

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number: 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0187A CA
City/County San Ramon/Contra Costa
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY409
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0563A CA

/Contra Costa
Engineering Proposal / PRIMARY OPERATION
WQLY428
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °46' 44.8~ N	37 °52' 54.2~ N
Longitude (NAD 83)	121 °58' 26.4~ W	121 °55' 8.8~ W
Ground Elevation (m/ft-AMSL)	147.10 / 482.6	1097.60 / 3601.0
Antenna Structure Registration #		1014626
Path Azimuth (°)	22.973	203.007
Path Length (km / miles)		12.372 / 7.687

Transmit Antenna

77041A	77041A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2.5-11	VHLP2.5-11
37.5 / 2.10 / 4.54	37.5 / 2.10 / -4.62
18.29 / 60.0	59.44 / 195.0

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

TEM098	TEM098
DRAGONWAVE INC	DRAGONWAVE INC
11HD40HFC142V02	11HD40HFC142V02
HORIZON DUO	HORIZON DUO
36M2D7W 32 QAM	36M2D7W 32 QAM
1 CH DIG 142000.000	1 CH DIG 142000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
19.0	19.0
-45.1	-45.1
54.6	54.6
0.0 / 1.9	0.0 / 1.9
135.3	

Transmit Frequencies (MHz)	10815.0000H(3)	10935.0000H(6)	11305.0000H(3)	11425.0000H(6)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0265A CA
City/County Daly City/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY412
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0230A CA

San Francisco/San Francisco
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 1.4~ N	37 ° 44' 51.5~ N
Longitude (NAD 83)	122 ° 27' 18.1~ W	122 ° 28' 34.7~ W
Ground Elevation (m/ft-AMSL)	233.10 / 764.8	135.20 / 443.6
Antenna Structure Registration #		
Path Azimuth (°)	340.325	160.312
Path Length (km / miles)	5.570 / 3.461	

Transmit Antenna

79111R	79111R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-11	HP2-11
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.5 / 3.40 / -0.99	34.5 / 3.40 / 0.95
Centerline (m / ft - AGL) 5.49 / 18.0	9.14 / 30.0

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

TEM016	TEM016
DRAGONWAVE INC	DRAGONWAVE INC
11HD40HFC277V02	11HD40HFC277V02
HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 36M7D7W 256 QAM	36M7D7W 256 QAM
Loading 1 CH DIG 277000.000	1 CH DIG 277000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 15.5	15.5
Received Level (dBm) -43.9	-43.9
EIRP (dBm) 50.0	50.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.4	

Transmit Frequencies (MHz)	10775.0000H(2)	10895.0000H(5)	11265.0000H(2)	11385.0000H(5)
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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0272A CA
City/County Daly City/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY405
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0551A CA

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

Site Information

Latitude (NAD 83)	37 ° 41' 33.7~ N	37 ° 45' 19.0~ N
Longitude (NAD 83)	122 ° 28' 31.7~ W	122 ° 27' 10.0~ W
Ground Elevation (m/ft-AMSL)	46.90 / 153.9	254.20 / 834.0
Antenna Structure Registration #		1001289
Path Azimuth (°)	16.061	196.075
Path Length (km / miles)		7.229 / 4.492

Transmit Antenna

77091A	77091A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP800-11A	VHLP800-11A
37.4 / 2.20 / 2.42	37.4 / 2.20 / -2.47
15.47 / 50.8	116.43 / 382.0

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

TEM016	TEM016
DRAGONWAVE INC	DRAGONWAVE INC
11HD40HFC277V02	11HD40HFC277V02
HORIZON DUO	HORIZON DUO
36M7D7W 256 QAM	36M7D7W 256 QAM
1 CH DIG 277000.000	1 CH DIG 277000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
15.5	15.5
-41.9	-41.9
52.1	52.1
0.0 / 0.8	0.0 / 0.8
	130.6

Transmit Frequencies (MHz)

11225.0000V(1)	11345.0000V(4)	10735.0000V(1)	10855.0000V(4)
11545.0000H(9)	11665.0000H(12)	11055.0000H(9)	11175.0000H(12)

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0299A CA
City/County San Bruno/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY408
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0322A CA

Burlingame/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY850
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 15.2~ N	37 °35' 44.6~ N
Longitude (NAD 83)	122 °24' 42.3~ W	122 °23' 0.8~ W
Ground Elevation (m/ft-AMSL)	6.30 / 20.7	3.90 / 12.8
Antenna Structure Registration #		
Path Azimuth (°)	151.795	331.812
Path Length (km / miles)	5.268 / 3.274	

Transmit Antenna

77083A	77083A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-11A	VHLP2-11A
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 3.30 / -0.03	34.4 / 3.30 / -0.01
Centerline (m / ft - AGL) 28.02 / 91.9	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

TEMO28	TEMO28
DRAGONWAVE INC	DRAGONWAVE INC
11HD40HFC212V02	11HD40HFC212V02
HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 34M4D7W 128 QAM	34M4D7W 128 QAM
Loading 1 CH DIG 212000.000	1 CH DIG 212000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 16.0	16.0
Received Level (dBm) -44.7	-44.7
EIRP (dBm) 49.6	49.6
Fixed Loss: Tx / Common (dB) 0.0 / 0.8	0.0 / 0.8
Free Space Loss (dB) 127.9	

Transmit Frequencies (MHz)

10815.0000H(3)	10895.0000H(5)	11305.0000H(3)	11385.0000H(5)
11015.0000V(8)	11095.0000V(10)	11505.0000V(8)	11585.0000V(10)

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0484A CA
City/County Dublin/Alameda
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-SFO0565A CA

/Contra Costa
Engineering Proposal / PRIMARY OPERATION
WQLY441
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 34.4~ N	37 ° 44' 20.0~ N
Longitude (NAD 83)	121 ° 55' 51.0~ W	121 ° 59' 42.5~ W
Ground Elevation (m/ft-AMSL)	104.40 / 342.5	562.40 / 1845.1
Antenna Structure Registration #		1222544
Path Azimuth (°)	299.888	119.848
Path Length (km / miles)		6.538 / 4.062

Transmit Antenna

77091A	77091A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP800-11A	VHLP800-11A
Gain(dBi) / Beamwidth(°) / Tilt(°) 37.4 / 2.20 / 3.97	37.4 / 2.20 / -4.02
Centerline (m / ft - AGL) 13.56 / 44.5	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

TEM016	TEM016
DRAGONWAVE INC	DRAGONWAVE INC
11HD40HFC277V02	11HD40HFC277V02
HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 36M7D7W 256 QAM	36M7D7W 256 QAM
Loading 1 CH DIG 277000.000	1 CH DIG 277000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 15.5	15.5
Received Level (dBm) -39.5	-39.5
EIRP (dBm) 52.9	52.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.8	

Transmit Frequencies (MHz)	10775.0000V(2)	10895.0000V(5)	11265.0000V(2)	11385.0000V(5)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0070E CA
City/County Waldon/Contra Costa
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-SFO0005A CA

Walnut Creek/Contra Costa
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)	37 °55' 44.1~ N	37 °53' 52.3~ N
Longitude (NAD 83)	122 °3' 20.3~ W	122 °3' 54.9~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	49.20 / 161.4
Antenna Structure Registration #		
Path Azimuth (°)	193.779	13.773
Path Length (km / miles)	3.549 / 2.205	

Transmit Antenna

Manufacturer	87204A	87204A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18B	VHLP2-18B
Centerline (m / ft - AGL)	38.9 / 2.10 / 0.29	38.9 / 2.10 / -0.31
	28.96 / 95.0	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	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	13.4	13.4
Received Level (dBm)	-37.7	-37.7
EIRP (dBm)	52.3	52.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		128.9

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0070E CA
City/County Waldon/Contra Costa
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-SFO0067D CA

Concord/Contra Costa
Engineering Proposal / PRIMARY OPERATION
WQLX851
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °55' 44.1~ N	37 °56' 6.3~ N
Longitude (NAD 83)	122 °3' 20.3~ W	122 °1' 47.3~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	26.50 / 86.9
Antenna Structure Registration #		
Path Azimuth (°)	73.220	253.236
Path Length (km / miles)	2.372 / 1.474	

Transmit Antenna

87204A	87204A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / -0.20	38.9 / 2.10 / 0.19
Centerline (m / ft - AGL) 28.96 / 95.0	20.57 / 67.5

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

TEM017	TEM017
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC371V02	18HD50SFC371V02
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) -42.1	-42.1
EIRP (dBm) 44.4	44.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.4	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0070E CA
City/County Waldon/Contra Costa
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-SFO0073A CA

Walnut Creek/Contra Costa
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °55' 44.1~ N	37 °55' 20.5~ N
Longitude (NAD 83)	122 °3' 20.3~ W	122 °0' 59.8~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	43.20 / 141.7
Antenna Structure Registration #		
Path Azimuth (°)	101.960	281.984
Path Length (km / miles)	3.508 / 2.180	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 0.36	38.9 / 2.10 / -0.38
Centerline (m / ft - AGL) 28.96 / 95.0	34.44 / 113.0

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) 15.2	15.2
Received Level (dBm) -37.7	-37.7
EIRP (dBm) 54.1	52.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 1.9
Free Space Loss (dB) 128.8	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0133A CA
City/County Danville/Contra Costa
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-SFO0563A CA

/Contra Costa
Engineering Proposal / PRIMARY OPERATION
WQLY428
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83) 37 ° 49' 23.7~ N
Longitude (NAD 83) 122 ° 0' 0.2~ W
Ground Elevation (m/ft-AMSL) 107.40 / 352.4
Antenna Structure Registration #
Path Azimuth (°) 47.640
Path Length (km / miles) 9.637 / 5.988

37 ° 52' 54.2~ N
121 ° 55' 8.8~ W
1097.60 / 3601.0
1014626
227.690

Transmit Antenna

87204A
Manufacturer ANDREW CORPORATION
Model VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 6.11
Centerline (m / ft - AGL) 12.80 / 42.0

87204A
ANDREW CORPORATION
VHLP2-18B
38.9 / 2.10 / -6.17
58.83 / 193.0

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

TEMQ59
Manufacturer DRAGONWAVE INC
Model 18HD50HFC171V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM
Loading 1 CH DIG 171000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 20.0
Received Level (dBm) -39.8
EIRP (dBm) 58.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 137.6

TEMQ59
DRAGONWAVE INC
18HD50HFC171V02
HORIZON DUO
45M8D7W 32 QAM
1 CH DIG 171000.000
0.001
Nominal Coordinated Maximum
20.0
-39.8
58.9
0.0 / 0.0

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0141A CA
City/County Oakland/Alameda
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-SFO0119A CA

Emeryville/Alameda
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)	37 °48' 24.8~ N	37 °50' 23.1~ N
Longitude (NAD 83)	122 °18' 22.3~ W	122 °17' 14.3~ W
Ground Elevation (m/ft-AMSL)	3.40 / 11.2	7.80 / 25.6
Antenna Structure Registration #	1201091	
Path Azimuth (°)	24.505	204.517
Path Length (km / miles)	4.009 / 2.491	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / -0.00	38.9 / 2.10 / -0.02
Centerline (m / ft - AGL) 28.96 / 95.0	25.30 / 83.0

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) 15.5	15.5
Received Level (dBm) -36.7	-36.7
EIRP (dBm) 54.4	54.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 130.0	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0201C CA
City/County San Francisco/San Francisco
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-SFO0212A CA

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

Site Information

Latitude (NAD 83)	37 ° 46' 23.9~ N	37 ° 45' 18.6~ N
Longitude (NAD 83)	122 ° 26' 15.9~ W	122 ° 25' 6.0~ W
Ground Elevation (m/ft-AMSL)	57.60 / 189.0	21.00 / 68.9
Antenna Structure Registration #		
Path Azimuth (°)	139.636	319.648
Path Length (km / miles)	2.642 / 1.642	

Transmit Antenna

RB1160	RB1160
RADIO WAVES, INC	RADIO WAVES, INC
HP2-18	HP2-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.6 / 2.00 / -0.29	38.6 / 2.00 / 0.27
Centerline (m / ft - AGL) 16.76 / 55.0	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

TEM085	TEM085
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC322V02	18HD50HFC322V02
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) 14.8	14.8
Received Level (dBm) -34.3	-34.3
EIRP (dBm) 53.4	53.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.3	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0217A CA
City/County San Ramon/Contra Costa
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-SFO0480D CA

Dublin/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY851
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 45' 32.0~ N	37 ° 43' 19.6~ N
Longitude (NAD 83)	121 ° 57' 30.8~ W	121 ° 54' 54.8~ W
Ground Elevation (m/ft-AMSL)	131.90 / 432.7	161.90 / 531.2
Antenna Structure Registration #		
Path Azimuth (°)	136.890	316.917
Path Length (km / miles)	5.590 / 3.474	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 0.01	38.9 / 2.10 / -0.05
Centerline (m / ft - AGL) 37.80 / 124.0	10.97 / 36.0

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) 12.7	12.7
Received Level (dBm) -42.3	-42.3
EIRP (dBm) 51.6	51.6
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 132.9	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0282E CA
City/County Daly City/San Mateo
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-SFO0896A CA

South San Francisco/San Mateo
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)	37 °39' 49.3~ N	37 °39' 57.5~ N
Longitude (NAD 83)	122 °28' 3.0~ W	122 °25' 31.6~ W
Ground Elevation (m/ft-AMSL)	114.40 / 375.3	97.10 / 318.6
Antenna Structure Registration #		
Path Azimuth (°)	86.089	266.115
Path Length (km / miles)	3.719 / 2.311	

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft - AGL)	38.6 / 2.00 / -0.47	38.6 / 2.00 / 0.45
	21.85 / 71.7	9.14 / 30.0

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	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	15.5	15.5
Received Level (dBm)	-36.6	-36.6
EIRP (dBm)	54.1	54.1
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.3

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0300D CA
City/County /San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY213
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0310D CA

San Bruno/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLX998
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 10.1~ N	37 °36' 49.7~ N
Longitude (NAD 83)	122 °23' 36.7~ W	122 °25' 32.9~ W
Ground Elevation (m/ft-AMSL)	3.90 / 12.8	115.20 / 378.0
Antenna Structure Registration #		1018253
Path Azimuth (°)	228.989	48.969
Path Length (km / miles)		3.777 / 2.347

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 1.29	38.9 / 2.10 / -1.31
Centerline (m / ft - AGL) 38.94 / 127.8	13.21 / 43.3

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

TEMR29	TEMR29
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC364V02	18HD50HFC364V02
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) 13.8	13.8
Received Level (dBm) -37.9	-37.9
EIRP (dBm) 52.7	52.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.4	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0300D CA
City/County /San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY213
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0325G CA

Millbrae/San Mateo
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 10.1~ N	37 °35' 35.8~ N
Longitude (NAD 83)	122 °23' 36.7~ W	122 °24' 55.5~ W
Ground Elevation (m/ft-AMSL)	3.90 / 12.8	165.80 / 544.0
Antenna Structure Registration #		
Path Azimuth (°)	202.116	22.103
Path Length (km / miles)	5.135 / 3.191	

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft – AGL)	38.6 / 2.00 / 1.45	38.6 / 2.00 / -1.49
	38.94 / 127.8	8.84 / 29.0

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	TEMO32	TEMO32
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC271V02	18HD50HFC271V02
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)	17.0	17.0
Received Level (dBm)	-37.9	-37.9
EIRP (dBm)	55.6	55.6
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		132.1

Transmit Frequencies (MHz)	17965.0000H(5)	18115.0000H(8)	19525.0000H(5)	19675.0000H(8)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0311D CA
City/County /San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY416
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0304A CA

San Bruno/San Mateo
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °36' 59.9~ N	37 °37' 41.5~ N
Longitude (NAD 83)	122 °23' 6.0~ W	122 °25' 30.7~ W
Ground Elevation (m/ft-AMSL)	8.50 / 27.9	34.90 / 114.5
Antenna Structure Registration #		
Path Azimuth (°)	289.884	109.860
Path Length (km / miles)		3.773 / 2.344

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft - AGL)	38.6 / 2.00 / 0.46	38.6 / 2.00 / -0.48
	23.16 / 76.0	27.58 / 90.5

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

Manufacturer	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	14.0	14.0
Received Level (dBm)	-38.2	-38.2
EIRP (dBm)	52.6	52.6
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.4

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0315C CA
City/County Millbrae/San Mateo
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-SFO0316C CA

Burlingame/San Mateo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °36' 9.5~ N	37 °36' 8.0~ N
Longitude (NAD 83)	122 °23' 34.7~ W	122 °22' 13.4~ W
Ground Elevation (m/ft-AMSL)	6.40 / 21.0	2.40 / 7.9
Antenna Structure Registration #		
Path Azimuth (°)	91.322	271.335
Path Length (km / miles)	1.995 / 1.239	

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft – AGL)	38.6 / 2.00 / 0.40	38.6 / 2.00 / -0.42
	18.29 / 60.0	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

Manufacturer	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	10.3	10.3
Received Level (dBm)	-36.4	-36.4
EIRP (dBm)	48.9	48.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		123.9

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information	CA-SFO0360C CA	CA-SFO0381A CA
City/County	Newark/Alameda	Newark/Alameda
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQLY744
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)	37 °33' 0.9~ N	37 °31' 19.6~ N
Longitude (NAD 83)	122 °3' 8.6~ W	121 °59' 27.6~ W
Ground Elevation (m/ft-AMSL)	5.40 / 17.7	10.00 / 32.8
Antenna Structure Registration #		
Path Azimuth (°)	119.906	299.944
Path Length (km / miles)	6.260 / 3.890	

Transmit Antenna

Manufacturer	87059A	87059A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2.5-18	VHLP2.5-18
Centerline (m / ft - AGL)	41.0 / 1.50 / 0.10	41.0 / 1.50 / -0.15
	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

Manufacturer	TEMO90	TEMO90
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC215V02	18HD50HFC215V02
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)	15.5	15.5
Received Level (dBm)	-37.9	-37.9
EIRP (dBm)	55.7	55.7
Fixed Loss: Tx / Common (dB)	0.0 / 0.8	0.0 / 0.8
Free Space Loss (dB)		133.8

