

Microwave Path Data Sheet

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COMSEARCH

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

PCN Date: 04/20/2011

Job Number: 110420COMSSL05

New Path

RCN Number: 11042020

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-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 FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °36' 28.6" N	37 °35' 54.1" N
Longitude (NAD 83)	122 °2' 24.2" W	122 °4' 3.0" W
Ground Elevation (m/ft-AMSL)	15.30 / 50.2	5.20 / 17.1
Antenna Structure Registration #		
Path Azimuth (°)	246.312	66.295
Path Length (km / miles)	2.647 / 1.645	

Transmit Antenna

87205A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.60	35.3 / 3.00 / 0.59
Centerline (m / ft - AGL) 32.61 / 107.0	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

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) -37.5	-37.5
EIRP (dBm) 55.5	50.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.5	0.0 / 0.5
Free Space Loss (dB) 127.8	

Transmit Frequencies (MHz)	21825.0000V(1)	21975.0000V(4)	23025.0000V(1)	23175.0000V(4)
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PCN Date: 04/20/2011

Job Number 110420COMSSL05

New Path

RCN Number: 11042020

Administrative Information

CA-SFO0338A CA
City/County Fremont/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQND385
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0349B CA

Fremont/Alameda
Engineering Proposal / PRIMARY OPERATION
WQML507
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °34' 16.6" N	37 °33' 40.0" N
Longitude (NAD 83)	122 °1' 49.3" W	122 °0' 50.4" W
Ground Elevation (m/ft-AMSL)	11.60 / 38.1	16.10 / 52.8
Antenna Structure Registration #		
Path Azimuth (°)	127.972	307.982
Path Length (km / miles)	1.834 / 1.139	

Transmit Antenna

80014A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.11	35.3 / 3.00 / 0.10
Centerline (m / ft - AGL) 19.20 / 63.0	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

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) -38.5	-38.5
EIRP (dBm) 50.8	50.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 124.6	

Transmit Frequencies (MHz)	23075.0000H(2)	23225.0000H(5)	21875.0000H(2)	22025.0000H(5)
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PCN Date: 04/20/2011

Job Number 110420COMSSL05

New Path

RCN Number: 11042020

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-SFO0286A CA

Hayward/Alameda
Engineering Proposal / PRIMARY OPERATION
WQLY217
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 41' 34.8" N	37 ° 39' 25.7" N
Longitude (NAD 83)	122 ° 5' 38.4" W	122 ° 5' 40.4" W
Ground Elevation (m/ft-AMSL)	87.10 / 285.8	22.20 / 72.8
Antenna Structure Registration #		
Path Azimuth (°)	180.706	0.705
Path Length (km / miles)	3.981 / 2.473	

Transmit Antenna

87205A	80014A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-23B	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.94	35.3 / 3.00 / 0.91
Centerline (m / ft - AGL) 22.25 / 73.0	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

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) 18.5	18.5
Received Level (dBm) -37.1	-37.1
EIRP (dBm) 59.0	53.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 131.4	

Transmit Frequencies (MHz) 23075.0000H(2)

21875.0000H(2)

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Job Number 110420COMSSL05

New Path

RCN Number: 11042020

Administrative Information

CA-SFO0565A CA
City/County /Contra Costa
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY441
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0585A CA

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 FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 44' 20.0" N	37 ° 41' 34.8" N
Longitude (NAD 83)	121 ° 59' 42.5" W	122 ° 5' 38.4" W
Ground Elevation (m/ft-AMSL)	562.40 / 1845.1	87.10 / 285.8
Antenna Structure Registration #	1222544	
Path Azimuth (°)	239.732	59.671
Path Length (km / miles)		10.096 / 6.273

Transmit Antenna

70709A	77083A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP800-11C	VHLP2-11A
Gain(dBi) / Beamwidth(°) / Tilt(°) 37.4 / 2.10 / -2.74	34.4 / 3.30 / 2.68
Centerline (m / ft - AGL) 24.99 / 82.0	22.25 / 73.0

Receive Antenna

Same As Transmit

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

Diversity Receive Antenna

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

Radio Information

TEM028	TEM028
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 11HD40HFC212V02	11HD40HFC212V02
Model Description 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) -45.7	-45.7
EIRP (dBm) 53.4	50.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 133.5	

Transmit Frequencies (MHz)	11225.0000H(1)	11305.0000H(3)	10735.0000H(1)	10815.0000H(3)
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Job Number 110420COMSSL05

New Path

RCN Number: 11042020

Administrative Information

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 MG -- Microwave Industrial/Business Pool

CA-SFO0314A CA

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 FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °37' 11.6" N	37 °36' 28.6" N
Longitude (NAD 83)	122 °5' 56.4" W	122 °2' 24.2" W
Ground Elevation (m/ft-AMSL)	3.40 / 11.2	15.30 / 50.2
Antenna Structure Registration #		
Path Azimuth (°)	104.273	284.309
Path Length (km / miles)	5.370 / 3.337	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 0.23	38.9 / 2.10 / -0.27
Centerline (m / ft - AGL) 21.34 / 70.0	32.61 / 107.0

Receive Antenna

Same As Transmit

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

Diversity Receive Antenna

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

Radio Information

TEM090	TEM090
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC215V02	18HD50HFC215V02
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) -36.2	-36.2
EIRP (dBm) 57.4	57.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 132.5	

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