

Microwave Path Data Sheet

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COMSEARCH

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

PCN Date: 11/17/2010

Job Number: 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SFO0206A 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-SFO0565A CA

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

Site Information

Latitude (NAD 83)	37 ° 45' 56.3" N	37 ° 44' 20.0" N
Longitude (NAD 83)	121 ° 57' 46.9" W	121 ° 59' 42.5" W
Ground Elevation (m/ft-AMSL)	140.70 / 461.6	562.40 / 1845.1
Antenna Structure Registration #		1222544
Path Azimuth (°)	223.635	43.615
Path Length (km / miles)	4.102 / 2.549	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 5.70	35.3 / 3.00 / -5.73
Centerline (m / ft - AGL) 21.95 / 72.0	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

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) -42.5	-42.5
EIRP (dBm) 53.8	53.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 131.6	

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: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SFO0988A 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-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 FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °34' 33.6" N	37 °34' 16.6" N
Longitude (NAD 83)	122 °2' 26.4" W	122 °1' 49.3" W
Ground Elevation (m/ft-AMSL)	9.00 / 29.5	11.60 / 38.1
Antenna Structure Registration #		
Path Azimuth (°)	119.926	299.933
Path Length (km / miles)	1.050 / 0.653	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.52	35.3 / 3.00 / -0.53
Centerline (m / ft - AGL) 11.89 / 39.0	18.90 / 62.0

Receive Antenna

Same As Transmit

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

Diversity Receive Antenna

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

Radio Information

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) -43.7	-43.7
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 119.8	

Transmit Frequencies (MHz)	22125.0000V(7)	22225.0000V(9)	23325.0000V(7)	23425.0000V(9)
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COMSEARCH

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

PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SFO0301C CA
City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY340
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0308A CA

City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQML528
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °37' 59.7" N	37 °37' 11.6" N
Longitude (NAD 83)	122 °5' 16.6" W	122 °5' 56.4" W
Ground Elevation (m/ft-AMSL)	10.60 / 34.8	3.40 / 11.2
Antenna Structure Registration #		
Path Azimuth (°)	213.353	33.346
Path Length (km / miles)	1.775 / 1.103	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.19	35.3 / 3.00 / 0.18
Centerline (m / ft - AGL) 19.81 / 65.0	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

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) -38.2	-38.2
EIRP (dBm) 50.8	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.3	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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COMSEARCH

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

PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SFO0808A 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-SFO0202A CA

Oakland/Alameda
Engineering Proposal / PRIMARY OPERATION
WQLY336
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 46' 19.9" N	37 ° 46' 2.5" N
Longitude (NAD 83)	122 ° 11' 59.8" W	122 ° 12' 44.7" W
Ground Elevation (m/ft-AMSL)	18.42 / 60.4	5.50 / 18.0
Antenna Structure Registration #		
Path Azimuth (°)	243.983	63.975
Path Length (km / miles)	1.223 / 0.760	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.21	35.3 / 3.00 / 0.20
Centerline (m / ft - AGL) 16.76 / 55.0	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

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) -45.0	-45.0
EIRP (dBm) 40.8	40.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 121.1	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

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-SFO0257A CA

San Leandro/Alameda
Engineering Proposal / PRIMARY OPERATION
WQMD301
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 43' 33.7" N	37 ° 42' 48.5" N
Longitude (NAD 83)	122 ° 9' 4.2" W	122 ° 9' 20.0" W
Ground Elevation (m/ft-AMSL)	19.50 / 64.0	14.90 / 48.9
Antenna Structure Registration #		1016585
Path Azimuth (°)	195.520	15.517
Path Length (km / miles)		1.446 / 0.899

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) 15.85 / 52.0	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

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) -46.5	-46.5
EIRP (dBm) 40.8	40.8
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
(858)232-4372 www.comsearch.com

PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SFO0137D 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-SFO0162B 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' 41.4" N	37 ° 47' 27.0" N
Longitude (NAD 83)	122 ° 11' 51.0" W	122 ° 15' 19.6" W
Ground Elevation (m/ft-AMSL)	210.45 / 690.5	0.00 / 0.0
Antenna Structure Registration #		
Path Azimuth (°)	245.814	65.778
Path Length (km / miles)	5.595 / 3.477	

Transmit Antenna

80014A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -1.73	40.5 / 1.70 / 1.69
Centerline (m / ft - AGL) 17.37 / 57.0	60.96 / 200.0

