

Microwave Path Data Sheet

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COMSEARCH19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(858)232-4372 www.comsearch.comPCN Date: 10/07/2010
Job Number: 101007COMSSL02Prev Job Num: 100916COMSSL07
RCN Number: 10100705**Administrative Information****CA-SJC0079D CA**
City/County Sunnyvale/Santa Clara
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-SJC0292A CA**Palo Alto/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQMM802
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed**Site Information**

Latitude (NAD 83)	37 °21' 9.0" N	37 °19' 7.5" N
Longitude (NAD 83)	122 °3' 36.2" W	122 °8' 49.9" W
Ground Elevation (m/ft-AMSL)	62.80 / 206.0	853.60 / 2800.5
Antenna Structure Registration #		
Path Azimuth (°)	244.150	64.097
Path Length (km / miles)	8.583 / 5.333	

Transmit Antenna

Manufacturer	77091A	77091A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP800-11A	VHLP800-11A
Centerline (m / ft - AGL)	37.4 / 2.20 / 5.15	37.4 / 2.20 / -5.21
	19.81 / 65.0	7.62 / 25.0

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	TEMT74	TEMT74
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HS40HFC277V02	11HS40HFC277V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	36M7D7W 256 QAM	36M7D7W 256 QAM
Stability (%)	1 CH DIG 277000.000	1 CH DIG 277000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	19.5	19.5
Received Level (dBm)	-41.6	-41.6
EIRP (dBm)	55.0	55.0
Fixed Loss: Tx / Common (dB)	0.0 / 1.9	0.0 / 1.9
Free Space Loss (dB)		132.1

Transmit Frequencies (MHz) 11625.0000H(11)

11135.0000H(11)

Microwave Path Data Sheet

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COMSEARCH

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

PCN Date: 10/07/2010
Job Number 101007COMSSL02

Prev Job Num: 100713COMSSL01
RCN Number: 10100705

Administrative Information

CA-SFO0897A CA
City/County Daly City/San Mateo
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-SFO0935A CA

City/County South San Francisco/San Mateo
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 °39' 5.4" N	37 °39' 8.6" N
Longitude (NAD 83)	122 °27' 8.8" W	122 °26' 12.2" W
Ground Elevation (m/ft-AMSL)	100.90 / 331.0	27.20 / 89.2
Antenna Structure Registration #		
Path Azimuth (°)	85.928	265.937
Path Length (km / miles)	1.391 / 0.864	

Transmit Antenna

Manufacturer	99141R	99141R
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HPCPE-23	HPCPE-23
Centerline (m / ft - AGL)	34.4 / 2.90 / -2.25	34.4 / 2.90 / 2.24
	10.67 / 35.0	29.87 / 98.0

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	TEMO20	TEMO20
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50SFC371V02	23HD50SFC371V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	49M2D7W 256 QAM	49M2D7W 256 QAM
Stability (%)	1 CH DIG 371000.000	1 CH DIG 371000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	5.5	5.5
Received Level (dBm)	-47.9	-47.9
EIRP (dBm)	39.9	39.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	122.2	

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 10/07/2010

Job Number 101007COMSSL02

New Path

RCN Number: 10100705

Administrative Information

CA-SFO0700A CA
City/County San Francisco/San Francisco
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-SFO0558A CA

San Francisco/San Francisco
Engineering Proposal / PRIMARY OPERATION
WQMM500
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 47' 16.3" N	37 ° 47' 35.0" N
Longitude (NAD 83)	122 ° 25' 17.0" W	122 ° 23' 53.0" W
Ground Elevation (m/ft-AMSL)	52.50 / 172.2	3.00 / 9.8
Antenna Structure Registration #		
Path Azimuth (°)	74.323	254.337
Path Length (km / miles)	2.135 / 1.326	

Transmit Antenna

99141R	99141R
Manufacturer RADIO WAVES, INC	RADIO WAVES, INC
Model HPCPE-23	HPCPE-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 34.4 / 2.90 / 3.03	34.4 / 2.90 / -3.04
Centerline (m / ft - AGL) 23.77 / 78.0	186.54 / 612.0

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) -41.6	-41.6
EIRP (dBm) 49.9	49.9
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 125.9	

Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2)	23225.0000H(5)
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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: 10/07/2010

