL)	3.80 / 12.5	4.60 / 15.1
Antenna Structure Registration #		1057286
Path Azimuth (°)	269.001	88.977
Path Length (km / miles)		3.321 / 2.064

Transmit Antenna

87012A	87059A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2.5-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / 0.48	41.0 / 1.50 / -0.50
Centerline (m / ft - AGL) 24.08 / 79.0	51.82 / 170.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.0	14.0
Received Level (dBm) -34.6	-34.6
EIRP (dBm) 52.7	55.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.3	

Transmit Frequencies (MHz)	18015.0000V(6)	18115.0000V(8)	19575.0000V(6)	19675.0000V(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC151D CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC055A CA

Citrus Heights/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 3.5~ N	38 ° 41' 50.0~ N
Longitude (NAD 83)	121 ° 18' 38.7~ W	121 ° 17' 21.8~ W
Ground Elevation (m/ft-AMSL)	43.90 / 144.0	51.70 / 169.6
Antenna Structure Registration #		
Path Azimuth (°)	29.502	209.515
Path Length (km / miles)	3.774 / 2.345	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / 0.24	38.7 / 2.10 / -0.27
Centerline (m / ft - AGL) 17.07 / 56.0	25.91 / 85.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -39.5	-39.5
EIRP (dBm) 51.2	51.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.4	

Transmit Frequencies (MHz)	17965.0000V(5)	18065.0000V(7)	19525.0000V(5)	19625.0000V(7)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

New Path

Job Number 100107COMSTI01

RCN Number: 10010700

Administrative Information**CA-SAC155E CA****CA-SAC0554A CA**

City/County

/Sacramento

Laguna/Sacramento

Status / License Basis

Engineering Proposal / PRIMARY OPERATION

Engineering Proposal / PRIMARY OPERATION

Call Sign

Licensee Code

CLESP3

CLESP3

Licensee Name

Clearwire Spectrum Holdings III, LL

Clearwire Spectrum Holdings III, LL

Radio Service / Station Class

MG -- Microwave Industrial/Business Pool

FXO -- Fixed

Site Information

Latitude (NAD 83)

38 °23' 33.8~ N

38 °25' 7.6~ N

Longitude (NAD 83)

121 °26' 14.2~ W

121 °25' 42.9~ W

Ground Elevation (m/ft-AMSL)

8.20 / 26.9

8.70 / 28.5

Antenna Structure Registration #

Path Azimuth (°)

14.709

194.715

Path Length (km / miles)

2.990 / 1.858

Transmit Antenna

87012A

87012A

Manufacturer

ANDREW CORPORATION

ANDREW CORPORATION

Model

VHLP2-18

VHLP2-18

Gain (dBi) / Beamwidth (°) / Tilt (°)

38.7 / 2.10 / 0.01

38.7 / 2.10 / -0.03

Centerline (m / ft - AGL)

18.90 / 62.0

19.20 / 63.0

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

TEM085

TEM085

Manufacturer

DRAGONWAVE INC

DRAGONWAVE INC

Model

18HD50HFC322V02

18HD50HFC322V02

Model Description

HORIZON DUO

HORIZON DUO

Emission Designator / Modulation

45M8D7W

256 QAM

45M8D7W

256 QAM

Loading

1 CH DIG 322000.000

1 CH DIG 322000.000

Stability (%)

0.001

0.001

Nominal	Coordinated	Maximum
7.5		
-42.5		
46.2		

Nominal	Coordinated	Maximum
7.5		
-42.5		
46.2		

Power (dBm)

7.5

7.5

Received Level (dBm)

-42.5

-42.5

EIRP (dBm)

46.2

46.2

Fixed Loss: Tx / Common (dB)

0.0 / 0.0

0.0 / 0.0

Free Space Loss (dB)

127.4

Transmit Frequencies (MHz)

19575.0000H(6)

19675.0000H(8)

18015.0000H(6)

18115.0000H(8)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC157D CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0526A CA

/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °29' 40.3~ N	38 °28' 0.3~ N
Longitude (NAD 83)	121 °30' 48.5~ W	121 °30' 21.1~ W
Ground Elevation (m/ft-AMSL)	4.10 / 13.5	5.20 / 17.1
Antenna Structure Registration #		1244559
Path Azimuth (°)	167.843	347.848
Path Length (km / miles)		3.154 / 1.960

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.59	38.7 / 2.10 / -0.61
9.75 / 32.0	41.76 / 137.0

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

TEMT93	TEMT93
DRAGONWAVE INC	DRAGONWAVE INC
18HS50HFC364V02	18HS50HFC364V02
HORIZON DUO	HORIZON DUO
47M1D7W 256 QAM	47M1D7W 256 QAM
1 CH DIG 364000.000	1 CH DIG 364000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
19.5	19.5
-31.0	-31.0
58.2	58.2
0.0 / 0.0	0.0 / 0.0
	127.9

Transmit Frequencies (MHz) 17865.0000H(3)

19425.0000H(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information	CA-SAC168B CA	CA-SAC0666C CA
City/County	Folsom/Sacramento	Folsom/Sacramento
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
Licensee Code	CLESP3	CLESP3
Licensee Name	Clearwire Spectrum Holdings III, LL	Clearwire Spectrum Holdings III, LL
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 33.4~ N	38 °38' 36.9~ N
Longitude (NAD 83)	121 °7' 50.5~ W	121 °10' 1.3~ W
Ground Elevation (m/ft-AMSL)	115.50 / 378.9	80.00 / 262.5
Antenna Structure Registration #		
Path Azimuth (°)	241.163	61.141
Path Length (km / miles)	3.611 / 2.244	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.96	38.7 / 2.10 / 0.94
	41.15 / 135.0	16.76 / 55.0

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	TEMQ19	TEMQ19
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50SFC171V02	18HD50SFC171V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	10.0	10.0
Received Level (dBm)	-41.7	-41.7
EIRP (dBm)	48.7	48.7
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.1

Transmit Frequencies (MHz) 17815.0000H(2) 17915.0000H(4) 19375.0000H(2) 19475.0000H(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC169A CA
City/County Rocklin/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0679A CA

Rocklin/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 48' 16.0~ N	38 ° 50' 21.3~ N
Longitude (NAD 83)	121 ° 14' 19.1~ W	121 ° 13' 50.7~ W
Ground Elevation (m/ft-AMSL)	132.30 / 434.1	177.10 / 581.0
Antenna Structure Registration #		
Path Azimuth (°)	10.052	190.057
Path Length (km / miles)	3.924 / 2.438	

Transmit Antenna

87059A	87059A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2.5-18	VHLP2.5-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 41.0 / 1.50 / 0.52	41.0 / 1.50 / -0.54
Centerline (m / ft - AGL) 19.20 / 63.0	10.67 / 35.0

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

TEMT93	TEMT93
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HS50HFC364V02	18HS50HFC364V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M1D7W 256 QAM	47M1D7W 256 QAM
Loading 1 CH DIG 364000.000	1 CH DIG 364000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 16.0	16.0
Received Level (dBm) -31.8	-31.8
EIRP (dBm) 57.0	57.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.8	

Transmit Frequencies (MHz) 19425.0000V(3)

17865.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC169A CA
City/County Rocklin/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC070A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 48' 16.0~ N	38 ° 46' 11.8~ N
Longitude (NAD 83)	121 ° 14' 19.1~ W	121 ° 15' 8.3~ W
Ground Elevation (m/ft-AMSL)	132.30 / 434.1	63.70 / 209.0
Antenna Structure Registration #		
Path Azimuth (°)	197.230	17.221
Path Length (km / miles)	4.010 / 2.492	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / -1.02	38.7 / 2.10 / 0.99
19.20 / 63.0	17.68 / 58.0

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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
13.0	13.0
-39.6	-39.6
51.7	51.7
0.0 / 0.0	0.0 / 0.0
130.0	

Transmit Frequencies (MHz)

19575.0000V(6)	19675.0000V(8)	18015.0000V(6)	18115.0000V(8)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC170B CA
City/County Rocklin/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0679A CA

Rocklin/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 48' 37.6~ N	38 ° 50' 21.3~ N
Longitude (NAD 83)	121 ° 15' 40.3~ W	121 ° 13' 50.7~ W
Ground Elevation (m/ft-AMSL)	51.20 / 168.0	177.10 / 581.0
Antenna Structure Registration #		
Path Azimuth (°)	39.573	219.592
Path Length (km / miles)	4.149 / 2.578	

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 1.52	38.7 / 2.10 / -1.55
25.30 / 83.0	10.67 / 35.0

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

TEMQ58	TEMQ58
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC215V02	18HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-44.4	-44.4
47.2	47.2
0.0 / 0.0	0.0 / 0.0
130.3	

Transmit Frequencies (MHz)

19525.0000V(5)	19625.0000V(7)	17965.0000V(5)	18065.0000V(7)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC172C CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC010B CA

North Highlands/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 51.0~ N	38 ° 41' 11.0~ N
Longitude (NAD 83)	121 ° 22' 44.2~ W	121 ° 23' 37.0~ W
Ground Elevation (m/ft-AMSL)	32.60 / 107.0	23.80 / 78.1
Antenna Structure Registration #		1012445
Path Azimuth (°)	202.482	22.473
Path Length (km / miles)		3.337 / 2.074

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / -0.28	38.7 / 2.10 / 0.26
Centerline (m / ft - AGL) 30.48 / 100.0	23.47 / 77.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 10.0	10.0
Received Level (dBm) -41.0	-41.0
EIRP (dBm) 48.7	48.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.4	

Transmit Frequencies (MHz)	19375.0000V(2)	19475.0000V(4)	17815.0000V(2)	17915.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC178B CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC122A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 47' 38.4~ N	38 ° 46' 56.1~ N
Longitude (NAD 83)	121 ° 19' 50.3~ W	121 ° 18' 11.6~ W
Ground Elevation (m/ft-AMSL)	34.00 / 111.5	49.00 / 160.8
Antenna Structure Registration #		1202312
Path Azimuth (°)	118.696	298.713
Path Length (km / miles)		2.716 / 1.688

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 1.16	38.7 / 2.10 / -1.17
13.11 / 43.0	53.34 / 175.0

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

TEMQ57	TEMQ57
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC322V02	18HD50SFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-43.7	-43.7
44.2	44.2
0.0 / 0.0	0.0 / 0.0
	126.6

Transmit Frequencies (MHz)

19575.0000H(6)	19675.0000H(8)	18015.0000H(6)	18115.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC182A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0670A CA

City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 29.1~ N	38 ° 42' 36.8~ N
Longitude (NAD 83)	121 ° 14' 36.2~ W	121 ° 12' 2.0~ W
Ground Elevation (m/ft-AMSL)	65.10 / 213.6	93.10 / 305.4
Antenna Structure Registration #		
Path Azimuth (°)	86.340	266.367
Path Length (km / miles)	3.733 / 2.320	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°)	38.7 / 2.10 / -0.51
Centerline (m / ft - AGL)	35.11 / 115.2
	39.62 / 130.0

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

TEMT97	TEMT97
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HS50SFC215V02	18HS50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -39.4	-39.4
EIRP (dBm) 51.2	51.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.3	

Transmit Frequencies (MHz) 17815.0000H(2)

19375.0000H(2)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC183D CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC013A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 36.9~ N	38 ° 44' 16.8~ N
Longitude (NAD 83)	121 ° 18' 28.6~ W	121 ° 18' 10.5~ W
Ground Elevation (m/ft-AMSL)	45.10 / 148.0	41.10 / 134.8
Antenna Structure Registration #		1013305
Path Azimuth (°)	169.964	349.967
Path Length (km / miles)		2.508 / 1.559

Transmit Antenna

87012A	87012A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18	VHLP2-18
38.7 / 2.10 / 0.21	38.7 / 2.10 / -0.23
13.72 / 45.0	27.43 / 90.0

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

TEMQ57	TEMQ57
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC322V02	18HD50SFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-43.0	-43.0
44.2	44.2
0.0 / 0.0	0.0 / 0.0
	125.9

Transmit Frequencies (MHz)

17965.0000H(5)	18065.0000H(7)	19525.0000H(5)	19625.0000H(7)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC206C CA
City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC999F CA

City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 45.1~ N	38 °35' 12.6~ N
Longitude (NAD 83)	121 °32' 32.8~ W	121 °31' 49.5~ W
Ground Elevation (m/ft-AMSL)	2.60 / 8.5	8.40 / 27.6
Antenna Structure Registration #		
Path Azimuth (°)	21.226	201.233
Path Length (km / miles)	2.895 / 1.799	

Transmit Antenna

87012A	87012A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18	VHLP2-18
Gain (dBi) / Beamwidth (°) / Tilt (°) 38.7 / 2.10 / -0.46	38.7 / 2.10 / 0.44
Centerline (m / ft - AGL) 36.58 / 120.0	8.23 / 27.0

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

TEM085	TEM085
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC322V02	18HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 7.0	7.0
Received Level (dBm) -42.7	-42.7
EIRP (dBm) 45.7	45.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.1	

Transmit Frequencies (MHz)	17815.0000V(2)	17915.0000V(4)	19375.0000V(2)	19475.0000V(4)
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Microwave Path Data Sheet

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC028A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC996D CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °32' 23.2~ N	38 °32' 19.4~ N
Longitude (NAD 83)	121 °22' 39.5~ W	121 °24' 30.2~ W
Ground Elevation (m/ft-AMSL)	14.90 / 48.9	12.90 / 42.3
Antenna Structure Registration #	1015135	
Path Azimuth (°)	267.507	87.488
Path Length (km / miles)	2.684 / 1.667	

Transmit Antenna

87016A
Manufacturer ANDREW CORPORATION
Model VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / -0.77
Centerline (m / ft - AGL) 44.20 / 145.0

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / 0.75
10.67 / 35.0

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

TEMQ48
Manufacturer DRAGONWAVE INC
Model 23HD50HFC322V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM
Loading 1 CH DIG 322000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 13.0
Received Level (dBm) -39.2
EIRP (dBm) 53.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 127.9

TEMQ48
DRAGONWAVE INC
23HD50HFC322V02
HORIZON DUO
45M8D7W 256 QAM
1 CH DIG 322000.000
0.001
Nominal Coordinated Maximum
13.0
-39.2
48.3
0.0 / 0.0

Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC029A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC035A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 59.0~ N	38 °34' 45.0~ N
Longitude (NAD 83)	121 °28' 51.0~ W	121 °29' 43.0~ W
Ground Elevation (m/ft-AMSL)	7.90 / 25.9	6.10 / 20.0
Antenna Structure Registration #	1021057	1051067
Path Azimuth (°)	318.418	138.409
Path Length (km / miles)	1.896 / 1.178	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	40.4 / 1.60 / -0.31
Centerline (m / ft - AGL)	52.43 / 172.0
	44.20 / 145.0

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

TEMU14	TEMU14
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC371V01	23HS50SFC371V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 9.5	9.5
Received Level (dBm) -34.6	-34.6
EIRP (dBm) 49.9	49.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.9	

Transmit Frequencies (MHz) 23375.0000V(8)

22175.0000V(8)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

New Path

Job Number 100107COMSTI01

RCN Number: 10010700

Administrative Information

CA-SAC0511B CA
City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC206C CA

City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 18.5~ N	38 °33' 45.1~ N
Longitude (NAD 83)	121 °34' 53.4~ W	121 °32' 32.8~ W
Ground Elevation (m/ft-AMSL)	5.10 / 16.7	2.60 / 8.5
Antenna Structure Registration #		
Path Azimuth (°)	106.822	286.847
Path Length (km / miles)	3.556 / 2.210	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.14
Centerline (m / ft - AGL)	24.38 / 80.0
	36.58 / 120.0

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

TEMU10	TEMU10
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC171V01	23HS50SFC171V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.5	14.5
Received Level (dBm) -45.3	-45.3
EIRP (dBm) 49.8	49.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 130.4	

Transmit Frequencies (MHz) 22075.0000V(6)

23275.0000V(6)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0512A CA
City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC206C CA

City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 46.9~ N	38 °33' 45.1~ N
Longitude (NAD 83)	121 °33' 21.6~ W	121 °32' 32.8~ W
Ground Elevation (m/ft-AMSL)	4.70 / 15.4	2.60 / 8.5
Antenna Structure Registration #		
Path Azimuth (°)	148.200	328.209
Path Length (km / miles)	2.242 / 1.393	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.30
Centerline (m / ft - AGL)	22.86 / 75.0
35.3 / 3.00 / 0.29	36.58 / 120.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -47.3	-47.3
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.4	

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0516B CA
City/County Laguna West-Lakeside/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0515A CA

/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 35.8~ N	38 °26' 21.0~ N
Longitude (NAD 83)	121 °28' 56.0~ W	121 °30' 28.0~ W
Ground Elevation (m/ft-AMSL)	4.10 / 13.5	3.70 / 12.1
Antenna Structure Registration #		1012440
Path Azimuth (°)	301.997	121.981
Path Length (km / miles)	2.631 / 1.635	

Transmit Antenna

87016A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23	VHLP1-23
40.4 / 1.60 / 0.34	35.3 / 3.00 / -0.36
15.24 / 50.0	31.70 / 104.0

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

TEMQ48	TEMQ48
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC322V02	23HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
12.5	12.5
-39.6	-39.6
52.9	47.8
0.0 / 0.0	0.0 / 0.0
127.8	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0518A CA
City/County Laguna/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0516B CA

Laguna West-Lakeside/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 22.8~ N	38 °25' 35.8~ N
Longitude (NAD 83)	121 °27' 21.0~ W	121 °28' 56.0~ W
Ground Elevation (m/ft-AMSL)	8.40 / 27.6	4.10 / 13.5
Antenna Structure Registration #		
Path Azimuth (°)	279.876	99.860
Path Length (km / miles)	2.339 / 1.453	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.23	35.3 / 3.00 / 0.21
19.81 / 65.0	15.24 / 50.0

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

TEMU11	TEMU11
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC215V01	23HS50SFC215V01
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
12.5	12.5
-43.6	-43.6
47.8	47.8
0.0 / 0.0	0.0 / 0.0
126.7	

Transmit Frequencies (MHz) 23175.0000V(4)

21975.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0519A CA
City/County Laguna West-Lakeside/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0517A CA

