

Microwave Path Data Sheet

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COMSEARCH

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

PCN Date: 03/18/2011

Prev Job Num: 100326COMSSL01

Job Number: 110318COMSSL03

RCN Number: 11031802

Administrative Information

CA-MOD117A CA
City/County Escalon/San Joaquin
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-MOD100A CA

/San Joaquin
Engineering Proposal / PRIMARY OPERATION
WQMD242
CLESP3
Clearwire Spectrum Holdings III, LL
FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 47' 34.5" N	37 ° 45' 35.5" N
Longitude (NAD 83)	120 ° 59' 34.1" W	120 ° 59' 54.8" W
Ground Elevation (m/ft-AMSL)	36.70 / 120.4	35.90 / 117.8
Antenna Structure Registration #		
Path Azimuth (°)	187.863	7.859
Path Length (km / miles)	3.704 / 2.301	

Transmit Antenna

Manufacturer	RB1160	RB1160
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP2-18	HP2-18
Centerline (m / ft - AGL)	38.6 / 2.00 / 0.15	38.6 / 2.00 / -0.17
	15.54 / 51.0	26.82 / 88.0

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>TEMT85</u>			<u>TEMT85</u>		
Model	DRAGONWAVE INC			DRAGONWAVE INC		
Model Description	<u>18HS40SFC200V02</u>			<u>18HS40SFC200V02</u>		
Emission Designator / Modulation	<u>HORIZON DUO</u>			<u>HORIZON DUO</u>		
Loading	<u>36M3D7W</u>	<u>128 QAM</u>		<u>36M3D7W</u>	<u>128 QAM</u>	
Stability (%)	1 CH	DIG	200000.000	1 CH	DIG	200000.000
	0.001			0.001		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		<u>10.0</u>			<u>10.0</u>	
Received Level (dBm)		<u>-42.1</u>			<u>-42.1</u>	
EIRP (dBm)		<u>48.6</u>			<u>48.6</u>	
Fixed Loss: Tx / Common (dB)	0.0 / 0.0			0.0 / 0.0		
Free Space Loss (dB)	129.3					

Transmit Frequencies (MHz) 17800.0000V(3)

19360.0000V(3)

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PCN Date: 03/18/2011
Job Number 110318COMSSL03

Prev Job Num: 100326COMSSL01
RCN Number: 11031802

Administrative Information	CA-MOD095A CA	CA-MOD096B CA
City/County	Turlock/Stanislaus	Turlock/Stanislaus
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQGX681	
Licensee Code	FIXWIR	CLESP3
Licensee Name	Fixed Wireless Holdings, LLC	Clearwire Spectrum Holdings III, LL
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °29' 16.4" N	37 °30' 10.1" N
Longitude (NAD 83)	120 °50' 43.7" W	120 °51' 10.1" W
Ground Elevation (m/ft-AMSL)	30.40 / 99.7	31.50 / 103.3
Antenna Structure Registration #		
Path Azimuth (°)	338.612	158.607
Path Length (km / miles)	1.778 / 1.105	

Transmit Antenna

Manufacturer	<u>99141R</u> RADIO WAVES, INC	<u>99141R</u> RADIO WAVES, INC
Model	<u>HPCPE-23</u>	<u>HPCPE-23</u>
Gain(dBi) / Beamwidth(°) / Tilt(°)	<u>34.4</u> / <u>2.90</u> / -1.18	<u>34.4</u> / <u>2.90</u> / 1.17
Centerline (m / ft - AGL)	52.73 / 173.0	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

Manufacturer	<u>TEMY82</u> DRAGONWAVE INC	<u>TEMY82</u> DRAGONWAVE INC
Model	<u>23HS40SFC200V02</u>	<u>23HS40SFC200V02</u>
Model Description	<u>HORIZON DUO</u>	<u>HORIZON DUO</u>
Emission Designator / Modulation	<u>36M3D7W</u> <u>128 QAM</u>	<u>36M3D7W</u> <u>128 QAM</u>
Loading	1 CH DIG 200000.000	1 CH DIG 200000.000
Stability (%)	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	<u>10.0</u>	<u>10.0</u>
Received Level (dBm)	<u>-45.6</u>	<u>-45.6</u>
EIRP (dBm)	<u>44.4</u>	<u>44.4</u>
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		124.4