Transmit Frequencies (MHz)	17815.0000V(2)	17915.0000V(4)	19375.0000V(2)	19475.0000V(4)
	18015.0000H(6)	18115.0000H(8)	19575.0000H(6)	19675.0000H(8)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0392C CA
City/County /San Mateo
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-SFO0409A CA

Redwood City/San Mateo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °29' 33.0~ N	37 °27' 24.8~ N
Longitude (NAD 83)	122 °17' 52.8~ W	122 °16' 19.5~ W
Ground Elevation (m/ft-AMSL)	265.90 / 872.4	283.40 / 929.8
Antenna Structure Registration #		
Path Azimuth (°)	149.877	329.893
Path Length (km / miles)	4.569 / 2.839	

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft – AGL)	38.6 / 2.00 / 0.19	38.6 / 2.00 / -0.22
	4.27 / 14.0	3.05 / 10.0

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)	16.5	16.5
Received Level (dBm)	-37.4	-37.4
EIRP (dBm)	55.1	55.1
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		131.1

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0443D CA
City/County San Jose/Santa Clara
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-SFO0460C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 13.8~ N	37 °15' 11.0~ N
Longitude (NAD 83)	121 °52' 28.3~ W	121 °54' 30.2~ W
Ground Elevation (m/ft-AMSL)	66.00 / 216.5	62.30 / 204.4
Antenna Structure Registration #		
Path Azimuth (°)	218.436	38.416
Path Length (km / miles)	4.832 / 3.003	

Transmit Antenna

87059A	87059A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2.5-18	VHLP2.5-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 41.0 / 1.50 / -0.13	41.0 / 1.50 / 0.09
Centerline (m / ft - AGL) 17.07 / 56.0	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

TEM032	TEM032
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC271V02	18HD50HFC271V02
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) 17.0	17.0
Received Level (dBm) -32.6	-32.6
EIRP (dBm) 58.0	58.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 131.6	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0484A CA
City/County Dublin/Alameda
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-SFO0003A CA

Pleasanton/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX776
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 34.4~ N	37 ° 41' 35.2~ N
Longitude (NAD 83)	121 ° 55' 51.0~ W	121 ° 53' 36.2~ W
Ground Elevation (m/ft-AMSL)	104.40 / 342.5	100.90 / 331.0
Antenna Structure Registration #		
Path Azimuth (°)	118.919	298.942
Path Length (km / miles)	3.773 / 2.344	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 0.12	38.9 / 2.10 / -0.15
Centerline (m / ft - AGL) 13.56 / 44.5	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

TEMR29	TEMR29
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC364V02	18HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -36.1	-36.1
EIRP (dBm) 54.4	54.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.4	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0598A CA
City/County /Contra Costa
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-SFO0070E CA

Waldon/Contra Costa
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °55' 5.0~ N	37 °55' 44.1~ N
Longitude (NAD 83)	122 °5' 51.0~ W	122 °3' 20.3~ W
Ground Elevation (m/ft-AMSL)	171.60 / 563.0	26.20 / 86.0
Antenna Structure Registration #		
Path Azimuth (°)	71.852	251.877
Path Length (km / miles)	3.873 / 2.407	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / -1.78	38.9 / 2.10 / 1.75
Centerline (m / ft - AGL) 3.05 / 10.0	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

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) -43.4	-43.4
EIRP (dBm) 47.4	47.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.7	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information	CA-SFO0806A CA	CA-SFO0220C CA
City/County	Oakland/Alameda	Oakland/Alameda
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQLY334
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)	37 ° 47' 48.8~ N	37 ° 44' 49.2~ N
Longitude (NAD 83)	122 ° 12' 16.8~ W	122 ° 12' 13.9~ W
Ground Elevation (m/ft-AMSL)	68.20 / 223.8	2.30 / 7.5
Antenna Structure Registration #		
Path Azimuth (°)	179.265	359.266
Path Length (km / miles)	5.538 / 3.441	

Transmit Antenna

Manufacturer	87204A	87204A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18B	VHLP2-18B
Centerline (m / ft - AGL)	38.9 / 2.10 / -0.32	38.9 / 2.10 / 0.28
	13.72 / 45.0	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

Manufacturer	TEMO90	TEMO90
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC215V02	18HD50HFC215V02
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)	18.5	18.5
Received Level (dBm)	-36.5	-36.5
EIRP (dBm)	57.4	57.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		132.8

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

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0897A CA
City/County Daly City/San Mateo
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-SFO0896A CA

South San Francisco/San Mateo
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)	37 °39' 5.4~ N	37 °39' 57.5~ N
Longitude (NAD 83)	122 °27' 8.8~ W	122 °25' 31.6~ W
Ground Elevation (m/ft-AMSL)	100.90 / 331.0	97.10 / 318.6
Antenna Structure Registration #		
Path Azimuth (°)	56.003	236.020
Path Length (km / miles)	2.873 / 1.785	

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft - AGL)	38.6 / 2.00 / -0.12	38.6 / 2.00 / 0.10
	10.67 / 35.0	9.14 / 30.0

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	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	13.6	13.6
Received Level (dBm)	-36.3	-36.3
EIRP (dBm)	52.2	52.2
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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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0935A CA
City/County South San Francisco/San Mateo
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-SFO0554E CA

/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY522
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °39' 8.6~ N	37 °41' 14.5~ N
Longitude (NAD 83)	122 °26' 12.2~ W	122 °26' 5.4~ W
Ground Elevation (m/ft-AMSL)	27.20 / 89.2	380.10 / 1247.0
Antenna Structure Registration #		1205149
Path Azimuth (°)	2.458	182.459
Path Length (km / miles)		3.885 / 2.414

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft – AGL)	38.6 / 2.00 / 5.53	38.6 / 2.00 / –5.56
	16.76 / 55.0	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

Manufacturer	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	14.2	14.2
Received Level (dBm)	–38.2	–38.2
EIRP (dBm)	52.8	52.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.7

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0937D CA
City/County Daly City/San Mateo
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-SFO0282E CA

Daly City/San Mateo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 41' 43.4~ N	37 ° 39' 49.3~ N
Longitude (NAD 83)	122 ° 27' 51.9~ W	122 ° 28' 3.0~ W
Ground Elevation (m/ft-AMSL)	86.20 / 282.8	114.40 / 375.3
Antenna Structure Registration #		
Path Azimuth (°)	184.422	4.420
Path Length (km / miles)	3.528 / 2.192	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 0.58	38.9 / 2.10 / -0.61
Centerline (m / ft - AGL) 13.41 / 44.0	21.85 / 71.7

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
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) 15.4	15.4
Received Level (dBm) -35.7	-35.7
EIRP (dBm) 54.3	54.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.9	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0150B CA
City/County San Jose/Santa Clara
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-SFO0432C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY752
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °18' 25.2~ N	37 °19' 2.8~ N
Longitude (NAD 83)	121 °58' 38.9~ W	121 °56' 51.1~ W
Ground Elevation (m/ft-AMSL)	54.90 / 180.1	44.10 / 144.7
Antenna Structure Registration #		
Path Azimuth (°)	66.401	246.419
Path Length (km / miles)	2.897 / 1.800	

Transmit Antenna

87204A	87204A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18B	VHLP2-18B
38.9 / 2.10 / -0.22	38.9 / 2.10 / 0.20
30.48 / 100.0	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

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
14.5	14.5
-34.8	-34.8
53.4	53.4
0.0 / 0.0	0.0 / 0.0
127.1	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0181A CA
City/County San Jose/Santa Clara
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-SJC0176A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °21' 52.8~ N	37 °20' 8.0~ N
Longitude (NAD 83)	121 °54' 29.4~ W	121 °55' 3.1~ W
Ground Elevation (m/ft-AMSL)	16.50 / 54.1	28.80 / 94.5
Antenna Structure Registration #		
Path Azimuth (°)	194.401	14.395
Path Length (km / miles)	3.336 / 2.073	

Transmit Antenna

87059A	87059A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2.5-18	VHLP2.5-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 41.0 / 1.50 / 0.20	41.0 / 1.50 / -0.22
Centerline (m / ft - AGL) 30.48 / 100.0	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

TEMQ57	TEMQ57
DRAGONWAVE INC	DRAGONWAVE INC
18HD50SFC322V02	18HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -38.9	-38.9
EIRP (dBm) 48.5	48.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.4	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0183C CA
City/County San Jose/Santa Clara
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-SJC0158A CA

Santa Clara/Santa Clara
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)	37 °20' 56.0~ N	37 °19' 43.0~ N
Longitude (NAD 83)	121 °54' 1.0~ W	121 °57' 3.6~ W
Ground Elevation (m/ft-AMSL)	20.00 / 65.6	37.00 / 121.4
Antenna Structure Registration #	1014940	
Path Azimuth (°)	243.418	63.388
Path Length (km / miles)	5.027 / 3.123	

Transmit Antenna

87059A	87059A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2.5-18	VHLP2.5-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 41.0 / 1.50 / 0.61	41.0 / 1.50 / -0.64
Centerline (m / ft - AGL) 13.72 / 45.0	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

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) -43.0	-43.0
EIRP (dBm) 48.7	48.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.8	0.0 / 0.8
Free Space Loss (dB) 131.9	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0219A CA
City/County San Jose/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY536
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0452C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY853
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °13' 58.3~ N	37 °16' 30.4~ N
Longitude (NAD 83)	121 °50' 47.1~ W	121 °48' 31.7~ W
Ground Elevation (m/ft-AMSL)	53.00 / 173.9	97.60 / 320.2
Antenna Structure Registration #		
Path Azimuth (°)	35.424	215.447
Path Length (km / miles)	5.755 / 3.576	

Transmit Antenna

87059A	87059A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2.5-18	VHLP2.5-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 41.0 / 1.50 / 0.49	41.0 / 1.50 / -0.53
Centerline (m / ft - AGL) 5.79 / 19.0	12.80 / 42.0

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
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC271V02	18HD50HFC271V02
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) 14.5	14.5
Received Level (dBm) -36.6	-36.6
EIRP (dBm) 55.5	55.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 133.1	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0223D CA
City/County San Jose/Santa Clara
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-SJC0276A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °22' 25.8~ N	37 °19' 49.6~ N
Longitude (NAD 83)	121 °50' 6.4~ W	121 °53' 18.4~ W
Ground Elevation (m/ft-AMSL)	53.80 / 176.5	29.70 / 97.4
Antenna Structure Registration #		
Path Azimuth (°)	224.475	44.442
Path Length (km / miles)	6.747 / 4.192	

Transmit Antenna

Manufacturer	RB2160	RB2160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP4-18	HP4-18
Centerline (m / ft - AGL)	44.5 / 1.00 / 0.42	44.5 / 1.00 / -0.47
	15.24 / 50.0	91.44 / 300.0

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)	17.5	17.5
Received Level (dBm)	-28.0	-28.0
EIRP (dBm)	62.0	62.0
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		134.5

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0004D CA
City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX848
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0945A CA

City/County Hayward/Alameda
Status / License Basis 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)	37 °39' 19.3~ N	37 °40' 32.9~ N
Longitude (NAD 83)	122 °3' 25.5~ W	122 °5' 2.2~ W
Ground Elevation (m/ft-AMSL)	153.60 / 503.9	38.40 / 126.0
Antenna Structure Registration #		
Path Azimuth (°)	313.763	133.747
Path Length (km / miles)	3.281 / 2.039	

Transmit Antenna

Manufacturer	87205A	87205A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-23B	VHLP2-23B
Centerline (m / ft - AGL)	40.5 / 1.70 / -2.61	40.5 / 1.70 / 2.58
	58.22 / 191.0	24.69 / 81.0

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	TEMQ47	TEMQ47
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC271V02	23HD50HFC271V02
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)	13.5	13.5
Received Level (dBm)	-35.2	-35.2
EIRP (dBm)	54.0	54.0
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.7

Transmit Frequencies (MHz)	23175.0000V(4)	23275.0000V(6)	21975.0000V(4)	22075.0000V(6)
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Microwave Path Data Sheet

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0004D CA
City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX848
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0958A CA

City/County Hayward/Alameda
Status / License Basis 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)	37 °39' 19.3~ N	37 °39' 4.3~ N
Longitude (NAD 83)	122 °3' 25.5~ W	122 °4' 55.0~ W
Ground Elevation (m/ft-AMSL)	153.60 / 503.9	18.20 / 59.7
Antenna Structure Registration #		
Path Azimuth (°)	258.104	78.089
Path Length (km / miles)	2.242 / 1.393	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -4.54	35.3 / 3.00 / 4.53
Centerline (m / ft - AGL) 58.22 / 191.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 13.5	13.5
Received Level (dBm) -42.3	-42.3
EIRP (dBm) 48.8	48.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.4	

Transmit Frequencies (MHz)	23425.0000V(9)	23575.0000V(12)	22225.0000V(9)	22375.0000V(12)
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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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0004D CA
City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX848
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO1016C CA

City/County Hayward/Alameda
Status / License Basis 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)	37 °39' 19.3~ N	37 °37' 54.2~ N
Longitude (NAD 83)	122 °3' 25.5~ W	122 °4' 2.5~ W
Ground Elevation (m/ft-AMSL)	153.60 / 503.9	6.60 / 21.7
Antenna Structure Registration #		
Path Azimuth (°)	199.075	19.069
Path Length (km / miles)	2.776 / 1.725	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -4.00	35.3 / 3.00 / 3.98
Centerline (m / ft - AGL) 58.22 / 191.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 16.5	16.5
Received Level (dBm) -41.1	-41.1
EIRP (dBm) 51.8	51.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.2	

Transmit Frequencies (MHz)	23325.0000V(7)	23525.0000V(11)	22125.0000V(7)	22325.0000V(11)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0006A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX773
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0130D CA

Piedmont/Alameda
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 48' 31.5~ N	37 ° 49' 29.3~ N
Longitude (NAD 83)	122 ° 15' 50.2~ W	122 ° 13' 58.5~ W
Ground Elevation (m/ft-AMSL)	4.20 / 13.8	102.30 / 335.6
Antenna Structure Registration #		
Path Azimuth (°)	56.875	236.894
Path Length (km / miles)	3.262 / 2.027	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.30	35.3 / 3.00 / -0.33
Centerline (m / ft - AGL) 91.44 / 300.0	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

TEMQ54	TEMQ54
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC215V02	23HD50HFC215V02
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) 18.5	18.5
Received Level (dBm) -40.5	-40.5
EIRP (dBm) 53.8	53.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.6	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0006A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX773
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0795A CA

City/County Oakland/Alameda
Status / License Basis 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)	37 ° 48' 31.5~ N	37 ° 48' 58.1~ N
Longitude (NAD 83)	122 ° 15' 50.2~ W	122 ° 14' 29.2~ W
Ground Elevation (m/ft-AMSL)	4.20 / 13.8	52.90 / 173.6
Antenna Structure Registration #		
Path Azimuth (°)	67.507	247.520
Path Length (km / miles)	2.144 / 1.332	

Transmit Antenna

87205A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.70	35.3 / 3.00 / 0.69
Centerline (m / ft - AGL) 91.44 / 300.0	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

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) 7.5	7.5
Received Level (dBm) -42.7	-42.7
EIRP (dBm) 48.0	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.0	

Transmit Frequencies (MHz)	21975.0000V(4)	22075.0000V(6)	23175.0000V(4)	23275.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0053B CA
City/County Concord/Contra Costa
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-SFO0067D CA

City/County Concord/Contra Costa
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX851
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °57' 14.8~ N	37 °56' 6.3~ N
Longitude (NAD 83)	122 °1' 38.1~ W	122 °1' 47.3~ W
Ground Elevation (m/ft-AMSL)	18.20 / 59.7	26.50 / 86.9
Antenna Structure Registration #		
Path Azimuth (°)	186.072	6.070
Path Length (km / miles)	2.124 / 1.320	

Transmit Antenna

Manufacturer	RD1150	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-23	HPCPE-23
Centerline (m / ft - AGL)	40.2 / 1.70 / 0.12	34.4 / 2.90 / -0.14
	16.15 / 53.0	12.65 / 41.5

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

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)	-43.8	-43.8
EIRP (dBm)	47.7	41.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.9

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0064B CA
City/County Pleasant Hill/Contra Costa
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-SFO0562A CA

Walnut Creek/Contra Costa
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY494
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °56' 13.9~ N	37 °54' 31.1~ N
Longitude (NAD 83)	122 °5' 13.6~ W	122 °3' 59.2~ W
Ground Elevation (m/ft-AMSL)	69.20 / 227.0	50.80 / 166.7
Antenna Structure Registration #		
Path Azimuth (°)	150.168	330.181
Path Length (km / miles)		3.653 / 2.270

Transmit Antenna

99141R	RD1150
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.03	40.2 / 1.70 / -0.06
Centerline (m / ft - AGL) 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

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	Nominal Coordinated Maximum
Power (dBm) 10.0	10.0
Received Level (dBm) -46.0	-46.0
EIRP (dBm) 44.4	50.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 130.6	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0070E CA
City/County Waldon/Contra Costa
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-SFO0066A CA

Pleasant Hill/Contra Costa
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)	37 °55' 44.1~ N	37 °56' 6.4~ N
Longitude (NAD 83)	122 °3' 20.3~ W	122 °4' 12.1~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	26.00 / 85.3
Antenna Structure Registration #		
Path Azimuth (°)	298.530	118.521
Path Length (km / miles)	1.440 / 0.895	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / -0.57	34.4 / 2.90 / 0.56
Centerline (m / ft - AGL)	28.96 / 95.0	15.04 / 49.3

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)	-48.2	-48.2
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	122.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0119A CA
City/County Emeryville/Alameda
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-SFO0126A CA

Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY415
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °50' 23.1~ N	37 °50' 2.0~ N
Longitude (NAD 83)	122 °17' 14.3~ W	122 °15' 50.4~ W
Ground Elevation (m/ft-AMSL)	7.80 / 25.6	31.70 / 104.0
Antenna Structure Registration #		
Path Azimuth (°)	107.587	287.601
Path Length (km / miles)	2.152 / 1.337	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.55	35.3 / 3.00 / -0.56
Centerline (m / ft - AGL) 24.38 / 80.0	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

