

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5824 www.comsearch.com

PCN Date: 04/01/2010

Job Number: 091001COMSTI02

Administrative Information		CA-MOD113A CA	CA-MOD041B CA
City/County		/Stanislaus	Modesto/Stanislaus
Status / License Basis		Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign			WQCY649
Licensee Code		CLESP3	CLESP2
Licensee Name		Clearwire Spectrum Holdings III, LL	Clearwire Spectrum Holdings II, LLC
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool	FXO -- Fixed
Site Information			
Latitude (NAD 83)		37 °38' 47.9~ N	37 °38' 30.0~ N
Longitude (NAD 83)		120 °46' 25.4~ W	121 °0' 11.0~ W
Ground Elevation (m/ft-AMSL)		49.50 / 162.4	26.20 / 86.0
Antenna Structure Registration #			
Path Azimuth (°)		268.508	88.368
Path Length (km / miles)		20.247 / 12.581	
Transmit Antenna			
Manufacturer		71906D	71906D
Model		DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)		A-ANT-11G-2.5-C	A-ANT-11G-2.5-C
Centerline (m / ft - AGL)		37.5 / 2.10 / -0.05	37.5 / 2.10 / -0.08
		15.24 / 50.0	44.20 / 145.0
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		TEMN40	TEMN40
Model		DRAGONWAVE INC	DRAGONWAVE INC
Model Description		11HC40HFC142V02	11HC40HFC142V02
Emission Designator / Modulation		Horizon Compact	Horizon Compact
Loading		36M2D7W 32 QAM	36M2D7W 32 QAM
Stability (%)		1 CH DIG 142000.000	1 CH DIG 142000.000
		0.001	0.001
		Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)		23.0	23.0
Received Level (dBm)		-41.6	-41.6
EIRP (dBm)		60.5	60.5
Fixed Loss: Tx / Common (dB)		0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)			139.6
Transmit Frequencies (MHz)		10855.0000H(4)	11345.0000H(4)

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK010D CA	CA-STL060B CA
City/County	Stockton/San Joaquin	/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY634	WQCY636
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °54' 36.8~ N	37 °48' 1.0~ N
Longitude (NAD 83)	121 °17' 29.7~ W	121 °10' 17.0~ W
Ground Elevation (m/ft-AMSL)	2.00 / 6.6	15.00 / 49.2
Antenna Structure Registration #		
Path Azimuth (°)	139.044	319.118
Path Length (km / miles)	16.149 / 10.035	

Transmit Antenna

Manufacturer	71906D	71906D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-11G-2.5-C	A-ANT-11G-2.5-C
Centerline (m / ft - AGL)	37.5 / 2.10 / 0.05	37.5 / 2.10 / -0.16
	35.97 / 118.0	51.82 / 170.0

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	TEMP02	TEMP02
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC181V02	11HD40HFC181V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	35M8D7W 64 QAM	35M8D7W 64 QAM
Stability (%)	1 CH DIG 181000.000	1 CH DIG 181000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	16.5	16.5
Received Level (dBm)	-46.1	-46.1
EIRP (dBm)	54.0	54.0
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	137.6	

Transmit Frequencies (MHz) 11505.0000H(8) 11625.0000H(11) 11015.0000H(8) 11135.0000H(11)

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK074A CA	CA-STK999A CA
City/County	/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCZ689	WQCZ747
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °8' 43.7~ N	37 °59' 30.0~ N
Longitude (NAD 83)	121 °18' 57.8~ W	121 °17' 21.0~ W
Ground Elevation (m/ft-AMSL)	11.60 / 38.1	5.80 / 19.0
Antenna Structure Registration #	1012649	1016801
Path Azimuth (°)	172.123	352.139
Path Length (km / miles)	17.234 / 10.709	

Transmit Antenna

Manufacturer	77041A	77041A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2.5-11	VHLP2.5-11
Centerline (m / ft - AGL)	37.5 / 2.10 / -0.11	37.5 / 2.10 / -0.00
	56.39 / 185.0	45.72 / 150.0

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	TEMP02	TEMP02
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC181V02	11HD40HFC181V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	35M8D7W 64 QAM	35M8D7W 64 QAM
Stability (%)	1 CH DIG 181000.000	1 CH DIG 181000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	16.5	16.5
Received Level (dBm)	-46.7	-46.7
EIRP (dBm)	54.0	54.0
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	138.2	