Job Number 101007COMSSL02

New Path

RCN Number: 10100705

Administrative Information

CA-SJC0026A CA
City/County Cupertino/Santa Clara
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-SJC0032C CA

Santa Clara/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQKU523
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °20' 6.8" N	37 °23' 13.1" N
Longitude (NAD 83)	122 °2' 0.1" W	121 °58' 0.9" W
Ground Elevation (m/ft-AMSL)	65.90 / 216.2	7.01 / 23.0
Antenna Structure Registration #		
Path Azimuth (°)	45.683	225.724
Path Length (km / miles)	8.224 / 5.110	

Transmit Antenna

RD1150	RD1150
RADIO WAVES, INC	RADIO WAVES, INC
HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / -0.15	40.2 / 1.70 / 0.09
Centerline (m / ft - AGL) 14.94 / 49.0	56.69 / 186.0

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

TEMU02	TEMU02
DRAGONWAVE INC	DRAGONWAVE INC
23HS50HFC110V01	23HS50HFC110V01
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) 24.5	24.5
Received Level (dBm) -32.8	-32.8
EIRP (dBm) 64.7	64.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 137.7	

Transmit Frequencies (MHz) 23325.0000H(7)

22125.0000H(7)

Microwave Path Data Sheet

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 10/07/2010

Job Number 101007COMSSL02

New Path

RCN Number: 10100705

Administrative Information

CA-SJC0286A CA
City/County Palo Alto/Santa Clara
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-SJC0115B CA

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

Site Information

Latitude (NAD 83)	37 °26' 26.4" N	37 °25' 15.0" N
Longitude (NAD 83)	122 °9' 45.8" W	122 °8' 28.5" W
Ground Elevation (m/ft-AMSL)	17.90 / 58.7	12.10 / 39.7
Antenna Structure Registration #		
Path Azimuth (°)	139.187	319.201
Path Length (km / miles)	2.908 / 1.807	

Transmit Antenna

87205A	87066A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-23B	VHLP2.5-23A
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.5 / 1.70 / -0.12	43.0 / 1.20 / 0.10
Centerline (m / ft - AGL) 60.96 / 200.0	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

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) 10.5	10.5
Received Level (dBm) -34.6	-34.6
EIRP (dBm) 51.0	53.5
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 128.6	

Transmit Frequencies (MHz)	22125.0000V(7)	22225.0000V(9)	23325.0000V(7)	23425.0000V(9)
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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 10/07/2010

Job Number 101007COMSSL02

New Path

RCN Number: 10100705

Administrative Information

CA-SJC0057B CA
City/County Sunnyvale/Santa Clara
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-SFO0433C CA

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

Site Information

Latitude (NAD 83)	37 °19' 50.2" N	37 °17' 58.4" N
Longitude (NAD 83)	122 °3' 8.5" W	122 °3' 42.9" W
Ground Elevation (m/ft-AMSL)	87.30 / 286.4	250.20 / 820.9
Antenna Structure Registration #		
Path Azimuth (°)	193.810	13.804
Path Length (km / miles)	3.549 / 2.205	

Transmit Antenna

RD1150	RD1150
MANUFACTURER RADIO WAVES, INC	RADIO WAVES, INC
Model HP2-23	HP2-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 40.2 / 1.70 / 2.90	40.2 / 1.70 / -2.92
Centerline (m / ft - AGL) 15.24 / 50.0	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

TEMQ48	TEMQ48
DRAGONWAVE INC	DRAGONWAVE INC
23HD50HFC322V02	23HD50HFC322V02
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) 16.5	16.5
Received Level (dBm) -33.5	-33.5
EIRP (dBm) 56.7	56.7
Fixed Loss: Tx / Common (dB) 0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB) 130.4	

Transmit Frequencies (MHz)	21825.0000H(1)	21925.0000H(3)	23025.0000H(1)	23125.0000H(3)
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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 10/07/2010
Job Number 101007COMSSL02

Prev Job Num: 100916COMSSL07
RCN Number: 10100705

Administrative Information

CA-SFO0935A CA
City/County South San Francisco/San Mateo
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-SFO0304A CA

San Bruno/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY331
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °39' 8.6" N	37 °37' 41.5" N
Longitude (NAD 83)	122 °26' 12.2" W	122 °25' 30.7" W
Ground Elevation (m/ft-AMSL)	27.20 / 89.2	34.90 / 114.5
Antenna Structure Registration #		
Path Azimuth (°)	159.245	339.252
Path Length (km / miles)	2.872 / 1.784	