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) 11.5	11.5
Received Level (dBm) -43.9	-43.9
EIRP (dBm) 46.8	46.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.0	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0119A CA
City/County Emeryville/Alameda
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-SFO0798A CA

City/County Oakland/Alameda
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)	37 °50' 23.1~ N	37 °49' 34.6~ N
Longitude (NAD 83)	122 °17' 14.3~ W	122 °16' 43.1~ W
Ground Elevation (m/ft-AMSL)	7.80 / 25.6	10.40 / 34.1
Antenna Structure Registration #		
Path Azimuth (°)	152.966	332.971
Path Length (km / miles)	1.679 / 1.043	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.16	35.3 / 3.00 / 0.14
Centerline (m / ft - AGL) 25.30 / 83.0	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	Nominal Coordinated Maximum
Power (dBm) 7.5	7.5
Received Level (dBm) -45.8	-45.8
EIRP (dBm) 42.8	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.9	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0138C CA
City/County Oakland/Alameda
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-SFO0798A CA

City/County Oakland/Alameda
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)	37 ° 48' 41.9~ N	37 ° 49' 34.6~ N
Longitude (NAD 83)	122 ° 15' 54.1~ W	122 ° 16' 43.1~ W
Ground Elevation (m/ft-AMSL)	8.00 / 26.2	10.40 / 34.1
Antenna Structure Registration #		
Path Azimuth (°)	323.592	143.584
Path Length (km / miles)	2.019 / 1.255	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -1.50	35.3 / 3.00 / 1.48
Centerline (m / ft - AGL) 73.15 / 240.0	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

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) -41.9	-41.9
EIRP (dBm) 48.3	48.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.5	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0140A CA
City/County Oakland/Alameda
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-SFO0846A CA

Piedmont/Alameda
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)	37 ° 48' 30.2~ N	37 ° 48' 51.9~ N
Longitude (NAD 83)	122 ° 13' 7.7~ W	122 ° 12' 52.5~ W
Ground Elevation (m/ft-AMSL)	94.30 / 309.4	131.20 / 430.4
Antenna Structure Registration #		
Path Azimuth (°)	29.060	209.063
Path Length (km / miles)	0.765 / 0.476	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 2.76	35.3 / 3.00 / -2.76
Centerline (m / ft - AGL) 12.19 / 40.0	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

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) 5.0	5.0
Received Level (dBm) -41.4	-41.4
EIRP (dBm) 40.3	40.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.0	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0141A CA
City/County Oakland/Alameda
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-SFO0800C CA

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

Site Information

Latitude (NAD 83)	37 ° 48' 24.8~ N	37 ° 49' 3.7~ N
Longitude (NAD 83)	122 ° 18' 22.3~ W	122 ° 17' 37.2~ W
Ground Elevation (m/ft-AMSL)	3.40 / 11.2	3.30 / 10.8
Antenna Structure Registration #	1201091	
Path Azimuth (°)	42.604	222.611
Path Length (km / miles)	1.630 / 1.013	

Transmit Antenna

80014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.68
Centerline (m / ft - AGL) 25.91 / 85.0

80014A
ANDREW CORPORATION
VHLP1-23A
35.3 / 3.00 / 0.67
6.71 / 22.0

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) -45.5
EIRP (dBm) 42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 123.6

TEMQ16
DRAGONWAVE INC
23HD50SFC322V02
HORIZON DUO
45M8D7W 256 QAM
1 CH DIG 322000.000
0.001
Nominal Coordinated Maximum
7.5
-45.5
42.8
0.0 / 0.0

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0141A CA
City/County Oakland/Alameda
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-SFO0849C CA

City/County Oakland/Alameda
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)	37 ° 48' 24.8~ N	37 ° 48' 41.7~ N
Longitude (NAD 83)	122 ° 18' 22.3~ W	122 ° 17' 52.0~ W
Ground Elevation (m/ft-AMSL)	3.40 / 11.2	4.30 / 14.1
Antenna Structure Registration #	1201091	
Path Azimuth (°)	54.890	234.895
Path Length (km / miles)	0.906 / 0.563	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.76	35.3 / 3.00 / 0.75
Centerline (m / ft - AGL) 25.91 / 85.0	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

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) -42.4	-42.4
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 118.5	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0150A CA
City/County San Francisco/San Francisco
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-SFO0556A CA

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

Site Information

Latitude (NAD 83)	37 ° 48' 3.5~ N	37 ° 47' 7.4~ N
Longitude (NAD 83)	122 ° 25' 29.0~ W	122 ° 24' 39.4~ W
Ground Elevation (m/ft-AMSL)	30.10 / 98.8	20.20 / 66.3
Antenna Structure Registration #		
Path Azimuth (°)	144.942	324.950
Path Length (km / miles)	2.113 / 1.313	

Transmit Antenna

RD1150	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 3.00	34.4 / 2.90 / -3.01
Centerline (m / ft - AGL) 32.87 / 107.8	153.62 / 504.0

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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -39.6	-39.6
EIRP (dBm) 53.8	48.0
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 1.9
Free Space Loss (dB) 125.9	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0162A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY414
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0586B CA

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

Site Information

Latitude (NAD 83)	37 ° 47' 32.1~ N	37 ° 48' 8.0~ N
Longitude (NAD 83)	122 ° 15' 30.5~ W	122 ° 16' 22.4~ W
Ground Elevation (m/ft-AMSL)	3.90 / 12.8	13.00 / 42.7
Antenna Structure Registration #		
Path Azimuth (°)	311.084	131.075
Path Length (km / miles)	1.684 / 1.047	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 2.03	35.3 / 3.00 / -2.05
Centerline (m / ft - AGL) 13.72 / 45.0	64.62 / 212.0

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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 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)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0170D CA
City/County San Francisco/San Francisco
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-SFO0556A CA

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

Site Information

Latitude (NAD 83)	37 ° 47' 1.8~ N	37 ° 47' 7.4~ N
Longitude (NAD 83)	122 ° 23' 51.9~ W	122 ° 24' 39.4~ W
Ground Elevation (m/ft-AMSL)	15.10 / 49.5	20.20 / 66.3
Antenna Structure Registration #		
Path Azimuth (°)	278.453	98.445
Path Length (km / miles)	1.175 / 0.730	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 6.37	34.4 / 2.90 / -6.38
CENTERLINE (m / ft - AGL) 28.68 / 94.1	154.84 / 508.0

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
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) -46.5	-46.5
EIRP (dBm) 39.9	39.9
FIXED LOSS: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
FREE SPACE LOSS (dB) 120.8	

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

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0177A CA
City/County San Francisco/San Francisco
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-SFO0178A CA

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

Site Information

Latitude (NAD 83)	37 ° 47' 5.6~ N	37 ° 47' 15.5~ N
Longitude (NAD 83)	122 ° 25' 57.2~ W	122 ° 26' 47.9~ W
Ground Elevation (m/ft-AMSL)	41.70 / 136.8	77.00 / 252.6
Antenna Structure Registration #		
Path Azimuth (°)	283.827	103.818
Path Length (km / miles)	1.278 / 0.794	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 1.05	34.4 / 2.90 / -1.05
Centerline (m / ft - AGL)	26.82 / 88.0	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

Manufacturer	TEMO20	TEMO20
Model	DRAGONWAVE INC	DRAGONWAVE INC
	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)	-47.2	-47.2
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0191C CA
City/County San Francisco/San Francisco
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-SFO0176C CA

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

Site Information

Latitude (NAD 83)	37 °46' 36.2~ N	37 °46' 51.3~ N
Longitude (NAD 83)	122 °24' 53.3~ W	122 °24' 13.8~ W
Ground Elevation (m/ft-AMSL)	16.70 / 54.8	5.90 / 19.4
Antenna Structure Registration #		
Path Azimuth (°)	64.280	244.286
Path Length (km / miles)	1.073 / 0.667	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 0.66	34.4 / 2.90 / -0.67
Centerline (m / ft - AGL)	19.38 / 63.6	42.65 / 139.9

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
	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)	-45.7	-45.7
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		120.0

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0203B CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY417
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0594B CA

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

Site Information

Latitude (NAD 83)	37 ° 47' 4.1~ N	37 ° 46' 54.0~ N
Longitude (NAD 83)	122 ° 13' 19.6~ W	122 ° 14' 18.1~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	5.50 / 18.0
Antenna Structure Registration #		
Path Azimuth (°)	257.732	77.722
Path Length (km / miles)	1.465 / 0.910	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.79	35.3 / 3.00 / 0.78
Centerline (m / ft - AGL) 17.68 / 58.0	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
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -44.6	-44.6
EIRP (dBm) 42.8	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.7	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0237A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY328
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0811B CA

Oakland/Alameda
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 44' 15.4~ N	37 ° 44' 20.0~ N
Longitude (NAD 83)	122 ° 9' 50.4~ W	122 ° 10' 32.6~ W
Ground Elevation (m/ft-AMSL)	14.40 / 47.2	9.30 / 30.5
Antenna Structure Registration #		
Path Azimuth (°)	277.819	97.812
Path Length (km / miles)	1.043 / 0.648	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.99	35.3 / 3.00 / 0.98
Centerline (m / ft - AGL) 24.99 / 82.0	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) -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)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0237A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY328
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0813C CA

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

Site Information

Latitude (NAD 83)	37 ° 44' 15.4~ N	37 ° 45' 11.1~ N
Longitude (NAD 83)	122 ° 9' 50.4~ W	122 ° 9' 20.1~ W
Ground Elevation (m/ft-AMSL)	14.40 / 47.2	74.30 / 243.8
Antenna Structure Registration #		
Path Azimuth (°)	23.360	203.365
Path Length (km / miles)	1.871 / 1.162	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 1.25	35.3 / 3.00 / -1.26
Centerline (m / ft - AGL) 24.99 / 82.0	6.10 / 20.0

Receive Antenna

Same As Transmit

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

Diversity Receive Antenna

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

Radio Information

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) 7.5	7.5
Received Level (dBm) -46.7	-46.7
EIRP (dBm) 42.8	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.8	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0237A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY328
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0814C CA

City/County Oakland/Alameda
Status / License Basis 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)	37 ° 44' 15.4~ N	37 ° 44' 29.8~ N
Longitude (NAD 83)	122 ° 9' 50.4~ W	122 ° 9' 0.0~ W
Ground Elevation (m/ft-AMSL)	14.40 / 47.2	20.10 / 65.9
Antenna Structure Registration #		
Path Azimuth (°)	70.208	250.217
Path Length (km / miles)	1.311 / 0.815	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.38	35.3 / 3.00 / 0.37
Centerline (m / ft - AGL) 24.99 / 82.0	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

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)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0237A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY328
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0853A CA

San Leandro/Alameda
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 44' 15.4~ N	37 ° 43' 58.1~ N
Longitude (NAD 83)	122 ° 9' 50.4~ W	122 ° 9' 21.7~ W
Ground Elevation (m/ft-AMSL)	14.40 / 47.2	18.50 / 60.7
Antenna Structure Registration #		
Path Azimuth (°)	127.196	307.201
Path Length (km / miles)	0.882 / 0.548	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.77	35.3 / 3.00 / 0.76
Centerline (m / ft - AGL) 24.99 / 82.0	9.14 / 30.0

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
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) -42.2	-42.2
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 118.3	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0243A CA
City/County San Leandro/Alameda
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-SFO0816A CA

City/County San Leandro/Alameda
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)	37 ° 43' 55.3~ N	37 ° 43' 33.7~ N
Longitude (NAD 83)	122 ° 8' 23.4~ W	122 ° 9' 4.2~ W
Ground Elevation (m/ft-AMSL)	28.40 / 93.2	19.50 / 64.0
Antenna Structure Registration #		
Path Azimuth (°)	236.318	56.311
Path Length (km / miles)	1.201 / 0.746	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.41	35.3 / 3.00 / 0.41
Centerline (m / ft - AGL) 13.72 / 45.0	14.02 / 46.0

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)	21825.0000V(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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0246A CA
City/County San Leandro/Alameda
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-SFO0820B CA

City/County Oakland/Alameda
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)	37 ° 43' 36.1~ N	37 ° 43' 42.7~ N
Longitude (NAD 83)	122 ° 11' 10.6~ W	122 ° 10' 45.8~ W
Ground Elevation (m/ft-AMSL)	5.40 / 17.7	7.30 / 24.0
Antenna Structure Registration #	1236461	
Path Azimuth (°)	71.474	251.478
Path Length (km / miles)	0.640 / 0.398	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.40	35.3 / 3.00 / 0.40
Centerline (m / ft - AGL) 14.63 / 48.0	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

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) 3.0	3.0
Received Level (dBm) -41.9	-41.9
EIRP (dBm) 38.3	38.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 115.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0246A CA
City/County San Leandro/Alameda
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-SFO0859D CA

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

Site Information

Latitude (NAD 83)	37 ° 43' 36.1~ N	37 ° 43' 33.1~ N
Longitude (NAD 83)	122 ° 11' 10.6~ W	122 ° 11' 54.0~ W
Ground Elevation (m/ft-AMSL)	5.40 / 17.7	2.60 / 8.5
Antenna Structure Registration #	1236461	
Path Azimuth (°)	265.030	85.023
Path Length (km / miles)	1.067 / 0.663	

Transmit Antenna

80014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.29
Centerline (m / ft - AGL) 14.63 / 48.0

80014A
ANDREW CORPORATION
VHLP1-23A
35.3 / 3.00 / 0.28
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

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) -41.8
EIRP (dBm) 42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 119.9

TEMQ16
DRAGONWAVE INC
23HD50SFC322V02
HORIZON DUO
45M8D7W 256 QAM
1 CH DIG 322000.000
0.001
Nominal Coordinated Maximum
7.5
-41.8
42.8
0.0 / 0.0

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0254A CA
City/County San Francisco/San Francisco
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-SFO0265A CA

Daly City/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY412
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 55.4~ N	37 ° 42' 1.4~ N
Longitude (NAD 83)	122 ° 26' 31.4~ W	122 ° 27' 18.1~ W
Ground Elevation (m/ft-AMSL)	67.90 / 222.8	233.10 / 764.8
Antenna Structure Registration #		
Path Azimuth (°)	214.496	34.488
Path Length (km / miles)	2.020 / 1.255	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 4.38	34.4 / 2.90 / -4.40
Centerline (m / ft - AGL) 15.04 / 49.3	4.95 / 16.2

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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -41.2	-41.2
EIRP (dBm) 49.9	49.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0259A CA
City/County San Leandro/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQMD463
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0822A CA

San Leandro/Alameda
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 35.9~ N	37 ° 42' 21.8~ N
Longitude (NAD 83)	122 ° 10' 10.4~ W	122 ° 10' 37.0~ W
Ground Elevation (m/ft-AMSL)	9.00 / 29.5	8.60 / 28.2
Antenna Structure Registration #		
Path Azimuth (°)	236.291	56.286
Path Length (km / miles)	0.783 / 0.487	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.10	35.3 / 3.00 / 0.09
Centerline (m / ft - AGL) 13.11 / 43.0	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
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
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) 5.0	5.0
Received Level (dBm) -41.6	-41.6
EIRP (dBm) 40.3	40.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0263A CA
City/County San Leandro/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY403
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0872D CA

San Leandro/Alameda
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 12.3~ N	37 ° 42' 46.0~ N
Longitude (NAD 83)	122 ° 8' 26.6~ W	122 ° 8' 13.2~ W
Ground Elevation (m/ft-AMSL)	12.80 / 42.0	15.60 / 51.2
Antenna Structure Registration #		
Path Azimuth (°)	17.530	197.533
Path Length (km / miles)	1.090 / 0.677	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.55	35.3 / 3.00 / 0.54
Centerline (m / ft - AGL) 23.16 / 76.0	10.06 / 33.0

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
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) -44.0	-44.0
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.1	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0263A CA
City/County San Leandro/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY403
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0972A CA

San Lorenzo/Alameda
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 12.3~ N	37 ° 40' 34.3~ N
Longitude (NAD 83)	122 ° 8' 26.6~ W	122 ° 8' 33.4~ W
Ground Elevation (m/ft-AMSL)	12.80 / 42.0	5.40 / 17.7
Antenna Structure Registration #		
Path Azimuth (°)	183.157	3.156
Path Length (km / miles)	3.026 / 1.880	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.15	40.5 / 1.70 / 0.13
Centerline (m / ft - AGL) 30.48 / 100.0	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

TEMQ47	TEMQ47
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC271V02	23HD50HFC271V02
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) -37.0	-37.0
EIRP (dBm) 51.5	51.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.0	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0270A CA
City/County San Leandro/Alameda
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-SFO0832A CA

City/County San Leandro/Alameda
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)	37 °41' 34.0~ N	37 °41' 9.6~ N
Longitude (NAD 83)	122 °10' 8.0~ W	122 °9' 42.4~ W
Ground Elevation (m/ft-AMSL)	2.10 / 6.9	2.20 / 7.2
Antenna Structure Registration #	1201912	
Path Azimuth (°)	140.178	320.182
Path Length (km / miles)	0.979 / 0.609	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.98	35.3 / 3.00 / 0.97
Centerline (m / ft - AGL) 26.82 / 88.0	10.06 / 33.0

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) -43.1	-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)	23025.0000V(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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0281A CA
City/County San Lorenzo/Alameda
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-SFO0956A CA

City/County San Lorenzo/Alameda
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)	37 ° 40' 9.9~ N	37 ° 40' 35.8~ N
Longitude (NAD 83)	122 ° 7' 36.5~ W	122 ° 7' 0.0~ W
Ground Elevation (m/ft-AMSL)	8.60 / 28.2	13.50 / 44.3
Antenna Structure Registration #	1256809	
Path Azimuth (°)	48.241	228.247
Path Length (km / miles)	1.199 / 0.745	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.06	35.3 / 3.00 / 0.05
Centerline (m / ft - AGL) 18.29 / 60.0	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) -44.8	-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)	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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0286A CA
City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY217
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0593A CA