Transmit Frequencies (MHz)	10775.0000H(2)	10895.0000H(5)	11265.0000H(2)	11385.0000H(5)
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK020A CA	CA-STK057B CA
City/County	Tracy/San Joaquin	/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY637	WQCY640
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 44' 54.0~ N	37 ° 49' 4.7~ N
Longitude (NAD 83)	121 ° 27' 6.0~ W	121 ° 17' 43.9~ W
Ground Elevation (m/ft-AMSL)	8.99 / 29.5	3.00 / 9.8
Antenna Structure Registration #		
Path Azimuth (°)	60.618	240.714
Path Length (km / miles)	15.777 / 9.804	

Transmit Antenna

Manufacturer	71906D	71906D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-11G-2.5-C	A-ANT-11G-2.5-C
Centerline (m / ft - AGL)	37.5 / 2.10 / -0.11	37.5 / 2.10 / 0.00
	24.38 / 80.0	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	TEMP02	TEMP02
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC181V02	11HD40HFC181V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	35M8D7W 64 QAM	35M8D7W 64 QAM
Stability (%)	1 CH DIG 181000.000	1 CH DIG 181000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	16.5	16.5
Received Level (dBm)	-45.9	-45.9
EIRP (dBm)	54.0	54.0
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		137.4

Transmit Frequencies (MHz) 11015.0000V(8) 11095.0000V(10) 11505.0000V(8) 11585.0000V(10)

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Job Number 091001COMSTI02

Administrative Information	CA-STK022A CA	CA-STK060B CA
City/County	Tracy/San Joaquin	/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY638	WQCY636
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 42' 32.0~ N	37 ° 48' 1.0~ N
Longitude (NAD 83)	121 ° 25' 33.1~ W	121 ° 10' 17.0~ W
Ground Elevation (m/ft-AMSL)	33.00 / 108.3	15.00 / 49.2
Antenna Structure Registration #		
Path Azimuth (°)	65.584	245.740
Path Length (km / miles)	24.613 / 15.294	

Transmit Antenna

Manufacturer	79011R	79011R
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HP3-11	HP3-11
Centerline (m / ft - AGL)	37.6 / 2.20 / -0.09	37.6 / 2.20 / -0.08
	35.05 / 115.0	51.82 / 170.0

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	TEMP02	TEMP02
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC181V02	11HD40HFC181V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	35M8D7W 64 QAM	35M8D7W 64 QAM
Stability (%)	1 CH DIG 181000.000	1 CH DIG 181000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	16.5	16.5
Received Level (dBm)	-49.6	-49.6
EIRP (dBm)	54.1	54.1
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		141.3

Transmit Frequencies (MHz)	10815.0000V(3)	10935.0000V(6)	11305.0000V(3)	11425.0000V(6)
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD041B CA	CA-MOD086A CA
City/County	Modesto/Stanislaus	Salida/Stanislaus
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY649	WQCY581
Licensee Code	CLESP2	FIXWIR
Licensee Name	Clearwire Spectrum Holdings II, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 30.0~ N	37 °42' 30.2~ N
Longitude (NAD 83)	121 °0' 11.0~ W	121 °5' 1.6~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	21.70 / 71.2
Antenna Structure Registration #		
Path Azimuth (°)	316.146	136.097
Path Length (km / miles)	10.274 / 6.384	

Transmit Antenna

Manufacturer	71906D	71902D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-11G-2.5-C	A-ANT-11G-2-C
Centerline (m / ft - AGL)	37.5 / 2.10 / -0.15	33.4 / 3.40 / 0.09
	44.20 / 145.0	27.13 / 89.0

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	TEMO28	TEMO28
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC212V02	11HD40HFC212V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	34M4D7W 128 QAM	34M4D7W 128 QAM
Stability (%)	1 CH DIG 212000.000	1 CH DIG 212000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	16.0	16.0
Received Level (dBm)	-46.8	-46.8
EIRP (dBm)	53.5	49.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	133.7	

Transmit Frequencies (MHz) 11265.0000H(2) 11425.0000H(6) 10775.0000H(2) 10935.0000H(6)