Receive Antenna

Same As Transmit

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

Diversity Receive Antenna

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

Radio Information

TEMQ49	TEMQ49
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC171V02	23HD50HFC171V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 20.0	20.0
Received Level (dBm) -38.5	-38.5
EIRP (dBm) 55.3	60.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 134.3	

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

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COMSEARCH

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

PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SJC0058A CA
City/County Mountain View/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY565
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 °24' 4.6" N	37 °21' 34.8" N
Longitude (NAD 83)	122 °6' 40.5" W	122 °3' 42.3" W
Ground Elevation (m/ft-AMSL)	21.20 / 69.6	50.30 / 165.0
Antenna Structure Registration #		
Path Azimuth (°)	136.475	316.505
Path Length (km / miles)	6.368 / 3.957	

Transmit Antenna

87066A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2.5-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 43.0 / 1.20 / 0.36	40.5 / 1.70 / -0.40
Centerline (m / ft - AGL) 26.52 / 87.0	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

TEMQ49	TEMQ49
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 23HD50HFC171V02	23HD50HFC171V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M8D7W 32 QAM	45M8D7W 32 QAM
Loading 1 CH DIG 171000.000	1 CH DIG 171000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 20.0	20.0
Received Level (dBm) -31.9	-31.9
EIRP (dBm) 63.0	60.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 135.4	

Transmit Frequencies (MHz)	23475.0000H(10)	23575.0000H(12)	22275.0000H(10)	22375.0000H(12)
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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: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

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-SJC0209C CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQML896
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °17' 7.0" N	37 °14' 30.2" N
Longitude (NAD 83)	121 °51' 28.0" W	121 °51' 39.0" W
Ground Elevation (m/ft-AMSL)	131.00 / 429.8	55.80 / 183.1
Antenna Structure Registration #		
Path Azimuth (°)	183.210	3.208
Path Length (km / miles)	4.842 / 3.008	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / -1.00	40.2 / 1.70 / 0.96
Centerline (m / ft - AGL) 18.29 / 60.0	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

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) 15.0	15.0
Received Level (dBm) -37.7	-37.7
EIRP (dBm) 55.2	55.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 133.1	

Transmit Frequencies (MHz)	23325.0000H(7)	23475.0000H(10)	22125.0000H(7)	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: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

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-SFO0449A CA

City/County Campbell/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQMM288
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 2.8" N	37 °16' 51.0" N
Longitude (NAD 83)	121 °56' 51.1" W	121 °57' 28.0" W
Ground Elevation (m/ft-AMSL)	44.10 / 144.7	63.10 / 207.0
Antenna Structure Registration #		
Path Azimuth (°)	192.610	12.604
Path Length (km / miles)	4.164 / 2.587	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / -0.22	40.2 / 1.70 / 0.19
Centerline (m / ft - AGL) 49.38 / 162.0	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

TEMQ54	TEMQ54
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) 10.0	10.0
Received Level (dBm) -41.3	-41.3
EIRP (dBm) 50.2	50.2
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 131.7	

Transmit Frequencies (MHz)	23325.0000H(7)	23475.0000H(10)	22125.0000H(7)	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: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SFO0812A 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-SFO0808A 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 ° 45' 39.7" N	37 ° 46' 19.9" N
Longitude (NAD 83)	122 ° 9' 50.2" W	122 ° 11' 59.8" W
Ground Elevation (m/ft-AMSL)	24.50 / 80.4	18.42 / 60.4
Antenna Structure Registration #		
Path Azimuth (°)	291.354	111.332
Path Length (km / miles)	3.406 / 2.116	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / -0.11	38.9 / 2.10 / 0.09
Centerline (m / ft - AGL) 4.57 / 15.0	4.57 / 15.0

Receive Antenna

Same As 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) 17.5	17.5
Received Level (dBm) -33.2	-33.2
EIRP (dBm) 56.4	56.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.5	

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

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COMSEARCH

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

PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

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-SJC0072A CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQMM242
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 2.8" N	37 °24' 2.4" N
Longitude (NAD 83)	121 °56' 51.1" W	121 °56' 26.3" W
Ground Elevation (m/ft-AMSL)	44.10 / 144.7	4.60 / 15.1
Antenna Structure Registration #		
Path Azimuth (°)	3.778	183.782
Path Length (km / miles)	9.257 / 5.752	

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 / -0.45	38.6 / 2.00 / 0.39
	49.38 / 162.0	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