City/County Hayward/Alameda
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)	37 °39' 25.7~ N	37 °40' 24.4~ N
Longitude (NAD 83)	122 °5' 40.4~ W	122 °5' 42.2~ W
Ground Elevation (m/ft-AMSL)	22.20 / 72.8	25.30 / 83.0
Antenna Structure Registration #		
Path Azimuth (°)	358.604	178.603
Path Length (km / miles)	1.810 / 1.125	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.38	35.3 / 3.00 / -0.39
Centerline (m / ft - AGL) 13.72 / 45.0	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

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) -38.4	-38.4
EIRP (dBm) 50.8	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0286A CA
City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY217
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0975A CA

City/County Hayward/Alameda
Status / License Basis 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)	37 °39' 25.7~ N	37 °39' 57.1~ N
Longitude (NAD 83)	122 °5' 40.4~ W	122 °6' 22.7~ W
Ground Elevation (m/ft-AMSL)	22.20 / 72.8	17.50 / 57.4
Antenna Structure Registration #		
Path Azimuth (°)	313.042	133.034
Path Length (km / miles)	1.418 / 0.881	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.63	35.3 / 3.00 / 0.62
Centerline (m / ft - AGL) 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

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) -46.3	-46.3
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.4	

Transmit Frequencies (MHz)	22225.0000V(9)	22325.0000V(11)	23425.0000V(9)	23525.0000V(11)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0295E CA
City/County South San Francisco/San Mateo
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-SFO0299A CA

San Bruno/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY408
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 54.8~ N	37 °38' 15.2~ N
Longitude (NAD 83)	122 °25' 28.3~ W	122 °24' 42.3~ W
Ground Elevation (m/ft-AMSL)	10.90 / 35.8	6.30 / 20.7
Antenna Structure Registration #		
Path Azimuth (°)	137.268	317.276
Path Length (km / miles)	1.662 / 1.033	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.33	34.4 / 2.90 / -0.34
Centerline (m / ft - AGL) 10.67 / 35.0	24.97 / 81.9

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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -39.5	-39.5
EIRP (dBm) 49.9	49.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.8	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0304A CA
City/County San Bruno/San Mateo
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-SFO0307C CA

City/County San Bruno/San Mateo
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)	37 °37' 41.5~ N	37 °37' 26.8~ N
Longitude (NAD 83)	122 °25' 30.7~ W	122 °24' 15.0~ W
Ground Elevation (m/ft-AMSL)	34.90 / 114.5	7.90 / 25.9
Antenna Structure Registration #		
Path Azimuth (°)	103.714	283.727
Path Length (km / miles)	1.911 / 1.187	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / -1.21	34.4 / 2.90 / 1.19
Centerline (m / ft - AGL)	27.58 / 90.5	14.53 / 47.7

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

Manufacturer	TEMR36	TEMR36
Model	DRAGONWAVE INC	DRAGONWAVE INC
	23HD50HFC364V02	23HD50HFC364V02
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)	15.5	15.5
Received Level (dBm)	-40.7	-40.7
EIRP (dBm)	49.9	49.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		125.0

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0310D CA
City/County San Bruno/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLX998
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0307C CA

San Bruno/San Mateo
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °36' 49.7~ N	37 °37' 26.8~ N
Longitude (NAD 83)	122 °25' 32.9~ W	122 °24' 15.0~ W
Ground Elevation (m/ft-AMSL)	115.20 / 378.0	7.90 / 25.9
Antenna Structure Registration #	1018253	
Path Azimuth (°)	59.083	239.096
Path Length (km / miles)	2.227 / 1.384	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -2.73	34.4 / 2.90 / 2.72
CENTERLINE (m / ft - AGL) 13.21 / 43.3	14.53 / 47.7

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

TEM36	TEM36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -42.0	-42.0
EIRP (dBm) 49.9	49.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.3	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0313D CA
City/County /San Mateo
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-SFO0322A CA

Burlingame/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY850
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °36' 45.3~ N	37 °35' 44.6~ N
Longitude (NAD 83)	122 °23' 59.0~ W	122 °23' 0.8~ W
Ground Elevation (m/ft-AMSL)	5.40 / 17.7	3.90 / 12.8
Antenna Structure Registration #		
Path Azimuth (°)	142.658	322.667
Path Length (km / miles)	2.354 / 1.463	

Transmit Antenna

99141R	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.26	40.2 / 1.70 / -0.28
Centerline (m / ft - AGL) 17.07 / 56.0	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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 14.2	14.2
Received Level (dBm) -38.0	-38.0
EIRP (dBm) 48.6	54.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.8	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0314A CA
City/County Union City/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY322
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0327B CA

City/County Union City/Alameda
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)	37 °36' 28.6~ N	37 °35' 22.3~ N
Longitude (NAD 83)	122 °2' 24.2~ W	122 °1' 36.3~ W
Ground Elevation (m/ft-AMSL)	15.30 / 50.2	13.00 / 42.7
Antenna Structure Registration #		
Path Azimuth (°)	150.104	330.112
Path Length (km / miles)	2.358 / 1.465	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.17	35.3 / 3.00 / 0.16
Centerline (m / ft - AGL) 30.48 / 100.0	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

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) 17.5	17.5
Received Level (dBm) -38.7	-38.7
EIRP (dBm) 52.8	52.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.8	

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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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0314A CA
City/County Union City/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY322
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0984A CA

City/County Union City/Alameda
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)	37 °36' 28.6~ N	37 °36' 15.9~ N
Longitude (NAD 83)	122 °2' 24.2~ W	122 °1' 9.1~ W
Ground Elevation (m/ft-AMSL)	15.30 / 50.2	29.60 / 97.1
Antenna Structure Registration #		
Path Azimuth (°)	101.994	282.007
Path Length (km / miles)	1.883 / 1.170	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.20	35.3 / 3.00 / 0.19
Centerline (m / ft - AGL) 32.61 / 107.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 13.0	13.0
Received Level (dBm) -41.3	-41.3
EIRP (dBm) 48.3	48.3
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)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0320B CA
City/County Union City/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY759
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0312C CA

City/County Union City/Alameda
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)	37 °35' 54.1~ N	37 °36' 27.7~ N
Longitude (NAD 83)	122 °4' 3.0~ W	122 °4' 18.5~ W
Ground Elevation (m/ft-AMSL)	5.20 / 17.1	5.80 / 19.0
Antenna Structure Registration #		
Path Azimuth (°)	339.847	159.844
Path Length (km / miles)	1.103 / 0.686	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.18	35.3 / 3.00 / 0.17
Centerline (m / ft - AGL) 15.24 / 50.0	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

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) -44.1	-44.1
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.2	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0320B CA
City/County Union City/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY759
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0967A CA

City/County Hayward/Alameda
Status / License Basis 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)	37 °35' 54.1~ N	37 °36' 33.4~ N
Longitude (NAD 83)	122 °4' 3.0~ W	122 °3' 51.0~ W
Ground Elevation (m/ft-AMSL)	5.20 / 17.1	3.40 / 11.2
Antenna Structure Registration #		
Path Azimuth (°)	13.653	193.655
Path Length (km / miles)	1.247 / 0.775	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.01	35.3 / 3.00 / -0.02
Centerline (m / ft - AGL) 15.24 / 50.0	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
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) -45.2	-45.2
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.3	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0320B CA
City/County Union City/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY759
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO1001A CA

City/County Union City/Alameda
Status / License Basis 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)	37 °35' 54.1~ N	37 °35' 27.5~ N
Longitude (NAD 83)	122 °4' 3.0~ W	122 °4' 11.8~ W
Ground Elevation (m/ft-AMSL)	5.20 / 17.1	3.80 / 12.5
Antenna Structure Registration #		
Path Azimuth (°)	194.749	14.747
Path Length (km / miles)	0.848 / 0.527	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.43	35.3 / 3.00 / 0.42
Centerline (m / ft - AGL) 15.24 / 50.0	10.36 / 34.0

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) -41.8	-41.8
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.9	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0324A CA
City/County Burlingame/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLZ440
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0316C CA

Burlingame/San Mateo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °35' 25.9~ N	37 °36' 8.0~ N
Longitude (NAD 83)	122 °20' 21.9~ W	122 °22' 13.4~ W
Ground Elevation (m/ft-AMSL)	3.00 / 9.8	2.40 / 7.9
Antenna Structure Registration #		
Path Azimuth (°)	295.395	115.377
Path Length (km / miles)	3.028 / 1.881	

Transmit Antenna

RD1150	RD1150
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.19	40.2 / 1.70 / -0.21
Centerline (m / ft - AGL) 25.30 / 83.0	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

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
Power (dBm)	Nominal Coordinated Maximum
Received Level (dBm)	14.5
EIRP (dBm)	-34.1
	54.7
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	129.0

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0327B CA
City/County Union City/Alameda
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-SFO0986C CA

City/County Union City/Alameda
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)	37 °35' 22.3~ N	37 °35' 35.5~ N
Longitude (NAD 83)	122 °1' 36.3~ W	122 °2' 6.0~ W
Ground Elevation (m/ft-AMSL)	13.00 / 42.7	12.60 / 41.3
Antenna Structure Registration #		
Path Azimuth (°)	299.187	119.182
Path Length (km / miles)	0.835 / 0.519	

Transmit Antenna

Manufacturer	80014A	80014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP1-23A	VHLP1-23A
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.89	35.3 / 3.00 / 0.88
	30.48 / 100.0	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	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)	-41.7	-41.7
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		117.8

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0338A CA
City/County Fremont/Alameda
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-SFO1003A CA

City/County Fremont/Alameda
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)	37 °34' 16.6~ N	37 °34' 1.2~ N
Longitude (NAD 83)	122 °1' 49.3~ W	122 °1' 20.5~ W
Ground Elevation (m/ft-AMSL)	11.60 / 38.1	12.50 / 41.0
Antenna Structure Registration #		
Path Azimuth (°)	123.890	303.895
Path Length (km / miles)	0.851 / 0.529	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.41	35.3 / 3.00 / 0.41
Centerline (m / ft - AGL) 18.90 / 62.0	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

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) -41.9	-41.9
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 118.0	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0343D CA
City/County San Mateo/San Mateo
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-SFO0358E CA

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

Site Information

Latitude (NAD 83)	37 °33' 59.7~ N	37 °32' 56.0~ N
Longitude (NAD 83)	122 °19' 30.0~ W	122 °19' 13.1~ W
Ground Elevation (m/ft-AMSL)	10.30 / 33.8	17.90 / 58.7
Antenna Structure Registration #		
Path Azimuth (°)	168.072	348.075
Path Length (km / miles)	2.007 / 1.247	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.12	34.4 / 2.90 / -0.14
Centerline (m / ft - AGL) 28.96 / 95.0	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

TEMQ20	TEMQ20
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC171V02	23HD50SFC171V02
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) -50.4	-50.4
EIRP (dBm) 42.5	42.5
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 1.9
Free Space Loss (dB) 125.4	

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

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0344A CA
City/County San Mateo/San Mateo
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-SFO0355A CA

San Mateo/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY857
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °33' 56.1~ N	37 °33' 12.2~ N
Longitude (NAD 83)	122 °17' 38.0~ W	122 °18' 0.0~ W
Ground Elevation (m/ft-AMSL)	1.70 / 5.6	2.40 / 7.9
Antenna Structure Registration #		
Path Azimuth (°)	201.751	21.747
Path Length (km / miles)	1.457 / 0.905	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 1.17	35.3 / 3.00 / -1.18
Centerline (m / ft - AGL) 10.67 / 35.0	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) 7.5	7.5
Received Level (dBm) -44.5	-44.5
EIRP (dBm) 42.8	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.6	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0355A CA
City/County San Mateo/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY857
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0346A CA

Foster City/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY858
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °33' 12.2~ N	37 °33' 43.9~ N
Longitude (NAD 83)	122 °18' 0.0~ W	122 °16' 37.2~ W
Ground Elevation (m/ft-AMSL)	2.40 / 7.9	2.00 / 6.6
Antenna Structure Registration #		
Path Azimuth (°)	64.310	244.324
Path Length (km / miles)	2.255 / 1.401	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.44	35.3 / 3.00 / 0.43
Centerline (m / ft - AGL) 39.62 / 130.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -40.3	-40.3
EIRP (dBm) 50.8	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.4	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0356A CA
City/County Fremont/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY749
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0995B CA

City/County Fremont/Alameda
Status / License Basis 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)	37 °33' 2.9~ N	37 °33' 24.5~ N
Longitude (NAD 83)	122 °1' 8.4~ W	122 °0' 23.7~ W
Ground Elevation (m/ft-AMSL)	13.10 / 43.0	16.00 / 52.5
Antenna Structure Registration #		
Path Azimuth (°)	58.740	238.748
Path Length (km / miles)		1.283 / 0.797

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.09	35.3 / 3.00 / 0.08
Centerline (m / ft - AGL) 16.76 / 55.0	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

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) -45.4	-45.4
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information	CA-SFO0356A CA	CA-SFO0998B CA
City/County	Fremont/Alameda	Fremont/Alameda
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQLY749	
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)	37 °33' 2.9~ N	37 °33' 6.2~ N
Longitude (NAD 83)	122 °1' 8.4~ W	122 °0' 20.4~ W
Ground Elevation (m/ft-AMSL)	13.10 / 43.0	15.70 / 51.5
Antenna Structure Registration #		
Path Azimuth (°)	85.061	265.069
Path Length (km / miles)	1.183 / 0.735	

Transmit Antenna

Manufacturer	80014A	80014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP1-23A	VHLP1-23A
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.11	35.3 / 3.00 / 0.11
	16.76 / 55.0	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

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)	-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)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0356A CA
City/County Fremont/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY749
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO1010A CA

City/County Fremont/Alameda
Status / License Basis 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)	37 °33' 2.9~ N	37 °32' 34.1~ N
Longitude (NAD 83)	122 °1' 8.4~ W	122 °1' 3.8~ W
Ground Elevation (m/ft-AMSL)	13.10 / 43.0	11.70 / 38.4
Antenna Structure Registration #		
Path Azimuth (°)	172.752	352.753
Path Length (km / miles)	0.895 / 0.556	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.60	35.3 / 3.00 / 0.59
Centerline (m / ft - AGL) 16.76 / 55.0	8.84 / 29.0

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) -42.3	-42.3
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 118.4	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0360C CA
City/County Newark/Alameda
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-SFO1006C CA

City/County Fremont/Alameda
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)	37 °33' 0.9~ N	37 °33' 20.9~ N
Longitude (NAD 83)	122 °3' 8.6~ W	122 °3' 38.8~ W
Ground Elevation (m/ft-AMSL)	5.40 / 17.7	4.80 / 15.7
Antenna Structure Registration #		
Path Azimuth (°)	309.757	129.752
Path Length (km / miles)	0.964 / 0.599	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.38	35.3 / 3.00 / 0.38
Centerline (m / ft - AGL) 19.20 / 63.0	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

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) -42.9	-42.9
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 119.0	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0363A CA
City/County Fremont/Alameda
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-SFO1000A CA

City/County Fremont/Alameda
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)	37 °32' 22.9~ N	37 °31' 50.7~ N
Longitude (NAD 83)	121 °57' 46.8~ W	121 °58' 14.6~ W
Ground Elevation (m/ft-AMSL)	16.00 / 52.5	10.00 / 32.8
Antenna Structure Registration #		
Path Azimuth (°)	214.512	34.507
Path Length (km / miles)	1.205 / 0.749	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.62	35.3 / 3.00 / 0.61
Centerline (m / ft - AGL) 33.22 / 109.0	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	Nominal Coordinated Maximum
Power (dBm) 5.5	5.5
Received Level (dBm) -44.9	-44.9
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.0	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0368B CA
City/County Redwood City/San Mateo
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-SFO0607A CA

City/County Foster City/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQMA234
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °32' 0.6~ N	37 °33' 29.4~ N
Longitude (NAD 83)	122 °14' 24.3~ W	122 °16' 35.0~ W
Ground Elevation (m/ft-AMSL)	2.00 / 6.6	2.00 / 6.6
Antenna Structure Registration #		
Path Azimuth (°)	310.485	130.463
Path Length (km / miles)	4.218 / 2.621	

Transmit Antenna

Manufacturer	87205A	87205A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-23B	VHLP2-23B
Centerline (m / ft - AGL)	40.5 / 1.70 / 0.69	40.5 / 1.70 / -0.71
	28.96 / 95.0	80.47 / 264.0

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	TEMQ54	TEMQ54
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC215V02	23HD50HFC215V02
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)	16.0	16.0
Received Level (dBm)	-34.9	-34.9
EIRP (dBm)	56.5	56.5
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		131.9

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0381A CA
City/County Newark/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY744
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0953A CA

City/County Fremont/Alameda
Status / License Basis 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)	37 °31' 19.6~ N	37 °31' 56.6~ N
Longitude (NAD 83)	121 °59' 27.6~ W	122 °0' 12.2~ W
Ground Elevation (m/ft-AMSL)	10.00 / 32.8	11.10 / 36.4
Antenna Structure Registration #		
Path Azimuth (°)	316.172	136.165
Path Length (km / miles)	1.581 / 0.983	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.57	35.3 / 3.00 / 0.56
Centerline (m / ft - AGL) 28.96 / 95.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 11.0	11.0
Received Level (dBm) -41.7	-41.7
EIRP (dBm) 46.3	46.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.3	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0391B CA
City/County San Carlos/San Mateo
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-SFO0394A CA

Redwood City/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY843
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °29' 29.0~ N	37 °28' 46.6~ N
Longitude (NAD 83)	122 °16' 34.0~ W	122 °15' 18.0~ W
Ground Elevation (m/ft-AMSL)	145.30 / 476.7	34.40 / 112.9
Antenna Structure Registration #		
Path Azimuth (°)	124.990	305.002
Path Length (km / miles)	2.279 / 1.416	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -2.45	35.3 / 3.00 / 2.43
Centerline (m / ft - AGL) 12.19 / 40.0	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

TEMQ48	TEMQ48
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC322V02	23HD50HFC322V02
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) -40.4	-40.4
EIRP (dBm) 50.8	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.5	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0391B CA
City/County San Carlos/San Mateo
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-SJC0130A CA