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-MOD041B CA	CA-MOD102A CA
City/County		Modesto/Stanslaus	/Stanslaus
Status / License Basis		Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQCY649	
Licensee Code		CLESP2	CLESP3
Licensee Name		Clearwire Spectrum Holdings II, LLC	Clearwire Spectrum Holdings III, LL
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool	FXO -- Fixed
Site Information			
Latitude (NAD 83)		37 °38' 30.0~ N	37 °28' 7.7~ N
Longitude (NAD 83)		121 °0' 11.0~ W	121 °7' 19.2~ W
Ground Elevation (m/ft-AMSL)		26.20 / 86.0	29.10 / 95.5
Antenna Structure Registration #			
Path Azimuth (°)		208.751	28.678
Path Length (km / miles)		21.876 / 13.593	
Transmit Antenna			
Manufacturer		71906D	71906D
Model		DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)		A-ANT-11G-2.5-C	A-ANT-11G-2.5-C
Centerline (m / ft - AGL)		37.5 / 2.10 / -0.11	37.5 / 2.10 / -0.04
		44.20 / 145.0	27.43 / 90.0
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		TEM098	TEM098
Model		DRAGONWAVE INC	DRAGONWAVE INC
Model Description		11HD40HFC142V02	11HD40HFC142V02
Emission Designator / Modulation		HORIZON DUO	HORIZON DUO
Loading		36M2D7W 32 QAM	36M2D7W 32 QAM
Stability (%)		1 CH DIG 142000.000	1 CH DIG 142000.000
		0.001	0.001
		Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)		19.0	19.0
Received Level (dBm)		-46.3	-46.3
EIRP (dBm)		56.5	56.5
Fixed Loss: Tx / Common (dB)		0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)			140.3
Transmit Frequencies (MHz)		11465.0000V(7)	11545.0000V(9)
		10975.0000V(7)	11055.0000V(9)

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-MOD102A	CA	CA-MOD802A	CA
City/County		/Stanislaus		/Merced	
Status / License Basis		Engineering Proposal / PRIMARY OPERATION		Engineering Proposal / PRIMARY OPERATION	
Call Sign					
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 °28' 7.7~ N		37 °24' 5.6~ N	
Longitude (NAD 83)		121 °7' 19.2~ W		120 °52' 8.4~ W	
Ground Elevation (m/ft-AMSL)		29.10 / 95.5		27.60 / 90.6	
Antenna Structure Registration #					
Path Azimuth (°)		108.358		288.512	
Path Length (km / miles)		23.602 / 14.666			
Transmit Antenna		71906D		71906D	
Manufacturer		DRAGONWAVE INC		DRAGONWAVE INC	
Model		A-ANT-11G-2.5-C		A-ANT-11G-2.5-C	
Gain(dBi) / Beamwidth(°) / Tilt(°)		37.5 / 2.10 / -0.08		37.5 / 2.10 / -0.08	
Centerline (m / ft - AGL)		24.38 / 80.0		27.43 / 90.0	
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		TEM098		TEM098	
Manufacturer		DRAGONWAVE INC		DRAGONWAVE INC	
Model		11HD40HFC142V02		11HD40HFC142V02	
Model Description		HORIZON DUO		HORIZON DUO	
Emission Designator / Modulation		36M2D7W 32 QAM		36M2D7W 32 QAM	
Loading		1 CH DIG 142000.000		1 CH DIG 142000.000	
Stability (%)		0.001		0.001	
		Nominal	Coordinated	Maximum	
Power (dBm)		19.0		19.0	
Received Level (dBm)		-46.9		-46.9	
EIRP (dBm)		56.5		56.5	
Fixed Loss: Tx / Common (dB)		0.0 / 0.0		0.0 / 0.0	
Free Space Loss (dB)		140.9			
Transmit Frequencies (MHz)		11095.0000H(10)	11175.0000H(12)	11585.0000H(10)	11665.0000H(12)

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD095A CA	CA-MOD801A CA
City/County	Turlock/Stanislaus	Delhi/Merced
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 °25' 11.6~ N
Longitude (NAD 83)	120 °50' 43.7~ W	120 °45' 21.7~ W
Ground Elevation (m/ft-AMSL)	30.40 / 99.7	38.50 / 126.3
Antenna Structure Registration #	1237879	
Path Azimuth (°)	133.613	313.668
Path Length (km / miles)	10.936 / 6.795	

Transmit Antenna

Manufacturer	77001A	77001A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-11	VHLP2-11
Centerline (m / ft - AGL)	34.4 / 3.40 / -0.06	34.4 / 3.40 / -0.02
	54.86 / 180.0	42.67 / 140.0

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	TEMO98	TEMO98
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC142V02	11HD40HFC142V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	36M2D7W 32 QAM	36M2D7W 32 QAM
Stability (%)	1 CH DIG 142000.000	1 CH DIG 142000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	19.0	19.0
Received Level (dBm)	-46.4	-46.4
EIRP (dBm)	53.4	53.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	134.2	

Transmit Frequencies (MHz) 11015.0000V(8) 11095.0000V(10) 11505.0000V(8) 11585.0000V(10)