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
	HP2-18	HP2-18
Gain(dBi) / Beamwidth(°) / Tilt(°)	38.6 / 2.00 / 0.10	38.6 / 2.00 / -0.12
Centerline (m / ft - AGL)	29.87 / 98.0	27.58 / 90.5

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

Manufacturer	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	15.5	15.5
Received Level (dBm)	-34.4	-34.4
EIRP (dBm)	54.1	54.1
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		127.1

Transmit Frequencies (MHz)	19525.0000H(5)	19675.0000H(8)	17965.0000H(5)	18115.0000H(8)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 10/07/2010
Job Number 101007COMSSL02

Prev Job Num: 100916COMSSL07
RCN Number: 10100705

Administrative Information

CA-SJC0292A CA
City/County Palo Alto/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQMM802
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0069B CA

Mountain View/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQLY501
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °19' 7.5" N	37 °22' 10.4" N
Longitude (NAD 83)	122 °8' 49.9" W	122 °4' 48.2" W
Ground Elevation (m/ft-AMSL)	853.60 / 2800.5	47.20 / 154.9
Antenna Structure Registration #		
Path Azimuth (°)	46.515	226.555
Path Length (km / miles)	8.197 / 5.093	

Transmit Antenna

Manufacturer	RB2160	RB2160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP4-18	HP4-18
Centerline (m / ft - AGL)	44.5 / 1.00 / -5.55	44.5 / 1.00 / 5.49
	13.72 / 45.0	28.04 / 92.0

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	<u>TEMT91</u>			<u>TEMT91</u>		
Model	DRAGONWAVE INC			DRAGONWAVE INC		
Model Description	<u>18HS50HFC271V02</u>			<u>18HS50HFC271V02</u>		
Emission Designator / Modulation	<u>HORIZON DUO</u>			<u>HORIZON DUO</u>		
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)		21.0			21.0	
Received Level (dBm)		-26.2			-26.2	
EIRP (dBm)		65.5			65.5	
Fixed Loss: Tx / Common (dB)	0.0 / 0.0			0.0 / 0.0		
Free Space Loss (dB)			136.2			

Transmit Frequencies (MHz) 18015.0000V(6)

19575.0000V(6)

Microwave Path Data Sheet

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COMSEARCH

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

PCN Date: 10/07/2010

Job Number 101007COMSSL02

New Path

RCN Number: 10100705

Administrative Information

CA-SFO0280A CA
City/County Daly City/San Mateo
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQML572
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0554E CA

/San Mateo
Engineering Proposal / PRIMARY OPERATION
WQLY522
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 40' 15.9" N	37 ° 41' 14.5" N
Longitude (NAD 83)	122 ° 29' 21.6" W	122 ° 26' 5.4" W
Ground Elevation (m/ft-AMSL)	199.70 / 655.2	380.10 / 1247.0
Antenna Structure Registration #		1205149
Path Azimuth (°)	69.387	249.421
Path Length (km / miles)		5.136 / 3.191

Transmit Antenna

87204A	87059A
Manufacturer ANDREW CORPORATION	ANDREW CORPORATION
Model VHLP2-18B	VHLP2.5-18
Gain(dBi) / Beamwidth(°) / Tilt(°) 38.9 / 2.10 / 2.27	41.0 / 1.50 / -2.30
Centerline (m / ft - AGL) 16.76 / 55.0	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

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) 15.5	15.5
Received Level (dBm) -38.7	-38.7
EIRP (dBm) 53.4	55.5
Fixed Loss: Tx / Common (dB) 0.0 / 1.0	0.0 / 1.0
Free Space Loss (dB) 132.1	

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

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

PCN Date: 10/07/2010
Job Number 101007COMSSL02

Prev Job Num: 100819COMSSL02
RCN Number: 10100705

Administrative Information	CA-SFO0562A CA	CA-SFO0059A CA
City/County	Walnut Creek/Contra Costa	Pleasant Hill/Contra Costa
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQLY494	WQLX841
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 °54' 31.1" N	37 °56' 44.5" N
Longitude (NAD 83)	122 °3' 59.2" W	122 °3' 38.5" W
Ground Elevation (m/ft-AMSL)	50.80 / 166.7	16.50 / 54.1
Antenna Structure Registration #		
Path Azimuth (°)	7.005	187.009
Path Length (km / miles)	4.144 / 2.575	

