

Microwave Path Data Sheet

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COMSEARCH

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

PCN Date: 09/06/2011

Job Number: 110906COMSSL02

New Path

RCN Number: 11090633

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-SFO0612A CA

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

Site Information

Latitude (NAD 83)	37 ° 42' 12.3" N	37 ° 39' 19.7" N
Longitude (NAD 83)	122 ° 8' 26.6" W	122 ° 0' 10.2" W
Ground Elevation (m/ft-AMSL)	12.80 / 42.0	451.89 / 1482.6
Antenna Structure Registration #		
Path Azimuth (°)	113.586	293.671
Path Length (km / miles)	13.277 / 8.250	

Transmit Antenna

77041A	79013R
Manufacturer ANDREW CORPORATION	RADIO WAVES, INC
Model VHLP2.5-11	HP6-11
Gain(dBi) / Beamwidth(°) / Tilt(°) 37.5 / 2.10 / 1.82	43.4 / 1.10 / -1.90
Centerline (m / ft - AGL) 23.16 / 76.0	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

TEM016	TEM016
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 11HD40HFC277V02	11HD40HFC277V02
Model Description 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) 53.0	58.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 135.9	

Transmit Frequencies (MHz)	11225.0000H(1)	11345.0000H(4)	10735.0000H(1)	10855.0000H(4)
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PCN Date: 09/06/2011

Job Number 110906COMSSL02

New Path

RCN Number: 11090633

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-SFO0612A CA

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

Site Information

Latitude (NAD 83)	37 °34' 16.6" N	37 °39' 19.7" N
Longitude (NAD 83)	122 °1' 49.3" W	122 °0' 10.2" W
Ground Elevation (m/ft-AMSL)	11.60 / 38.1	451.89 / 1482.6
Antenna Structure Registration #		
Path Azimuth (°)	14.571	194.588
Path Length (km / miles)	9.656 / 6.000	

Transmit Antenna

77083A	77043A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-11A	VHLP4-11B
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 3.30 / 2.56	40.4 / 1.50 / -2.62
Centerline (m / ft - AGL) 18.90 / 62.0	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

TEM016	TEM016
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 11HD40HFC277V02	11HD40HFC277V02
Model Description 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) -42.8	-42.8
EIRP (dBm) 49.9	55.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 133.1	

Transmit Frequencies (MHz)	11265.0000H(2)	11385.0000H(5)	10775.0000H(2)	10895.0000H(5)
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Job Number 110906COMSSL02

New Path

RCN Number: 11090633

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-SFO0612A CA

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

Site Information

Latitude (NAD 83)	37 ° 42' 2.4" N	37 ° 39' 19.7" N
Longitude (NAD 83)	122 ° 7' 49.7" W	122 ° 0' 10.2" W
Ground Elevation (m/ft-AMSL)	10.30 / 33.8	451.89 / 1482.6
Antenna Structure Registration #		
Path Azimuth (°)	113.974	294.052
Path Length (km / miles)	12.326 / 7.659	

Transmit Antenna

87204A	87059A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2.5-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 2.01	41.0 / 1.50 / -2.10
Centerline (m / ft - AGL) 14.33 / 47.0	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

TEMQ64	TEMQ64
Manufacturer DRAGONWAVE INC	DRAGONWAVE INC
Model 18HD50HFC110V02	18HD50HFC110V02
Model Description HORIZON DUO	HORIZON DUO
Emission Designator / Modulation 45M2D7W 16 QAM	45M2D7W 16 QAM
Loading 1 CH DIG 110000.000	1 CH DIG 110000.000
Stability (%) 0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm) 20.5	20.5
Received Level (dBm) -39.3	-39.3
EIRP (dBm) 59.4	61.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 139.7	

Transmit Frequencies (MHz)	18015.0000H(6)	18115.0000H(8)	19575.0000H(6)	19675.0000H(8)
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Job Number 110906COMSSL02

New Path

RCN Number: 11090633

Administrative Information

CA-SFO0945A CA
City/County Hayward/Alameda
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQND405
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0612A 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 ° 40' 32.9" N	37 ° 39' 19.7" N
Longitude (NAD 83)	122 ° 5' 2.2" W	122 ° 0' 10.2" W
Ground Elevation (m/ft-AMSL)	38.40 / 126.0	451.89 / 1482.6
Antenna Structure Registration #		
Path Azimuth (°)	107.478	287.528
Path Length (km / miles)	7.504 / 4.663	

Transmit Antenna

87205A	87066A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2.5-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / 3.06	43.0 / 1.20 / -3.11
Centerline (m / ft - AGL) 24.69 / 81.0	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

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) -33.4	-33.4
EIRP (dBm) 60.5	63.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 136.9	

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