Manufacturer	TEMO93	TEMO93
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HC50HFC171V04	18HC50HFC171V04
Emission Designator / Modulation	Horizon Compact	Horizon Compact
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	22.0	22.0
Received Level (dBm)	-38.0	-38.0
EIRP (dBm)	60.6	60.6
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		137.2

Transmit Frequencies (MHz) 17865.0000V(3)

19425.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

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

PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

CA-SFO0220C CA
City/County Oakland/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY334
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0257A CA

San Leandro/Alameda
Engineering Proposal / PRIMARY OPERATION
WQMD301
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 44' 49.2" N	37 ° 42' 48.5" N
Longitude (NAD 83)	122 ° 12' 13.9" W	122 ° 9' 20.0" W
Ground Elevation (m/ft-AMSL)	2.30 / 7.5	14.90 / 48.9
Antenna Structure Registration #		1016585
Path Azimuth (°)	131.135	311.165
Path Length (km / miles)	5.655 / 3.514	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / -0.22	38.9 / 2.10 / 0.19
Centerline (m / ft - AGL) 53.64 / 176.0	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

TEM032	TEM032
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC271V02	18HD50HFC271V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 47M8D7W 128 QAM	47M8D7W 128 QAM
Loading 1 CH DIG 271000.000	1 CH DIG 271000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 17.0	17.0
Received Level (dBm) -38.2	-38.2
EIRP (dBm) 55.9	55.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 133.0	

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
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PCN Date: 11/17/2010

Job Number 101117COMSSL07

New Path

RCN Number: 10111727

Administrative Information

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 MG -- Microwave Industrial/Business Pool

CA-SFO0383A CA

Fremont/Alameda
Engineering Proposal / PRIMARY OPERATION
WQML542
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °31' 50.7" N	37 °30' 38.5" N
Longitude (NAD 83)	121 °58' 14.6" W	121 °57' 55.1" W
Ground Elevation (m/ft-AMSL)	10.00 / 32.8	8.00 / 26.2
Antenna Structure Registration #		
Path Azimuth (°)	167.858	347.861
Path Length (km / miles)	2.277 / 1.415	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 0.11	38.9 / 2.10 / -0.13
Centerline (m / ft - AGL) 26.21 / 86.0	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

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) 12.0	12.0
Received Level (dBm) -35.3	-35.3
EIRP (dBm) 50.9	50.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.1	

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
(858)232-4372 www.comsearch.com

PCN Date: 11/17/2010
Job Number 101117COMSSL07

Prev Job Num: 101014COMSSL01
RCN Number: 10111727

Administrative Information

CA-SFO0326C CA
City/County Burlingame/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLZ449
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 °35' 37.9" N	37 °32' <u>11.7</u> " N
Longitude (NAD 83)	122 °21' 54.9" W	122 °19' <u>36.7</u> " W
Ground Elevation (m/ft-AMSL)	2.40 / 7.9	<u>116.79</u> / <u>383.2</u>
Antenna Structure Registration #		
Path Azimuth (°)	<u>151.908</u>	<u>331.931</u>
Path Length (km / miles)		<u>7.205</u> / <u>4.477</u>

Transmit Antenna

77041A
Manufacturer ANDREW CORPORATION
Model VHLP2.5-11
Gain(dBi) / Beamwidth(°) / Tilt(°) 37.5 / 2.10 / 0.65
Centerline (m / ft – AGL) 46.94 / 154.0

77043A
ANDREW CORPORATION
VHLP4-11B
40.4 / 1.50 / -0.70
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

TEM028
Manufacturer DRAGONWAVE INC
Model 11HD40HFC212V02
Model Description HORIZON DUO
Emission Designator / Modulation 34M4D7W 128 QAM
Loading 1 CH DIG 212000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 16.0
Received Level (dBm) -38.3
EIRP (dBm) 52.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.8
Free Space Loss (dB) 130.6

TEM028
DRAGONWAVE INC
11HD40HFC212V02
HORIZON DUO
34M4D7W 128 QAM
1 CH DIG 212000.000
0.001
Nominal Coordinated Maximum
16.0
-38.3
55.6
0.0 / 0.8

Transmit Frequencies (MHz)	11345.0000V(4)	11425.0000V(6)	10855.0000V(4)	10935.0000V(6)
	11505.0000H(8)	11585.0000H(10)	11015.0000H(8)	11095.0000H(10)