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-MOD095A CA	CA-MOD041B CA
City/County		Turlock/Stanislaus	Modesto/Stanislaus
Status / License Basis		Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQGX681	WQCY649
Licensee Code		FIXWIR	CLESP2
Licensee Name		Fixed Wireless Holdings, LLC	Clearwire Spectrum Holdings II, LLC
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool	FXO -- Fixed
Site Information			
Latitude (NAD 83)		37 °29' 16.4~ N	37 °38' 30.0~ N
Longitude (NAD 83)		120 °50' 43.7~ W	121 °0' 11.0~ W
Ground Elevation (m/ft-AMSL)		30.40 / 99.7	26.20 / 86.0
Antenna Structure Registration #		1237879	
Path Azimuth (°)		320.843	140.747
Path Length (km / miles)		22.026 / 13.686	
Transmit Antenna			
Manufacturer		79011R RADIO WAVES, INC	79011R RADIO WAVES, INC
Model		HP3-11	HP3-11
Gain(dBi) / Beamwidth(°) / Tilt(°)		37.6 / 2.20 / -0.09	37.6 / 2.20 / -0.06
Centerline (m / ft - AGL)		45.72 / 150.0	44.20 / 145.0
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		TEM098 DRAGONWAVE INC	TEM098 DRAGONWAVE INC
Model		11HD40HFC142V02	11HD40HFC142V02
Model Description		HORIZON DUO	HORIZON DUO
Emission Designator / Modulation		36M2D7W 32 QAM	36M2D7W 32 QAM
Loading		1 CH DIG 142000.000	1 CH DIG 142000.000
Stability (%)		0.001	0.001
		Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)		19.0	19.0
Received Level (dBm)		-46.1	-46.1
EIRP (dBm)		56.6	56.6
Fixed Loss: Tx / Common (dB)		0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)			140.3
Transmit Frequencies (MHz)	10815.0000V(3)	10935.0000V(6)	11305.0000V(3) 11425.0000V(6)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5824 www.comsearch.com

PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD041B CA	CA-MOD090A CA
City/County	Modesto/Stanslaus	Modesto/Stanslaus
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY649	WQJU736
Licensee Code	CLESP2	CLESP2
Licensee Name	Clearwire Spectrum Holdings II, LLC	Clearwire Spectrum Holdings II, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 30.0~ N	37 °40' 49.5~ N
Longitude (NAD 83)	121 °0' 11.0~ W	120 °55' 29.3~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	34.30 / 112.5
Antenna Structure Registration #		1060758
Path Azimuth (°)	58.057	238.104
Path Length (km / miles)		8.134 / 5.054

Transmit Antenna

Manufacturer	77001A	77001A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-11	VHLP2-11
Centerline (m / ft - AGL)	34.4 / 3.40 / 0.13	34.4 / 3.40 / -0.18
	44.20 / 145.0	57.91 / 190.0

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	TEMO28	TEMO28
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC212V02	11HD40HFC212V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	34M4D7W 128 QAM	34M4D7W 128 QAM
Stability (%)	1 CH DIG 212000.000	1 CH DIG 212000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	16.0	16.0
Received Level (dBm)	-46.9	-46.9
EIRP (dBm)	50.4	50.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		131.7

Transmit Frequencies (MHz)	11505.0000V(8)	11585.0000V(10)	11015.0000V(8)	11095.0000V(10)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD041B CA	CA-MOD061A CA
City/County	Modesto/Stanslaus	Ceres/Stanslaus
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY649	WQCZ749
Licensee Code	CLESP2	FIXWIR
Licensee Name	Clearwire Spectrum Holdings II, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 30.0~ N	37 °35' 34.4~ N
Longitude (NAD 83)	121 °0' 11.0~ W	120 °57' 46.4~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	25.90 / 85.0
Antenna Structure Registration #		1051093
Path Azimuth (°)	146.762	326.786
Path Length (km / miles)		6.472 / 4.021

Transmit Antenna

Manufacturer	77001A	77001A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-11	VHLP2-11
Centerline (m / ft - AGL)	34.4 / 3.40 / -0.20	34.4 / 3.40 / 0.16
	44.20 / 145.0	24.38 / 80.0

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	TEMO28	TEMO28
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	11HD40HFC212V02	11HD40HFC212V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	34M4D7W 128 QAM	34M4D7W 128 QAM
Stability (%)	1 CH DIG 212000.000	1 CH DIG 212000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	16.0	16.0
Received Level (dBm)	-44.9	-44.9
EIRP (dBm)	50.4	50.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.7

Transmit Frequencies (MHz)	11265.0000V(2)	11385.0000V(5)	10775.0000V(2)	10895.0000V(5)
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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5824 www.comsearch.com

PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-MOD061A	CA	CA-MOD090A	CA
City/County		Ceres/Stanislaus		Modesto/Stanislaus	
Status / License Basis		Engineering Proposal / PRIMARY OPERATION		Engineering Proposal / PRIMARY OPERATION	
Call Sign		WQCZ749		WQJU736	
Licensee Code		FIXWIR		CLESP2	
Licensee Name		Fixed Wireless Holdings, LLC		Clearwire Spectrum Holdings II, LLC	
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool		FXO -- Fixed	
Site Information					
Latitude (NAD 83)		37 °35' 34.4~ N		37 °40' 49.5~ N	
Longitude (NAD 83)		120 °57' 46.4~ W		120 °55' 29.3~ W	
Ground Elevation (m/ft-AMSL)		25.90 / 85.0		34.30 / 112.5	
Antenna Structure Registration #		1051093		1060758	
Path Azimuth (°)		19.075		199.098	
Path Length (km / miles)		10.280 / 6.388			
Transmit Antenna		71906D		71906D	
Manufacturer		DRAGONWAVE INC		DRAGONWAVE INC	
Model		A-ANT-11G-2.5-C		A-ANT-11G-2.5-C	
Gain(dBi) / Beamwidth(°) / Tilt(°)		37.5 / 2.10 / 0.20		37.5 / 2.10 / -0.27	
Centerline (m / ft - AGL)		24.38 / 80.0		57.91 / 190.0	
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		TEMO28		TEMO28	
Manufacturer		DRAGONWAVE INC		DRAGONWAVE INC	
Model		11HD40HFC212V02		11HD40HFC212V02	
Model Description		HORIZON DUO		HORIZON DUO	
Emission Designator / Modulation		34M4D7W 128 QAM		34M4D7W 128 QAM	
Loading		1 CH DIG 212000.000		1 CH DIG 212000.000	
Stability (%)		0.001		0.001	
		Nominal	Coordinated	Maximum	
Power (dBm)		16.0		16.0	
Received Level (dBm)		-42.7		-42.7	
EIRP (dBm)		53.5		53.5	
Fixed Loss: Tx / Common (dB)		0.0 / 0.0		0.0 / 0.0	
Free Space Loss (dB)				133.7	
Transmit Frequencies (MHz)		11505.0000H(8)	11585.0000H(10)	11015.0000H(8)	11095.0000H(10)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5824 www.comsearch.com

PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD083B CA	CA-MOD100A CA
City/County	Ripon/San Joaquin	/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
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 ° 44' 19.2~ N	37 ° 45' 35.5~ N
Longitude (NAD 83)	121 ° 7' 24.3~ W	120 ° 59' 54.8~ W
Ground Elevation (m/ft-AMSL)	20.50 / 67.3	35.90 / 117.8
Antenna Structure Registration #		
Path Azimuth (°)	77.895	257.971
Path Length (km / miles)	11.253 / 6.992	
Transmit Antenna	71902D	71902D
Manufacturer	DRAGONWAVE INC	DRAGONWAVE INC
Model	A-ANT-11G-2-C	A-ANT-11G-2-C
Gain(dBi) / Beamwidth(°) / Tilt(°)	33.4 / 3.40 / -0.13	33.4 / 3.40 / 0.05
Centerline (m / ft - AGL)	59.44 / 195.0	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	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)	-52.2	-52.2
EIRP (dBm)	48.9	48.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		134.5
Transmit Frequencies (MHz)	11015.0000V(8)	11095.0000V(10)
		11505.0000V(8)
		11585.0000V(10)

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK078A CA	CA-STK999A CA
City/County	Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY633	WQCZ747
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °57' 44.4~ N	37 °59' 30.0~ N
Longitude (NAD 83)	121 °15' 6.0~ W	121 °17' 21.0~ W
Ground Elevation (m/ft-AMSL)	7.01 / 23.0	5.80 / 19.0
Antenna Structure Registration #	1240066	1016801
Path Azimuth (°)	314.672	134.649
Path Length (km / miles)	4.632 / 2.878	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.18	38.7 / 2.10 / 0.15
	42.67 / 140.0	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

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)	-38.3	-38.3
EIRP (dBm)	54.2	54.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	131.2	

Transmit Frequencies (MHz)	19575.0000V(6)	19675.0000V(8)	18015.0000V(6)	18115.0000V(8)
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Microwave Path Data Sheet