City/County Laguna West-Lakeside/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °24' 38.6~ N	38 °24' 36.4~ N
Longitude (NAD 83)	121 °27' 26.7~ W	121 °28' 44.7~ W
Ground Elevation (m/ft-AMSL)	6.40 / 21.0	3.80 / 12.5
Antenna Structure Registration #		
Path Azimuth (°)	267.954	87.940
Path Length (km / miles)	1.894 / 1.177	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.27	35.3 / 3.00 / 0.26
	20.73 / 68.0	14.63 / 48.0

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	TEMU11	TEMU11
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC215V01	23HS50SFC215V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	12.5	12.5
Received Level (dBm)	-41.8	-41.8
EIRP (dBm)	47.8	47.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		124.9

Transmit Frequencies (MHz) 21925.0000V(3)

23125.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC052A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC996D CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °31' 43.7~ N	38 °32' 19.4~ N
Longitude (NAD 83)	121 °23' 57.6~ W	121 °24' 30.2~ W
Ground Elevation (m/ft-AMSL)	12.90 / 42.3	12.90 / 42.3
Antenna Structure Registration #		
Path Azimuth (°)	324.352	144.347
Path Length (km / miles)	1.355 / 0.842	

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -0.20
Centerline (m / ft - AGL) 15.24 / 50.0

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / 0.19
10.67 / 35.0

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

TEMQ16
Manufacturer DRAGONWAVE INC
Model 23HD50SFC322V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM
Loading 1 CH DIG 322000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 5.5
Received Level (dBm) -45.9
EIRP (dBm) 40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 122.0

TEMQ16
DRAGONWAVE INC
23HD50SFC322V02
HORIZON DUO
45M8D7W 256 QAM
1 CH DIG 322000.000
0.001
Nominal Coordinated Maximum
5.5
-45.9
40.8
0.0 / 0.0

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0522A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0520C CA

/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °29' 12.6~ N	38 °29' 14.0~ N
Longitude (NAD 83)	121 °32' 9.8~ W	121 °33' 15.8~ W
Ground Elevation (m/ft-AMSL)	2.60 / 8.5	4.40 / 14.4
Antenna Structure Registration #		
Path Azimuth (°)	271.552	91.540
Path Length (km / miles)	1.600 / 0.994	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.53	35.3 / 3.00 / -0.54
16.76 / 55.0	29.87 / 98.0

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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
7.5	7.5
-45.3	-45.3
42.8	42.8
0.0 / 0.0	0.0 / 0.0
123.4	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0528B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0690A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °29' 33.7~ N	38 °28' 27.0~ N
Longitude (NAD 83)	121 °29' 48.2~ W	121 °29' 45.0~ W
Ground Elevation (m/ft-AMSL)	4.80 / 15.7	4.60 / 15.1
Antenna Structure Registration #		1057286
Path Azimuth (°)	177.840	357.841
Path Length (km / miles)	2.058 / 1.279	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.96
Centerline (m / ft - AGL)	17.37 / 57.0

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	12.5
Received Level (dBm)	-42.5
EIRP (dBm)	47.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	125.6

Transmit Frequencies (MHz) 21825.0000V(1)

23025.0000V(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0529A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC147D CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °31' 46.8~ N	38 °32' 44.2~ N
Longitude (NAD 83)	121 °29' 49.4~ W	121 °29' 21.8~ W
Ground Elevation (m/ft-AMSL)	7.20 / 23.6	7.50 / 24.6
Antenna Structure Registration #		
Path Azimuth (°)	20.687	200.692
Path Length (km / miles)	1.892 / 1.176	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.06	35.3 / 3.00 / -0.07
	16.76 / 55.0	18.59 / 61.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-45.8	-45.8
EIRP (dBm)	43.8	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		124.9

Transmit Frequencies (MHz)	23125.0000V(3)	23275.0000V(6)	21925.0000V(3)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC053B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0583A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °32' 51.0~ N	38 °33' 58.0~ N
Longitude (NAD 83)	121 °26' 30.0~ W	121 °25' 55.2~ W
Ground Elevation (m/ft-AMSL)	10.30 / 33.8	12.20 / 40.0
Antenna Structure Registration #	1065769	
Path Azimuth (°)	22.185	202.191
Path Length (km / miles)	2.231 / 1.386	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.01	40.4 / 1.60 / -0.01
	26.21 / 86.0	24.38 / 80.0

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	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	3.5	3.5
Received Level (dBm)	-42.0	-42.0
EIRP (dBm)	43.9	43.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		126.3

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0530B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0533B CA

Parkway-South Sacram/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °30' 49.9~ N	38 °30' 20.0~ N
Longitude (NAD 83)	121 °28' 37.6~ W	121 °28' 5.5~ W
Ground Elevation (m/ft-AMSL)	8.40 / 27.6	6.10 / 20.0
Antenna Structure Registration #		1031919
Path Azimuth (°)	139.848	319.854
Path Length (km / miles)		1.206 / 0.749

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.32	35.3 / 3.00 / -0.33
19.81 / 65.0	28.96 / 95.0

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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-44.9	-44.9
40.8	40.8
0.0 / 0.0	0.0 / 0.0
	121.0

Transmit Frequencies (MHz)

23125.0000V(3)	23275.0000V(6)	21925.0000V(3)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0531A CA
 City/County Sacramento/Sacramento
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0690A CA

Sacramento/Sacramento
 Engineering Proposal / PRIMARY OPERATION
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °28' 51.0~ N	38 °28' 27.0~ N
Longitude (NAD 83)	121 °28' 41.3~ W	121 °29' 45.0~ W
Ground Elevation (m/ft-AMSL)	5.30 / 17.4	4.60 / 15.1
Antenna Structure Registration #		1057286
Path Azimuth (°)	244.397	64.386
Path Length (km / miles)		1.712 / 1.064

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.69
Centerline (m / ft - AGL)	20.12 / 66.0
20.12 / 66.0	41.15 / 135.0

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

TEM025	TEM025
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC271V02	23HD50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 7.0	7.0
Received Level (dBm) -46.4	-46.4
EIRP (dBm) 42.3	42.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.0	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0533B CA
City/County Parkway-South Sacram/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC059A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °30' 20.0~ N	38 °32' 2.7~ N
Longitude (NAD 83)	121 °28' 5.5~ W	121 °28' 28.8~ W
Ground Elevation (m/ft-AMSL)	6.10 / 20.0	7.90 / 25.9
Antenna Structure Registration #	1031919	1262299
Path Azimuth (°)	349.896	169.892
Path Length (km / miles)	3.217 / 1.999	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.29	40.4 / 1.60 / 0.27
	28.96 / 95.0	11.58 / 38.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-40.2	-40.2
EIRP (dBm)	48.9	48.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	129.5	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0534A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0550B CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 56.8~ N	38 °40' 16.7~ N
Longitude (NAD 83)	121 °31' 8.7~ W	121 °30' 37.0~ W
Ground Elevation (m/ft-AMSL)	5.30 / 17.4	3.80 / 12.5
Antenna Structure Registration #		
Path Azimuth (°)	17.277	197.283
Path Length (km / miles)	2.580 / 1.603	

Transmit Antenna

87016A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / -0.30	35.3 / 3.00 / 0.28
Centerline (m / ft - AGL) 25.30 / 83.0	13.72 / 45.0

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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.0	12.0
Received Level (dBm) -39.9	-39.9
EIRP (dBm) 52.4	47.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.6	

Transmit Frequencies (MHz)	23075.0000V(2)	23225.0000V(5)	21875.0000V(2)	22025.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0535B CA
 City/County Sacramento/Sacramento
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0536A CA

Sacramento/Sacramento
 Engineering Proposal / PRIMARY OPERATION
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 19.4~ N	38 °36' 28.4~ N
Longitude (NAD 83)	121 °31' 8.9~ W	121 °30' 36.6~ W
Ground Elevation (m/ft-AMSL)	5.10 / 16.7	7.60 / 24.9
Antenna Structure Registration #		
Path Azimuth (°)	153.575	333.580
Path Length (km / miles)	1.756 / 1.091	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.19
Centerline (m / ft - AGL)	19.20 / 63.0
22.25 / 73.0	

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

TEM025	TEM025
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC271V02	23HD50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 7.0	7.0
Received Level (dBm) -46.6	-46.6
EIRP (dBm) 42.3	42.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.2	

Transmit Frequencies (MHz)

21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0538A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC207C CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 0.0~ N	38 °33' 55.0~ N
Longitude (NAD 83)	121 °30' 23.4~ W	121 °30' 32.0~ W
Ground Elevation (m/ft-AMSL)	5.10 / 16.7	4.60 / 15.1
Antenna Structure Registration #		1063864
Path Azimuth (°)	353.001	173.000
Path Length (km / miles)		1.709 / 1.062

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 1.96	35.3 / 3.00 / -1.97
	15.24 / 50.0	74.37 / 244.0

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	TEMQ20	TEMQ20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC171V02	23HD50SFC171V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	10.0	10.0
Received Level (dBm)	-43.4	-43.4
EIRP (dBm)	45.3	45.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		124.0

Transmit Frequencies (MHz)	22175.0000V(8)	22375.0000V(12)	23375.0000V(8)	23575.0000V(12)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC054B CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0609A CA

Rancho Cordova/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 8.8~ N	38 °35' 23.3~ N
Longitude (NAD 83)	121 °17' 20.7~ W	121 °18' 18.2~ W
Ground Elevation (m/ft-AMSL)	30.60 / 100.4	27.00 / 88.6
Antenna Structure Registration #		
Path Azimuth (°)	287.817	107.807
Path Length (km / miles)	1.462 / 0.908	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.15	35.3 / 3.00 / 0.14
16.46 / 54.0	16.46 / 54.0

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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-46.6	-46.6
40.8	40.8
0.0 / 0.0	0.0 / 0.0
122.7	

Transmit Frequencies (MHz)

23025.0000V(1)	23175.0000V(4)	21825.0000V(1)	21975.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC054B CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0616B CA

Rancho Cordova/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 8.8~ N	38 °35' 34.6~ N
Longitude (NAD 83)	121 °17' 20.7~ W	121 °16' 18.8~ W
Ground Elevation (m/ft-AMSL)	30.60 / 100.4	34.10 / 111.9
Antenna Structure Registration #		1204493
Path Azimuth (°)	62.024	242.035
Path Length (km / miles)		1.696 / 1.054

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / 0.31
Centerline (m / ft - AGL)	16.46 / 54.0
	35.3 / 3.00 / -0.32
	22.25 / 73.0

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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	15.5
Received Level (dBm)	-37.8
EIRP (dBm)	50.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	123.9

Transmit Frequencies (MHz)	23075.0000H(2)	23225.0000H(5)	21875.0000H(2)	22025.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC054B CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0692A CA

Rancho Cordova/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 8.8~ N	38 °34' 7.8~ N
Longitude (NAD 83)	121 °17' 20.7~ W	121 °18' 5.4~ W
Ground Elevation (m/ft-AMSL)	30.60 / 100.4	26.60 / 87.3
Antenna Structure Registration #		
Path Azimuth (°)	209.913	29.905
Path Length (km / miles)	2.170 / 1.348	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / 0.16	35.3 / 3.00 / -0.18
Centerline (m / ft - AGL) 16.46 / 54.0	26.82 / 88.0

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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 15.5	15.5
Received Level (dBm) -40.0	-40.0
EIRP (dBm) 50.8	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.1	

Transmit Frequencies (MHz)	23075.0000H(2)	23225.0000H(5)	21875.0000H(2)	22025.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0540A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0545A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 9.1~ N	38 °34' 27.4~ N
Longitude (NAD 83)	121 °29' 24.3~ W	121 °28' 50.0~ W
Ground Elevation (m/ft-AMSL)	5.60 / 18.4	6.50 / 21.3
Antenna Structure Registration #		
Path Azimuth (°)	55.797	235.803
Path Length (km / miles)	1.004 / 0.624	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.48	35.3 / 3.00 / -0.49
	16.76 / 55.0	24.38 / 80.0

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	TEMO20	TEMO20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC371V02	23HD50SFC371V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	49M2D7W 256 QAM	49M2D7W 256 QAM
Stability (%)	1 CH DIG 371000.000	1 CH DIG 371000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-43.3	-43.3
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		119.4

Transmit Frequencies (MHz)	23325.0000V(7)	23425.0000V(9)	22125.0000V(7)	22225.0000V(9)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0542A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC035A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 37.0~ N	38 °34' 45.0~ N
Longitude (NAD 83)	121 °29' 6.0~ W	121 °29' 43.0~ W
Ground Elevation (m/ft-AMSL)	7.80 / 25.6	6.10 / 20.0
Antenna Structure Registration #		1051067
Path Azimuth (°)	209.186	29.179
Path Length (km / miles)		1.837 / 1.141

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / 0.77
Centerline (m / ft - AGL)	17.68 / 58.0
	35.3 / 3.00 / -0.78
	44.20 / 145.0

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

TEM025	TEM025
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC271V02	23HD50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 7.0	7.0
Received Level (dBm) -47.0	-47.0
EIRP (dBm) 42.3	42.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.6	

Transmit Frequencies (MHz)	21925.0000H(3)	22025.0000H(5)	23125.0000H(3)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC002C CA
City/County North Highlands/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC008D CA

City/County Foothill Farms/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 12.9~ N	38 ° 41' 44.4~ N
Longitude (NAD 83)	121 ° 21' 39.2~ W	121 ° 20' 28.6~ W
Ground Elevation (m/ft-AMSL)	39.00 / 128.0	11.70 / 38.4
Antenna Structure Registration #	1252389	1271608
Path Azimuth (°)	60.341	240.353
Path Length (km / miles)	1.963 / 1.220	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -1.51	35.3 / 3.00 / 1.50
	40.54 / 133.0	16.15 / 53.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-46.1	-46.1
EIRP (dBm)	43.8	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.2

Transmit Frequencies (MHz)	23375.0000V(8)	23475.0000V(10)	22175.0000V(8)	22275.0000V(10)
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Microwave Path Data Sheet

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC002C CA
City/County North Highlands/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC124D CA

City/County North Highlands/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 12.9~ N	38 ° 40' 13.0~ N
Longitude (NAD 83)	121 ° 21' 39.2~ W	121 ° 23' 4.0~ W
Ground Elevation (m/ft-AMSL)	39.00 / 128.0	25.90 / 85.0
Antenna Structure Registration #	1252389	1021894
Path Azimuth (°)	227.984	47.970
Path Length (km / miles)	2.759 / 1.714	

Transmit Antenna

Manufacturer	87016A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP1-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.71	35.3 / 3.00 / 0.69
	40.54 / 133.0	20.12 / 66.0

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	TEMQ48			TEMQ48		
Model	DRAGONWAVE INC			DRAGONWAVE INC		
Model Description	23HD50HFC322V02			23HD50HFC322V02		
Emission Designator / Modulation	HORIZON DUO			HORIZON DUO		
Loading	45M8D7W 256 QAM			45M8D7W 256 QAM		
Stability (%)	1 CH DIG 322000.000			1 CH DIG 322000.000		
	0.001			0.001		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		13.5			13.5	
Received Level (dBm)		-39.0			-39.0	
EIRP (dBm)		53.9			48.8	
Fixed Loss: Tx / Common (dB)	0.0 / 0.0			0.0 / 0.0		
Free Space Loss (dB)	128.2					

Transmit Frequencies (MHz)	23325.0000H(7)	23575.0000H(12)	22125.0000H(7)	22375.0000H(12)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information**CA-SAC003A CA**

City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC125B CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 54.0~ N	38 °39' 22.2~ N
Longitude (NAD 83)	121 °28' 41.0~ W	121 °27' 14.7~ W
Ground Elevation (m/ft-AMSL)	8.20 / 26.9	13.30 / 43.6
Antenna Structure Registration #	1060000	
Path Azimuth (°)	67.371	247.386
Path Length (km / miles)	2.261 / 1.405	

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -0.14
Centerline (m / ft - AGL) 34.14 / 112.0

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / 0.13
23.77 / 78.0

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

TEMQ20
DRAGONWAVE INC
23HD50SFC171V02
HORIZON DUO
45M8D7W 32 QAM
1 CH DIG 171000.000
0.001

	Nominal	Coordinated	Maximum
Power (dBm)		10.0	
Received Level (dBm)		-45.8	
EIRP (dBm)		45.3	

TEMQ20
DRAGONWAVE INC
23HD50SFC171V02
HORIZON DUO
45M8D7W 32 QAM
1 CH DIG 171000.000
0.001

	Nominal	Coordinated	Maximum
		10.0	
		-45.8	
		45.3	

Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB)

126.4

0.0 / 0.0

Transmit Frequencies (MHz)

23075.0000V(2)	23225.0000V(5)	21875.0000V(2)	22025.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC004A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0620A CA

Carmichael/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 21.1~ N	38 ° 39' 35.0~ N
Longitude (NAD 83)	121 ° 19' 55.1~ W	121 ° 19' 46.0~ W
Ground Elevation (m/ft-AMSL)	30.80 / 101.0	37.10 / 121.7
Antenna Structure Registration #	1058155	
Path Azimuth (°)	171.202	351.203
Path Length (km / miles)	1.438 / 0.894	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.57
Centerline (m / ft - AGL)	36.58 / 120.0
	15.85 / 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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -46.4	-46.4
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.5	

Transmit Frequencies (MHz)	23025.0000V(1)	23175.0000V(4)	21825.0000V(1)	21975.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC005A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0544B CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 57.3~ N	38 °37' 40.6~ N
Longitude (NAD 83)	121 °29' 46.4~ W	121 °28' 52.9~ W
Ground Elevation (m/ft-AMSL)	3.50 / 11.5	5.10 / 16.7
Antenna Structure Registration #		
Path Azimuth (°)	111.695	291.704
Path Length (km / miles)	1.393 / 0.865	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.16	35.3 / 3.00 / 0.15
	19.81 / 65.0	14.33 / 47.0

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	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-46.1	-46.1
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		122.2

Transmit Frequencies (MHz)	23125.0000V(3)	23275.0000V(6)	21925.0000V(3)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC006A CA
City/County North Highlands/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0601B CA

City/County North Highlands/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 50.0~ N	38 °38' 46.4~ N
Longitude (NAD 83)	121 °21' 46.0~ W	121 °20' 49.1~ W
Ground Elevation (m/ft-AMSL)	25.90 / 85.0	25.80 / 84.6
Antenna Structure Registration #	1012434	
Path Azimuth (°)	94.608	274.617
Path Length (km / miles)	1.380 / 0.858	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.19	35.3 / 3.00 / -0.20
	20.73 / 68.0	25.60 / 84.0