Transmit Frequencies (MHz) 21870.0000V(2) 23070.0000V(2)

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 03/18/2011
Job Number 110318COMSSL03

Prev Job Num: 100326COMSSL01
RCN Number: 11031802

Administrative Information

CA-STK046A CA
City/County Stockton/San Joaquin
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQCY642
Licensee Code FIXWIR
Licensee Name Fixed Wireless Holdings, LLC
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-STK055A CA

City/County Stockton/San Joaquin
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQCY643
Licensee Code FIXWIR
Licensee Name Fixed Wireless Holdings, LLC
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °56' <u>52.5</u> " N	37 °57' <u>0.0</u> " N
Longitude (NAD 83)	121 °18' <u>22.9</u> " W	121 °20' <u>53.7</u> " W
Ground Elevation (m/ft-AMSL)	<u>3.00</u> / <u>9.8</u>	<u>1.50</u> / <u>4.9</u>
Antenna Structure Registration #		
Path Azimuth (°)	<u>273.607</u>	<u>93.581</u>
Path Length (km / miles)		<u>3.689</u> / <u>2.292</u>

Transmit Antenna

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / -0.32
Centerline (m / ft - AGL) 57.91 / 190.0

87014A
Manufacturer ANDREW CORPORATION
Model VHLP1-23
Gain(dBi) / Beamwidth(°) / Tilt(°) 35.3 / 3.00 / 0.29
Centerline (m / ft - AGL) 39.62 / 130.0

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
Manufacturer DRAGONWAVE INC
Model 23HD50HFC215V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM
Loading 1 CH DIG 215000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 18.5
Received Level (dBm) -41.6
EIRP (dBm) 53.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0
Free Space Loss (dB) 130.7

TEMQ54
Manufacturer DRAGONWAVE INC
Model 23HD50HFC215V02
Model Description HORIZON DUO
Emission Designator / Modulation 45M8D7W 64 QAM
Loading 1 CH DIG 215000.000
Stability (%) 0.001
Nominal Coordinated Maximum
Power (dBm) 18.5
Received Level (dBm) -41.6
EIRP (dBm) 53.8
Fixed Loss: Tx / Common (dB) 0.0 / 0.0

Transmit Frequencies (MHz)	21875.0000V(2)	22025.0000V(5)	23075.0000V(2)	23225.0000V(5)
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PCN Date: 03/18/2011
Job Number 110318COMSSL03

Prev Job Num: 100326COMSSL01
RCN Number: 11031802

Administrative Information

CA-STK049A CA
City/County Stockton/San Joaquin
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQCZ745
Licensee Code FIXWIR
Licensee Name Fixed Wireless Holdings, LLC
Radio Service / Station Class MG -- Microwave Industrial/Business Pool

CA-STK999A CA

City/County Stockton/San Joaquin
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign WQCZ747
Licensee Code FIXWIR
Licensee Name Fixed Wireless Holdings, LLC
Radio Service / Station Class FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °59' 45.2" N	37 °59' <u>30.0</u> " N
Longitude (NAD 83)	121 °19' 58.1" W	121 °17' <u>21.0</u> " W
Ground Elevation (m/ft-AMSL)	2.00 / 6.6	5.80 / 19.0
Antenna Structure Registration #		<u>1016801</u>
Path Azimuth (°)	<u>96.957</u>	<u>276.984</u>
Path Length (km / miles)		<u>3.862</u> / <u>2.400</u>

Transmit Antenna

Manufacturer	87014A	87014A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP1-23	VHLP1-23
Centerline (m / ft - AGL)	35.3 / 3.00 / <u>0.62</u>	35.3 / 3.00 / <u>-0.65</u>
	17.37 / 57.0	56.39 / 185.0

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	TEMQ54	TEMQ54
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC215V02	23HD50HFC215V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 64 QAM	45M8D7W 64 QAM
Stability (%)	1 CH DIG 215000.000	1 CH DIG 215000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	18.5	18.5
Received Level (dBm)	<u>-42.0</u>	<u>-42.0</u>
EIRP (dBm)	53.8	53.8
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		<u>131.1</u>

Transmit Frequencies (MHz)	21975.0000V(4)	22075.0000V(6)	23175.0000V(4)	23275.0000V(6)
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