Belmont/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY526
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °29' 29.0~ N	37 °31' 11.3~ N
Longitude (NAD 83)	122 °16' 34.0~ W	122 °18' 28.8~ W
Ground Elevation (m/ft-AMSL)	145.30 / 476.7	178.30 / 585.0
Antenna Structure Registration #		
Path Azimuth (°)	318.213	138.194
Path Length (km / miles)	4.230 / 2.629	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.56	40.2 / 1.70 / -0.59
Centerline (m / ft - AGL) 4.57 / 15.0	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

TEMQ47	TEMQ47
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC271V02	23HD50HFC271V02
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) 15.0	15.0
Received Level (dBm) -36.5	-36.5
EIRP (dBm) 55.2	55.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 131.9	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0431A CA
City/County /Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY729
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0238A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 21.8~ N	37 °18' 47.3~ N
Longitude (NAD 83)	121 °45' 18.7~ W	121 °47' 37.6~ W
Ground Elevation (m/ft-AMSL)	293.50 / 962.9	62.40 / 204.7
Antenna Structure Registration #	1049603	
Path Azimuth (°)	252.736	72.713
Path Length (km / miles)	3.582 / 2.225	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -3.99	40.5 / 1.70 / 3.96
Centerline (m / ft - AGL) 30.18 / 99.0	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) -40.9	-40.9
EIRP (dBm) 49.0	49.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 130.4	

Transmit Frequencies (MHz)	22225.0000V(9)	22375.0000V(12)	23425.0000V(9)	23575.0000V(12)
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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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0432C CA
City/County San Jose/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY752
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0146A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY528
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 2.8~ N	37 °17' 25.7~ N
Longitude (NAD 83)	121 °56' 51.1~ W	121 °59' 43.1~ W
Ground Elevation (m/ft-AMSL)	44.10 / 144.7	78.10 / 256.2
Antenna Structure Registration #		
Path Azimuth (°)	234.765	54.736
Path Length (km / miles)	5.187 / 3.223	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.03	40.2 / 1.70 / -0.07
Centerline (m / ft - AGL) 49.38 / 162.0	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

TEMQ54	TEMQ54
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC215V02	23HD50HFC215V02
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) 16.5	16.5
Received Level (dBm) -36.8	-36.8
EIRP (dBm) 56.7	56.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 133.7	

Transmit Frequencies (MHz)	23325.0000V(7)	23475.0000V(10)	22125.0000V(7)	22275.0000V(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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0444A CA
 City/County San Jose/Santa Clara
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign WQLY845
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0240A CA

San Jose/Santa Clara
 Engineering Proposal / PRIMARY OPERATION
 CLESP3
 Clearwire Spectrum Holdings III, LL
 FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 12.0~ N	37 °14' 11.5~ N
Longitude (NAD 83)	121 °47' 47.5~ W	121 °47' 9.9~ W
Ground Elevation (m/ft-AMSL)	201.10 / 659.8	62.40 / 204.7
Antenna Structure Registration #		
Path Azimuth (°)	170.544	350.550
Path Length (km / miles)	5.641 / 3.505	

Transmit Antenna

87066A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2.5-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 43.0 / 1.20 / -1.12	40.5 / 1.70 / 1.09
Centerline (m / ft - AGL) 11.58 / 38.0	41.45 / 136.0

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	Nominal Coordinated Maximum
Power (dBm) 10.0	10.0
Received Level (dBm) -40.9	-40.9
EIRP (dBm) 53.0	50.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 134.4	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0451F CA
City/County Campbell/Santa Clara
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-SJC0166D CA

Campbell/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQMA224
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °16' 13.4~ N	37 °17' 18.7~ N
Longitude (NAD 83)	121 °57' 20.6~ W	121 °56' 5.8~ W
Ground Elevation (m/ft-AMSL)	70.30 / 230.6	59.40 / 194.9
Antenna Structure Registration #		
Path Azimuth (°)	42.463	222.475
Path Length (km / miles)	2.729 / 1.696	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 0.97	40.5 / 1.70 / -0.98
Centerline (m / ft - AGL) 9.14 / 30.0	66.45 / 218.0

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) -38.6	-38.6
EIRP (dBm) 49.0	49.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.1	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0452C CA
City/County San Jose/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY853
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0444A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY845
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °16' 30.4~ N	37 °17' 12.0~ N
Longitude (NAD 83)	121 °48' 31.7~ W	121 °47' 47.5~ W
Ground Elevation (m/ft-AMSL)	97.60 / 320.2	201.10 / 659.8
Antenna Structure Registration #		
Path Azimuth (°)	40.328	220.335
Path Length (km / miles)	1.682 / 1.045	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 3.47	40.2 / 1.70 / -3.48
Centerline (m / ft - AGL) 12.80 / 42.0	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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -36.0	-36.0
EIRP (dBm) 47.7	47.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.9	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0466D CA
City/County San Jose/Santa Clara
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-SJC0219A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY536
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °14' 5.9~ N	37 °13' 58.3~ N
Longitude (NAD 83)	121 °49' 40.0~ W	121 °50' 47.1~ W
Ground Elevation (m/ft-AMSL)	50.80 / 166.7	53.00 / 173.9
Antenna Structure Registration #		
Path Azimuth (°)	261.943	81.932
Path Length (km / miles)	1.670 / 1.038	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -0.13	34.4 / 2.90 / 0.12
CENTERLINE (m / ft - AGL) 11.58 / 38.0	5.79 / 19.0

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
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) 42.9	42.9
FIXED LOSS: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.8	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0490D CA
City/County Pleasanton/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY437
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0003A CA

Pleasanton/Alameda
Engineering Proposal / PRIMARY OPERATION
WQLX776
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 41' 11.3~ N	37 ° 41' 35.2~ N
Longitude (NAD 83)	121 ° 54' 51.5~ W	121 ° 53' 36.2~ W
Ground Elevation (m/ft-AMSL)	99.20 / 325.5	100.90 / 331.0
Antenna Structure Registration #		
Path Azimuth (°)	68.222	248.234
Path Length (km / miles)	1.987 / 1.234	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.45	34.4 / 2.90 / -0.46
CENTERLINE (m / ft - AGL) 11.89 / 39.0	26.03 / 85.4

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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -41.0	-41.0
EIRP (dBm) 49.9	49.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.3	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0542B CA
City/County San Francisco/San Francisco
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-SFO0556A CA

San Francisco/San Francisco
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)	37 ° 44' 17.4~ N	37 ° 47' 7.4~ N
Longitude (NAD 83)	122 ° 22' 50.2~ W	122 ° 24' 39.4~ W
Ground Elevation (m/ft-AMSL)	5.40 / 17.7	20.20 / 66.3
Antenna Structure Registration #		
Path Azimuth (°)	332.990	152.971
Path Length (km / miles)	5.883 / 3.656	

Transmit Antenna

99141R	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 1.56	40.2 / 1.70 / -1.60
Centerline (m / ft - AGL) 7.64 / 25.1	154.84 / 508.0

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

TEMQ53	TEMQ53
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC110V02	23HD50HFC110V02
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) 20.5	20.5
Received Level (dBm) -39.6	-39.6
EIRP (dBm) 54.9	60.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 134.7	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0551A CA
City/County San Francisco/San Francisco
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-SFO0192A CA

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

Site Information

Latitude (NAD 83)	37 ° 45' 19.0~ N	37 ° 46' 27.4~ N
Longitude (NAD 83)	122 ° 27' 10.0~ W	122 ° 30' 35.3~ W
Ground Elevation (m/ft-AMSL)	254.20 / 834.0	8.40 / 27.6
Antenna Structure Registration #	1001289	
Path Azimuth (°)	292.784	112.750
Path Length (km / miles)	5.449 / 3.386	

Transmit Antenna

99141R	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -3.59	40.2 / 1.70 / 3.55
Centerline (m / ft - AGL) 108.81 / 357.0	14.61 / 47.9

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
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) 20.0	20.0
Received Level (dBm) -39.5	-39.5
EIRP (dBm) 54.4	60.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 134.1	

Transmit Frequencies (MHz)	23125.0000V(3)	23225.0000V(5)	21925.0000V(3)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0561A CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY422
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0878B CA

City/County Oakland/Alameda
Status / License Basis 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)	37 ° 45' 8.3~ N	37 ° 44' 41.9~ N
Longitude (NAD 83)	122 ° 11' 21.6~ W	122 ° 11' 22.2~ W
Ground Elevation (m/ft-AMSL)	4.10 / 13.5	4.10 / 13.5
Antenna Structure Registration #		
Path Azimuth (°)	181.034	1.034
Path Length (km / miles)	0.814 / 0.506	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.28	35.3 / 3.00 / 0.28
Centerline (m / ft - AGL) 20.73 / 68.0	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

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) 5.0	5.0
Received Level (dBm) -42.0	-42.0
EIRP (dBm) 40.3	40.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.6	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0580B CA
City/County San Mateo/San Mateo
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-SFO0343D CA

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

Site Information

Latitude (NAD 83)	37 °32' 49.8~ N	37 °33' 59.7~ N
Longitude (NAD 83)	122 °18' 29.0~ W	122 °19' 30.0~ W
Ground Elevation (m/ft-AMSL)	3.60 / 11.8	10.30 / 33.8
Antenna Structure Registration #		
Path Azimuth (°)	325.216	145.205
Path Length (km / miles)	2.624 / 1.631	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / -0.16	40.2 / 1.70 / 0.14
Centerline (m / ft - AGL) 42.67 / 140.0	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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 9.0	9.0
Received Level (dBm) -38.3	-38.3
EIRP (dBm) 49.2	49.2
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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0580B CA
City/County San Mateo/San Mateo
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-SJC0130A CA

Belmont/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY526
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °32' 49.8~ N	37 °31' 11.3~ N
Longitude (NAD 83)	122 °18' 29.0~ W	122 °18' 28.8~ W
Ground Elevation (m/ft-AMSL)	3.60 / 11.8	178.30 / 585.0
Antenna Structure Registration #		
Path Azimuth (°)	179.907	359.907
Path Length (km / miles)	3.037 / 1.887	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 2.74	40.2 / 1.70 / -2.76
Centerline (m / ft - AGL) 42.67 / 140.0	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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 10.5	10.5
Received Level (dBm) -38.1	-38.1
EIRP (dBm) 50.7	50.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.0	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0581A CA
City/County San Francisco/San Francisco
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-SFO0703A CA

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

Site Information

Latitude (NAD 83)	37 ° 44' 35.8~ N	37 ° 44' 15.7~ N
Longitude (NAD 83)	122 ° 24' 54.9~ W	122 ° 24' 18.8~ W
Ground Elevation (m/ft-AMSL)	133.84 / 439.1	5.10 / 16.7
Antenna Structure Registration #		
Path Azimuth (°)	125.033	305.039
Path Length (km / miles)	1.079 / 0.671	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -7.00	34.4 / 2.90 / 6.99
CENTERLINE (m / ft - AGL) 16.46 / 54.0	12.80 / 42.0

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
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) -45.7	-45.7
EIRP (dBm) 39.9	39.9
FIXED LOSS: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
FREE SPACE LOSS (dB) 120.0	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0585A CA
City/County Castro Valley/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY407
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0944B CA

Castro Valley/Alameda
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 41' 35.0~ N	37 ° 41' 7.4~ N
Longitude (NAD 83)	122 ° 5' 38.1~ W	122 ° 4' 14.8~ W
Ground Elevation (m/ft-AMSL)	71.60 / 234.9	50.80 / 166.7
Antenna Structure Registration #		
Path Azimuth (°)	112.626	292.640
Path Length (km / miles)	2.211 / 1.374	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.61	35.3 / 3.00 / 0.59
Centerline (m / ft - AGL) 16.76 / 55.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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
Power (dBm) 15.5	15.5
Received Level (dBm) -40.1	-40.1
EIRP (dBm) 50.8	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0589C CA
City/County Daly City/San Mateo
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-SFO0261A CA

Daly City/San Mateo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 18.6~ N	37 ° 42' 24.2~ N
Longitude (NAD 83)	122 ° 24' 27.1~ W	122 ° 25' 7.4~ W
Ground Elevation (m/ft-AMSL)	6.90 / 22.6	34.60 / 113.5
Antenna Structure Registration #		
Path Azimuth (°)	279.924	99.917
Path Length (km / miles)	1.002 / 0.623	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 3.32	35.3 / 3.00 / -3.33
Centerline (m / ft - AGL) 9.14 / 30.0	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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
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) -43.3	-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)	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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0589C CA
City/County Daly City/San Mateo
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-SFO0554E CA

/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY522
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 18.6~ N	37 ° 41' 14.5~ N
Longitude (NAD 83)	122 ° 24' 27.1~ W	122 ° 26' 5.4~ W
Ground Elevation (m/ft-AMSL)	6.90 / 22.6	380.10 / 1247.0
Antenna Structure Registration #		1205149
Path Azimuth (°)	230.635	50.618
Path Length (km / miles)		3.115 / 1.936

Transmit Antenna

87205A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 7.40	35.3 / 3.00 / -7.42
Centerline (m / ft - AGL) 9.14 / 30.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -37.9	-37.9
EIRP (dBm) 56.0	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.2	

Transmit Frequencies (MHz)	23075.0000V(2)	23275.0000V(6)	21875.0000V(2)	22075.0000V(6)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0593A CA
City/County Hayward/Alameda
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-SFO0942A CA

Cherryland/Alameda
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)	37 ° 40' 24.4~ N	37 ° 40' 58.5~ N
Longitude (NAD 83)	122 ° 5' 42.2~ W	122 ° 5' 48.8~ W
Ground Elevation (m/ft-AMSL)	25.30 / 83.0	25.10 / 82.3
Antenna Structure Registration #		
Path Azimuth (°)	351.255	171.254
Path Length (km / miles)		1.064 / 0.661

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.36	35.3 / 3.00 / 0.35
Centerline (m / ft - AGL) 16.76 / 55.0	10.36 / 34.0

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) -43.8	-43.8
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 119.9	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0598A CA
City/County /Contra Costa
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-SFO0071A CA

Walnut Creek/Contra Costa
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °55' 5.0~ N	37 °55' 27.9~ N
Longitude (NAD 83)	122 °5' 51.0~ W	122 °5' 14.5~ W
Ground Elevation (m/ft-AMSL)	171.60 / 563.0	55.60 / 182.4
Antenna Structure Registration #		
Path Azimuth (°)	51.618	231.624
Path Length (km / miles)	1.137 / 0.707	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / -5.43	34.4 / 2.90 / 5.43
Centerline (m / ft - AGL)	3.05 / 10.0	10.97 / 36.0

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)	-46.2	-46.2
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		120.5

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0602A CA
City/County San Francisco/San Francisco
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-SFO0551A CA

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

Site Information

Latitude (NAD 83)	37 °44' 9.2~ N	37 °45' 19.0~ N
Longitude (NAD 83)	122 °28' 17.4~ W	122 °27' 10.0~ W
Ground Elevation (m/ft-AMSL)	78.40 / 257.2	254.20 / 834.0
Antenna Structure Registration #		1001289
Path Azimuth (°)	37.474	217.485
Path Length (km / miles)		2.712 / 1.685

Transmit Antenna

99141R	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 5.67	40.2 / 1.70 / -5.69
Centerline (m / ft - AGL) 14.94 / 49.0	108.81 / 357.0

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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -37.9	-37.9
EIRP (dBm) 49.9	55.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	128.0

Transmit Frequencies (MHz)	21875.0000H(2)	21975.0000H(4)	23075.0000H(2)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information	CA-SFO0604A CA	CA-SFO0138C CA
City/County	Oakland/Alameda	Oakland/Alameda
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)	37 ° 49' 51.0~ N	37 ° 48' 41.9~ N
Longitude (NAD 83)	122 ° 14' 49.0~ W	122 ° 15' 54.1~ W
Ground Elevation (m/ft-AMSL)	46.80 / 153.5	8.00 / 26.2
Antenna Structure Registration #		
Path Azimuth (°)	216.777	36.766
Path Length (km / miles)	2.660 / 1.653	

Transmit Antenna

Manufacturer	87205A	87205A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-23B	VHLP2-23B
Centerline (m / ft - AGL)	40.5 / 1.70 / 0.60	40.5 / 1.70 / -0.62
	6.10 / 20.0	73.15 / 240.0

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)	-39.9	-39.9
EIRP (dBm)	47.5	47.5
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.9

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

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0700A CA
City/County San Francisco/San Francisco
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-SFO0608A CA

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

Site Information

Latitude (NAD 83)	37 °47' 16.3~ N	37 °47' 29.1~ N
Longitude (NAD 83)	122 °25' 17.0~ W	122 °24' 18.3~ W
Ground Elevation (m/ft-AMSL)	52.50 / 172.2	23.40 / 76.8
Antenna Structure Registration #		
Path Azimuth (°)	74.631	254.641
Path Length (km / miles)	1.489 / 0.926	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 1.85	34.4 / 2.90 / -1.86
Centerline (m / ft - AGL) 23.77 / 78.0	101.04 / 331.5

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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -38.5	-38.5
EIRP (dBm) 49.9	49.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.8	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0702A CA
City/County San Francisco/San Francisco
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-SFO0558A CA

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

Site Information

Latitude (NAD 83)	37 ° 47' 20.1~ N	37 ° 47' 35.0~ N
Longitude (NAD 83)	122 ° 24' 42.8~ W	122 ° 23' 53.0~ W
Ground Elevation (m/ft-AMSL)	48.50 / 159.1	3.00 / 9.8
Antenna Structure Registration #		1049604
Path Azimuth (°)	69.338	249.347
Path Length (km / miles)		1.302 / 0.809

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 5.11	34.4 / 2.90 / -5.12
CENTERLINE (m / ft - AGL) 24.38 / 80.0	186.54 / 612.0

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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 14.9	14.9
Received Level (dBm) -38.0	-38.0
EIRP (dBm) 49.3	49.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.6	

Transmit Frequencies (MHz)	21825.0000H(1)	21925.0000H(3)	23025.0000H(1)	23125.0000H(3)
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Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0705B CA
City/County San Francisco/San Francisco
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-SFO0008A CA