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	TEMO20	TEMO20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC371V02	23HD50SFC371V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	49M2D7W 256 QAM	49M2D7W 256 QAM
Stability (%)	1 CH DIG 371000.000	1 CH DIG 371000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-46.1	-46.1
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		122.2

Transmit Frequencies (MHz)	22125.0000H(7)	22225.0000H(9)	23325.0000H(7)	23425.0000H(9)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC009B CA
City/County /Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC178B CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 47' 33.5~ N	38 ° 47' 38.4~ N
Longitude (NAD 83)	121 ° 21' 39.0~ W	121 ° 19' 50.3~ W
Ground Elevation (m/ft-AMSL)	29.70 / 97.4	34.00 / 111.5
Antenna Structure Registration #		
Path Azimuth (°)	86.694	266.713
Path Length (km / miles)	2.628 / 1.633	

Transmit Antenna

87014A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -0.32	40.4 / 1.60 / 0.30
Centerline (m / ft - AGL) 31.55 / 103.5	13.11 / 43.0

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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 13.0	13.0
Received Level (dBm) -39.0	-39.0
EIRP (dBm) 48.3	53.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.7	

Transmit Frequencies (MHz)	22125.0000V(7)	22225.0000V(9)	23325.0000V(7)	23425.0000V(9)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC010B CA
City/County North Highlands/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC124D CA

City/County North Highlands/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 11.0~ N	38 ° 40' 13.0~ N
Longitude (NAD 83)	121 ° 23' 37.0~ W	121 ° 23' 4.0~ W
Ground Elevation (m/ft-AMSL)	23.80 / 78.1	25.90 / 85.0
Antenna Structure Registration #	1012445	1021894
Path Azimuth (°)	155.960	335.966
Path Length (km / miles)	1.958 / 1.217	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.04	40.4 / 1.60 / 0.03
	23.47 / 77.0	20.12 / 66.0

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	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	1.0	1.0
Received Level (dBm)	-43.4	-43.4
EIRP (dBm)	41.4	41.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.2

Transmit Frequencies (MHz)	23075.0000V(2)	23225.0000V(5)	21875.0000V(2)	22025.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC011A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC131A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 7.7~ N	38 ° 44' 22.1~ N
Longitude (NAD 83)	121 ° 16' 58.9~ W	121 ° 16' 22.2~ W
Ground Elevation (m/ft-AMSL)	49.90 / 163.7	51.50 / 169.0
Antenna Structure Registration #		
Path Azimuth (°)	147.774	327.781
Path Length (km / miles)		1.662 / 1.033

Transmit Antenna

87016A	87016A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23	VHLP2-23
40.4 / 1.60 / -0.63	40.4 / 1.60 / 0.62
33.53 / 110.0	13.72 / 45.0

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

TEMU14	TEMU14
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC371V01	23HS50SFC371V01
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
9.5	9.5
-33.5	-33.5
49.9	49.9
0.0 / 0.0	0.0 / 0.0
	123.8

Transmit Frequencies (MHz) 22025.0000V(5)

23225.0000V(5)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC013A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0631A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 44' 16.8~ N	38 ° 43' 47.3~ N
Longitude (NAD 83)	121 ° 18' 10.5~ W	121 ° 17' 18.6~ W
Ground Elevation (m/ft-AMSL)	41.10 / 134.8	52.80 / 173.2
Antenna Structure Registration #	1013305	
Path Azimuth (°)	125.963	305.972
Path Length (km / miles)	1.549 / 0.962	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.01	35.3 / 3.00 / 0.00
27.43 / 90.0	15.54 / 51.0

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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
7.5	7.5
-45.1	-45.1
42.8	42.8
0.0 / 0.0	0.0 / 0.0
123.2	

Transmit Frequencies (MHz)	22275.0000H(10)	22375.0000H(12)	23475.0000H(10)	23575.0000H(12)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0545A CA
 City/County Sacramento/Sacramento
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC029A CA

Sacramento/Sacramento
 Engineering Proposal / PRIMARY OPERATION
 CLESP3
 Clearwire Spectrum Holdings III, LL
 FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 27.4~ N	38 °33' 59.0~ N
Longitude (NAD 83)	121 °28' 50.0~ W	121 °28' 51.0~ W
Ground Elevation (m/ft-AMSL)	6.50 / 21.3	7.90 / 25.9
Antenna Structure Registration #		1021057
Path Azimuth (°)	181.584	1.583
Path Length (km / miles)		0.876 / 0.544

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.92
Centerline (m / ft - AGL)	24.38 / 80.0
	52.43 / 172.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -42.1	-42.1
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	118.2

Transmit Frequencies (MHz)	22125.0000H(7)	22275.0000H(10)	23325.0000H(7)	23475.0000H(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0546A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC029A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 22.2~ N	38 °33' 59.0~ N
Longitude (NAD 83)	121 °28' 6.9~ W	121 °28' 51.0~ W
Ground Elevation (m/ft-AMSL)	8.10 / 26.6	7.90 / 25.9
Antenna Structure Registration #		1021057
Path Azimuth (°)	236.178	56.170
Path Length (km / miles)		1.285 / 0.799

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.16
Centerline (m / ft - AGL)	26.21 / 86.0
	52.43 / 172.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	5.5
Received Level (dBm)	-45.4
EIRP (dBm)	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	121.5

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0547A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC029A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 20.9~ N	38 °33' 59.0~ N
Longitude (NAD 83)	121 °27' 32.4~ W	121 °28' 51.0~ W
Ground Elevation (m/ft-AMSL)	8.40 / 27.6	7.90 / 25.9
Antenna Structure Registration #		1021057
Path Azimuth (°)	301.696	121.683
Path Length (km / miles)	2.236 / 1.390	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.87
Centerline (m / ft - AGL)	18.29 / 60.0
52.43 / 172.0	

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -47.2	-47.2
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.3	

Transmit Frequencies (MHz)	22125.0000H(7)	22275.0000H(10)	23325.0000H(7)	23475.0000H(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0548B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC029A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 13.8~ N	38 °33' 59.0~ N
Longitude (NAD 83)	121 °27' 30.2~ W	121 °28' 51.0~ W
Ground Elevation (m/ft-AMSL)	9.00 / 29.5	7.90 / 25.9
Antenna Structure Registration #		1021057
Path Azimuth (°)	256.874	76.860
Path Length (km / miles)		2.009 / 1.248

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.94
Centerline (m / ft - AGL)	18.29 / 60.0
52.43 / 172.0	

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -46.3	-46.3
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.4	

Transmit Frequencies (MHz)	22175.0000H(8)	22325.0000H(11)	23375.0000H(8)	23525.0000H(11)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0549A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0582B CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 50.9~ N	38 °35' 51.1~ N
Longitude (NAD 83)	121 °27' 21.6~ W	121 °26' 27.3~ W
Ground Elevation (m/ft-AMSL)	9.30 / 30.5	9.60 / 31.5
Antenna Structure Registration #		
Path Azimuth (°)	35.291	215.301
Path Length (km / miles)	2.274 / 1.413	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.05
Centerline (m / ft - AGL)	21.95 / 72.0
35.3 / 3.00 / 0.04	19.81 / 65.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -47.4	-47.4
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.5	

Transmit Frequencies (MHz)	23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC055A CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC134A CA

Citrus Heights/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 50.0~ N	38 ° 42' 19.3~ N
Longitude (NAD 83)	121 ° 17' 21.8~ W	121 ° 16' 13.8~ W
Ground Elevation (m/ft-AMSL)	51.70 / 169.6	56.40 / 185.0
Antenna Structure Registration #		
Path Azimuth (°)	61.189	241.201
Path Length (km / miles)	1.875 / 1.165	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.03	35.3 / 3.00 / -0.04
25.91 / 85.0	22.40 / 73.5

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

TEMQ55	TEMQ55
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC215V02	23HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-45.7	-45.7
43.8	43.8
0.0 / 0.0	0.0 / 0.0
124.8	

Transmit Frequencies (MHz)	22175.0000V(8)	22275.0000V(10)	23375.0000V(8)	23475.0000V(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0553C CA
City/County Laguna/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0552A CA

City/County Laguna/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °26' 8.1~ N	38 °25' 42.6~ N
Longitude (NAD 83)	121 °26' 10.0~ W	121 °26' 30.3~ W
Ground Elevation (m/ft-AMSL)	6.80 / 22.3	7.10 / 23.3
Antenna Structure Registration #		
Path Azimuth (°)	212.056	32.052
Path Length (km / miles)	0.928 / 0.576	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.20	35.3 / 3.00 / -0.21
	16.46 / 54.0	19.51 / 64.0

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	TEMU14	TEMU14
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC371V01	23HS50SFC371V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	49M2D7W 256 QAM	49M2D7W 256 QAM
Stability (%)	1 CH DIG 371000.000	1 CH DIG 371000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	9.5	9.5
Received Level (dBm)	-38.6	-38.6
EIRP (dBm)	44.8	44.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		118.7

Transmit Frequencies (MHz) 22225.0000V(9)

23425.0000V(9)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information	CA-SAC0555C CA	CA-SAC155E CA
City/County	/Sacramento	/Sacramento
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
Licensee Code	CLESP3	CLESP3
Licensee Name	Clearwire Spectrum Holdings III, LL	Clearwire Spectrum Holdings III, LL
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °24' 17.3~ N	38 °23' 33.8~ N
Longitude (NAD 83)	121 °25' 24.2~ W	121 °26' 14.2~ W
Ground Elevation (m/ft-AMSL)	8.70 / 28.5	8.20 / 26.9
Antenna Structure Registration #		
Path Azimuth (°)	222.135	42.126
Path Length (km / miles)	1.809 / 1.124	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.11	35.3 / 3.00 / -0.13
	14.63 / 48.0	18.90 / 62.0

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	TEMO25	TEMO25
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC271V02	23HD50SFC271V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M8D7W 128 QAM	47M8D7W 128 QAM
Stability (%)	1 CH DIG 271000.000	1 CH DIG 271000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	7.0	7.0
Received Level (dBm)	-46.9	-46.9
EIRP (dBm)	42.3	42.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		124.5

Transmit Frequencies (MHz) 21875.0000H(2) 22025.0000H(5) 23075.0000H(2) 23225.0000H(5)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0556C CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0559C CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °26' 38.7~ N	38 °26' 28.5~ N
Longitude (NAD 83)	121 °25' 40.7~ W	121 °24' 17.8~ W
Ground Elevation (m/ft-AMSL)	6.80 / 22.3	9.90 / 32.5
Antenna Structure Registration #		
Path Azimuth (°)	98.884	278.899
Path Length (km / miles)	2.035 / 1.264	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.05	35.3 / 3.00 / -0.07
	16.76 / 55.0	15.85 / 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

Manufacturer	TEMU11	TEMU11
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC215V01	23HS50SFC215V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	12.5	12.5
Received Level (dBm)	-42.4	-42.4
EIRP (dBm)	47.8	47.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.5

Transmit Frequencies (MHz) 21875.0000V(2)

23075.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0558B CA
City/County Laguna/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0560A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 37.8~ N	38 °25' 11.9~ N
Longitude (NAD 83)	121 °24' 30.5~ W	121 °23' 30.4~ W
Ground Elevation (m/ft-AMSL)	8.60 / 28.2	10.80 / 35.4
Antenna Structure Registration #		
Path Azimuth (°)	118.709	298.719
Path Length (km / miles)	1.662 / 1.033	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.18	35.3 / 3.00 / -0.19
15.24 / 50.0	18.29 / 60.0

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

TEM025	TEM025
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC271V02	23HD50SFC271V02
HORIZON DUO	HORIZON DUO
47M8D7W 128 QAM	47M8D7W 128 QAM
1 CH DIG 271000.000	1 CH DIG 271000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
7.0	7.0
-46.2	-46.2
42.3	42.3
0.0 / 0.0	0.0 / 0.0
123.8	

Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0559C CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC197A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °26' 28.5~ N	38 °26' 18.3~ N
Longitude (NAD 83)	121 °24' 17.8~ W	121 °23' 16.3~ W
Ground Elevation (m/ft-AMSL)	9.90 / 32.5	10.50 / 34.4
Antenna Structure Registration #		
Path Azimuth (°)	101.903	281.913
Path Length (km / miles)	1.524 / 0.947	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.14
Centerline (m / ft - AGL)	15.85 / 52.0
	19.11 / 62.7

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

TEMU07	TEMU07
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50HFC364V01	23HS50HFC364V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M1D7W 256 QAM	47M1D7W 256 QAM
Loading 1 CH DIG 364000.000	1 CH DIG 364000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 19.5	19.5
Received Level (dBm) -32.9	-32.9
EIRP (dBm) 54.8	54.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.0	

Transmit Frequencies (MHz) 23175.0000V(4)

21975.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0560A CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC191A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 11.9~ N	38 °24' 29.0~ N
Longitude (NAD 83)	121 °23' 30.4~ W	121 °22' 39.8~ W
Ground Elevation (m/ft-AMSL)	10.80 / 35.4	11.50 / 37.7
Antenna Structure Registration #		
Path Azimuth (°)	137.134	317.143
Path Length (km / miles)	1.805 / 1.121	

Transmit Antenna

87016A	87016A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23	VHLP2-23
40.4 / 1.60 / 0.04	40.4 / 1.60 / -0.05
18.29 / 60.0	19.11 / 62.7

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

TEMU14	TEMU14
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC371V01	23HS50SFC371V01
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
9.5	9.5
-34.2	-34.2
49.9	49.9
0.0 / 0.0	0.0 / 0.0
124.5	

Transmit Frequencies (MHz) 23425.0000V(9)

22225.0000V(9)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0560A CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC197A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 11.9~ N	38 °26' 18.3~ N
Longitude (NAD 83)	121 °23' 30.4~ W	121 °23' 16.3~ W
Ground Elevation (m/ft-AMSL)	10.80 / 35.4	10.50 / 34.4
Antenna Structure Registration #		
Path Azimuth (°)	9.482	189.484
Path Length (km / miles)	2.076 / 1.290	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / -0.06	40.4 / 1.60 / 0.04
Centerline (m / ft - AGL) 27.43 / 90.0	25.91 / 85.0

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

TEMQ16	TEMQ16
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC322V02	23HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Power (dBm)	Nominal Coordinated Maximum
Received Level (dBm)	3.0
EIRP (dBm)	-41.9
	43.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	125.7

Transmit Frequencies (MHz)	23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0561A CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0560A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °23' 44.7~ N	38 °25' 11.9~ N
Longitude (NAD 83)	121 °22' 17.9~ W	121 °23' 30.4~ W
Ground Elevation (m/ft-AMSL)	14.50 / 47.6	10.80 / 35.4
Antenna Structure Registration #		
Path Azimuth (°)	326.813	146.801
Path Length (km / miles)	3.213 / 1.996	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.23	35.3 / 3.00 / 0.21
27.13 / 89.0	18.29 / 60.0

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

TEMQ49	TEMQ49
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC171V02	23HD50HFC171V02
HORIZON DUO	HORIZON DUO
45M8D7W 32 QAM	45M8D7W 32 QAM
1 CH DIG 171000.000	1 CH DIG 171000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
14.0	14.0
-44.9	-44.9
49.3	49.3
0.0 / 0.0	0.0 / 0.0
129.5	

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0562A CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC094A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °24' 35.1~ N	38 °24' 12.2~ N
Longitude (NAD 83)	121 °21' 48.2~ W	121 °21' 38.2~ W
Ground Elevation (m/ft-AMSL)	15.60 / 51.2	15.90 / 52.2
Antenna Structure Registration #		
Path Azimuth (°)	161.036	341.038
Path Length (km / miles)	0.747 / 0.464	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.87	35.3 / 3.00 / 0.86
27.43 / 90.0	15.85 / 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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-40.7	-40.7
40.8	40.8
0.0 / 0.0	0.0 / 0.0
116.8	

Transmit Frequencies (MHz)

21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0563A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC094A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °24' 44.9~ N	38 °24' 12.2~ N
Longitude (NAD 83)	121 °20' 59.6~ W	121 °21' 38.2~ W
Ground Elevation (m/ft-AMSL)	15.80 / 51.8	15.90 / 52.2
Antenna Structure Registration #		
Path Azimuth (°)	222.890	42.883
Path Length (km / miles)	1.376 / 0.855	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -1.08	35.3 / 3.00 / 1.07
Centerline (m / ft - AGL) 41.76 / 137.0	15.85 / 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

TEMU13	TEMU13
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC322V01	23HS50SFC322V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.5	11.5
Received Level (dBm) -40.0	-40.0
EIRP (dBm) 46.8	46.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.1	

Transmit Frequencies (MHz) 21875.0000V(2)

23075.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0564A CA
City/County Parkway-South Sacram/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0569A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °30' 30.9~ N	38 °30' 31.2~ N
Longitude (NAD 83)	121 °27' 0.3~ W	121 °25' 49.7~ W
Ground Elevation (m/ft-AMSL)	7.80 / 25.6	8.50 / 27.9
Antenna Structure Registration #		
Path Azimuth (°)	89.684	269.696
Path Length (km / miles)	1.711 / 1.063	

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -0.01
Centerline (m / ft - AGL) 23.77 / 78.0

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / 0.00
22.86 / 75.0

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

TEMU11
Manufacturer DRAGONWAVE INC
Model 23HS50SFC215V01
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM
Loading 1 CH DIG 215000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 12.5
Received Level (dBm) -40.9
EIRP (dBm) 47.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 124.0

TEMU11
DRAGONWAVE INC
23HS50SFC215V01
HORIZON DUO
45M8D7W 64 QAM
1 CH DIG 215000.000
0.001
Nominal Coordinated Maximum
12.5
-40.9
47.8
0.0 / 0.0

Transmit Frequencies (MHz) 23125.0000V(3)

21925.0000V(3)

Microwave Path Data Sheet

Page 101 of 214

COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0566A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC053B CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °32' 21.0~ N	38 °32' 51.0~ N
Longitude (NAD 83)	121 °26' 43.2~ W	121 °26' 30.0~ W
Ground Elevation (m/ft-AMSL)	11.30 / 37.1	10.30 / 33.8
Antenna Structure Registration #	1267064	1065769
Path Azimuth (°)	19.062	199.064
Path Length (km / miles)	0.979 / 0.608	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / 0.05
Centerline (m / ft - AGL)	24.38 / 80.0
	26.21 / 86.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -43.1	-43.1
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 119.2	

Transmit Frequencies (MHz)	23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0567B CA
City/County Florin/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC132A CA