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK046A CA	CA-STK999A CA
City/County	Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY642	WQCZ747
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °56' 52.5~ N	37 °59' 30.0~ N
Longitude (NAD 83)	121 °18' 22.9~ W	121 °17' 21.0~ W
Ground Elevation (m/ft-AMSL)	3.00 / 9.8	5.80 / 19.0
Antenna Structure Registration #		1016801
Path Azimuth (°)	17.277	197.288
Path Length (km / miles)		5.086 / 3.160

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 / -0.29	41.0 / 1.50 / 0.26
	57.91 / 190.0	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

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)	-34.5	-34.5
EIRP (dBm)	56.5	56.5
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		132.0

Transmit Frequencies (MHz)	19375.0000V(2)	19475.0000V(4)	17815.0000V(2)	17915.0000V(4)
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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: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK053A CA	CA-STK999A CA
City/County	/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY653	WQCZ747
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °3' 6.0~ N	37 °59' 30.0~ N
Longitude (NAD 83)	121 °18' 51.0~ W	121 °17' 21.0~ W
Ground Elevation (m/ft-AMSL)	7.00 / 23.0	5.80 / 19.0
Antenna Structure Registration #	1012646	1016801
Path Azimuth (°)	161.749	341.765
Path Length (km / miles)	7.012 / 4.357	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.10	38.7 / 2.10 / 0.05
	38.10 / 125.0	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

Manufacturer	TEM090	TEM090
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC215V02	18HD50HFC215V02
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)	15.5	15.5
Received Level (dBm)	-41.9	-41.9
EIRP (dBm)	54.2	54.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)	134.8	

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
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK013C CA	CA-STK053A CA
City/County	Lodi/San Joaquin	/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY652	WQCY653
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °7' 3.1~ N	38 °3' 6.0~ N
Longitude (NAD 83)	121 °17' 22.6~ W	121 °18' 51.0~ W
Ground Elevation (m/ft-AMSL)	12.00 / 39.4	7.00 / 23.0
Antenna Structure Registration #		1012646
Path Azimuth (°)	196.427	16.412
Path Length (km / miles)		7.621 / 4.736

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / 0.09	38.7 / 2.10 / -0.14
	18.29 / 60.0	38.10 / 125.0

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	TEM090	TEM090
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50HFC215V02	18HD50HFC215V02
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)	-39.6	-39.6
EIRP (dBm)	57.2	57.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		135.5

Transmit Frequencies (MHz)	17815.0000V(2)	17915.0000V(4)	19375.0000V(2)	19475.0000V(4)
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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: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK046A CA	CA-STK056B CA
City/County	Stockton/San Joaquin	French Camp/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY642	WQCY641
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °56' 52.5~ N	37 °53' 39.0~ N
Longitude (NAD 83)	121 °18' 22.9~ W	121 °17' 45.0~ W
Ground Elevation (m/ft-AMSL)	3.00 / 9.8	3.35 / 11.0
Antenna Structure Registration #		
Path Azimuth (°)	171.177	351.184
Path Length (km / miles)	6.037 / 3.751	

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 / -0.31	41.0 / 1.50 / 0.27
	57.91 / 190.0	27.43 / 90.0

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)	15.5	15.5
Received Level (dBm)	-36.0	-36.0
EIRP (dBm)	56.5	56.5
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		133.5

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
(703)726-5824 www.comsearch.com

PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-STK056B CA	CA-STK058A CA
City/County		French Camp/San Joaquin	/San Joaquin
Status / License Basis		Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQCY641	WQCY639
Licensee Code		FIXWIR	FIXWIR
Licensee Name		Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool	FXO -- Fixed
Site Information			
Latitude (NAD 83)		37 °53' 39.0~ N	37 °50' 41.5~ N
Longitude (NAD 83)		121 °17' 45.0~ W	121 °17' 7.5~ W
Ground Elevation (m/ft-AMSL)		3.35 / 11.0	4.57 / 15.0
Antenna Structure Registration #			
Path Azimuth (°)		170.489	350.496
Path Length (km / miles)		5.549 / 3.448	
Transmit Antenna			
Manufacturer		87012A	87012A
Model		ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)		VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)		38.7 / 2.10 / -0.07	38.7 / 2.10 / 0.03
		27.43 / 90.0	21.34 / 70.0
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		TEM032	TEM032
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)		-38.4	-38.4
EIRP (dBm)		55.7	55.7
Fixed Loss: Tx / Common (dB)		0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)			132.8
Transmit Frequencies (MHz)		19375.0000H(2)	19475.0000H(4)
			17815.0000H(2)
			17915.0000H(4)

Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-STK078A CA	CA-STK079A CA
City/County		Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis		Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQCY633	
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 °57' 44.4~ N	37 °56' 7.8~ N
Longitude (NAD 83)		121 °15' 6.0~ W	121 °16' 4.7~ W
Ground Elevation (m/ft-AMSL)		7.01 / 23.0	6.10 / 20.0
Antenna Structure Registration #		1240066	
Path Azimuth (°)		205.701	25.691
Path Length (km / miles)		3.305 / 2.054	
Transmit Antenna			
Manufacturer		87012A	87012A
Model		ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)		VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)		38.7 / 2.10 / -0.42	38.7 / 2.10 / 0.40
		42.67 / 140.0	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		TEM017	TEM017
Model		DRAGONWAVE INC	DRAGONWAVE INC
Model Description		18HD50SFC371V02	18HD50SFC371V02
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)		-45.4	-45.4
EIRP (dBm)		44.2	44.2
Fixed Loss: Tx / Common (dB)		0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)			128.3
Transmit Frequencies (MHz)		19375.0000V(2)	19475.0000V(4)
			17815.0000V(2)
			17915.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK056B CA	CA-STK079A CA
City/County	French Camp/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY641	
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 °53' 39.0~ N	37 °56' 7.8~ N
Longitude (NAD 83)	121 °17' 45.0~ W	121 °16' 4.7~ W
Ground Elevation (m/ft-AMSL)	3.35 / 11.0	6.10 / 20.0
Antenna Structure Registration #		
Path Azimuth (°)	28.094	208.111
Path Length (km / miles)	5.201 / 3.232	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.04	38.7 / 2.10 / 0.00
	24.38 / 80.0	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)	15.5	15.5
Received Level (dBm)	-39.3	-39.3
EIRP (dBm)	54.2	54.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		132.2

Transmit Frequencies (MHz)	19525.0000H(5)	19625.0000H(7)	17965.0000H(5)	18065.0000H(7)
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Microwave Path Data Sheet

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COMSEARCH

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK074A CA	CA-STK075B CA
City/County	/San Joaquin	Lodi/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCZ689	WQCY590
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °8' 43.7~ N	38 °7' 29.0~ N
Longitude (NAD 83)	121 °18' 57.8~ W	121 °14' 59.3~ W
Ground Elevation (m/ft-AMSL)	11.60 / 38.1	18.00 / 59.1
Antenna Structure Registration #	1012649	
Path Azimuth (°)	111.610	291.651
Path Length (km / miles)	6.248 / 3.882	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.24	38.7 / 2.10 / 0.19
	56.39 / 185.0	26.52 / 87.0

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	TEMQ19	TEMQ19
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50SFC171V02	18HD50SFC171V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	10.0	10.0
Received Level (dBm)	-46.4	-46.4
EIRP (dBm)	48.7	48.7
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		133.8

Transmit Frequencies (MHz)	17815.0000V(2)	17915.0000V(4)	19375.0000V(2)	19475.0000V(4)
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Microwave Path Data Sheet

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD030A CA	CA-MOD085A CA
City/County	/Stanislaus	Modesto/Stanislaus
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY645	WQCY646
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 41' 23.3~ N	37 ° 39' 49.4~ N
Longitude (NAD 83)	121 ° 3' 48.5~ W	121 ° 1' 59.3~ W
Ground Elevation (m/ft-AMSL)	22.00 / 72.2	24.16 / 79.3
Antenna Structure Registration #		
Path Azimuth (°)	137.243	317.261
Path Length (km / miles)	3.942 / 2.450	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.09	38.7 / 2.10 / 0.06
	36.27 / 119.0	28.96 / 95.0

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	TEMQ03	TEMQ03
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50SFC271V02	18HD50SFC271V02
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)	7.0	7.0
Received Level (dBm)	-45.4	-45.4
EIRP (dBm)	45.7	45.7
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		129.8

Transmit Frequencies (MHz)	19375.0000V(2)	19475.0000V(4)	17815.0000V(2)	17915.0000V(4)
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Microwave Path Data Sheet

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD030A CA	CA-MOD086A CA
City/County	/Stanislaus	Salida/Stanislaus
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY645	WQCY581
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 ° 41' 23.3~ N	37 ° 42' 30.2~ N
Longitude (NAD 83)	121 ° 3' 48.5~ W	121 ° 5' 1.6~ W
Ground Elevation (m/ft-AMSL)	22.00 / 72.2	21.70 / 71.2
Antenna Structure Registration #		
Path Azimuth (°)	319.041	139.029
Path Length (km / miles)	2.731 / 1.697	