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

Site Information

Latitude (NAD 83)	37 ° 46' 56.3~ N	37 ° 46' 37.9~ N
Longitude (NAD 83)	122 ° 24' 50.7~ W	122 ° 25' 3.6~ W
Ground Elevation (m/ft-AMSL)	17.60 / 57.7	17.90 / 58.7
Antenna Structure Registration #		
Path Azimuth (°)	209.095	29.093
Path Length (km / miles)	0.649 / 0.403	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 6.82	34.4 / 2.90 / -6.83
CENTERLINE (m / ft - AGL) 28.04 / 92.0	105.46 / 346.0

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
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) -41.3	-41.3
EIRP (dBm) 39.9	39.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 115.6	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0795A CA
City/County Oakland/Alameda
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-SFO0796A CA

City/County Oakland/Alameda
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)	37 ° 48' 58.1~ N	37 ° 48' 35.0~ N
Longitude (NAD 83)	122 ° 14' 29.2~ W	122 ° 14' 59.4~ W
Ground Elevation (m/ft-AMSL)	52.90 / 173.6	6.50 / 21.3
Antenna Structure Registration #		
Path Azimuth (°)	226.048	46.043
Path Length (km / miles)	1.026 / 0.638	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -2.59	35.3 / 3.00 / 2.59
Centerline (m / ft - AGL) 15.24 / 50.0	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

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) -43.5	-43.5
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 119.6	

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

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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0798A CA
City/County Oakland/Alameda
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-SFO0800C CA

City/County Oakland/Alameda
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)	37 ° 49' 34.6~ N	37 ° 49' 3.7~ N
Longitude (NAD 83)	122 ° 16' 43.1~ W	122 ° 17' 37.2~ W
Ground Elevation (m/ft-AMSL)	10.40 / 34.1	3.30 / 10.8
Antenna Structure Registration #		
Path Azimuth (°)	234.249	54.240
Path Length (km / miles)	1.630 / 1.013	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.66	35.3 / 3.00 / 0.65
Centerline (m / ft - AGL) 18.29 / 60.0	6.71 / 22.0

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) -47.5	-47.5
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.6	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0801A CA
City/County Oakland/Alameda
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-SFO0586B CA

City/County Oakland/Alameda
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)	37 ° 47' 56.2~ N	37 ° 48' 8.0~ N
Longitude (NAD 83)	122 ° 14' 50.3~ W	122 ° 16' 22.4~ W
Ground Elevation (m/ft-AMSL)	27.40 / 89.9	13.00 / 42.7
Antenna Structure Registration #		
Path Azimuth (°)	279.180	99.165
Path Length (km / miles)	2.282 / 1.418	

Transmit Antenna

80014A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.95	40.5 / 1.70 / -0.96
Centerline (m / ft - AGL) 12.19 / 40.0	64.62 / 212.0

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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 15.5	15.5
Received Level (dBm) -35.2	-35.2
EIRP (dBm) 50.8	56.0
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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0803A CA
City/County Oakland/Alameda
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-SFO0586B CA

City/County Oakland/Alameda
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)	37 ° 47' 54.3~ N	37 ° 48' 8.0~ N
Longitude (NAD 83)	122 ° 17' 0.3~ W	122 ° 16' 22.4~ W
Ground Elevation (m/ft-AMSL)	3.50 / 11.5	13.00 / 42.7
Antenna Structure Registration #		
Path Azimuth (°)	65.505	245.511
Path Length (km / miles)	1.019 / 0.633	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 3.30	35.3 / 3.00 / -3.31
Centerline (m / ft - AGL) 15.24 / 50.0	64.62 / 212.0

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)	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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information	CA-SFO0812A CA	CA-SFO0830C CA
City/County	Oakland/Alameda	Oakland/Alameda
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)	37 ° 45' 39.7~ N	37 ° 46' 8.2~ N
Longitude (NAD 83)	122 ° 9' 50.2~ W	122 ° 10' 17.3~ W
Ground Elevation (m/ft-AMSL)	24.50 / 80.4	30.10 / 98.8
Antenna Structure Registration #		
Path Azimuth (°)	322.955	142.950
Path Length (km / miles)	1.101 / 0.684	

Transmit Antenna

Manufacturer	80014A	80014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP1-23A	VHLP1-23A
Centerline (m / ft - AGL)	35.3 / 3.00 / -0.08	35.3 / 3.00 / 0.07
	16.76 / 55.0	9.75 / 32.0

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)	-44.1	-44.1
EIRP (dBm)	40.8	40.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		120.2

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

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0816A CA
City/County San Leandro/Alameda
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-SFO0818C CA

City/County San Leandro/Alameda
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)	37 ° 43' 33.7~ N	37 ° 43' 19.8~ N
Longitude (NAD 83)	122 ° 9' 4.2~ W	122 ° 8' 9.7~ W
Ground Elevation (m/ft-AMSL)	19.50 / 64.0	23.90 / 78.4
Antenna Structure Registration #		
Path Azimuth (°)	107.797	287.806
Path Length (km / miles)	1.402 / 0.871	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.15	35.3 / 3.00 / 0.14
Centerline (m / ft - AGL) 14.02 / 46.0	6.10 / 20.0

Receive Antenna

Same As Transmit

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

Diversity Receive Antenna

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

Radio Information

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) -46.2	-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)	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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0877A CA
City/County Oakland/Alameda
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-SFO0812A CA

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

Site Information

Latitude (NAD 83)	37 ° 45' 41.7~ N	37 ° 45' 39.7~ N
Longitude (NAD 83)	122 ° 10' 43.1~ W	122 ° 9' 50.2~ W
Ground Elevation (m/ft-AMSL)	12.40 / 40.7	24.50 / 80.4
Antenna Structure Registration #		
Path Azimuth (°)	92.722	272.731
Path Length (km / miles)	1.296 / 0.805	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.66	35.3 / 3.00 / -0.67
Centerline (m / ft - AGL) 13.72 / 45.0	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

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) -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)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0889A CA
City/County /San Mateo
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-SFO0261A CA

Daly City/San Mateo
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 13.9~ N	37 ° 42' 24.2~ N
Longitude (NAD 83)	122 ° 25' 48.0~ W	122 ° 25' 7.4~ W
Ground Elevation (m/ft-AMSL)	232.80 / 763.8	34.60 / 113.5
Antenna Structure Registration #		
Path Azimuth (°)	72.288	252.295
Path Length (km / miles)	1.044 / 0.649	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / -9.25	34.4 / 2.90 / 9.24
Centerline (m / ft - AGL)	10.67 / 35.0	38.91 / 127.7

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

Manufacturer	TEMO20	TEMO20
Model	DRAGONWAVE INC	DRAGONWAVE INC
	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)	-45.4	-45.4
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		119.7

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

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0894B CA
City/County South San Francisco/San Mateo
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-SFO0896A CA

City/County South San Francisco/San Mateo
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)	37 °39' 56.1~ N	37 °39' 57.5~ N
Longitude (NAD 83)	122 °26' 21.8~ W	122 °25' 31.6~ W
Ground Elevation (m/ft-AMSL)	41.00 / 134.5	97.10 / 318.6
Antenna Structure Registration #		
Path Azimuth (°)	87.986	267.995
Path Length (km / miles)	1.231 / 0.765	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 2.25	34.4 / 2.90 / -2.26
Centerline (m / ft - AGL)	16.76 / 55.0	9.14 / 30.0

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	TEMR36	TEMR36
Model	DRAGONWAVE INC	DRAGONWAVE INC
	23HD50HFC364V02	23HD50HFC364V02
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)	15.5	15.5
Received Level (dBm)	-38.8	-38.8
EIRP (dBm)	48.0	49.9
Fixed Loss: Tx / Common (dB)	0.0 / 1.9	0.0 / 0.0
Free Space Loss (dB)		121.2

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0897A CA
City/County Daly City/San Mateo
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-SFO0935A CA

South San Francisco/San Mateo
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)	37 °39' 5.4~ N	37 °39' 8.6~ N
Longitude (NAD 83)	122 °27' 8.8~ W	122 °26' 12.2~ W
Ground Elevation (m/ft-AMSL)	100.90 / 331.0	27.20 / 89.2
Antenna Structure Registration #		
Path Azimuth (°)	85.928	265.937
Path Length (km / miles)	1.391 / 0.864	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HPCPE-23	HPCPE-23
Centerline (m / ft - AGL)	34.4 / 2.90 / -2.79	34.4 / 2.90 / 2.78
	10.67 / 35.0	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	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)	-47.9	-47.9
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	122.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0920C CA
City/County San Mateo/San Mateo
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-SFO0367D CA

San Mateo/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLZ445
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °32' 30.9~ N	37 °32' 14.9~ N
Longitude (NAD 83)	122 °18' 21.7~ W	122 °19' 41.6~ W
Ground Elevation (m/ft-AMSL)	8.10 / 26.6	125.90 / 413.1
Antenna Structure Registration #		
Path Azimuth (°)	255.891	75.877
Path Length (km / miles)	2.023 / 1.257	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 3.52	40.2 / 1.70 / -3.54
Centerline (m / ft - AGL) 10.67 / 35.0	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

TEM025	TEM025
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC271V02	23HD50SFC271V02
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) -38.1	-38.1
EIRP (dBm) 47.2	47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0921B CA
City/County San Mateo/San Mateo
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-SFO0367D CA

San Mateo/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLZ445
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °31' 52.0~ N	37 °32' 14.9~ N
Longitude (NAD 83)	122 °18' 12.9~ W	122 °19' 41.6~ W
Ground Elevation (m/ft-AMSL)	21.60 / 70.9	125.90 / 413.1
Antenna Structure Registration #		
Path Azimuth (°)	287.970	107.955
Path Length (km / miles)	2.289 / 1.422	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 2.66	40.2 / 1.70 / -2.68
Centerline (m / ft - AGL) 15.24 / 50.0	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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -38.6	-38.6
EIRP (dBm) 47.7	47.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0933A CA
City/County San Bruno/San Mateo
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-SFO0299A CA

San Bruno/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY408
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °37' 42.8~ N	37 °38' 15.2~ N
Longitude (NAD 83)	122 °26' 8.4~ W	122 °24' 42.3~ W
Ground Elevation (m/ft-AMSL)	54.30 / 178.1	6.30 / 20.7
Antenna Structure Registration #		
Path Azimuth (°)	64.670	244.685
Path Length (km / miles)	2.335 / 1.451	

Transmit Antenna

99141R	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -1.21	40.2 / 1.70 / 1.19
Centerline (m / ft - AGL) 28.65 / 94.0	27.74 / 91.0

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

TEMR36	TEMR36
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC364V02	23HD50HFC364V02
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) 14.2	14.2
Received Level (dBm) -37.9	-37.9
EIRP (dBm) 48.6	54.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.7	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0941A CA
City/County Hayward/Alameda
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-SFO0312C CA

City/County Union City/Alameda
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)	37 °37' 2.5~ N	37 °36' 27.7~ N
Longitude (NAD 83)	122 °4' 37.1~ W	122 °4' 18.5~ W
Ground Elevation (m/ft-AMSL)	3.70 / 12.1	5.80 / 19.0
Antenna Structure Registration #		
Path Azimuth (°)	156.964	336.967
Path Length (km / miles)		1.166 / 0.724

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.11	35.3 / 3.00 / 0.10
Centerline (m / ft - AGL) 15.54 / 51.0	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

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) -44.6	-44.6
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.7	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0941A CA
City/County Hayward/Alameda
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-SFO0973A CA

City/County Hayward/Alameda
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)	37 °37' 2.5~ N	37 °37' 2.7~ N
Longitude (NAD 83)	122 °4' 37.1~ W	122 °4' 3.5~ W
Ground Elevation (m/ft-AMSL)	3.70 / 12.1	2.60 / 8.5
Antenna Structure Registration #		
Path Azimuth (°)	89.568	269.574
Path Length (km / miles)	0.824 / 0.512	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.63	35.3 / 3.00 / 0.62
Centerline (m / ft - AGL) 15.54 / 51.0	7.62 / 25.0

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) -41.6	-41.6
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.7	

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

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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO0967A CA
City/County Hayward/Alameda
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-SFO0949C CA

City/County Hayward/Alameda
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)	37 °36' 33.4~ N	37 °36' 54.1~ N
Longitude (NAD 83)	122 °3' 51.0~ W	122 °3' 29.7~ W
Ground Elevation (m/ft-AMSL)	3.40 / 11.2	3.40 / 11.2
Antenna Structure Registration #		
Path Azimuth (°)	39.301	219.304
Path Length (km / miles)	0.825 / 0.512	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.55	35.3 / 3.00 / 0.55
Centerline (m / ft - AGL) 17.37 / 57.0	9.45 / 31.0

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) -41.6	-41.6
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.7	

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

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO1001A CA
City/County Union City/Alameda
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-SFO0993A CA

City/County Fremont/Alameda
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)	37 °35' 27.5~ N	37 °35' 6.9~ N
Longitude (NAD 83)	122 °4' 11.8~ W	122 °3' 46.1~ W
Ground Elevation (m/ft-AMSL)	3.80 / 12.5	5.40 / 17.7
Antenna Structure Registration #		
Path Azimuth (°)	135.205	315.210
Path Length (km / miles)	0.895 / 0.556	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.06	35.3 / 3.00 / 0.05
Centerline (m / ft - AGL) 10.36 / 34.0	7.92 / 26.0

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) -42.3	-42.3
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 118.4	

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

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SFO1016C CA
City/County Hayward/Alameda
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-SFO0981A CA

City/County Hayward/Alameda
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)	37 °37' 54.2~ N	37 °37' 48.9~ N
Longitude (NAD 83)	122 °4' 2.5~ W	122 °4' 33.7~ W
Ground Elevation (m/ft-AMSL)	6.60 / 21.7	7.30 / 24.0
Antenna Structure Registration #		
Path Azimuth (°)	257.946	77.941
Path Length (km / miles)	0.782 / 0.486	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.29	35.3 / 3.00 / 0.28
Centerline (m / ft - AGL) 11.58 / 38.0	7.01 / 23.0

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) 5.0	5.0
Received Level (dBm) -41.6	-41.6
EIRP (dBm) 40.3	40.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0025A CA
City/County Santa Clara/Santa Clara
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-SJC0243A CA

Santa Clara/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLN746
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °23' 12.5~ N	37 °23' 14.8~ N
Longitude (NAD 83)	121 °57' 19.0~ W	121 °57' 49.3~ W
Ground Elevation (m/ft-AMSL)	8.10 / 26.6	7.92 / 26.0
Antenna Structure Registration #		
Path Azimuth (°)	275.437	95.432
Path Length (km / miles)		0.749 / 0.465

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 1.29	34.4 / 2.90 / -1.29
Centerline (m / ft - AGL)	18.29 / 60.0	35.36 / 116.0

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
	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)	-42.5	-42.5
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		116.8

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0039B CA
City/County Mountain View/Santa Clara
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-SJC0127B CA

Sunnyvale/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY506
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °23' 26.5~ N	37 °22' 40.2~ N
Longitude (NAD 83)	122 °3' 16.9~ W	122 °2' 0.3~ W
Ground Elevation (m/ft-AMSL)	25.80 / 84.6	29.80 / 97.8
Antenna Structure Registration #		
Path Azimuth (°)	127.137	307.150
Path Length (km / miles)	2.364 / 1.469	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.50	40.2 / 1.70 / -0.51
Centerline (m / ft - AGL) 16.76 / 55.0	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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -38.9	-38.9
EIRP (dBm) 47.7	47.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.8	

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

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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0063B CA
City/County Sunnyvale/Santa Clara
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-SJC0069B CA

Mountain View/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY501
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °21' 34.8~ N	37 °22' 10.4~ N
Longitude (NAD 83)	122 °3' 42.3~ W	122 °4' 48.2~ W
Ground Elevation (m/ft-AMSL)	50.30 / 165.0	47.20 / 154.9
Antenna Structure Registration #		
Path Azimuth (°)	304.096	124.085
Path Length (km / miles)	1.958 / 1.217	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.42	40.5 / 1.70 / 0.41
Centerline (m / ft - AGL) 39.32 / 129.0	28.35 / 93.0

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) 7.5	7.5
Received Level (dBm) -36.7	-36.7
EIRP (dBm) 48.0	48.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0082B CA
City/County Santa Clara/Santa Clara
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-SJC0287A CA

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

Site Information

Latitude (NAD 83)	37 °20' 58.3~ N	37 °20' 10.5~ N
Longitude (NAD 83)	121 °59' 40.0~ W	121 °59' 40.4~ W
Ground Elevation (m/ft-AMSL)	32.00 / 105.0	42.30 / 138.8
Antenna Structure Registration #		
Path Azimuth (°)	180.383	0.383
Path Length (km / miles)	1.474 / 0.916	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.87	34.4 / 2.90 / -0.88
CENTERLINE (m / ft - AGL) 10.67 / 35.0	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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
RECEIVED LEVEL (dBm) -46.4	-46.4
EIRP (dBm) 41.9	41.9
FIXED LOSS: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
FREE SPACE LOSS (dB) 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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0085A CA
City/County Los Altos/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY539
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0058A CA

Mountain View/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY565
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °23' 7.7~ N	37 °24' 4.6~ N
Longitude (NAD 83)	122 °6' 33.6~ W	122 °6' 40.5~ W
Ground Elevation (m/ft-AMSL)	43.60 / 143.0	21.20 / 69.6
Antenna Structure Registration #		
Path Azimuth (°)	354.474	174.473
Path Length (km / miles)		1.762 / 1.095

Transmit Antenna

RD1150	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / -0.31	34.4 / 2.90 / 0.30
Centerline (m / ft - AGL) 13.72 / 45.0	26.75 / 87.8

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	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) 7.5	7.5
Received Level (dBm) -42.2	-42.2
EIRP (dBm) 47.7	41.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.3	

Transmit Frequencies (MHz)	23175.0000V(4)	23275.0000V(6)	21975.0000V(4)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0098A CA
City/County Mountain View/Santa Clara
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-SJC0283A CA

Sunnyvale/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY504
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °22' 39.1~ N	37 °22' 13.0~ N
Longitude (NAD 83)	122 °3' 51.4~ W	122 °2' 23.0~ W
Ground Elevation (m/ft-AMSL)	40.70 / 133.5	38.60 / 126.6
Antenna Structure Registration #		
Path Azimuth (°)	110.295	290.310
Path Length (km / miles)	2.319 / 1.441	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.69	40.2 / 1.70 / -0.71
Centerline (m / ft - AGL) 14.94 / 49.0	45.42 / 149.0