Parkway-South Sacram/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °29' 28.2~ N	38 °29' 53.9~ N
Longitude (NAD 83)	121 °26' 23.6~ W	121 °27' 4.5~ W
Ground Elevation (m/ft-AMSL)	7.30 / 24.0	5.80 / 19.0
Antenna Structure Registration #	1272046	
Path Azimuth (°)	308.648	128.640
Path Length (km / miles)	1.269 / 0.789	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.06
Centerline (m / ft - AGL)	12.19 / 40.0
12.19 / 40.0	14.94 / 49.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -45.3	-45.3
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.4	

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0568B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0559C CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °26' 56.4~ N	38 °26' 28.5~ N
Longitude (NAD 83)	121 °25' 5.6~ W	121 °24' 17.8~ W
Ground Elevation (m/ft-AMSL)	8.40 / 27.6	9.90 / 32.5
Antenna Structure Registration #		
Path Azimuth (°)	126.578	306.586
Path Length (km / miles)	1.443 / 0.897	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.47
Centerline (m / ft - AGL)	28.96 / 95.0
	15.85 / 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

TEMU13	TEMU13
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC322V01	23HS50SFC322V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.5	11.5
Received Level (dBm) -40.4	-40.4
EIRP (dBm) 46.8	46.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.5	

Transmit Frequencies (MHz) 21825.0000V(1)

23025.0000V(1)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0569A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC106A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °30' 31.2~ N	38 °31' 8.1~ N
Longitude (NAD 83)	121 °25' 49.7~ W	121 °24' 22.0~ W
Ground Elevation (m/ft-AMSL)	8.50 / 27.9	12.90 / 42.3
Antenna Structure Registration #		
Path Azimuth (°)	61.822	241.838
Path Length (km / miles)	2.410 / 1.498	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.16	35.3 / 3.00 / 0.14
	22.86 / 75.0	12.19 / 40.0

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	TEMU10	TEMU10
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC171V01	23HS50SFC171V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	14.0	14.0
Received Level (dBm)	-42.4	-42.4
EIRP (dBm)	49.3	49.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.0

Transmit Frequencies (MHz) 21875.0000V(2)

23075.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC057A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0526A CA

/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °28' 37.6~ N	38 °28' 0.3~ N
Longitude (NAD 83)	121 °30' 19.5~ W	121 °30' 21.1~ W
Ground Elevation (m/ft-AMSL)	3.80 / 12.5	5.20 / 17.1
Antenna Structure Registration #		1244559
Path Azimuth (°)	181.932	1.931
Path Length (km / miles)		1.151 / 0.715

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / 1.08	35.3 / 3.00 / -1.09
Centerline (m / ft - AGL) 21.34 / 70.0	41.76 / 137.0

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

TEMU14	TEMU14
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC371V01	23HS50SFC371V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 9.5	9.5
Received Level (dBm) -40.5	-40.5
EIRP (dBm) 44.8	44.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.6	

Transmit Frequencies (MHz) 21925.0000V(3)

23125.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0571A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC053B CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °32' 42.5~ N	38 °32' 51.0~ N
Longitude (NAD 83)	121 °25' 13.5~ W	121 °26' 30.0~ W
Ground Elevation (m/ft-AMSL)	13.10 / 43.0	10.30 / 33.8
Antenna Structure Registration #	1250736	1065769
Path Azimuth (°)	278.060	98.046
Path Length (km / miles)	1.871 / 1.163	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / 0.17	40.4 / 1.60 / -0.18
Centerline (m / ft - AGL) 18.90 / 62.0	27.43 / 90.0

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

TEMQ16	TEMQ16
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC322V02	23HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 1.5	1.5
Received Level (dBm) -42.5	-42.5
EIRP (dBm) 41.9	41.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.8	

Transmit Frequencies (MHz)	23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0572C CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC027A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °28' 8.7~ N	38 °28' 44.4~ N
Longitude (NAD 83)	121 °23' 11.1~ W	121 °23' 42.7~ W
Ground Elevation (m/ft-AMSL)	11.40 / 37.4	10.20 / 33.5
Antenna Structure Registration #		
Path Azimuth (°)	325.171	145.165
Path Length (km / miles)	1.341 / 0.833	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.44
Centerline (m / ft - AGL)	19.81 / 65.0
	31.09 / 102.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Power (dBm)	Nominal Coordinated Maximum
Received Level (dBm)	5.5
EIRP (dBm)	-45.8
	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	121.9

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0573D CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC027A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °28' 25.8~ N	38 °28' 44.4~ N
Longitude (NAD 83)	121 °24' 32.5~ W	121 °23' 42.7~ W
Ground Elevation (m/ft-AMSL)	8.70 / 28.5	10.20 / 33.5
Antenna Structure Registration #		
Path Azimuth (°)	64.582	244.591
Path Length (km / miles)	1.336 / 0.830	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.24	35.3 / 3.00 / -0.25
26.82 / 88.0	31.09 / 102.0

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

TEMU13	TEMU13
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC322V01	23HS50SFC322V01
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
11.5	11.5
-39.8	-39.8
46.8	46.8
0.0 / 0.0	0.0 / 0.0
121.9	

Transmit Frequencies (MHz) 21925.0000H(3)

23125.0000H(3)

Microwave Path Data Sheet

Page 109 of 214

COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0574C CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC052A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °30' 46.8~ N	38 °31' 43.7~ N
Longitude (NAD 83)	121 °22' 51.6~ W	121 °23' 57.6~ W
Ground Elevation (m/ft-AMSL)	13.90 / 45.6	12.90 / 42.3
Antenna Structure Registration #		
Path Azimuth (°)	317.664	137.653
Path Length (km / miles)	2.374 / 1.475	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -0.50	35.3 / 3.00 / 0.48
Centerline (m / ft - AGL) 34.44 / 113.0	15.24 / 50.0

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

TEMU10	TEMU10
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC171V01	23HS50SFC171V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.0	14.0
Received Level (dBm) -42.3	-42.3
EIRP (dBm) 49.3	49.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.9	

Transmit Frequencies (MHz) 23225.0000V(5)

22025.0000V(5)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0576B CA
City/County Vineyard/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC022A CA

Vineyard/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °27' 54.6~ N	38 °27' 11.9~ N
Longitude (NAD 83)	121 °22' 14.9~ W	121 °20' 58.8~ W
Ground Elevation (m/ft-AMSL)	14.10 / 46.3	23.50 / 77.1
Antenna Structure Registration #		1221711
Path Azimuth (°)	125.506	305.519
Path Length (km / miles)	2.267 / 1.408	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / 1.09
Centerline (m / ft - AGL)	16.15 / 53.0
	35.3 / 3.00 / -1.11
	50.29 / 165.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -47.4	-47.4
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.5	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0577B CA
City/County Vineyard/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC022A CA

Vineyard/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °27' 47.3~ N	38 °27' 11.9~ N
Longitude (NAD 83)	121 °21' 4.1~ W	121 °20' 58.8~ W
Ground Elevation (m/ft-AMSL)	24.00 / 78.7	23.50 / 77.1
Antenna Structure Registration #		1221711
Path Azimuth (°)	173.285	353.286
Path Length (km / miles)		1.099 / 0.683

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.47
Centerline (m / ft - AGL)	21.49 / 70.5
	50.29 / 165.0

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

TEMU14	TEMU14
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC371V01	23HS50SFC371V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 9.5	9.5
Received Level (dBm) -40.1	-40.1
EIRP (dBm) 44.8	44.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	120.2

Transmit Frequencies (MHz) 21975.0000V(4)

23175.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0578A CA
City/County Rosemont/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC028A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °32' 54.6~ N	38 °32' 23.2~ N
Longitude (NAD 83)	121 °21' 32.4~ W	121 °22' 39.5~ W
Ground Elevation (m/ft-AMSL)	16.50 / 54.1	14.90 / 48.9
Antenna Structure Registration #		1015135
Path Azimuth (°)	239.217	59.205
Path Length (km / miles)	1.892 / 1.175	

Transmit Antenna

87016A	87016A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23	VHLP2-23
40.4 / 1.60 / 0.91	40.4 / 1.60 / -0.93
12.19 / 40.0	44.20 / 145.0

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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-38.6	-38.6
45.9	45.9
0.0 / 0.0	0.0 / 0.0
124.9	

Transmit Frequencies (MHz)	23075.0000H(2)	23225.0000H(5)	21875.0000H(2)	22025.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0582B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0688A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 51.1~ N	38 °36' 23.7~ N
Longitude (NAD 83)	121 °26' 27.3~ W	121 °26' 0.6~ W
Ground Elevation (m/ft-AMSL)	9.60 / 31.5	12.90 / 42.3
Antenna Structure Registration #		
Path Azimuth (°)	32.726	212.731
Path Length (km / miles)	1.195 / 0.743	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.97
Centerline (m / ft - AGL)	19.81 / 65.0
35.3 / 3.00 / 0.96	36.58 / 120.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -44.8	-44.8
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.9	

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0585A CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0688A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 57.9~ N	38 °36' 23.7~ N
Longitude (NAD 83)	121 °24' 52.5~ W	121 °26' 0.6~ W
Ground Elevation (m/ft-AMSL)	14.70 / 48.2	12.90 / 42.3
Antenna Structure Registration #		
Path Azimuth (°)	295.777	115.765
Path Length (km / miles)	1.830 / 1.137	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.52
Centerline (m / ft - AGL)	18.29 / 60.0
35.3 / 3.00 / 0.51	36.58 / 120.0

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

TEMU07	TEMU07
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50HFC364V01	23HS50HFC364V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M1D7W 256 QAM	47M1D7W 256 QAM
Loading 1 CH DIG 364000.000	1 CH DIG 364000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 19.5	19.5
Received Level (dBm) -34.5	-34.5
EIRP (dBm) 54.8	54.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.6	

Transmit Frequencies (MHz) 21875.0000H(2)

23075.0000H(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0587A CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0585A CA

City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 1.2~ N	38 °35' 57.9~ N
Longitude (NAD 83)	121 °23' 59.0~ W	121 °24' 52.5~ W
Ground Elevation (m/ft-AMSL)	14.40 / 47.2	14.70 / 48.2
Antenna Structure Registration #		
Path Azimuth (°)	265.510	85.501
Path Length (km / miles)	1.299 / 0.807	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.27
Centerline (m / ft - AGL)	12.50 / 41.0
12.50 / 41.0	18.29 / 60.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -45.5	-45.5
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.6	

Transmit Frequencies (MHz)	23125.0000V(3)	23275.0000V(6)	21925.0000V(3)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0588A CA
 City/County Arden-Arcade/Sacramento
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC133B CA

Arden-Arcade/Sacramento
 Engineering Proposal / PRIMARY OPERATION
 CLESP3
 Clearwire Spectrum Holdings III, LL
 FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 30.8~ N	38 °35' 45.4~ N
Longitude (NAD 83)	121 °23' 16.8~ W	121 °21' 54.7~ W
Ground Elevation (m/ft-AMSL)	18.40 / 60.4	23.90 / 78.4
Antenna Structure Registration #		
Path Azimuth (°)	77.226	257.240
Path Length (km / miles)	2.037 / 1.266	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.11
Centerline (m / ft - AGL)	17.68 / 58.0
15.85 / 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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -46.4	-46.4
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.5	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0592C CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0697A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 4.9~ N	38 °33' 43.3~ N
Longitude (NAD 83)	121 °23' 49.6~ W	121 °25' 21.1~ W
Ground Elevation (m/ft-AMSL)	12.90 / 42.3	11.20 / 36.7
Antenna Structure Registration #		
Path Azimuth (°)	253.273	73.257
Path Length (km / miles)	2.313 / 1.437	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / 0.03	40.4 / 1.60 / -0.04
Centerline (m / ft - AGL) 24.38 / 80.0	27.43 / 90.0

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

TEMU13	TEMU13
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC322V01	23HS50SFC322V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.5	11.5
Received Level (dBm) -34.3	-34.3
EIRP (dBm) 51.9	51.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.6	

Transmit Frequencies (MHz) 23175.0000H(4)

21975.0000H(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0595A CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC089C CA

City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 44.2~ N	38 °36' 54.2~ N
Longitude (NAD 83)	121 °21' 21.4~ W	121 °22' 52.6~ W
Ground Elevation (m/ft-AMSL)	28.50 / 93.5	22.40 / 73.5
Antenna Structure Registration #		
Path Azimuth (°)	235.060	55.044
Path Length (km / miles)	2.692 / 1.672	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.04	35.3 / 3.00 / 0.02
	18.29 / 60.0	23.16 / 76.0

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	TEMQ20	TEMQ20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC171V02	23HD50SFC171V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	10.0	10.0
Received Level (dBm)	-47.4	-47.4
EIRP (dBm)	45.3	45.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		128.0

Transmit Frequencies (MHz)	23025.0000V(1)	23175.0000V(4)	21825.0000V(1)	21975.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0597A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC172C CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 15.6~ N	38 ° 42' 51.0~ N
Longitude (NAD 83)	121 ° 23' 28.8~ W	121 ° 22' 44.2~ W
Ground Elevation (m/ft-AMSL)	30.50 / 100.1	32.60 / 107.0
Antenna Structure Registration #	1234753	
Path Azimuth (°)	125.143	305.151
Path Length (km / miles)	1.318 / 0.819	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.36
Centerline (m / ft - AGL)	24.38 / 80.0
30.48 / 100.0	

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

TEMQ16	TEMQ16
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC322V02	23HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -45.7	-45.7
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.8	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information**CA-SAC0600B CA**

City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC002C CA

North Highlands/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 45.2~ N	38 ° 41' 12.9~ N
Longitude (NAD 83)	121 ° 21' 19.5~ W	121 ° 21' 39.2~ W
Ground Elevation (m/ft-AMSL)	44.50 / 146.0	39.00 / 128.0
Antenna Structure Registration #		1252389
Path Azimuth (°)	189.497	9.493
Path Length (km / miles)		2.886 / 1.793

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / 0.33
Centerline (m / ft - AGL) 17.98 / 59.0

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / -0.35
40.54 / 133.0

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

TEMQ20
DRAGONWAVE INC
23HD50SFC171V02
HORIZON DUO
45M8D7W 32 QAM
1 CH DIG 171000.000
0.001

Nominal	Coordinated	Maximum
	10.0	
	-48.0	
	45.3	

Power (dBm)
Received Level (dBm)
EIRP (dBm)

TEMQ20
DRAGONWAVE INC
23HD50SFC171V02
HORIZON DUO
45M8D7W 32 QAM
1 CH DIG 171000.000
0.001

Nominal	Coordinated	Maximum
	10.0	
	-48.0	
	45.3	

Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB)

128.6

0.0 / 0.0

Transmit Frequencies (MHz)

21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0607A CA
City/County Carmichael/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0623A CA

Carmichael/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 30.7~ N	38 °39' 14.0~ N
Longitude (NAD 83)	121 °18' 45.8~ W	121 °18' 50.4~ W
Ground Elevation (m/ft-AMSL)	50.80 / 166.7	38.50 / 126.3
Antenna Structure Registration #		
Path Azimuth (°)	355.238	175.237
Path Length (km / miles)	1.340 / 0.833	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.41
Centerline (m / ft - AGL)	17.37 / 57.0
35.3 / 3.00 / 0.40	20.12 / 66.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -45.8	-45.8
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.9	

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0611D CA
City/County Carmichael/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0607A CA

Carmichael/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 38.3~ N	38 °38' 30.7~ N
Longitude (NAD 83)	121 °18' 2.4~ W	121 °18' 45.8~ W
Ground Elevation (m/ft-AMSL)	46.80 / 153.5	50.80 / 166.7
Antenna Structure Registration #		
Path Azimuth (°)	257.417	77.409
Path Length (km / miles)	1.075 / 0.668	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.29	35.3 / 3.00 / -0.30
15.85 / 52.0	17.37 / 57.0

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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-43.9	-43.9
40.8	40.8
0.0 / 0.0	0.0 / 0.0
120.0	

Transmit Frequencies (MHz)	23375.0000V(8)	23475.0000V(10)	22175.0000V(8)	22275.0000V(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0616B CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC108A CA

Rancho Cordova/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 34.6~ N	38 °36' 44.7~ N
Longitude (NAD 83)	121 °16' 18.8~ W	121 °17' 30.0~ W
Ground Elevation (m/ft-AMSL)	34.10 / 111.9	30.00 / 98.4
Antenna Structure Registration #	1204493	
Path Azimuth (°)	321.451	141.438
Path Length (km / miles)	2.764 / 1.718	

Transmit Antenna

87014A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.23
Centerline (m / ft - AGL)	22.25 / 73.0
	40.4 / 1.60 / 0.21
	15.85 / 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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.0	12.0
Received Level (dBm) -40.5	-40.5
EIRP (dBm) 47.3	52.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.2	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0617A CA
City/County Gold River/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC997C CA

Rancho Cordova/Sacramento
Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 37.8~ N	38 °36' 26.0~ N
Longitude (NAD 83)	121 °14' 55.4~ W	121 °16' 9.2~ W
Ground Elevation (m/ft-AMSL)	36.70 / 120.4	34.60 / 113.5
Antenna Structure Registration #		
Path Azimuth (°)	218.889	38.876
Path Length (km / miles)	2.844 / 1.767	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.50
Centerline (m / ft - AGL)	12.19 / 40.0
	38.71 / 127.0

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

TEMQ20	TEMQ20
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC171V02	23HD50SFC171V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	10.0
Received Level (dBm)	-47.8
EIRP (dBm)	45.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	128.4

Transmit Frequencies (MHz)	23075.0000V(2)	23225.0000V(5)	21875.0000V(2)	22025.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0618A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC172C CA

City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 6.7~ N	38 ° 42' 51.0~ N
Longitude (NAD 83)	121 ° 20' 45.7~ W	121 ° 22' 44.2~ W
Ground Elevation (m/ft-AMSL)	41.10 / 134.8	32.60 / 107.0
Antenna Structure Registration #		
Path Azimuth (°)	260.412	80.391
Path Length (km / miles)	2.903 / 1.804	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.10	35.3 / 3.00 / -0.12
	16.46 / 54.0	30.48 / 100.0

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	TEMQ20	TEMQ20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC171V02	23HD50SFC171V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	10.0	10.0
Received Level (dBm)	-48.0	-48.0
EIRP (dBm)	45.3	45.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		128.6

Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0619A CA
City/County Foothill Farms/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC002C CA

