

Microwave Path Data Sheet

Page 1 of 5

COMSEARCH

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

PCN Date: 01/05/2011

Job Number: 110105COMSSL04

New Path

RCN Number: 11010504

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-SFO0168A CA

Alameda/Alameda
Engineering Proposal / PRIMARY OPERATION
WQLY341
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 48' 41.4" N	37 ° 47' 22.4" N
Longitude (NAD 83)	122 ° 11' 51.0" W	122 ° 16' 31.5" W
Ground Elevation (m/ft-AMSL)	210.45 / 690.5	2.30 / 7.5
Antenna Structure Registration #		
Path Azimuth (°)	250.482	70.434
Path Length (km / miles)	7.282 / 4.525	

Transmit Antenna

80014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -1.64
Centerline (m / ft - AGL) 17.22 / 56.5

87205A
ANDREW CORPORATION
VHLP2-23B
40.5 / 1.70 / 1.59
20.27 / 66.5

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

TEMQ53	TEMQ53
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC110V02	23HD50HFC110V02
HORIZON DUO	HORIZON DUO
45M2D7W 16 QAM	45M2D7W 16 QAM
1 CH DIG 110000.000	1 CH DIG 110000.000
0.001	0.001
Nominal Coordinated Maximum	Nominal Coordinated Maximum
20.5	20.5
-40.3	-40.3
55.8	61.0
0.0 / 0.0	0.0 / 0.0
136.6	

Transmit Frequencies (MHz) 22225.0000H(9) 22375.0000H(12) 23425.0000H(9) 23575.0000H(12)

Microwave Path Data Sheet

Page 2 of 5

COMSEARCH

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

PCN Date: 01/05/2011

Job Number 110105COMSSL04

New Path

RCN Number: 11010504

Administrative Information

CA-SJC0045B CA
City/County Milpitas/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQLY446
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 °24' 11.0" N	37 °25' 21.6" N
Longitude (NAD 83)	121 °54' 41.0" W	121 °55' 8.8" W
Ground Elevation (m/ft-AMSL)	11.00 / 36.1	6.90 / 22.6
Antenna Structure Registration #		
Path Azimuth (°)	342.565	162.561
Path Length (km / miles)	2.281 / 1.418	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 0.13	40.2 / 1.70 / -0.14
Centerline (m / ft - AGL) 31.70 / 104.0	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) -38.6	-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)	23025.0000H(1)	23125.0000H(3)	21825.0000H(1)	21925.0000H(3)
-----------------------------------	----------------	----------------	----------------	----------------

Microwave Path Data Sheet

Page 3 of 5

COMSEARCH

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

PCN Date: 01/05/2011
Job Number 110105COMSSL04

Prev Job Num: 100713COMSSL01
RCN Number: 11010504

Administrative Information	CA-SJC0152B CA	CA-SFO0432C CA
City/County	San Jose/Santa Clara	San Jose/Santa Clara
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQLY447	WQLY752
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 °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

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

Manufacturer	TEMQ48	TEMQ48
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC322V02	23HD50HFC322V02
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)	15.0	15.0
Received Level (dBm)	-32.4	-32.4
EIRP (dBm)	55.2	55.2
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)

Microwave Path Data Sheet

Page 4 of 5

COMSEARCH

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

PCN Date: 01/05/2011

Job Number 110105COMSSL04

New Path

RCN Number: 11010504

Administrative Information

CA-SJC0031A CA
City/County Milpitas/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQKU521
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0066B CA

Santa Clara/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY524
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °25' 21.6" N	37 °24' 18.4" N
Longitude (NAD 83)	121 °55' 8.8" W	121 °58' 35.0" W
Ground Elevation (m/ft-AMSL)	6.90 / 22.6	3.90 / 12.8
Antenna Structure Registration #		
Path Azimuth (°)	248.998	68.963
Path Length (km / miles)	5.432 / 3.375	

Transmit Antenna

77041A	77041A
ANDREW CORPORATION	ANDREW CORPORATION
VHLP2.5-11	VHLP2.5-11
Gain(dBi) / Beamwidth(°) / Tilt(°) 37.5 / 2.10 / 0.18	37.5 / 2.10 / -0.21
Centerline (m / ft - AGL) 41.15 / 135.0	62.79 / 206.0

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) -37.7	-37.7
EIRP (dBm) 53.0	53.0
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.2	

Transmit Frequencies (MHz)	11505.0000H(8)	11585.0000H(10)	11015.0000H(8)	11095.0000H(10)
-----------------------------------	----------------	-----------------	----------------	-----------------

Microwave Path Data Sheet

Page 5 of 5

COMSEARCH

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

PCN Date: 01/05/2011

Job Number 110105COMSSL04

New Path

RCN Number: 11010504

Administrative Information

CA-SFO0154 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-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 FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 47' 47.0" N	37 ° 44' 49.2" N
Longitude (NAD 83)	122 ° 10' 58.8" W	122 ° 12' 13.9" W
Ground Elevation (m/ft-AMSL)	130.92 / 429.5	2.30 / 7.5
Antenna Structure Registration #		
Path Azimuth (°)	198.542	18.529
Path Length (km / miles)	5.782 / 3.593	

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 / 1.25
Centerline (m / ft - AGL) 50.29 / 165.0	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

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) -36.8	-36.8
EIRP (dBm) 57.4	57.4
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 133.1	

Transmit Frequencies (MHz)	17815.0000H(2)	17915.0000H(4)	19375.0000H(2)	19475.0000H(4)
-----------------------------------	----------------	----------------	----------------	----------------