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	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) -40.8	-40.8
EIRP (dBm) 45.7	45.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.7	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0100C CA
City/County Sunnyvale/Santa Clara
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-SJC0038B CA

Sunnyvale/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °21' 59.3~ N	37 °21' 14.3~ N
Longitude (NAD 83)	122 °1' 11.3~ W	122 °2' 9.7~ W
Ground Elevation (m/ft-AMSL)	31.10 / 102.0	49.10 / 161.1
Antenna Structure Registration #		
Path Azimuth (°)	226.015	46.006
Path Length (km / miles)	1.997 / 1.241	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.33	35.3 / 3.00 / -0.35
Centerline (m / ft - AGL) 21.34 / 70.0	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

TEMQ55	TEMQ55
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC215V02	23HD50SFC215V02
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) -48.2	-48.2
EIRP (dBm) 41.9	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 0.0
Free Space Loss (dB) 125.4	

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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COMSEARCH19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0100C CA
City/County Sunnyvale/Santa Clara
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-SJC0127B CA

Sunnyvale/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY506
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °21' 59.3~ N	37 °22' 40.2~ N
Longitude (NAD 83)	122 °1' 11.3~ W	122 °2' 0.3~ W
Ground Elevation (m/ft-AMSL)	31.10 / 102.0	29.80 / 97.8
Antenna Structure Registration #		
Path Azimuth (°)	316.288	136.280
Path Length (km / miles)	1.745 / 1.084	

Transmit Antenna

80014A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.35	40.5 / 1.70 / -0.36
Centerline (m / ft - AGL) 21.34 / 70.0	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

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) -43.3	-43.3
EIRP (dBm) 40.4	47.5
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 0.0
Free Space Loss (dB) 124.2	

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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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0106E CA
City/County Sunnyvale/Santa Clara
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-SJC0063B CA

Sunnyvale/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °22' 9.5~ N	37 °21' 34.8~ N
Longitude (NAD 83)	122 °3' 9.8~ W	122 °3' 42.3~ W
Ground Elevation (m/ft-AMSL)	46.80 / 153.5	50.30 / 165.0
Antenna Structure Registration #		
Path Azimuth (°)	216.783	36.778
Path Length (km / miles)	1.336 / 0.830	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.54	35.3 / 3.00 / -0.55
Centerline (m / ft - AGL) 30.18 / 99.0	39.32 / 129.0

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) -46.6	-46.6
EIRP (dBm) 41.9	41.9
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 1.9
Free Space Loss (dB) 121.9	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0110A CA
City/County Sunnyvale/Santa Clara
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-SJC0044A CA

Sunnyvale/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY443
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °23' 50.7~ N	37 °23' 14.6~ N
Longitude (NAD 83)	122 °1' 30.7~ W	122 °2' 10.9~ W
Ground Elevation (m/ft-AMSL)	10.30 / 33.8	22.90 / 75.1
Antenna Structure Registration #		1022381
Path Azimuth (°)	221.624	41.617
Path Length (km / miles)		1.489 / 0.925

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.84	35.3 / 3.00 / -0.85
Centerline (m / ft - AGL) 16.15 / 53.0	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

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	8.5
Received Level (dBm) -43.7	-43.7
EIRP (dBm) 43.8	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.8	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0111A CA
City/County San Jose/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY509
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0082B CA

Santa Clara/Santa Clara
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 20.5~ N	37 °20' 58.3~ N
Longitude (NAD 83)	121 °59' 48.9~ W	121 °59' 40.0~ W
Ground Elevation (m/ft-AMSL)	50.60 / 166.0	32.00 / 105.0
Antenna Structure Registration #		
Path Azimuth (°)	4.155	184.157
Path Length (km / miles)	3.023 / 1.878	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.47	40.5 / 1.70 / 0.45
Centerline (m / ft - AGL) 28.65 / 94.0	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

TEMR36	TEMR36
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC364V02	23HD50HFC364V02
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) 10.5	10.5
Received Level (dBm) -37.5	-37.5
EIRP (dBm) 51.0	51.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.0	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0116B CA
City/County Mountain View/Santa Clara
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-SJC0284A CA

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

Site Information

Latitude (NAD 83)	37 °24' 19.6~ N	37 °24' 49.8~ N
Longitude (NAD 83)	122 °4' 7.9~ W	122 °3' 37.3~ W
Ground Elevation (m/ft-AMSL)	13.30 / 43.6	6.60 / 21.7
Antenna Structure Registration #		
Path Azimuth (°)	38.944	218.950
Path Length (km / miles)	1.197 / 0.744	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -0.61	34.4 / 2.90 / 0.60
CENTERLINE (m / ft - AGL) 24.23 / 79.5	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

TEMQ55	TEMQ55
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC215V02	23HD50SFC215V02
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) -45.5	-45.5
EIRP (dBm) 41.0	42.9
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 0.0
Free Space Loss (dB) 120.9	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0150B CA
City/County San Jose/Santa Clara
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-SJC0145C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY570
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °18' 25.2~ N	37 °18' 23.9~ N
Longitude (NAD 83)	121 °58' 38.9~ W	121 °59' 39.9~ W
Ground Elevation (m/ft-AMSL)	54.90 / 180.1	63.70 / 209.0
Antenna Structure Registration #		
Path Azimuth (°)	268.477	88.467
Path Length (km / miles)	1.503 / 0.934	

Transmit Antenna

80014A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 1.26	40.5 / 1.70 / -1.27
Centerline (m / ft - AGL) 12.19 / 40.0	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

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) 7.5	7.5
Received Level (dBm) -39.6	-39.6
EIRP (dBm) 42.8	48.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0152B CA
City/County San Jose/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY447
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0432C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY752
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 2.0~ N	37 °19' 2.8~ N
Longitude (NAD 83)	121 °58' 38.0~ W	121 °56' 51.1~ W
Ground Elevation (m/ft-AMSL)	47.30 / 155.2	44.10 / 144.7
Antenna Structure Registration #		
Path Azimuth (°)	89.454	269.472
Path Length (km / miles)	2.632 / 1.636	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.73	40.2 / 1.70 / -0.75
Centerline (m / ft - AGL) 12.19 / 40.0	49.47 / 162.3

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	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) 7.5	7.5
Received Level (dBm) -39.9	-39.9
EIRP (dBm) 47.7	47.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.8	

Transmit Frequencies (MHz)	22225.0000V(9)	22325.0000V(11)	23425.0000V(9)	23525.0000V(11)
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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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0153A CA
City/County Santa Clara/Santa Clara
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-SFO0426C CA

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

Site Information

Latitude (NAD 83)	37 °19' 33.1~ N	37 °19' 51.3~ N
Longitude (NAD 83)	121 °58' 5.4~ W	121 °57' 58.0~ W
Ground Elevation (m/ft-AMSL)	37.90 / 124.3	34.10 / 111.9
Antenna Structure Registration #		
Path Azimuth (°)	17.987	197.989
Path Length (km / miles)	0.590 / 0.367	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.44	34.4 / 2.90 / -0.44
Centerline (m / ft - AGL) 14.54 / 47.7	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

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) -40.5	-40.5
EIRP (dBm) 39.9	39.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 114.8	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0158A CA
City/County Santa Clara/Santa Clara
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-SFO0426C CA

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

Site Information

Latitude (NAD 83)	37 °19' 43.0~ N	37 °19' 51.3~ N
Longitude (NAD 83)	121 °57' 3.6~ W	121 °57' 58.0~ W
Ground Elevation (m/ft-AMSL)	37.00 / 121.4	34.10 / 111.9
Antenna Structure Registration #		
Path Azimuth (°)	280.821	100.812
Path Length (km / miles)		1.363 / 0.847

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.26	34.4 / 2.90 / -0.27
CENTERLINE (m / ft - AGL) 13.72 / 45.0	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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
RECEIVED LEVEL (dBm) -45.7	-45.7
EIRP (dBm) 41.9	41.9
FIXED LOSS: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.0	

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

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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0178C CA
City/County Milpitas/Santa Clara
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-SJC0031A CA

Milpitas/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQKU521
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °26' 33.4~ N	37 °25' 22.1~ N
Longitude (NAD 83)	121 °55' 7.3~ W	121 °55' 8.4~ W
Ground Elevation (m/ft-AMSL)	2.60 / 8.5	6.10 / 20.0
Antenna Structure Registration #		
Path Azimuth (°)	180.705	0.705
Path Length (km / miles)	2.198 / 1.366	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.85	40.2 / 1.70 / -0.87
Centerline (m / ft - AGL) 11.58 / 38.0	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

TEMQ16	TEMQ16
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -38.3	-38.3
EIRP (dBm) 47.7	47.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.2	

Transmit Frequencies (MHz)	23075.0000V(2)	23175.0000V(4)	21875.0000V(2)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0178C CA
City/County Milpitas/Santa Clara
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-SJC0198A CA

Milpitas/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQMA289
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °26' 33.4~ N	37 °26' 5.4~ N
Longitude (NAD 83)	121 °55' 7.3~ W	121 °53' 31.1~ W
Ground Elevation (m/ft-AMSL)	2.60 / 8.5	9.40 / 30.8
Antenna Structure Registration #		
Path Azimuth (°)	110.045	290.061
Path Length (km / miles)	2.517 / 1.564	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.47	40.2 / 1.70 / -0.49
Centerline (m / ft - AGL) 11.58 / 38.0	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

TEMQ48	TEMQ48
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC322V02	23HD50HFC322V02
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) -34.0	-34.0
EIRP (dBm) 53.2	53.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.4	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0184D CA
City/County San Jose/Santa Clara
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-SJC0171C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY568
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 18.5~ N	37 °18' 57.4~ N
Longitude (NAD 83)	121 °54' 8.8~ W	121 °55' 52.3~ W
Ground Elevation (m/ft-AMSL)	29.90 / 98.1	43.30 / 142.1
Antenna Structure Registration #		
Path Azimuth (°)	255.689	75.672
Path Length (km / miles)	2.630 / 1.634	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.34	40.2 / 1.70 / -0.35
Centerline (m / ft - AGL) 18.29 / 60.0	20.73 / 68.0

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
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) -40.8	-40.8
EIRP (dBm) 46.8	48.7
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 0.0
Free Space Loss (dB) 127.8	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0204C CA
City/County San Jose/Santa Clara
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-SJC0217B CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY510
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °20' 15.6~ N	37 °20' 47.3~ N
Longitude (NAD 83)	121 °53' 23.2~ W	121 °51' 27.3~ W
Ground Elevation (m/ft-AMSL)	26.60 / 87.3	29.60 / 97.1
Antenna Structure Registration #		
Path Azimuth (°)	71.080	251.100
Path Length (km / miles)		3.016 / 1.874

Transmit Antenna

87066A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2.5-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 43.0 / 1.20 / -0.42	40.5 / 1.70 / 0.40
Centerline (m / ft - AGL) 39.62 / 130.0	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

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) 7.5	7.5
Received Level (dBm) -37.9	-37.9
EIRP (dBm) 50.5	48.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.9	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0215D CA
City/County /Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY512
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0194A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 7.0~ N	37 °16' 30.7~ N
Longitude (NAD 83)	121 °51' 28.0~ W	121 °53' 34.1~ W
Ground Elevation (m/ft-AMSL)	131.00 / 429.8	48.00 / 157.5
Antenna Structure Registration #		
Path Azimuth (°)	250.199	70.178
Path Length (km / miles)	3.302 / 2.052	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -1.29	40.5 / 1.70 / 1.26
Centerline (m / ft - AGL) 8.84 / 29.0	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

TEMQ54	TEMQ54
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC215V02	23HD50HFC215V02
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) 14.0	14.0
Received Level (dBm) -34.7	-34.7
EIRP (dBm) 54.5	54.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.7	

Transmit Frequencies (MHz)	23325.0000V(7)	23475.0000V(10)	22125.0000V(7)	22275.0000V(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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0215D CA
City/County /Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY512
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0206B CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY595
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 7.0~ N	37 °16' 49.2~ N
Longitude (NAD 83)	121 °51' 28.0~ W	121 °50' 15.7~ W
Ground Elevation (m/ft-AMSL)	131.00 / 429.8	50.90 / 167.0
Antenna Structure Registration #		
Path Azimuth (°)	107.119	287.131
Path Length (km / miles)	1.864 / 1.158	

Transmit Antenna

87205A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -2.47	35.3 / 3.00 / 2.45
Centerline (m / ft - AGL) 18.29 / 60.0	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
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -41.5	-41.5
EIRP (dBm) 48.0	42.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.8	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0215D CA
City/County /Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY512
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0225B CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY575
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 7.0~ N	37 °16' 2.0~ N
Longitude (NAD 83)	121 °51' 28.0~ W	121 °50' 0.2~ W
Ground Elevation (m/ft-AMSL)	131.00 / 429.8	50.60 / 166.0
Antenna Structure Registration #		
Path Azimuth (°)	132.805	312.820
Path Length (km / miles)	2.949 / 1.832	

Transmit Antenna

87066A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2.5-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 43.0 / 1.20 / -1.69	40.5 / 1.70 / 1.67
Centerline (m / ft - AGL) 18.29 / 60.0	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

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) 7.5	7.5
Received Level (dBm) -37.7	-37.7
EIRP (dBm) 50.5	48.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.7	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0215D CA
City/County /Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY512
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0380E CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION

CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 7.0~ N	37 °20' 12.2~ N
Longitude (NAD 83)	121 °51' 28.0~ W	121 °51' 11.2~ W
Ground Elevation (m/ft-AMSL)	131.00 / 429.8	31.70 / 104.0
Antenna Structure Registration #		
Path Azimuth (°)	4.143	184.146
Path Length (km / miles)	5.724 / 3.557	

Transmit Antenna

87205A	87066A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2.5-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.95	43.0 / 1.20 / 0.91
Centerline (m / ft - AGL) 12.19 / 40.0	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

TEMQ54	TEMQ54
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC215V02	23HD50HFC215V02
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) 16.0	16.0
Received Level (dBm) -35.0	-35.0
EIRP (dBm) 56.5	59.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 134.5	

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

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0223D CA
City/County San Jose/Santa Clara
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-SJC0232A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQMA312
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °22' 25.8~ N	37 °21' 32.5~ N
Longitude (NAD 83)	121 °50' 6.4~ W	121 °48' 53.4~ W
Ground Elevation (m/ft-AMSL)	53.80 / 176.5	48.40 / 158.8
Antenna Structure Registration #		
Path Azimuth (°)	132.446	312.458
Path Length (km / miles)	2.434 / 1.513	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / -0.09	40.2 / 1.70 / 0.07
Centerline (m / ft - AGL) 15.24 / 50.0	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
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) -41.2	-41.2
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)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0239B CA
City/County San Jose/Santa Clara
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-SFO0431A CA

/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY729
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 44.6~ N	37 °19' 21.8~ N
Longitude (NAD 83)	121 °47' 51.7~ W	121 °45' 18.7~ W
Ground Elevation (m/ft-AMSL)	45.50 / 149.3	293.50 / 962.9
Antenna Structure Registration #		1049603
Path Azimuth (°)	100.557	280.583
Path Length (km / miles)	3.832 / 2.381	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 3.96	40.5 / 1.70 / -3.98
Centerline (m / ft - AGL) 12.19 / 40.0	30.18 / 99.0

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) -41.5	-41.5
EIRP (dBm) 49.0	49.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 131.0	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information**CA-SJC0284A CA**

City/County /Santa Clara
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-SJC0275A CA

Mountain View/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY531
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °24' 49.8~ N	37 °23' 25.9~ N
Longitude (NAD 83)	122 °3' 37.3~ W	122 °4' 52.9~ W
Ground Elevation (m/ft-AMSL)	6.60 / 21.7	26.70 / 87.6
Antenna Structure Registration #		
Path Azimuth (°)	215.717	35.704
Path Length (km / miles)	3.186 / 1.979	

Transmit Antenna

80014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.68
Centerline (m / ft - AGL) 18.29 / 60.0

87205A
Manufacturer ANDREW CORPORATION
Model VHLP2-23B
40.5 / 1.70 / -0.70
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

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) 17.0
Received Level (dBm) -36.6
EIRP (dBm) 52.3

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) 17.0
Received Level (dBm) -36.6
EIRP (dBm) 57.5

Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 129.4

0.0 / 0.0

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0360B CA
City/County Milpitas/Santa Clara
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-SJC0198A CA

Milpitas/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQMA289
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °26' 17.8~ N	37 °26' 5.4~ N
Longitude (NAD 83)	121 °52' 23.8~ W	121 °53' 31.1~ W
Ground Elevation (m/ft-AMSL)	39.00 / 128.0	9.40 / 30.8
Antenna Structure Registration #		
Path Azimuth (°)	256.995	76.984
Path Length (km / miles)	1.698 / 1.055	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / -0.47	40.2 / 1.70 / 0.46
Centerline (m / ft - AGL) 10.06 / 33.0	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
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC322V02	23HD50SFC322V02
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) 7.5	7.5
Received Level (dBm) -36.1	-36.1
EIRP (dBm) 47.7	47.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.0	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0367A CA
City/County San Jose/Santa Clara
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-SJC0276A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 42.3~ N	37 °19' 49.6~ N
Longitude (NAD 83)	121 °51' 2.0~ W	121 °53' 18.4~ W
Ground Elevation (m/ft-AMSL)	33.50 / 109.9	29.70 / 97.4
Antenna Structure Registration #		
Path Azimuth (°)	273.846	93.823
Path Length (km / miles)	3.365 / 2.091	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 1.35	40.5 / 1.70 / -1.37
Centerline (m / ft - AGL) 7.62 / 25.0	91.44 / 300.0

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) -40.4	-40.4
EIRP (dBm) 49.0	49.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 129.9	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0372A CA
City/County San Jose/Santa Clara
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-SFO0432C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY752
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °20' 1.8~ N	37 °19' 2.8~ N
Longitude (NAD 83)	121 °56' 7.2~ W	121 °56' 51.1~ W
Ground Elevation (m/ft-AMSL)	32.00 / 105.0	44.10 / 144.7
Antenna Structure Registration #		
Path Azimuth (°)	210.723	30.715
Path Length (km / miles)	2.116 / 1.315	