North Highlands/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 35.4~ N	38 ° 41' 12.9~ N
Longitude (NAD 83)	121 ° 20' 59.7~ W	121 ° 21' 39.2~ W
Ground Elevation (m/ft-AMSL)	44.10 / 144.7	39.00 / 128.0
Antenna Structure Registration #		1252389
Path Azimuth (°)	320.459	140.452
Path Length (km / miles)		1.500 / 0.932

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / 0.69	35.3 / 3.00 / -0.70
Centerline (m / ft - AGL) 17.37 / 57.0	40.54 / 133.0

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

TEMQ16	TEMQ16
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC322V02	23HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 7.5	7.5
Received Level (dBm) -44.8	-44.8
EIRP (dBm) 42.8	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.9	

Transmit Frequencies (MHz)	22125.0000V(7)	22275.0000V(10)	23325.0000V(7)	23475.0000V(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0621C CA
 City/County Citrus Heights/Sacramento
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC002C CA

North Highlands/Sacramento
 Engineering Proposal / PRIMARY OPERATION
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 44.4~ N	38 ° 41' 12.9~ N
Longitude (NAD 83)	121 ° 19' 9.8~ W	121 ° 21' 39.2~ W
Ground Elevation (m/ft-AMSL)	40.70 / 133.5	39.00 / 128.0
Antenna Structure Registration #		1252389
Path Azimuth (°)	283.691	103.665
Path Length (km / miles)		3.716 / 2.309

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.41
Centerline (m / ft - AGL)	11.43 / 37.5
	40.54 / 133.0

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

TEMU10	TEMU10
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC171V01	23HS50SFC171V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	14.0
Received Level (dBm)	-46.2
EIRP (dBm)	49.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	130.8

Transmit Frequencies (MHz) 21925.0000H(3)

23125.0000H(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

New Path

Job Number 100107COMSTI01

RCN Number: 10010700

Administrative Information

CA-SAC0622A CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC080A CA

Citrus Heights/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 34.7~ N	38 ° 42' 30.5~ N
Longitude (NAD 83)	121 ° 19' 28.3~ W	121 ° 18' 39.2~ W
Ground Elevation (m/ft-AMSL)	46.80 / 153.5	45.90 / 150.6
Antenna Structure Registration #		
Path Azimuth (°)	34.583	214.592
Path Length (km / miles)	2.090 / 1.299	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.07
Centerline (m / ft - AGL)	10.67 / 35.0
13.72 / 45.0	

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -46.7	-46.7
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.8	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0623A CA
City/County Carmichael/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC151D CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 14.0~ N	38 °40' 3.5~ N
Longitude (NAD 83)	121 °18' 50.4~ W	121 °18' 38.7~ W
Ground Elevation (m/ft-AMSL)	38.50 / 126.3	43.90 / 144.0
Antenna Structure Registration #		
Path Azimuth (°)	10.498	190.500
Path Length (km / miles)	1.552 / 0.965	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.08	35.3 / 3.00 / -0.09
20.12 / 66.0	17.07 / 56.0

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

TEMU11	TEMU11
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC215V01	23HS50SFC215V01
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
12.5	12.5
-40.1	-40.1
47.8	47.8
0.0 / 0.0	0.0 / 0.0
123.2	

Transmit Frequencies (MHz) 23025.0000V(1)

21825.0000V(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0624A CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC004A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 12.1~ N	38 ° 40' 21.1~ N
Longitude (NAD 83)	121 ° 18' 35.6~ W	121 ° 19' 55.1~ W
Ground Elevation (m/ft-AMSL)	38.70 / 127.0	30.80 / 101.0
Antenna Structure Registration #		1058155
Path Azimuth (°)	230.710	50.696
Path Length (km / miles)		2.483 / 1.543

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.32
Centerline (m / ft - AGL)	14.33 / 47.0
	36.58 / 120.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	8.5
Received Level (dBm)	-48.2
EIRP (dBm)	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	127.3

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0627A CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC134A CA

Citrus Heights/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 30.0~ N	38 ° 42' 19.3~ N
Longitude (NAD 83)	121 ° 17' 50.5~ W	121 ° 16' 13.8~ W
Ground Elevation (m/ft-AMSL)	41.20 / 135.2	56.40 / 185.0
Antenna Structure Registration #		
Path Azimuth (°)	98.030	278.046
Path Length (km / miles)	2.360 / 1.466	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.44	35.3 / 3.00 / -0.45
19.81 / 65.0	22.86 / 75.0

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

TEMQ55	TEMQ55
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC215V02	23HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-47.7	-47.7
43.8	43.8
0.0 / 0.0	0.0 / 0.0
126.8	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0638A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0633A CA

Citrus Heights/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 48.4~ N	38 ° 41' 33.3~ N
Longitude (NAD 83)	121 ° 15' 37.7~ W	121 ° 16' 10.5~ W
Ground Elevation (m/ft-AMSL)	59.30 / 194.6	56.10 / 184.1
Antenna Structure Registration #		
Path Azimuth (°)	330.209	150.203
Path Length (km / miles)	1.595 / 0.991	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.31
Centerline (m / ft - AGL)	22.56 / 74.0
35.3 / 3.00 / 0.30	17.37 / 57.0

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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
HORIZON DUO	HORIZON DUO
Emission Designator / Modulation	45M8D7W 256 QAM
Loading	1 CH DIG 322000.000
Stability (%)	0.001
	Nominal Coordinated Maximum
Power (dBm)	7.5
Received Level (dBm)	-45.3
EIRP (dBm)	42.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	123.4

Transmit Frequencies (MHz)	23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information	CA-SAC0638A CA	CA-SAC121A CA
City/County	/Sacramento	/Sacramento
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
Licensee Code	CLESP3	CLESP3
Licensee Name	Clearwire Spectrum Holdings III, LL	Clearwire Spectrum Holdings III, LL
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 48.4~ N	38 ° 39' 54.7~ N
Longitude (NAD 83)	121 ° 15' 37.7~ W	121 ° 14' 57.2~ W
Ground Elevation (m/ft-AMSL)	59.30 / 194.6	67.60 / 221.8
Antenna Structure Registration #		1222725
Path Azimuth (°)	149.403	329.410
Path Length (km / miles)		1.924 / 1.195

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.36	35.3 / 3.00 / -0.37
	22.56 / 74.0	26.52 / 87.0

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	TEMQ48	TEMQ48
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC322V02	23HD50HFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	14.0	14.0
Received Level (dBm)	-40.4	-40.4
EIRP (dBm)	49.3	49.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.0

Transmit Frequencies (MHz)	23075.0000H(2)	23225.0000H(5)	21875.0000H(2)	22025.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0639D CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC149A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 8.1~ N	38 ° 41' 30.5~ N
Longitude (NAD 83)	121 ° 15' 17.6~ W	121 ° 15' 19.1~ W
Ground Elevation (m/ft-AMSL)	62.20 / 204.1	58.80 / 192.9
Antenna Structure Registration #		
Path Azimuth (°)	181.791	1.791
Path Length (km / miles)	1.160 / 0.721	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.52
Centerline (m / ft - AGL)	17.98 / 59.0
32.00 / 105.0	

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

TEMU13	TEMU13
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC322V01	23HS50SFC322V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.5	11.5
Received Level (dBm) -38.5	-38.5
EIRP (dBm) 46.8	46.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.6	

Transmit Frequencies (MHz) 23175.0000H(4)

21975.0000H(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC064B CA
City/County Gold River/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC001A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 38.7~ N	38 °38' 6.8~ N
Longitude (NAD 83)	121 °13' 35.7~ W	121 °11' 59.3~ W
Ground Elevation (m/ft-AMSL)	40.90 / 134.2	47.40 / 155.5
Antenna Structure Registration #		
Path Azimuth (°)	69.606	249.622
Path Length (km / miles)	2.487 / 1.546	

Transmit Antenna

87016A	87016A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23	VHLP2-23
40.4 / 1.60 / 0.35	40.4 / 1.60 / -0.37
15.24 / 50.0	24.38 / 80.0

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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-41.0	-41.0
45.9	45.9
0.0 / 0.0	0.0 / 0.0
127.3	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC064B CA
City/County Gold River/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0655A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 38.7~ N	38 °37' 7.4~ N
Longitude (NAD 83)	121 °13' 35.7~ W	121 °14' 29.2~ W
Ground Elevation (m/ft-AMSL)	40.90 / 134.2	38.00 / 124.7
Antenna Structure Registration #		
Path Azimuth (°)	233.290	53.281
Path Length (km / miles)	1.614 / 1.003	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.09	35.3 / 3.00 / 0.08
	15.24 / 50.0	15.85 / 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

Manufacturer	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	7.5	7.5
Received Level (dBm)	-45.4	-45.4
EIRP (dBm)	42.8	42.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		123.5

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0640A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0658C CA

City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 21.5~ N	38 ° 43' 31.2~ N
Longitude (NAD 83)	121 ° 14' 40.4~ W	121 ° 13' 13.5~ W
Ground Elevation (m/ft-AMSL)	51.90 / 170.3	76.60 / 251.3
Antenna Structure Registration #		
Path Azimuth (°)	81.883	261.898
Path Length (km / miles)	2.120 / 1.318	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.30
Centerline (m / ft - AGL)	20.42 / 67.0
	44.20 / 145.0

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -42.8	-42.8
EIRP (dBm) 47.8	47.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.9	

Transmit Frequencies (MHz) 21875.0000V(2)

23075.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0642A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0644B CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 41.0~ N	38 ° 45' 58.6~ N
Longitude (NAD 83)	121 ° 19' 59.8~ W	121 ° 19' 1.8~ W
Ground Elevation (m/ft-AMSL)	41.50 / 136.2	41.90 / 137.5
Antenna Structure Registration #		
Path Azimuth (°)	68.810	248.820
Path Length (km / miles)	1.502 / 0.933	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.57	35.3 / 3.00 / -0.58
21.64 / 71.0	36.27 / 119.0

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

TEMQ55	TEMQ55
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC215V02	23HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-43.8	-43.8
43.8	43.8
0.0 / 0.0	0.0 / 0.0
122.9	

Transmit Frequencies (MHz)

23075.0000V(2)	23225.0000V(5)	21875.0000V(2)	22025.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

New Path

Job Number 100107COMSTI01

RCN Number: 10010700

Administrative Information**CA-SAC0649A CA****CA-SAC122A CA**

City/County

Roseville/Placer

Roseville/Placer

Status / License Basis

Engineering Proposal / PRIMARY OPERATION

Engineering Proposal / PRIMARY OPERATION

Call Sign

Licensee Code

CLESP3

CLESP3

Licensee Name

Clearwire Spectrum Holdings III, LL

Clearwire Spectrum Holdings III, LL

Radio Service / Station Class

MG -- Microwave Industrial/Business Pool

FXO -- Fixed

Site Information

Latitude (NAD 83)

38 °47' 33.0~ N

38 °46' 56.1~ N

Longitude (NAD 83)

121 °16' 1.0~ W

121 °18' 11.6~ W

Ground Elevation (m/ft-AMSL)

86.30 / 283.1

49.00 / 160.8

Antenna Structure Registration #

1258309

1202312

Path Azimuth (°)

250.162

70.139

Path Length (km / miles)

3.351 / 2.082

Transmit Antenna

87014A

87016A

Manufacturer

ANDREW CORPORATION

ANDREW CORPORATION

Model

VHLP1-23

VHLP2-23

Gain (dBi) / Beamwidth (°) / Tilt (°)

35.3 / 3.00 / 0.05

40.4 / 1.60 / -0.08

Centerline (m / ft - AGL)

12.19 / 40.0

53.34 / 175.0

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

TEMQ20

TEMQ20

Manufacturer

DRAGONWAVE INC

DRAGONWAVE INC

Model

23HD50SFC171V02

23HD50SFC171V02

Model Description

HORIZON DUO

HORIZON DUO

Emission Designator / Modulation

45M8D7W 32 QAM

45M8D7W 32 QAM

Loading

1 CH DIG 171000.000

1 CH DIG 171000.000

Stability (%)

0.001

0.001

Nominal	Coordinated	Maximum
10.0		
-44.2		
45.3		

Nominal	Coordinated	Maximum
10.0		
-44.2		
50.4		

Power (dBm)

10.0

10.0

Received Level (dBm)

-44.2

-44.2

EIRP (dBm)

45.3

50.4

Fixed Loss: Tx / Common (dB)

0.0 / 0.0

0.0 / 0.0

Free Space Loss (dB)

129.9

Transmit Frequencies (MHz)

23125.0000V(3)

23275.0000V(6)

21925.0000V(3)

22075.0000V(6)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0652C CA
City/County Lincoln/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0653A CA

City/County Lincoln/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °52' 21.3~ N	38 °51' 34.0~ N
Longitude (NAD 83)	121 °18' 31.5~ W	121 °16' 22.6~ W
Ground Elevation (m/ft-AMSL)	42.00 / 137.8	66.10 / 216.9
Antenna Structure Registration #		
Path Azimuth (°)	115.133	295.155
Path Length (km / miles)	3.433 / 2.133	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.31	35.3 / 3.00 / -0.33
	18.29 / 60.0	13.41 / 44.0

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	TEMU10	TEMU10
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC171V01	23HS50SFC171V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	14.0	14.0
Received Level (dBm)	-45.5	-45.5
EIRP (dBm)	49.3	49.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		130.1

Transmit Frequencies (MHz) 21825.0000H(1)

23025.0000H(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0656A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC149A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 40.7~ N	38 ° 41' 30.5~ N
Longitude (NAD 83)	121 ° 14' 10.2~ W	121 ° 15' 19.1~ W
Ground Elevation (m/ft-AMSL)	70.00 / 229.7	58.80 / 192.9
Antenna Structure Registration #		
Path Azimuth (°)	312.687	132.675
Path Length (km / miles)	2.265 / 1.408	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.16
Centerline (m / ft - AGL)	14.02 / 46.0
	32.03 / 105.1

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -43.4	-43.4
EIRP (dBm) 47.8	47.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.5	

Transmit Frequencies (MHz) 23025.0000V(1)

21825.0000V(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

New Path

Job Number 100107COMSTI01

RCN Number: 10010700

Administrative Information

CA-SAC0657A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC148A CA

Orangevale/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 7.7~ N	38 ° 40' 38.1~ N
Longitude (NAD 83)	121 ° 13' 56.2~ W	121 ° 12' 16.1~ W
Ground Elevation (m/ft-AMSL)	71.90 / 235.9	80.50 / 264.1
Antenna Structure Registration #		
Path Azimuth (°)	110.660	290.678
Path Length (km / miles)	2.586 / 1.607	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / 0.21	35.3 / 3.00 / -0.23
Centerline (m / ft - AGL) 16.76 / 55.0	17.98 / 59.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -48.5	-48.5
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.6	

Transmit Frequencies (MHz)	22175.0000H(8)	22275.0000H(10)	23375.0000H(8)	23475.0000H(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0658C CA
 City/County Roseville/Placer
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC181A CA

Roseville/Placer
 Engineering Proposal / PRIMARY OPERATION
 CLESP3
 Clearwire Spectrum Holdings III, LL
 FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 31.2~ N	38 ° 44' 3.2~ N
Longitude (NAD 83)	121 ° 13' 13.5~ W	121 ° 14' 55.6~ W
Ground Elevation (m/ft-AMSL)	76.60 / 251.3	52.80 / 173.2
Antenna Structure Registration #		
Path Azimuth (°)	291.816	111.799
Path Length (km / miles)	2.656 / 1.650	

Transmit Antenna

87016A
 Manufacturer ANDREW CORPORATION
 Model VHLP2-23
 Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / -1.05
 Centerline (m / ft - AGL) 44.20 / 145.0

87014A
 ANDREW CORPORATION
 VHLP1-23
 35.3 / 3.00 / 1.03
 19.81 / 65.0

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

TEMQ20
 Manufacturer DRAGONWAVE INC
 Model 23HD50SFC171V02
 Model Description HORIZON DUO
 Emission Designator / Modulation 45M8D7W 32 QAM
 Loading 1 CH DIG 171000.000
 Stability (%) 0.001

	Nominal	Coordinated	Maximum
Power (dBm)		10.0	
Received Level (dBm)		-42.1	
EIRP (dBm)		50.4	

 Fixed Loss: Tx / Common (dB) 0.0 / 0.0
 Free Space Loss (dB) 127.8

TEMQ20
 DRAGONWAVE INC
 23HD50SFC171V02
 HORIZON DUO
 45M8D7W 32 QAM
 1 CH DIG 171000.000
 0.001

	Nominal	Coordinated	Maximum
		10.0	
		-42.1	
		45.3	

 0.0 / 0.0

Transmit Frequencies (MHz)	23025.0000V(1)	23175.0000V(4)	21825.0000V(1)	21975.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0661A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC149A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 17.6~ N	38 ° 41' 30.5~ N
Longitude (NAD 83)	121 ° 13' 57.9~ W	121 ° 15' 19.1~ W
Ground Elevation (m/ft-AMSL)	76.50 / 251.0	58.80 / 192.9
Antenna Structure Registration #		
Path Azimuth (°)	318.883	138.869
Path Length (km / miles)	2.984 / 1.854	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.03
Centerline (m / ft - AGL)	15.24 / 50.0
	32.00 / 105.0

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

TEMQ49	TEMQ49
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC171V02	23HD50HFC171V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.5	14.5
Received Level (dBm) -43.8	-43.8
EIRP (dBm) 49.8	49.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.9	

Transmit Frequencies (MHz)	23375.0000V(8)	23475.0000V(10)	22175.0000V(8)	22275.0000V(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0662D CA
 City/County Folsom/Sacramento
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0666C CA

Folsom/Sacramento
 Engineering Proposal / PRIMARY OPERATION
 CLESP3
 Clearwire Spectrum Holdings III, LL
 FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 40.1~ N	38 °38' 36.9~ N
Longitude (NAD 83)	121 °11' 20.6~ W	121 °10' 1.3~ W
Ground Elevation (m/ft-AMSL)	59.00 / 193.6	80.00 / 262.5
Antenna Structure Registration #		
Path Azimuth (°)	92.939	272.952
Path Length (km / miles)	1.920 / 1.193	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / 0.85	35.3 / 3.00 / -0.86
Centerline (m / ft - AGL) 9.14 / 30.0	16.76 / 55.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -45.9	-45.9
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.0	

Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0663A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC148A CA