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 / -0.83	38.9 / 2.10 / 0.80
	40.23 / 132.0	15.65 / 51.3

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	TEMO32	TEMO32
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)	-35.5	-35.5
EIRP (dBm)	55.9	55.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		130.3

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
(858)232-4372 www.comsearch.com

PCN Date: 10/07/2010
Job Number 101007COMSSL02

Prev Job Num: 100819COMSSL02
RCN Number: 10100705

Administrative Information

CA-SJC0032C CA
City/County Santa Clara/Santa Clara
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQKU523
Licensee Code CLESP3
Licensee Name Clearwire Spectrum Holdings III, LL
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SJC0023B CA

San Jose/Santa Clara
Engineering Proposal / PRIMARY OPERATION
WQKU524
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °23' 13.1" N	37 °24' 25.4" N
Longitude (NAD 83)	121 °58' 0.9" W	121 °55' 34.7" W
Ground Elevation (m/ft-AMSL)	7.01 / 23.0	8.30 / 27.2
Antenna Structure Registration #		
Path Azimuth (°)	58.195	238.220
Path Length (km / miles)	4.231 / 2.629	

Transmit Antenna

Manufacturer	87059A	87059A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2.5-18	VHLP2.5-18
Centerline (m / ft - AGL)	41.0 / 1.50 / -0.50	41.0 / 1.50 / 0.47
	56.69 / 186.0	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

Manufacturer	TEMR29	TEMR29
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC364V02	18HD50HFC364V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	47M1D7W 256 QAM	47M1D7W 256 QAM
Stability (%)	1 CH DIG 364000.000	1 CH DIG 364000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	13.5	13.5
Received Level (dBm)	-34.9	-34.9
EIRP (dBm)	54.5	54.5
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		130.4

Transmit Frequencies (MHz)	18015.0000H(6)	18115.0000H(8)	19575.0000H(6)	19675.0000H(8)
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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: 10/07/2010

Prev Job Num: 100819COMSSL02

Job Number 101007COMSSL02

RCN Number: 10100705

Administrative Information**CA-SFO0193C CA**

City/County Alameda/Alameda
 Status / License Basis Engineering Proposal / PRIMARY OPERATION
 Call Sign WQLY413
 Licensee Code CLESP3
 Licensee Name Clearwire Spectrum Holdings III, LL
 Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-SFO0220C CA

Oakland/Alameda
 Engineering Proposal / PRIMARY OPERATION
 WQLY334
 CLESP3
 Clearwire Spectrum Holdings III, LL
 FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 46' 10.6" N	37 ° 44' 49.2" N
Longitude (NAD 83)	122 ° 14' 13.8" W	122 ° 12' 13.9" W
Ground Elevation (m/ft-AMSL)	4.20 / 13.8	2.30 / 7.5
Antenna Structure Registration #		
Path Azimuth (°)	130.524	310.544
Path Length (km / miles)	3.862 / 2.399	

Transmit Antenna

87204A
 ANDREW CORPORATION
 VHLP2-18B
 38.9 / 2.10 / 0.46
 16.46 / 54.0

87204A
 ANDREW CORPORATION
 VHLP2-18B
 38.9 / 2.10 / -0.49
 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

TEM085
 DRAGONWAVE INC
 18HD50HFC322V02
 HORIZON DUO
 45M8D7W 256 QAM
 1 CH DIG 322000.000
 0.001
 Nominal Coordinated Maximum
17.5
-34.3
56.4

TEM085
 DRAGONWAVE INC
 18HD50HFC322V02
 HORIZON DUO
 45M8D7W 256 QAM
 1 CH DIG 322000.000
 0.001
 Nominal Coordinated Maximum
17.5
-34.3
56.4

Power (dBm)
 Received Level (dBm)
 EIRP (dBm)
 Fixed Loss: Tx / Common (dB) 0.0 / 0.0
 Free Space Loss (dB) 129.6

0.0 / 0.0

Transmit Frequencies (MHz)	18015.0000V(6)	18115.0000V(8)	19575.0000V(6)	19675.0000V(8)
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