Transmit Antenna

99141R	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 1.45	40.2 / 1.70 / -1.47
Centerline (m / ft - AGL) 7.62 / 25.0	49.38 / 162.0

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
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) -44.3	-44.3
EIRP (dBm) 41.4	47.2
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)	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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0373B CA
City/County San Jose/Santa Clara
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-SJC0183C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °20' 33.9~ N	37 °20' 56.0~ N
Longitude (NAD 83)	121 °55' 40.8~ W	121 °54' 1.0~ W
Ground Elevation (m/ft-AMSL)	23.70 / 77.8	20.00 / 65.6
Antenna Structure Registration #		1014940
Path Azimuth (°)	74.489	254.506
Path Length (km / miles)		2.549 / 1.584

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.83	40.2 / 1.70 / -0.85
Centerline (m / ft - AGL) 10.67 / 35.0	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

TEM025	TEM025
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC271V02	23HD50SFC271V02
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) -40.1	-40.1
EIRP (dBm) 47.2	47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

New Path

Job Number 100713COMSSL01

RCN Number: 10071300

Administrative Information**CA-SJC0378A CA**

City/County San Jose/Santa Clara
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-SJC0391B CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °21' 9.7~ N	37 °20' 33.8~ N
Longitude (NAD 83)	121 °52' 1.9~ W	121 °52' 39.5~ W
Ground Elevation (m/ft-AMSL)	29.60 / 97.1	25.90 / 85.0
Antenna Structure Registration #		
Path Azimuth (°)	219.904	39.898
Path Length (km / miles)	1.443 / 0.896	

Transmit Antenna

Manufacturer	99141R	RD1150
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 0.76	40.2 / 1.70 / -0.77
Centerline (m / ft - AGL)	13.72 / 45.0	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

Manufacturer	TEMO25	TEMO25
Model	DRAGONWAVE INC	DRAGONWAVE INC
	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)	-40.9	-40.9
EIRP (dBm)	41.4	47.2
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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0381B CA
City/County San Jose/Santa Clara
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-SJC0403A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 4.1~ N	37 °19' 44.4~ N
Longitude (NAD 83)	121 °54' 59.4~ W	121 °53' 29.8~ W
Ground Elevation (m/ft-AMSL)	38.90 / 127.6	27.60 / 90.6
Antenna Structure Registration #		
Path Azimuth (°)	60.604	240.620
Path Length (km / miles)	2.532 / 1.573	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.39	40.2 / 1.70 / -0.41
Centerline (m / ft - AGL) 7.62 / 25.0	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

TEM025	TEM025
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC271V02	23HD50SFC271V02
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) -40.0	-40.0
EIRP (dBm) 47.2	47.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.4	

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
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0382A CA
City/County San Jose/Santa Clara
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-SFO0418A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °22' 48.9~ N	37 °22' 38.2~ N
Longitude (NAD 83)	121 °54' 41.2~ W	121 °55' 12.8~ W
Ground Elevation (m/ft-AMSL)	13.70 / 44.9	11.80 / 38.7
Antenna Structure Registration #		
Path Azimuth (°)	247.011	67.005
Path Length (km / miles)	0.845 / 0.525	

Transmit Antenna

99141R	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 1.03	40.2 / 1.70 / -1.03
Centerline (m / ft - AGL) 10.36 / 34.0	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

TEM020	TEM020
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC371V02	23HD50SFC371V02
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) -37.8	-37.8
EIRP (dBm) 39.9	45.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.9	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0386B CA
City/County San Jose/Santa Clara
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-SFO0425C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °21' 1.5~ N	37 °20' 55.3~ N
Longitude (NAD 83)	121 °48' 47.3~ W	121 °48' 16.4~ W
Ground Elevation (m/ft-AMSL)	48.40 / 158.8	53.60 / 175.9
Antenna Structure Registration #		
Path Azimuth (°)	104.105	284.111
Path Length (km / miles)	0.784 / 0.487	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 1.31	34.4 / 2.90 / -1.32
CENTERLINE (m / ft - AGL) 7.62 / 25.0	20.42 / 67.0

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
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) -41.4	-41.4
EIRP (dBm) 41.4	41.4
FIXED LOSS: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
FREE SPACE LOSS (dB) 117.2	

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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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0387A CA
City/County San Jose/Santa Clara
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-SJC0231A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °20' 40.2~ N	37 °20' 33.5~ N
Longitude (NAD 83)	121 °50' 8.7~ W	121 °49' 23.8~ W
Ground Elevation (m/ft-AMSL)	34.20 / 112.2	35.70 / 117.1
Antenna Structure Registration #		1246272
Path Azimuth (°)	100.583	280.590
Path Length (km / miles)		1.124 / 0.699

Transmit Antenna

87205A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 1.39	35.3 / 3.00 / -1.40
Centerline (m / ft - AGL) 7.62 / 25.0	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

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) -39.0	-39.0
EIRP (dBm) 48.0	40.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 1.9
Free Space Loss (dB) 120.4	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0388A CA
City/County San Jose/Santa Clara
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-SJC0227C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY592
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °21' 46.0~ N	37 °21' 35.4~ N
Longitude (NAD 83)	121 °50' 56.6~ W	121 °50' 21.4~ W
Ground Elevation (m/ft-AMSL)	31.30 / 102.7	33.00 / 108.3
Antenna Structure Registration #		
Path Azimuth (°)	110.667	290.673
Path Length (km / miles)	0.926 / 0.575	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 1.10	35.3 / 3.00 / -1.11
Centerline (m / ft - AGL) 16.76 / 55.0	32.92 / 108.0

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) -43.0	-43.0
EIRP (dBm) 42.3	40.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 1.9
Free Space Loss (dB) 118.7	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0390B CA
City/County San Jose/Santa Clara
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-SJC0223D CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °22' 25.7~ N	37 °22' 25.8~ N
Longitude (NAD 83)	121 °51' 9.4~ W	121 °50' 6.4~ W
Ground Elevation (m/ft-AMSL)	40.60 / 133.2	53.80 / 176.5
Antenna Structure Registration #		
Path Azimuth (°)	89.881	269.891
Path Length (km / miles)	1.550 / 0.963	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.08	35.3 / 3.00 / 0.07
Centerline (m / ft - AGL) 30.48 / 100.0	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

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) -46.0	-46.0
EIRP (dBm) 41.9	43.8
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 0.0
Free Space Loss (dB) 123.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0405C CA
City/County San Jose/Santa Clara
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-SFO0430C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °18' 57.4~ N	37 °19' 4.1~ N
Longitude (NAD 83)	121 °50' 9.8~ W	121 °51' 0.9~ W
Ground Elevation (m/ft-AMSL)	39.70 / 130.2	38.90 / 127.6
Antenna Structure Registration #		
Path Azimuth (°)	279.327	99.318
Path Length (km / miles)	1.275 / 0.792	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 0.17	34.4 / 2.90 / -0.17
Centerline (m / ft - AGL)	7.62 / 25.0	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	TEMO25	TEMO25
Model	DRAGONWAVE INC	DRAGONWAVE INC
	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)	-45.7	-45.7
EIRP (dBm)	41.4	41.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		121.5

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0408A CA
City/County San Jose/Santa Clara
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-SJC0174C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °15' 34.1~ N	37 °16' 15.2~ N
Longitude (NAD 83)	121 °55' 54.0~ W	121 °55' 4.8~ W
Ground Elevation (m/ft-AMSL)	70.60 / 231.6	56.40 / 185.0
Antenna Structure Registration #		
Path Azimuth (°)	43.730	223.738
Path Length (km / miles)	1.754 / 1.090	

Transmit Antenna

87205A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 0.18	35.3 / 3.00 / -0.19
Centerline (m / ft - AGL) 9.14 / 30.0	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

TEM025	TEM025
DRAGONWAVE INC	DRAGONWAVE INC
23HD50SFC271V02	23HD50SFC271V02
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) -43.3	-43.3
EIRP (dBm) 47.5	40.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 1.9
Free Space Loss (dB) 124.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0409A CA
City/County San Jose/Santa Clara
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-SJC0215D CA

/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY512
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °16' 3.5~ N	37 °17' 7.0~ N
Longitude (NAD 83)	121 °51' 32.3~ W	121 °51' 28.0~ W
Ground Elevation (m/ft-AMSL)	49.40 / 162.1	131.00 / 429.8
Antenna Structure Registration #		
Path Azimuth (°)	3.097	183.098
Path Length (km / miles)	1.960 / 1.218	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 2.55	35.3 / 3.00 / -2.57
Centerline (m / ft - AGL) 12.19 / 40.0	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

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) -46.1	-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)	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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0410C CA
City/County San Jose/Santa Clara
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-SFO0454C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY852
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °15' 39.7~ N	37 °16' 21.9~ N
Longitude (NAD 83)	121 °52' 30.2~ W	121 °52' 15.0~ W
Ground Elevation (m/ft-AMSL)	53.40 / 175.2	48.10 / 157.8
Antenna Structure Registration #		
Path Azimuth (°)	16.058	196.061
Path Length (km / miles)	1.354 / 0.841	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 0.08	34.4 / 2.90 / -0.09
Centerline (m / ft - AGL)	9.14 / 30.0	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

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)	-44.7	-44.7
EIRP (dBm)	42.9	42.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		122.0

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0416A CA
City/County San Jose/Santa Clara
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-SJC0162A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY659
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °15' 52.3~ N	37 °15' 7.5~ N
Longitude (NAD 83)	121 °56' 28.7~ W	121 °56' 47.3~ W
Ground Elevation (m/ft-AMSL)	73.20 / 240.2	86.10 / 282.5
Antenna Structure Registration #		
Path Azimuth (°)	198.360	18.357
Path Length (km / miles)	1.455 / 0.904	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 1.16	34.4 / 2.90 / -1.17
Centerline (m / ft - AGL) 10.67 / 35.0	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) 7.5	7.5
Received Level (dBm) -46.3	-46.3
EIRP (dBm) 41.9	41.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.6	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0418A CA
City/County San Jose/Santa Clara
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-SJC0205A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °18' 39.4~ N	37 °18' 21.0~ N
Longitude (NAD 83)	121 °52' 56.7~ W	121 °52' 40.9~ W
Ground Elevation (m/ft-AMSL)	35.40 / 116.1	39.00 / 128.0
Antenna Structure Registration #		
Path Azimuth (°)	145.552	325.555
Path Length (km / miles)	0.688 / 0.427	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -1.35	34.4 / 2.90 / 1.35
Centerline (m / ft - AGL) 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

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) -42.2	-42.2
EIRP (dBm) 39.5	41.4
Fixed Loss: Tx / Common (dB) 0.0 / 1.9	0.0 / 0.0
Free Space Loss (dB) 116.1	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0429A CA
City/County Cupertino/Santa Clara
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-SJC0145C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY570
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °18' 39.3~ N	37 °18' 23.9~ N
Longitude (NAD 83)	122 °1' 25.0~ W	121 °59' 39.9~ W
Ground Elevation (m/ft-AMSL)	72.50 / 237.9	63.70 / 209.0
Antenna Structure Registration #		
Path Azimuth (°)	100.386	280.404
Path Length (km / miles)	2.631 / 1.635	

Transmit Antenna

87205A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 0.40	40.5 / 1.70 / -0.41
Centerline (m / ft - AGL) 9.14 / 30.0	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

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) -39.8	-39.8
EIRP (dBm) 47.5	47.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.8	

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

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PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0430A CA
City/County San Jose/Santa Clara
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-SJC0191D CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °16' 58.8~ N	37 °17' 18.5~ N
Longitude (NAD 83)	121 °54' 3.0~ W	121 °53' 48.6~ W
Ground Elevation (m/ft-AMSL)	49.60 / 162.7	45.30 / 148.6
Antenna Structure Registration #		
Path Azimuth (°)	30.286	210.288
Path Length (km / miles)	0.703 / 0.437	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 0.17	34.4 / 2.90 / -0.17
Centerline (m / ft - AGL) 9.14 / 30.0	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

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) -40.5	-40.5
EIRP (dBm) 41.4	41.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 116.3	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0435B CA
City/County /Santa Clara
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-SJC0218C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 57.0~ N	37 °18' 23.4~ N
Longitude (NAD 83)	121 °50' 47.8~ W	121 °50' 56.4~ W
Ground Elevation (m/ft-AMSL)	41.40 / 135.8	39.20 / 128.6
Antenna Structure Registration #		
Path Azimuth (°)	345.414	165.413
Path Length (km / miles)	0.841 / 0.523	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -0.26	34.4 / 2.90 / 0.25
Centerline (m / ft - AGL) 16.76 / 55.0	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

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) -42.1	-42.1
EIRP (dBm) 41.4	41.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 117.9	

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: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0435B CA
City/County /Santa Clara
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-SJC0226C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 57.0~ N	37 °17' 39.5~ N
Longitude (NAD 83)	121 °50' 47.8~ W	121 °49' 46.4~ W
Ground Elevation (m/ft-AMSL)	41.40 / 135.8	47.80 / 156.8
Antenna Structure Registration #		
Path Azimuth (°)	109.629	289.640
Path Length (km / miles)	1.606 / 0.998	

Transmit Antenna

RD1150	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.40	34.4 / 2.90 / -0.41
Centerline (m / ft - AGL) 16.76 / 55.0	21.64 / 71.0

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
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) -41.9	-41.9
EIRP (dBm) 47.2	41.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 123.5	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0442A CA
City/County San Jose/Santa Clara
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-SJC0219A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY536
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °14' 33.9~ N	37 °13' 58.3~ N
Longitude (NAD 83)	121 °50' 50.6~ W	121 °50' 47.1~ W
Ground Elevation (m/ft-AMSL)	50.30 / 165.0	53.00 / 173.9
Antenna Structure Registration #		
Path Azimuth (°)	175.505	355.506
Path Length (km / miles)	1.101 / 0.684	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -0.36	34.4 / 2.90 / 0.35
Centerline (m / ft - AGL) 15.24 / 50.0	5.79 / 19.0

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
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) -42.9	-42.9
EIRP (dBm) 42.9	42.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 120.2	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0447D CA
City/County San Jose/Santa Clara
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-SJC0215D CA

/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY512
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °16' 35.1~ N	37 °17' 7.0~ N
Longitude (NAD 83)	121 °52' 42.3~ W	121 °51' 28.0~ W
Ground Elevation (m/ft-AMSL)	47.90 / 157.2	131.00 / 429.8
Antenna Structure Registration #		
Path Azimuth (°)	61.745	241.757
Path Length (km / miles)	2.078 / 1.291	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 2.58	34.4 / 2.90 / -2.59
Centerline (m / ft - AGL) 7.62 / 25.0	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

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) -48.4	-48.4
EIRP (dBm) 42.9	42.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.7	

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

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0448D CA
City/County San Jose/Santa Clara
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-SJC0188A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °18' 15.0~ N	37 °18' 26.3~ N
Longitude (NAD 83)	121 °54' 52.7~ W	121 °54' 3.6~ W
Ground Elevation (m/ft-AMSL)	44.70 / 146.7	37.50 / 123.0
Antenna Structure Registration #		
Path Azimuth (°)	73.924	253.932
Path Length (km / miles)	1.258 / 0.782	

Transmit Antenna

99141R	99141R
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
MODEL HPCPE-23	HPCPE-23
GAIN(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / -0.15	34.4 / 2.90 / 0.14
CENTERLINE (m / ft - AGL) 13.72 / 45.0	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
Power (dBm)	Nominal Coordinated Maximum
Received Level (dBm)	8.5
EIRP (dBm)	-44.1
	42.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0
Free Space Loss (dB)	121.4

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0471C CA
City/County San Jose/Santa Clara
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-SFO0432C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY752
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °18' 35.8~ N	37 °19' 2.8~ N
Longitude (NAD 83)	121 °57' 49.4~ W	121 °56' 51.1~ W
Ground Elevation (m/ft-AMSL)	46.80 / 153.5	44.10 / 144.7
Antenna Structure Registration #		
Path Azimuth (°)	59.889	239.898
Path Length (km / miles)	1.659 / 1.031	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	34.4 / 2.90 / 0.97	34.4 / 2.90 / -0.99
Centerline (m / ft - AGL)	18.29 / 60.0	49.38 / 162.0

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)	-46.5	-46.5
EIRP (dBm)	42.9	42.9
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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0473B CA
City/County Campbell/Santa Clara
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-SJC0166D CA

Campbell/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQMA224
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 10.9~ N	37 °17' 18.7~ N
Longitude (NAD 83)	121 °57' 3.9~ W	121 °56' 5.8~ W
Ground Elevation (m/ft-AMSL)	60.80 / 199.5	59.40 / 194.9
Antenna Structure Registration #		
Path Azimuth (°)	80.457	260.467
Path Length (km / miles)	1.451 / 0.902	

Transmit Antenna

80014A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 2.08	40.5 / 1.70 / -2.09
Centerline (m / ft - AGL) 12.19 / 40.0	66.45 / 218.0

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) -39.8	-39.8
EIRP (dBm) 42.3	47.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 122.6	

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
(858)232-4372 www.comsearch.com

PCN Date: 07/13/2010

Job Number 100713COMSSL01

New Path

RCN Number: 10071300

Administrative Information

CA-SJC0480A CA
City/County San Jose/Santa Clara
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-SJC0185B CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °15' 31.2~ N	37 °14' 47.9~ N
Longitude (NAD 83)	121 °54' 15.7~ W	121 °54' 10.5~ W
Ground Elevation (m/ft-AMSL)	58.50 / 191.9	70.60 / 231.6
Antenna Structure Registration #		
Path Azimuth (°)	174.516	354.517
Path Length (km / miles)	1.341 / 0.833	

Transmit Antenna

87205A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 1.49	35.3 / 3.00 / -1.50
Centerline (m / ft - AGL) 9.14 / 30.0	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

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) -41.0	-41.0
EIRP (dBm) 47.5	40.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 1.9
Free Space Loss (dB) 121.9	

Transmit Frequencies (MHz)	23325.0000V(7)	23425.0000V(9)	22125.0000V(7)	22225.0000V(9)
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