City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 20.4~ N	38 ° 40' 38.1~ N
Longitude (NAD 83)	121 ° 12' 33.2~ W	121 ° 12' 16.1~ W
Ground Elevation (m/ft-AMSL)	73.80 / 242.1	80.50 / 264.1
Antenna Structure Registration #		
Path Azimuth (°)	162.417	342.420
Path Length (km / miles)	1.368 / 0.850	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.14
Centerline (m / ft - AGL)	21.34 / 70.0
21.34 / 70.0	17.98 / 59.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -46.0	-46.0
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.1	

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0664A CA
City/County Granite Bay/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0659A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 54.6~ N	38 ° 44' 18.0~ N
Longitude (NAD 83)	121 ° 12' 45.4~ W	121 ° 13' 57.8~ W
Ground Elevation (m/ft-AMSL)	85.30 / 279.9	68.10 / 223.4
Antenna Structure Registration #		
Path Azimuth (°)	292.430	112.417
Path Length (km / miles)	1.892 / 1.175	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.05	35.3 / 3.00 / -0.06
19.20 / 63.0	38.10 / 125.0

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

TEMQ20	TEMQ20
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC171V02	23HD50SFC171V02
HORIZON DUO	HORIZON DUO
45M8D7W 32 QAM	45M8D7W 32 QAM
1 CH DIG 171000.000	1 CH DIG 171000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
10.0	10.0
-44.3	-44.3
45.3	45.3
0.0 / 0.0	0.0 / 0.0
124.9	

Transmit Frequencies (MHz)	23075.0000H(2)	23225.0000H(5)	21875.0000H(2)	22025.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0665A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC149A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 6.9~ N	38 ° 41' 30.5~ N
Longitude (NAD 83)	121 ° 12' 40.5~ W	121 ° 15' 19.1~ W
Ground Elevation (m/ft-AMSL)	71.00 / 232.9	58.80 / 192.9
Antenna Structure Registration #		
Path Azimuth (°)	253.690	73.663
Path Length (km / miles)	3.994 / 2.481	

Transmit Antenna

87014A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.04
Centerline (m / ft - AGL)	21.34 / 70.0
	40.4 / 1.60 / 0.01
	32.03 / 105.1

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

TEMU04	TEMU04
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50HFC215V01	23HS50HFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 22.5	22.5
Received Level (dBm) -33.2	-33.2
EIRP (dBm) 57.8	62.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 131.4	

Transmit Frequencies (MHz) 23425.0000V(9)

22225.0000V(9)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0667A CA
City/County Granite Bay/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0664A CA

City/County Granite Bay/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 44' 13.6~ N	38 ° 43' 54.6~ N
Longitude (NAD 83)	121 ° 11' 31.2~ W	121 ° 12' 45.4~ W
Ground Elevation (m/ft-AMSL)	114.30 / 375.0	85.30 / 279.9
Antenna Structure Registration #		
Path Azimuth (°)	251.903	71.890
Path Length (km / miles)	1.885 / 1.172	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.75
Centerline (m / ft - AGL)	15.24 / 50.0
	19.20 / 63.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -45.8	-45.8
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.9	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0668B CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC148A CA

Orangevale/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 5.3~ N	38 ° 40' 38.1~ N
Longitude (NAD 83)	121 ° 12' 10.9~ W	121 ° 12' 16.1~ W
Ground Elevation (m/ft-AMSL)	79.70 / 261.5	80.50 / 264.1
Antenna Structure Registration #		
Path Azimuth (°)	352.916	172.915
Path Length (km / miles)	1.019 / 0.633	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.14
Centerline (m / ft - AGL)	16.15 / 53.0
16.15 / 53.0	17.98 / 59.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -43.4	-43.4
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 119.5	

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC067A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC103A CA

Fair Oaks/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 44.0~ N	38 ° 39' 41.8~ N
Longitude (NAD 83)	121 ° 13' 34.2~ W	121 ° 13' 40.9~ W
Ground Elevation (m/ft-AMSL)	74.30 / 243.8	73.40 / 240.8
Antenna Structure Registration #		
Path Azimuth (°)	184.828	4.826
Path Length (km / miles)	1.925 / 1.196	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.30
Centerline (m / ft - AGL)	21.34 / 70.0
	12.50 / 41.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -45.9	-45.9
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.0	

Transmit Frequencies (MHz)	23125.0000H(3)	23275.0000H(6)	21925.0000H(3)	22075.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC067A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC149A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 44.0~ N	38 ° 41' 30.5~ N
Longitude (NAD 83)	121 ° 13' 34.2~ W	121 ° 15' 19.1~ W
Ground Elevation (m/ft-AMSL)	74.30 / 243.8	58.80 / 192.9
Antenna Structure Registration #		
Path Azimuth (°)	299.500	119.481
Path Length (km / miles)	2.913 / 1.810	

Transmit Antenna

87016A	87016A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23	VHLP2-23
40.4 / 1.60 / -0.11	40.4 / 1.60 / 0.09
21.34 / 70.0	32.00 / 105.0

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

TEMU11	TEMU11
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC215V01	23HS50SFC215V01
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
12.5	12.5
-35.3	-35.3
52.9	52.9
0.0 / 0.0	0.0 / 0.0
128.6	

Transmit Frequencies (MHz) 23075.0000V(2)

21875.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0671A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0670A CA

Orangevale/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 43' 27.8~ N	38 ° 42' 36.8~ N
Longitude (NAD 83)	121 ° 11' 12.7~ W	121 ° 12' 2.0~ W
Ground Elevation (m/ft-AMSL)	116.10 / 380.9	93.10 / 305.4
Antenna Structure Registration #		
Path Azimuth (°)	217.142	37.133
Path Length (km / miles)	1.973 / 1.226	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.07
Centerline (m / ft - AGL)	14.33 / 47.0
	39.62 / 130.0

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Power (dBm)	Nominal Coordinated Maximum
Received Level (dBm)	12.5
EIRP (dBm)	-42.2
	47.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	125.3

Transmit Frequencies (MHz) 22225.0000H(9)

23425.0000H(9)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0673A CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0675A CA

City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 33.0~ N	38 ° 40' 57.9~ N
Longitude (NAD 83)	121 ° 10' 10.3~ W	121 ° 9' 18.8~ W
Ground Elevation (m/ft-AMSL)	89.20 / 292.7	114.00 / 374.0
Antenna Structure Registration #		
Path Azimuth (°)	58.329	238.338
Path Length (km / miles)	1.463 / 0.909	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.74
Centerline (m / ft - AGL)	16.15 / 53.0
	35.66 / 117.0

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

TEMU12	TEMU12
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC271V01	23HS50SFC271V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 11.0	11.0
Received Level (dBm) -41.1	-41.1
EIRP (dBm) 46.3	46.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.7	

Transmit Frequencies (MHz) 23075.0000V(2)

21875.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0674B CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0666C CA

City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 34.0~ N	38 °38' 36.9~ N
Longitude (NAD 83)	121 °10' 5.0~ W	121 °10' 1.3~ W
Ground Elevation (m/ft-AMSL)	78.60 / 257.9	80.00 / 262.5
Antenna Structure Registration #		
Path Azimuth (°)	177.091	357.091
Path Length (km / miles)	1.763 / 1.095	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.01	35.3 / 3.00 / -0.02
	17.68 / 58.0	16.76 / 55.0

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	TEMO25	TEMO25
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC271V02	23HD50SFC271V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M8D7W 128 QAM	47M8D7W 128 QAM
Stability (%)	1 CH DIG 271000.000	1 CH DIG 271000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	7.0	7.0
Received Level (dBm)	-46.7	-46.7
EIRP (dBm)	42.3	42.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		124.3

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0677B CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0637A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 44' 55.4~ N	38 ° 45' 37.8~ N
Longitude (NAD 83)	121 ° 14' 36.7~ W	121 ° 16' 11.5~ W
Ground Elevation (m/ft-AMSL)	77.70 / 254.9	57.80 / 189.6
Antenna Structure Registration #		
Path Azimuth (°)	299.743	119.726
Path Length (km / miles)	2.636 / 1.638	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / -0.81	40.4 / 1.60 / 0.79
Centerline (m / ft - AGL) 43.59 / 143.0	26.52 / 87.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -38.5	-38.5
EIRP (dBm) 48.9	48.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.8	

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0678D CA
City/County Rocklin/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC070A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 47' 15.5~ N	38 ° 46' 11.8~ N
Longitude (NAD 83)	121 ° 14' 44.9~ W	121 ° 15' 8.3~ W
Ground Elevation (m/ft-AMSL)	69.80 / 229.0	63.70 / 209.0
Antenna Structure Registration #		
Path Azimuth (°)	196.044	16.040
Path Length (km / miles)	2.044 / 1.270	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -0.36	35.3 / 3.00 / 0.34
Centerline (m / ft - AGL) 24.08 / 79.0	17.68 / 58.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -46.5	-46.5
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.6	

Transmit Frequencies (MHz)	23125.0000H(3)	23275.0000H(6)	21925.0000H(3)	22075.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC068A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC182A CA

City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 52.4~ N	38 ° 42' 29.1~ N
Longitude (NAD 83)	121 ° 13' 20.6~ W	121 ° 14' 36.2~ W
Ground Elevation (m/ft-AMSL)	71.10 / 233.3	65.10 / 213.6
Antenna Structure Registration #		
Path Azimuth (°)	248.534	68.521
Path Length (km / miles)	1.963 / 1.220	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.46
Centerline (m / ft - AGL)	13.72 / 45.0
35.3 / 3.00 / 0.44	35.11 / 115.2

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -42.1	-42.1
EIRP (dBm) 47.8	47.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.2	

Transmit Frequencies (MHz) 23075.0000H(2)

21875.0000H(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0685B CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC168B CA

Folsom/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 4.9~ N	38 ° 39' 33.4~ N
Longitude (NAD 83)	121 ° 7' 25.6~ W	121 ° 7' 50.5~ W
Ground Elevation (m/ft-AMSL)	129.20 / 423.9	115.50 / 378.9
Antenna Structure Registration #	1249534	
Path Azimuth (°)	192.045	12.041
Path Length (km / miles)	2.885 / 1.793	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.09
Centerline (m / ft - AGL)	31.39 / 103.0
	41.15 / 135.0

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

TEMU09	TEMU09
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC110V01	23HS50SFC110V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M2D7W 16 QAM	45M2D7W 16 QAM
Loading 1 CH DIG 110000.000	1 CH DIG 110000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.5	14.5
Received Level (dBm) -43.5	-43.5
EIRP (dBm) 49.8	49.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.6	

Transmit Frequencies (MHz) 21875.0000V(2)

23075.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0686C CA
City/County El Dorado Hills/El Dorado
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0680A CA

Folsom/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 13.9~ N	38 °38' 53.0~ N
Longitude (NAD 83)	121 °3' 32.5~ W	121 °5' 54.3~ W
Ground Elevation (m/ft-AMSL)	222.70 / 730.6	252.10 / 827.1
Antenna Structure Registration #		1033381
Path Azimuth (°)	259.367	79.343
Path Length (km / miles)		3.489 / 2.168

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.77
Centerline (m / ft - AGL)	15.24 / 50.0
	33.22 / 109.0

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

TEMU10	TEMU10
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC171V01	23HS50SFC171V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	14.0
Received Level (dBm)	-45.6
EIRP (dBm)	49.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	130.2

Transmit Frequencies (MHz) 22025.0000H(5)

23225.0000H(5)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0687A CA
City/County El Dorado Hills/El Dorado
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0683A CA

City/County El Dorado Hills/El Dorado
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 43.9~ N	38 ° 41' 28.6~ N
Longitude (NAD 83)	121 ° 4' 10.8~ W	121 ° 5' 22.8~ W
Ground Elevation (m/ft-AMSL)	240.10 / 787.7	241.50 / 792.3
Antenna Structure Registration #		
Path Azimuth (°)	308.388	128.376
Path Length (km / miles)	2.220 / 1.379	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.60
Centerline (m / ft - AGL)	19.20 / 63.0
40.84 / 134.0	

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -43.2	-43.2
EIRP (dBm) 47.8	47.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.3	

Transmit Frequencies (MHz) 21825.0000H(1)

23025.0000H(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0692A CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC051A CA

City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 7.8~ N	38 °34' 21.8~ N
Longitude (NAD 83)	121 °18' 5.4~ W	121 °18' 14.2~ W
Ground Elevation (m/ft-AMSL)	26.60 / 87.3	25.90 / 85.0
Antenna Structure Registration #		1031917
Path Azimuth (°)	333.736	153.734
Path Length (km / miles)		0.481 / 0.299

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -1.46	35.3 / 3.00 / 1.46
	26.82 / 88.0	15.24 / 50.0

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	TEMO20	TEMO20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC371V02	23HD50SFC371V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	49M2D7W 256 QAM	49M2D7W 256 QAM
Stability (%)	1 CH DIG 371000.000	1 CH DIG 371000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-36.9	-36.9
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		113.0

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0695A CA
City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC019A CA

West Sacramento/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 25.6~ N	38 °34' 56.0~ N
Longitude (NAD 83)	121 °32' 35.8~ W	121 °30' 58.7~ W
Ground Elevation (m/ft-AMSL)	3.60 / 11.8	8.30 / 27.2
Antenna Structure Registration #	1015177	
Path Azimuth (°)	68.248	248.264
Path Length (km / miles)	2.530 / 1.572	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / 0.08	40.4 / 1.60 / -0.09
Centerline (m / ft - AGL) 25.91 / 85.0	24.99 / 82.0

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

TEM025	TEM025
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC271V02	23HD50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -41.1	-41.1
EIRP (dBm) 45.9	45.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.4	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC0697A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0583A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 43.3~ N	38 °33' 58.0~ N
Longitude (NAD 83)	121 °25' 21.1~ W	121 °25' 55.2~ W
Ground Elevation (m/ft-AMSL)	11.20 / 36.7	12.20 / 40.0
Antenna Structure Registration #		
Path Azimuth (°)	298.772	118.766
Path Length (km / miles)	0.942 / 0.585	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.13	35.3 / 3.00 / 0.12
	27.43 / 90.0	24.38 / 80.0

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	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-42.7	-42.7
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		118.8

Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC070A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0637A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 46' 11.8~ N	38 ° 45' 37.8~ N
Longitude (NAD 83)	121 ° 15' 8.3~ W	121 ° 16' 11.5~ W
Ground Elevation (m/ft-AMSL)	63.70 / 209.0	57.80 / 189.6
Antenna Structure Registration #		
Path Azimuth (°)	235.511	55.500
Path Length (km / miles)	1.851 / 1.150	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.08	35.3 / 3.00 / -0.10
17.68 / 58.0	26.52 / 87.0

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

TEMQ48	TEMQ48
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC322V02	23HD50HFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
14.0	14.0
-40.1	-40.1
49.3	49.3
0.0 / 0.0	0.0 / 0.0
124.7	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC073A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC029A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 44.5~ N	38 °33' 59.0~ N
Longitude (NAD 83)	121 °27' 44.8~ W	121 °28' 51.0~ W
Ground Elevation (m/ft-AMSL)	9.90 / 32.5	7.90 / 25.9
Antenna Structure Registration #		1021057
Path Azimuth (°)	285.594	105.582
Path Length (km / miles)		1.664 / 1.034

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.27
Centerline (m / ft - AGL)	13.41 / 44.0
	52.43 / 172.0

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

TEM025	TEM025
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC271V02	23HD50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 7.0	7.0
Received Level (dBm) -46.2	-46.2
EIRP (dBm) 42.3	42.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.8	

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC075A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC111D CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 0.9~ N	38 °37' 11.7~ N
Longitude (NAD 83)	121 °25' 56.2~ W	121 °27' 13.7~ W
Ground Elevation (m/ft-AMSL)	13.10 / 43.0	8.50 / 27.9
Antenna Structure Registration #	1206782	1252390
Path Azimuth (°)	231.024	51.011
Path Length (km / miles)	2.412 / 1.499	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / 0.47	40.4 / 1.60 / -0.49
Centerline (m / ft - AGL) 15.24 / 50.0	39.93 / 131.0

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

TEMQ16	TEMQ16
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC322V02	23HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 4.5	4.5
Received Level (dBm) -41.7	-41.7
EIRP (dBm) 44.9	44.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.0	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC078A CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0666C CA

Folsom/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 6.6~ N	38 ° 38' 36.9~ N
Longitude (NAD 83)	121 ° 9' 39.6~ W	121 ° 10' 1.3~ W
Ground Elevation (m/ft-AMSL)	87.10 / 285.8	80.00 / 262.5
Antenna Structure Registration #		
Path Azimuth (°)	190.743	10.739
Path Length (km / miles)	2.815 / 1.749	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.30	35.3 / 3.00 / 0.28
23.77 / 78.0	16.76 / 55.0

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

TEMQ20	TEMQ20
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC171V02	23HD50SFC171V02
HORIZON DUO	HORIZON DUO
45M8D7W 32 QAM	45M8D7W 32 QAM
1 CH DIG 171000.000	1 CH DIG 171000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
10.0	10.0
-47.7	-47.7
45.3	45.3
0.0 / 0.0	0.0 / 0.0
128.3	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC089C CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0589A CA

City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 54.2~ N	38 °36' 16.5~ N
Longitude (NAD 83)	121 °22' 52.6~ W	121 °23' 0.9~ W
Ground Elevation (m/ft-AMSL)	22.40 / 73.5	18.60 / 61.0
Antenna Structure Registration #		
Path Azimuth (°)	189.801	9.800
Path Length (km / miles)	1.180 / 0.733	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.71
Centerline (m / ft - AGL)	23.16 / 76.0
	12.19 / 40.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -44.7	-44.7
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.8	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC089C CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC074B CA

Arden-Arcade/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 54.2~ N	38 °36' 32.6~ N
Longitude (NAD 83)	121 °22' 52.6~ W	121 °21' 41.6~ W
Ground Elevation (m/ft-AMSL)	22.40 / 73.5	19.80 / 65.0
Antenna Structure Registration #		1236050
Path Azimuth (°)	111.187	291.200
Path Length (km / miles)	1.842 / 1.145	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.12
Centerline (m / ft - AGL)	23.16 / 76.0
23.16 / 76.0	21.95 / 72.0

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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 13.5	13.5
Received Level (dBm) -40.6	-40.6
EIRP (dBm) 48.8	48.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.7	

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC091A CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC022A CA

