

Microwave Path Data Sheet

Page 1 of 6

COMSEARCH

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

PCN Date: 12/10/2010

Job Number: 101210COMSSL01

New Path

RCN Number: 10121001

Administrative Information

CA-SFO0942A CA
City/County 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 MG -- Microwave Industrial/Business Pool

CA-SFO0263A CA

San Leandro/Alameda
Engineering Proposal / PRIMARY OPERATION
WQLY403
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 40' 58.5" N	37 ° 42' 12.3" N
Longitude (NAD 83)	122 ° 5' 48.8" W	122 ° 8' 26.6" W
Ground Elevation (m/ft-AMSL)	25.10 / 82.3	12.80 / 42.0
Antenna Structure Registration #		
Path Azimuth (°)	300.492	120.465
Path Length (km / miles)	4.486 / 2.787	

Transmit Antenna

87204A	87204A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2-18B
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 0.19	38.9 / 2.10 / -0.22
Centerline (m / ft - AGL) 10.36 / 34.0	39.01 / 128.0

Receive Antenna

Same As 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) -36.1	-36.1
EIRP (dBm) 55.9	55.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 130.9	

Transmit Frequencies (MHz)	17965.0000V(5)	18065.0000V(7)	19525.0000V(5)	19625.0000V(7)
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Page 2 of 6

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PCN Date: 12/10/2010

Job Number 101210COMSSL01

New Path

RCN Number: 10121001

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-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 °39' 19.3" N	37 °37' 11.6" N
Longitude (NAD 83)	122 °3' 25.5" W	122 °5' 56.4" W
Ground Elevation (m/ft-AMSL)	153.60 / 503.9	3.40 / 11.2
Antenna Structure Registration #		
Path Azimuth (°)	223.233	43.207
Path Length (km / miles)	5.403 / 3.357	

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 / -1.61	38.9 / 2.10 / 1.57
	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

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)	-37.8	-37.8
EIRP (dBm)	55.9	55.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		132.6

Transmit Frequencies (MHz)	19375.0000H(2)	19475.0000H(4)	17815.0000H(2)	17915.0000H(4)
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Page 3 of 6

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PCN Date: 12/10/2010

Job Number 101210COMSSL01

New Path

RCN Number: 10121001

Administrative Information

CA-SFO0267A CA
City/County San Leandro/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY406
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0004D CA

Hayward/Alameda
Engineering Proposal / PRIMARY OPERATION
WQLX848
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 2.4" N	37 ° 39' 19.3" N
Longitude (NAD 83)	122 ° 7' 49.7" W	122 ° 3' 25.5" W
Ground Elevation (m/ft-AMSL)	10.30 / 33.8	153.60 / 503.9
Antenna Structure Registration #		
Path Azimuth (°)	127.815	307.860
Path Length (km / miles)	8.197 / 5.094	

Transmit Antenna

87204A	87204A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2-18B	VHLP2-18B
38.9 / 2.10 / 0.97	38.9 / 2.10 / -1.03
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

TEMQ59	TEMQ59
DRAGONWAVE INC	DRAGONWAVE INC
18HD50HFC171V02	18HD50HFC171V02
HORIZON DUO	HORIZON DUO
45M8D7W 32 QAM	45M8D7W 32 QAM
1 CH DIG 171000.000	1 CH DIG 171000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
20.0	20.0
-38.4	-38.4
58.9	58.9
0.0 / 0.0	0.0 / 0.0
136.2	

Transmit Frequencies (MHz)

17965.0000V(5)	18065.0000V(7)	19525.0000V(5)	19625.0000V(7)
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Page 4 of 6

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PCN Date: 12/10/2010

Job Number 101210COMSSL01

New Path

RCN Number: 10121001

Administrative Information

CA-SFO0319A 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-SFO0583A CA

/Alameda
Engineering Proposal / PRIMARY OPERATION
WQMM939
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °35' 56.4" N	37 °29' 57.8" N
Longitude (NAD 83)	122 °0' 32.4" W	121 °52' 21.3" W
Ground Elevation (m/ft-AMSL)	30.08 / 98.7	789.90 / 2591.5
Antenna Structure Registration #		
Path Azimuth (°)	132.483	312.566
Path Length (km / miles)	16.357 / 10.164	

Transmit Antenna

87204A	87059A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2.5-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 2.58	41.0 / 1.50 / -2.69
Centerline (m / ft - AGL) 26.21 / 86.0	19.81 / 65.0

Receive Antenna

Same As Transmit

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

Diversity Receive Antenna

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

Radio Information

TEMT75	TEMT75
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HS40HFC057V02	18HS40HFC057V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 36M2D7W QPSK	36M2D7W QPSK
Loading 1 CH DIG 57000.000	1 CH DIG 57000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 23.0	23.0
Received Level (dBm) -43.3	-39.3
EIRP (dBm) 61.9	60.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	4.0 / 0.0
Free Space Loss (dB) 142.2	

Transmit Frequencies (MHz) 17920.0000V(6)

19480.0000V(6)

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Page 5 of 6

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PCN Date: 12/10/2010

Job Number 101210COMSSL01

New Path

RCN Number: 10121001

Administrative Information

CA-SJC0174C CA
City/County San Jose/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQMM302
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0166D CA

City/County Campbell/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQMA224
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °16' 15.2" N	37 °17' 18.7" N
Longitude (NAD 83)	121 °55' 4.8" W	121 °56' 5.8" W
Ground Elevation (m/ft-AMSL)	56.40 / 185.0	59.40 / 194.9
Antenna Structure Registration #		1204443
Path Azimuth (°)	322.494	142.484
Path Length (km / miles)		2.468 / 1.533

Transmit Antenna

80014A	87205A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP2-23B
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 1.29	40.5 / 1.70 / -1.30
Centerline (m / ft - AGL) 13.72 / 45.0	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) -42.9	-42.9
EIRP (dBm) 43.8	49.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 127.2	

Transmit Frequencies (MHz)	22175.0000V(8)	22325.0000V(11)	23375.0000V(8)	23525.0000V(11)
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Page 6 of 6

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PCN Date: 12/10/2010

Job Number 101210COMSSL01

New Path

RCN Number: 10121001

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-SFO0593A CA

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

Site Information

Latitude (NAD 83)	37 ° 41' 34.8" N	37 ° 40' 24.4" N
Longitude (NAD 83)	122 ° 5' 38.4" W	122 ° 5' 42.2" W
Ground Elevation (m/ft-AMSL)	87.10 / 285.8	25.30 / 83.0
Antenna Structure Registration #		1269724
Path Azimuth (°)	182.457	2.456
Path Length (km / miles)	2.172 / 1.350	

Transmit Antenna

80014A	80014A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP1-23A	VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -1.78	35.3 / 3.00 / 1.77
Centerline (m / ft - AGL) 22.25 / 73.0	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

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) 15.0	15.0
Received Level (dBm) -40.5	-40.5
EIRP (dBm) 50.3	50.3
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 126.1	

Transmit Frequencies (MHz)	22175.0000V(8)	22275.0000V(10)	23375.0000V(8)	23475.0000V(10)
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