Vineyard/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 23.4~ N	38 °27' 11.9~ N
Longitude (NAD 83)	121 °22' 12.2~ W	121 °20' 58.8~ W
Ground Elevation (m/ft-AMSL)	13.90 / 45.6	23.50 / 77.1
Antenna Structure Registration #		1221711
Path Azimuth (°)	28.010	208.023
Path Length (km / miles)		3.790 / 2.355

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / 0.55
Centerline (m / ft - AGL)	22.86 / 75.0
	50.29 / 165.0

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

TEMU10	TEMU10
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC171V01	23HS50SFC171V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	14.0
Received Level (dBm)	-46.3
EIRP (dBm)	49.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	130.9

Transmit Frequencies (MHz) 21975.0000V(4)

23175.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC092A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0665A CA

City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 47.5~ N	38 ° 42' 6.9~ N
Longitude (NAD 83)	121 ° 13' 28.7~ W	121 ° 12' 40.5~ W
Ground Elevation (m/ft-AMSL)	66.50 / 218.2	71.00 / 232.9
Antenna Structure Registration #		
Path Azimuth (°)	62.810	242.819
Path Length (km / miles)	1.309 / 0.814	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.69
Centerline (m / ft - AGL)	10.06 / 33.0
	21.34 / 70.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -45.6	-45.6
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.7	

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC094A CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC191A CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °24' 12.2~ N	38 °24' 29.0~ N
Longitude (NAD 83)	121 °21' 38.2~ W	121 °22' 39.8~ W
Ground Elevation (m/ft-AMSL)	15.90 / 52.2	11.50 / 37.7
Antenna Structure Registration #		
Path Azimuth (°)	289.121	109.111
Path Length (km / miles)		1.582 / 0.983

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.05	35.3 / 3.00 / 0.04
15.85 / 52.0	19.11 / 62.7

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

TEMU06	TEMU06
DRAGONWAVE INC	DRAGONWAVE INC
23HS50HFC322V01	23HS50HFC322V01
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
20.5	20.5
-32.2	-32.2
55.8	55.8
0.0 / 0.0	0.0 / 0.0
	123.3

Transmit Frequencies (MHz) 23325.0000V(7)

22125.0000V(7)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC096A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0690A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °29' 39.0~ N	38 °28' 27.0~ N
Longitude (NAD 83)	121 °29' 0.0~ W	121 °29' 45.0~ W
Ground Elevation (m/ft-AMSL)	4.00 / 13.1	4.60 / 15.1
Antenna Structure Registration #	1025136	1057286
Path Azimuth (°)	206.167	26.159
Path Length (km / miles)	2.474 / 1.537	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.64
Centerline (m / ft - AGL)	13.87 / 45.5
	41.15 / 135.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	8.5
Received Level (dBm)	-48.1
EIRP (dBm)	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	127.2

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC102A CA
City/County Fair Oaks/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0691A CA

Fair Oaks/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °38' 29.3~ N	38 °38' 24.6~ N
Longitude (NAD 83)	121 °16' 16.0~ W	121 °16' 28.0~ W
Ground Elevation (m/ft-AMSL)	59.50 / 195.2	64.00 / 210.0
Antenna Structure Registration #		
Path Azimuth (°)	243.464	63.462
Path Length (km / miles)	0.324 / 0.202	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 1.71	35.3 / 3.00 / -1.71
12.50 / 41.0	17.68 / 58.0

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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
0.0	0.0
-39.0	-39.0
35.3	35.3
0.0 / 0.0	0.0 / 0.0
109.6	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC104A CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0673A CA

City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 45.3~ N	38 ° 40' 33.0~ N
Longitude (NAD 83)	121 ° 11' 2.3~ W	121 ° 10' 10.3~ W
Ground Elevation (m/ft-AMSL)	108.10 / 354.7	89.20 / 292.7
Antenna Structure Registration #		
Path Azimuth (°)	150.585	330.594
Path Length (km / miles)	2.559 / 1.590	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.31	40.4 / 1.60 / 0.29
	10.67 / 35.0	16.15 / 53.0

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	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-41.2	-41.2
EIRP (dBm)	45.9	45.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.5

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC104A CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC105A CA

City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 45.3~ N	38 ° 42' 40.7~ N
Longitude (NAD 83)	121 ° 11' 2.3~ W	121 ° 10' 22.8~ W
Ground Elevation (m/ft-AMSL)	108.10 / 354.7	122.80 / 402.9
Antenna Structure Registration #		
Path Azimuth (°)	29.189	209.196
Path Length (km / miles)	1.957 / 1.216	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.50	35.3 / 3.00 / -0.51
	10.67 / 35.0	13.11 / 43.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-46.1	-46.1
EIRP (dBm)	43.8	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.2

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC109C CA
City/County Gold River/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC037B CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 18.1~ N	38 °36' 38.2~ N
Longitude (NAD 83)	121 °15' 48.8~ W	121 °15' 20.7~ W
Ground Elevation (m/ft-AMSL)	36.20 / 118.8	36.60 / 120.1
Antenna Structure Registration #	1269473	1269709
Path Azimuth (°)	151.075	331.080
Path Length (km / miles)	1.406 / 0.873	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.21
Centerline (m / ft - AGL)	13.41 / 44.0
	18.29 / 60.0

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

TEMQ16	TEMQ16
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC322V02	23HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -46.2	-46.2
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.3	

Transmit Frequencies (MHz)	23125.0000V(3)	23275.0000V(6)	21925.0000V(3)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC111D CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0544B CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 11.7~ N	38 °37' 40.6~ N
Longitude (NAD 83)	121 °27' 13.7~ W	121 °28' 52.9~ W
Ground Elevation (m/ft-AMSL)	8.50 / 27.9	5.10 / 16.7
Antenna Structure Registration #	1252390	
Path Azimuth (°)	290.382	110.365
Path Length (km / miles)	2.560 / 1.591	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.66	40.4 / 1.60 / 0.64
	39.93 / 131.0	14.33 / 47.0

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	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-41.2	-41.2
EIRP (dBm)	45.9	45.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.5

Transmit Frequencies (MHz)	23125.0000V(3)	23275.0000V(6)	21925.0000V(3)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC111D CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0580B CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 11.7~ N	38 °38' 39.3~ N
Longitude (NAD 83)	121 °27' 13.7~ W	121 °26' 50.1~ W
Ground Elevation (m/ft-AMSL)	8.50 / 27.9	11.60 / 38.1
Antenna Structure Registration #	1252390	
Path Azimuth (°)	11.930	191.934
Path Length (km / miles)	2.761 / 1.716	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.28
Centerline (m / ft - AGL)	39.93 / 131.0
	23.77 / 78.0

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

TEMU09	TEMU09
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC110V01	23HS50SFC110V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M2D7W 16 QAM	45M2D7W 16 QAM
Loading 1 CH DIG 110000.000	1 CH DIG 110000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.0	14.0
Received Level (dBm) -43.6	-43.6
EIRP (dBm) 49.3	49.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.2	

Transmit Frequencies (MHz) 23325.0000H(7)

22125.0000H(7)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC111D CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC063A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 11.7~ N	38 °35' 55.7~ N
Longitude (NAD 83)	121 °27' 13.7~ W	121 °27' 40.4~ W
Ground Elevation (m/ft-AMSL)	8.50 / 27.9	8.40 / 27.6
Antenna Structure Registration #	1252390	
Path Azimuth (°)	195.413	15.409
Path Length (km / miles)	2.431 / 1.510	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.53	35.3 / 3.00 / 0.51
	39.93 / 131.0	17.98 / 59.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-48.0	-48.0
EIRP (dBm)	43.8	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.1

Transmit Frequencies (MHz)	23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC121A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC205A CA

Fair Oaks/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 54.7~ N	38 °39' 14.1~ N
Longitude (NAD 83)	121 °14' 57.2~ W	121 °15' 50.3~ W
Ground Elevation (m/ft-AMSL)	67.60 / 221.8	67.50 / 221.5
Antenna Structure Registration #	1222725	
Path Azimuth (°)	225.725	45.716
Path Length (km / miles)		1.793 / 1.114

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.34
Centerline (m / ft - AGL)	26.52 / 87.0
	15.85 / 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

TEM025	TEM025
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC271V02	23HD50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	7.0
Received Level (dBm)	-46.8
EIRP (dBm)	42.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	124.4

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC122A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0643A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 46' 56.1~ N	38 ° 46' 48.2~ N
Longitude (NAD 83)	121 ° 18' 11.6~ W	121 ° 19' 38.4~ W
Ground Elevation (m/ft-AMSL)	49.00 / 160.8	34.60 / 113.5
Antenna Structure Registration #	1202312	
Path Azimuth (°)	263.375	83.360
Path Length (km / miles)	2.109 / 1.311	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.45
Centerline (m / ft - AGL)	53.34 / 175.0
	14.63 / 48.0

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

TEMQ55	TEMQ55
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC215V02	23HD50SFC215V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 8.5	8.5
Received Level (dBm) -46.7	-46.7
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.8	

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC122A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0645C CA

Rocklin/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 46' 56.1~ N	38 ° 48' 33.8~ N
Longitude (NAD 83)	121 ° 18' 11.6~ W	121 ° 17' 14.0~ W
Ground Elevation (m/ft-AMSL)	49.00 / 160.8	38.80 / 127.3
Antenna Structure Registration #	1202312	
Path Azimuth (°)	24.762	204.772
Path Length (km / miles)	3.318 / 2.062	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.72
Centerline (m / ft - AGL)	53.34 / 175.0
	22.25 / 73.0

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

TEMU10	TEMU10
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC171V01	23HS50SFC171V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.0	14.0
Received Level (dBm) -45.2	-45.2
EIRP (dBm) 49.3	49.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.8	

Transmit Frequencies (MHz) 22025.0000V(5)

23225.0000V(5)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC122A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0647A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 46' 56.1~ N	38 ° 47' 39.6~ N
Longitude (NAD 83)	121 ° 18' 11.6~ W	121 ° 17' 36.2~ W
Ground Elevation (m/ft-AMSL)	49.00 / 160.8	43.30 / 142.1
Antenna Structure Registration #	1202312	
Path Azimuth (°)	32.491	212.497
Path Length (km / miles)		1.590 / 0.988

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -1.54	35.3 / 3.00 / 1.53
53.34 / 175.0	16.46 / 54.0

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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
HORIZON DUO	HORIZON DUO
45M8D7W 256 QAM	45M8D7W 256 QAM
1 CH DIG 322000.000	1 CH DIG 322000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
7.5	7.5
-45.3	-45.3
42.8	42.8
0.0 / 0.0	0.0 / 0.0
123.4	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC122A CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC183D CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 46' 56.1~ N	38 ° 45' 36.9~ N
Longitude (NAD 83)	121 ° 18' 11.6~ W	121 ° 18' 28.6~ W
Ground Elevation (m/ft-AMSL)	49.00 / 160.8	45.10 / 148.0
Antenna Structure Registration #	1202312	
Path Azimuth (°)	189.540	9.537
Path Length (km / miles)	2.476 / 1.539	

Transmit Antenna

87014A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.02
Centerline (m / ft - AGL)	53.34 / 175.0
	40.4 / 1.60 / 1.00
	13.72 / 45.0

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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 10.5	10.5
Received Level (dBm) -41.0	-41.0
EIRP (dBm) 45.8	50.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.2	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC129B CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0592C CA

City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 30.7~ N	38 °34' 4.9~ N
Longitude (NAD 83)	121 °23' 0.2~ W	121 °23' 49.6~ W
Ground Elevation (m/ft-AMSL)	18.80 / 61.7	12.90 / 42.3
Antenna Structure Registration #		
Path Azimuth (°)	236.370	56.361
Path Length (km / miles)	1.436 / 0.892	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.25	35.3 / 3.00 / -0.26
	12.19 / 40.0	24.38 / 80.0

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	TEMU13	TEMU13
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC322V01	23HS50SFC322V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	11.5	11.5
Received Level (dBm)	-40.4	-40.4
EIRP (dBm)	46.8	46.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		122.5

Transmit Frequencies (MHz) 21975.0000V(4)

23175.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC133B CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC089C CA

City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 45.4~ N	38 °36' 54.2~ N
Longitude (NAD 83)	121 °21' 54.7~ W	121 °22' 52.6~ W
Ground Elevation (m/ft-AMSL)	23.90 / 78.4	22.40 / 73.5
Antenna Structure Registration #		
Path Azimuth (°)	326.566	146.556
Path Length (km / miles)	2.542 / 1.580	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.12	35.3 / 3.00 / -0.14
	15.85 / 52.0	23.16 / 76.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-48.4	-48.4
EIRP (dBm)	43.8	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.5

Transmit Frequencies (MHz)	23125.0000V(3)	23275.0000V(6)	21925.0000V(3)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC138A CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC043A CA

City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 9.1~ N	38 °35' 1.9~ N
Longitude (NAD 83)	121 °18' 22.7~ W	121 °18' 41.6~ W
Ground Elevation (m/ft-AMSL)	24.80 / 81.4	24.00 / 78.7
Antenna Structure Registration #		
Path Azimuth (°)	192.449	12.446
Path Length (km / miles)	2.122 / 1.319	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.31	35.3 / 3.00 / 0.29
	21.64 / 71.0	11.28 / 37.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-46.8	-46.8
EIRP (dBm)	43.8	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.9

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC146B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0688A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 32.3~ N	38 °36' 23.7~ N
Longitude (NAD 83)	121 °25' 40.6~ W	121 °26' 0.6~ W
Ground Elevation (m/ft-AMSL)	11.70 / 38.4	12.90 / 42.3
Antenna Structure Registration #		
Path Azimuth (°)	241.278	61.275
Path Length (km / miles)	0.552 / 0.343	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.45
Centerline (m / ft - AGL)	23.77 / 78.0
	36.58 / 120.0

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

TEMU14	TEMU14
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC371V01	23HS50SFC371V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 9.5	9.5
Received Level (dBm) -34.1	-34.1
EIRP (dBm) 44.8	44.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 114.2	

Transmit Frequencies (MHz) 21925.0000V(3)

23125.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC148A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC104A CA

Folsom/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 40' 38.1~ N	38 ° 41' 45.3~ N
Longitude (NAD 83)	121 ° 12' 16.1~ W	121 ° 11' 2.3~ W
Ground Elevation (m/ft-AMSL)	80.50 / 264.1	108.10 / 354.7
Antenna Structure Registration #		
Path Azimuth (°)	40.714	220.727
Path Length (km / miles)	2.734 / 1.699	

Transmit Antenna

87016A	87016A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP2-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 40.4 / 1.60 / 0.42	40.4 / 1.60 / -0.43
Centerline (m / ft - AGL) 17.98 / 59.0	10.67 / 35.0

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

TEMU07	TEMU07
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50HFC364V01	23HS50HFC364V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M1D7W 256 QAM	47M1D7W 256 QAM
Loading 1 CH DIG 364000.000	1 CH DIG 364000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 18.0	18.0
Received Level (dBm) -29.3	-29.3
EIRP (dBm) 58.4	58.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.1	

Transmit Frequencies (MHz) 23125.0000V(3)

21925.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC149A CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0638A CA

City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 41' 30.5~ N	38 ° 40' 48.4~ N
Longitude (NAD 83)	121 ° 15' 19.1~ W	121 ° 15' 37.7~ W
Ground Elevation (m/ft-AMSL)	58.80 / 192.9	59.30 / 194.6
Antenna Structure Registration #		
Path Azimuth (°)	199.102	19.098
Path Length (km / miles)	1.374 / 0.854	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.38	40.4 / 1.60 / 0.37
	32.00 / 105.0	22.56 / 74.0

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	TEMU14	TEMU14
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC371V01	23HS50SFC371V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	49M2D7W 256 QAM	49M2D7W 256 QAM
Stability (%)	1 CH DIG 371000.000	1 CH DIG 371000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.0	8.0
Received Level (dBm)	-33.3	-33.3
EIRP (dBm)	48.4	48.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		122.1

Transmit Frequencies (MHz) 21875.0000H(2)

23075.0000H(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC150F CA
City/County Citrus Heights/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC121A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 52.5~ N	38 °39' 54.7~ N
Longitude (NAD 83)	121 °15' 51.3~ W	121 °14' 57.2~ W
Ground Elevation (m/ft-AMSL)	62.10 / 203.7	67.60 / 221.8
Antenna Structure Registration #		1222725
Path Azimuth (°)	87.026	267.036
Path Length (km / miles)		1.310 / 0.814

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.93	35.3 / 3.00 / -0.94
10.67 / 35.0	26.52 / 87.0

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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
5.5	5.5
-45.6	-45.6
40.8	40.8
0.0 / 0.0	0.0 / 0.0
	121.7

Transmit Frequencies (MHz)

23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC163B CA
City/County /Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC175A CA

/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °34' 47.7~ N	38 °35' 20.0~ N
Longitude (NAD 83)	121 °45' 10.5~ W	121 °43' 30.0~ W
Ground Elevation (m/ft-AMSL)	14.70 / 48.2	11.40 / 37.4
Antenna Structure Registration #		
Path Azimuth (°)	67.724	247.741
Path Length (km / miles)	2.628 / 1.633	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.02
Centerline (m / ft - AGL)	10.36 / 34.0
	60.96 / 200.0

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -44.6	-44.6
EIRP (dBm) 47.8	47.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.7	

Transmit Frequencies (MHz) 21875.0000V(2)

23075.0000V(2)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC164B CA
City/County Arden-Arcade/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC119A CA

City/County Carmichael/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °37' 1.3~ N	38 °36' 55.9~ N
Longitude (NAD 83)	121 °20' 57.1~ W	121 °19' 35.9~ W
Ground Elevation (m/ft-AMSL)	31.20 / 102.4	37.20 / 122.0
Antenna Structure Registration #		
Path Azimuth (°)	94.838	274.852
Path Length (km / miles)	1.971 / 1.225	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.39	35.3 / 3.00 / -0.40
	12.19 / 40.0	19.81 / 65.0

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	TEMQ55	TEMQ55
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC215V02	23HD50SFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	8.5	8.5
Received Level (dBm)	-46.2	-46.2
EIRP (dBm)	43.8	43.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.3

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC168B CA
City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0681C CA

City/County Folsom/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °39' 33.4~ N	38 °38' 38.6~ N
Longitude (NAD 83)	121 °7' 50.5~ W	121 °8' 16.7~ W
Ground Elevation (m/ft-AMSL)	115.50 / 378.9	104.70 / 343.5
Antenna Structure Registration #		
Path Azimuth (°)	200.554	20.549
Path Length (km / miles)	1.805 / 1.121	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.27
Centerline (m / ft - AGL)	41.15 / 135.0
	43.28 / 142.0

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

TEMU11	TEMU11
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HS50SFC215V01	23HS50SFC215V01
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM	45M8D7W 64 QAM
Loading 1 CH DIG 215000.000	1 CH DIG 215000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 12.5	12.5
Received Level (dBm) -41.4	-41.4
EIRP (dBm) 47.8	47.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.5	

Transmit Frequencies (MHz) 23125.0000H(3)

21925.0000H(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC172C CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0598A CA

/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 51.0~ N	38 ° 42' 27.9~ N
Longitude (NAD 83)	121 ° 22' 44.2~ W	121 ° 22' 54.1~ W
Ground Elevation (m/ft-AMSL)	32.60 / 107.0	25.90 / 85.0
Antenna Structure Registration #		1253552
Path Azimuth (°)	198.562	18.561
Path Length (km / miles)	0.751 / 0.467	

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -1.70
Centerline (m / ft - AGL) 30.48 / 100.0

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / 1.69
14.94 / 49.0

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

TEM020
Manufacturer DRAGONWAVE INC
Model 23HD50SFC371V02
Model Description HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM
Loading 1 CH DIG 371000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 5.5
Received Level (dBm) -40.8
EIRP (dBm) 40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 116.9

TEM020
DRAGONWAVE INC
23HD50SFC371V02
HORIZON DUO
49M2D7W 256 QAM
1 CH DIG 371000.000
0.001
Nominal Coordinated Maximum
5.5
-40.8
40.8
0.0 / 0.0

Transmit Frequencies (MHz)	23075.0000V(2)	23225.0000V(5)	21875.0000V(2)	22025.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC174C CA
City/County Laguna/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0552A CA

City/County Laguna/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °25' 47.1~ N	38 °25' 42.6~ N
Longitude (NAD 83)	121 °25' 19.4~ W	121 °26' 30.3~ W
Ground Elevation (m/ft-AMSL)	8.40 / 27.6	7.10 / 23.3
Antenna Structure Registration #		
Path Azimuth (°)	265.393	85.381
Path Length (km / miles)	1.725 / 1.072	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / 0.10	35.3 / 3.00 / -0.11
	14.94 / 49.0	19.51 / 64.0

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	TEMU11	TEMU11
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HS50SFC215V01	23HS50SFC215V01
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	12.5	12.5
Received Level (dBm)	-41.0	-41.0
EIRP (dBm)	47.8	47.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		124.1

Transmit Frequencies (MHz) 21825.0000H(1)

23025.0000H(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC179C CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0644B CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 46' 0.6~ N	38 ° 45' 58.6~ N
Longitude (NAD 83)	121 ° 20' 16.1~ W	121 ° 19' 1.8~ W
Ground Elevation (m/ft-AMSL)	37.40 / 122.7	41.90 / 137.5
Antenna Structure Registration #		
Path Azimuth (°)	91.963	271.976
Path Length (km / miles)		1.795 / 1.115

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.84	35.3 / 3.00 / -0.85
14.33 / 47.0	36.27 / 119.0

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

TEMQ55	TEMQ55
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC215V02	23HD50SFC215V02
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
8.5	8.5
-45.3	-45.3
43.8	43.8
0.0 / 0.0	0.0 / 0.0
	124.4

Transmit Frequencies (MHz)

23025.0000V(1)	23175.0000V(4)	21825.0000V(1)	21975.0000V(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC182A CA
City/County Orangevale/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0634A CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 42' 29.1~ N	38 ° 43' 37.7~ N
Longitude (NAD 83)	121 ° 14' 36.2~ W	121 ° 15' 29.4~ W
Ground Elevation (m/ft-AMSL)	65.10 / 213.6	52.90 / 173.6
Antenna Structure Registration #		
Path Azimuth (°)	328.723	148.714
Path Length (km / miles)	2.475 / 1.538	

Transmit Antenna

87016A	87016A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23	VHLP2-23
40.4 / 1.60 / -0.64	40.4 / 1.60 / 0.63
35.11 / 115.2	19.81 / 65.0

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

TEMU12	TEMU12
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC271V01	23HS50SFC271V01
HORIZON DUO	HORIZON DUO
47M8D7W 128 QAM	47M8D7W 128 QAM
1 CH DIG 271000.000	1 CH DIG 271000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
11.0	11.0
-35.4	-35.4
51.4	51.4
0.0 / 0.0	0.0 / 0.0
127.2	

Transmit Frequencies (MHz) 21825.0000V(1)

23025.0000V(1)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC183D CA
City/County Roseville/Placer
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0644B CA

Roseville/Placer
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 ° 45' 36.9~ N	38 ° 45' 58.6~ N
Longitude (NAD 83)	121 ° 18' 28.6~ W	121 ° 19' 1.8~ W
Ground Elevation (m/ft-AMSL)	45.10 / 148.0	41.90 / 137.5
Antenna Structure Registration #		
Path Azimuth (°)	309.859	129.853
Path Length (km / miles)	1.044 / 0.649	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 1.06	35.3 / 3.00 / -1.07
13.72 / 45.0	36.27 / 119.0

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

TEMU14	TEMU14
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC371V01	23HS50SFC371V01
HORIZON DUO	HORIZON DUO
49M2D7W 256 QAM	49M2D7W 256 QAM
1 CH DIG 371000.000	1 CH DIG 371000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
9.5	9.5
-39.6	-39.6
44.8	44.8
0.0 / 0.0	0.0 / 0.0
119.7	

Transmit Frequencies (MHz) 23175.0000H(4)

21975.0000H(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC187B CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC032A CA

West Sacramento/Yolo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °30' 31.9~ N	38 °31' 18.7~ N
Longitude (NAD 83)	121 °32' 38.6~ W	121 °32' 19.0~ W
Ground Elevation (m/ft-AMSL)	4.10 / 13.5	4.60 / 15.1
Antenna Structure Registration #		1015152
Path Azimuth (°)	18.212	198.215
Path Length (km / miles)		1.519 / 0.944

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / 1.29
Centerline (m / ft - AGL)	13.11 / 43.0
	35.3 / 3.00 / -1.30
	46.94 / 154.0

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

TEMQ16	TEMQ16
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC322V02	23HD50SFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm) 7.5	7.5
Received Level (dBm) -44.9	-44.9
EIRP (dBm) 42.8	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	123.0

Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC189A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC059A CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °32' 18.2~ N	38 °32' 2.7~ N
Longitude (NAD 83)	121 °27' 38.3~ W	121 °28' 28.8~ W
Ground Elevation (m/ft-AMSL)	9.00 / 29.5	7.90 / 25.9
Antenna Structure Registration #		1262299
Path Azimuth (°)	248.660	68.651
Path Length (km / miles)		1.313 / 0.816

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.18
Centerline (m / ft - AGL)	14.60 / 47.9
	11.58 / 38.0

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

TEM020	TEM020
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC371V02	23HD50SFC371V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 49M2D7W 256 QAM	49M2D7W 256 QAM
Loading 1 CH DIG 371000.000	1 CH DIG 371000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	5.5
Received Level (dBm)	-45.6
EIRP (dBm)	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	121.7

Transmit Frequencies (MHz)	21825.0000H(1)	21975.0000H(4)	23025.0000H(1)	23175.0000H(4)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC190D CA
City/County /Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0517A CA

Laguna West-Lakeside/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °23' 46.6~ N	38 °24' 36.4~ N
Longitude (NAD 83)	121 °28' 16.5~ W	121 °28' 44.7~ W
Ground Elevation (m/ft-AMSL)	5.30 / 17.4	3.80 / 12.5
Antenna Structure Registration #		
Path Azimuth (°)	335.985	155.980
Path Length (km / miles)	1.681 / 1.045	

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / -0.38
Centerline (m / ft - AGL) 24.05 / 78.9

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / 0.37
14.63 / 48.0

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

TEMQ16
Manufacturer DRAGONWAVE INC
Model 23HD50SFC322V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM
Loading 1 CH DIG 322000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 7.5
Received Level (dBm) -45.8
EIRP (dBm) 42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 123.9

TEMQ16
DRAGONWAVE INC
23HD50SFC322V02
HORIZON DUO
45M8D7W 256 QAM
1 CH DIG 322000.000
0.001
Nominal Coordinated Maximum
7.5
-45.8
42.8
0.0 / 0.0

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC192E CA
City/County Elk Grove/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC022A CA

Vineyard/Sacramento
Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °27' 7.5~ N	38 °27' 11.9~ N
Longitude (NAD 83)	121 °22' 48.4~ W	121 °20' 58.8~ W
Ground Elevation (m/ft-AMSL)	11.40 / 37.4	23.50 / 77.1
Antenna Structure Registration #		1221711
Path Azimuth (°)	87.068	267.087
Path Length (km / miles)		2.661 / 1.653

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -1.01
Centerline (m / ft - AGL)	15.24 / 50.0
	50.29 / 165.0

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

TEMQ20	TEMQ20
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC171V02	23HD50SFC171V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
	Nominal Coordinated Maximum
Power (dBm)	10.0
Received Level (dBm)	-47.3
EIRP (dBm)	45.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	127.9

Transmit Frequencies (MHz)	21925.0000H(3)	22075.0000H(6)	23125.0000H(3)	23275.0000H(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC193A CA
City/County La Riviera/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC028A CA

Sacramento/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83) 38 °33' 47.6~ N
Longitude (NAD 83) 121 °21' 26.1~ W
Ground Elevation (m/ft-AMSL) 16.60 / 54.5
Antenna Structure Registration #
Path Azimuth (°) 214.337
Path Length (km / miles) 3.151 / 1.958

38 °32' 23.2~ N
121 °22' 39.5~ W
14.90 / 48.9
1015135
34.324

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°) 35.3 / 3.00 / 0.49
Centerline (m / ft - AGL) 14.94 / 49.0

87014A
ANDREW CORPORATION
VHLP1-23
35.3 / 3.00 / -0.51
44.20 / 145.0

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

TEMQ20
Manufacturer DRAGONWAVE INC
Model 23HD50SFC171V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM
Loading 1 CH DIG 171000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 10.0
Received Level (dBm) -48.7
EIRP (dBm) 45.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 129.3

TEMQ20
DRAGONWAVE INC
23HD50SFC171V02
HORIZON DUO
45M8D7W 32 QAM
1 CH DIG 171000.000
0.001
Nominal Coordinated Maximum
10.0
-48.7
45.3
0.0 / 0.0

Transmit Frequencies (MHz) 23025.0000V(1) 23175.0000V(4) 21825.0000V(1) 21975.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC193A CA
City/County La Riviera/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC144B CA

Rosemont/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 47.6~ N	38 °33' 28.0~ N
Longitude (NAD 83)	121 °21' 26.1~ W	121 °22' 36.2~ W
Ground Elevation (m/ft-AMSL)	16.60 / 54.5	12.60 / 41.3
Antenna Structure Registration #		
Path Azimuth (°)	250.405	70.393
Path Length (km / miles)	1.802 / 1.119	

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / -0.04	35.3 / 3.00 / 0.02
14.94 / 49.0	17.98 / 59.0

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

TEM025	TEM025
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC271V02	23HD50SFC271V02
HORIZON DUO	HORIZON DUO
47M8D7W 128 QAM	47M8D7W 128 QAM
1 CH DIG 271000.000	1 CH DIG 271000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
7.0	7.0
-46.9	-46.9
42.3	42.3
0.0 / 0.0	0.0 / 0.0
124.5	

Transmit Frequencies (MHz)

23075.0000V(2)	23225.0000V(5)	21875.0000V(2)	22025.0000V(5)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5673 www.comsearch.com

PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC199A CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0573D CA

Elk Grove/Sacramento
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °27' 51.5~ N	38 °28' 25.8~ N
Longitude (NAD 83)	121 °25' 54.8~ W	121 °24' 32.5~ W
Ground Elevation (m/ft-AMSL)	7.00 / 23.0	8.70 / 28.5
Antenna Structure Registration #	1268744	
Path Azimuth (°)	62.064	242.078
Path Length (km / miles)		2.258 / 1.403

Transmit Antenna

87014A	87014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23	VHLP1-23
35.3 / 3.00 / 0.33	35.3 / 3.00 / -0.34
15.24 / 50.0	26.82 / 88.0

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

TEMU11	TEMU11
DRAGONWAVE INC	DRAGONWAVE INC
23HS50SFC215V01	23HS50SFC215V01
HORIZON DUO	HORIZON DUO
45M8D7W 64 QAM	45M8D7W 64 QAM
1 CH DIG 215000.000	1 CH DIG 215000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
12.5	12.5
-43.3	-43.3
47.8	47.8
0.0 / 0.0	0.0 / 0.0
	126.4

Transmit Frequencies (MHz) 23025.0000V(1)

21825.0000V(1)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC207C CA
City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC147D CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °33' 55.0~ N	38 °32' 44.2~ N
Longitude (NAD 83)	121 °30' 32.0~ W	121 °29' 21.8~ W
Ground Elevation (m/ft-AMSL)	4.60 / 15.1	7.50 / 24.6
Antenna Structure Registration #	1063864	
Path Azimuth (°)	142.091	322.103
Path Length (km / miles)	2.767 / 1.719	

Transmit Antenna

87016A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / 1.09
Centerline (m / ft - AGL)	18.59 / 61.0

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

TEMQ48	TEMQ48
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC322V02	23HD50HFC322V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 256 QAM	45M8D7W 256 QAM
Loading 1 CH DIG 322000.000	1 CH DIG 322000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 14.5	14.5
Received Level (dBm) -38.0	-38.0
EIRP (dBm) 54.9	49.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.2	

Transmit Frequencies (MHz)	23025.0000H(1)	23175.0000H(4)	21825.0000H(1)	21975.0000H(4)
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Microwave Path Data Sheet

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC997C CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC0615A CA

City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 26.0~ N	38 °36' 58.7~ N
Longitude (NAD 83)	121 °16' 9.2~ W	121 °16' 20.6~ W
Ground Elevation (m/ft-AMSL)	34.60 / 113.5	34.30 / 112.5
Antenna Structure Registration #		
Path Azimuth (°)	344.703	164.701
Path Length (km / miles)	1.045 / 0.650	

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -1.27	35.3 / 3.00 / 1.27
	38.71 / 127.0	15.85 / 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

Manufacturer	TEMO20	TEMO20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC371V02	23HD50SFC371V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	49M2D7W 256 QAM	49M2D7W 256 QAM
Stability (%)	1 CH DIG 371000.000	1 CH DIG 371000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-43.6	-43.6
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		119.7

Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)	23125.0000V(3)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC997C CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC108A CA

City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 26.0~ N	38 °36' 44.7~ N
Longitude (NAD 83)	121 °16' 9.2~ W	121 °17' 30.0~ W
Ground Elevation (m/ft-AMSL)	34.60 / 113.5	30.00 / 98.4
Antenna Structure Registration #		
Path Azimuth (°)	286.441	106.427
Path Length (km / miles)	2.038 / 1.266	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / -0.78	40.4 / 1.60 / 0.76
	38.71 / 127.0	15.85 / 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

Manufacturer	TEMQ16	TEMQ16
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC322V02	23HD50SFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	3.0	3.0
Received Level (dBm)	-41.7	-41.7
EIRP (dBm)	43.4	43.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.5

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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Microwave Path Data Sheet

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC997C CA
City/County Rancho Cordova/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC109C CA

City/County Gold River/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °36' 26.0~ N	38 °37' 18.1~ N
Longitude (NAD 83)	121 °16' 9.2~ W	121 °15' 48.8~ W
Ground Elevation (m/ft-AMSL)	34.60 / 113.5	36.20 / 118.8
Antenna Structure Registration #		1269473
Path Azimuth (°)	17.075	197.079
Path Length (km / miles)		1.681 / 1.044

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.33	35.3 / 3.00 / 0.31
	24.38 / 80.0	13.41 / 44.0

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	TEMQ48	TEMQ48
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC322V02	23HD50HFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	11.0	11.0
Received Level (dBm)	-42.3	-42.3
EIRP (dBm)	46.3	46.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		123.9

Transmit Frequencies (MHz)	22125.0000H(7)	22225.0000H(9)	23325.0000H(7)	23425.0000H(9)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC999F CA
City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC019A CA

City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 12.6~ N	38 °34' 56.0~ N
Longitude (NAD 83)	121 °31' 49.5~ W	121 °30' 58.7~ W
Ground Elevation (m/ft-AMSL)	8.40 / 27.6	8.30 / 27.2
Antenna Structure Registration #		
Path Azimuth (°)	112.598	292.607
Path Length (km / miles)	1.332 / 0.828	

Transmit Antenna

87014A	87014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23	VHLP1-23
Gain (dBi) / Beamwidth (°) / Tilt (°)	35.3 / 3.00 / -0.72
Centerline (m / ft - AGL)	24.99 / 82.0

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

TEM025	TEM025
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50SFC271V02	23HD50SFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -45.7	-45.7
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.8	

Transmit Frequencies (MHz)	22125.0000V(7)	22275.0000V(10)	23325.0000V(7)	23475.0000V(10)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 01/07/2010

Job Number 100107COMSTI01

New Path

RCN Number: 10010700

Administrative Information

CA-SAC999F CA
City/County West Sacramento/Yolo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SAC207C CA

City/County Sacramento/Sacramento
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °35' 12.6~ N	38 °33' 55.0~ N
Longitude (NAD 83)	121 °31' 49.5~ W	121 °30' 32.0~ W
Ground Elevation (m/ft-AMSL)	8.40 / 27.6	4.60 / 15.1
Antenna Structure Registration #		1063864
Path Azimuth (°)	141.897	321.911
Path Length (km / miles)	3.041 / 1.889	

Transmit Antenna

Manufacturer	87016A	87016A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain (dBi) / Beamwidth (°) / Tilt (°)	VHLP2-23	VHLP2-23
Centerline (m / ft - AGL)	40.4 / 1.60 / 1.16	40.4 / 1.60 / -1.18
	8.23 / 27.0	74.37 / 244.0

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	TEMQ48	TEMQ48
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC322V02	23HD50HFC322V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 256 QAM	45M8D7W 256 QAM
Stability (%)	1 CH DIG 322000.000	1 CH DIG 322000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	10.5	10.5
Received Level (dBm)	-37.7	-37.7
EIRP (dBm)	50.9	50.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.0

Transmit Frequencies (MHz)	21875.0000H(2)	21975.0000H(4)	23075.0000H(2)	23175.0000H(4)
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