Transmit Antenna

Manufacturer	87012A	87012A
Model	ANDREW CORPORATION	ANDREW CORPORATION
Gain(dBi) / Beamwidth(°) / Tilt(°)	VHLP2-18	VHLP2-18
Centerline (m / ft - AGL)	38.7 / 2.10 / -0.21	38.7 / 2.10 / 0.19
	36.27 / 119.0	27.13 / 89.0

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	TEMO17	TEMO17
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	18HD50SFC371V02	18HD50SFC371V02
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)	-43.7	-43.7
EIRP (dBm)	44.2	44.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		126.6

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

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK055A CA	CA-STK049A CA
City/County	Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY643	WQCZ745
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed
Site Information		
Latitude (NAD 83)	37 °57' 0.0~ N	37 °59' 45.2~ N
Longitude (NAD 83)	121 °20' 53.7~ W	121 °19' 58.1~ W
Ground Elevation (m/ft-AMSL)	1.50 / 4.9	2.00 / 6.6
Antenna Structure Registration #		
Path Azimuth (°)	14.914	194.923
Path Length (km / miles)	5.271 / 3.275	
Transmit Antenna	87012A	87012A
Manufacturer	ANDREW CORPORATION	ANDREW CORPORATION
Model	VHLP2-18	VHLP2-18
Gain(dBi) / Beamwidth(°) / Tilt(°)	38.7 / 2.10 / -0.25	38.7 / 2.10 / 0.22
Centerline (m / ft - AGL)	39.62 / 130.0	17.37 / 57.0
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	TEMQ58	TEMQ58
Manufacturer	DRAGONWAVE INC	DRAGONWAVE INC
Model	18HD50SFC215V02	18HD50SFC215V02
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)	-46.4	-46.4
EIRP (dBm)	47.2	47.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		132.3
Transmit Frequencies (MHz)	17965.0000V(5)	18065.0000V(7)
		19525.0000V(5)
		19625.0000V(7)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD032D CA	CA-MOD100A CA
City/County	Modesto/Stanslaus	/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
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 ° 41' 18.9~ N	37 ° 45' 35.5~ N
Longitude (NAD 83)	121 ° 1' 27.4~ W	120 ° 59' 54.8~ W
Ground Elevation (m/ft-AMSL)	26.00 / 85.3	35.90 / 117.8
Antenna Structure Registration #		
Path Azimuth (°)	15.987	196.002
Path Length (km / miles)	8.230 / 5.114	
Transmit Antenna	87012A	87012A
Manufacturer	ANDREW CORPORATION	ANDREW CORPORATION
Model	VHLP2-18	VHLP2-18
Gain(dBi) / Beamwidth(°) / Tilt(°)	38.7 / 2.10 / 0.10	38.7 / 2.10 / -0.16
Centerline (m / ft - AGL)	16.76 / 55.0	25.91 / 85.0
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)	-40.3	-40.3
EIRP (dBm)	57.2	57.2
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		136.2
Transmit Frequencies (MHz)	17815.0000H(2)	17915.0000H(4)
		19375.0000H(2)
		19475.0000H(4)

Microwave Path Data Sheet

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK010D CA	CA-STK078A CA
City/County	Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY634	WQCY633
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °54' 36.8~ N	37 °57' 44.4~ N
Longitude (NAD 83)	121 °17' 29.7~ W	121 °15' 6.0~ W
Ground Elevation (m/ft-AMSL)	2.00 / 6.6	7.01 / 23.0
Antenna Structure Registration #		1240066
Path Azimuth (°)	31.232	211.256
Path Length (km / miles)		6.765 / 4.204

Transmit Antenna

Manufacturer	96961R	96961R
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HPD2-23	HPD2-23
Centerline (m / ft - AGL)	40.0 / 1.70 / 0.08	40.0 / 1.70 / -0.12
	35.97 / 118.0	42.67 / 140.0

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	TEMQ49	TEMQ49
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC171V02	23HD50HFC171V02
Emission Designator / Modulation	HORIZON DUO	HORIZON DUO
Loading	45M8D7W 32 QAM	45M8D7W 32 QAM
Stability (%)	1 CH DIG 171000.000	1 CH DIG 171000.000
	0.001	0.001
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	20.0	20.0
Received Level (dBm)	-36.0	-36.0
EIRP (dBm)	60.0	60.0
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		136.0

Transmit Frequencies (MHz) 23025.0000V(1) 23175.0000V(4) 21825.0000V(1) 21975.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK013C CA	CA-STK074A CA
City/County	Lodi/San Joaquin	/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY652	WQCZ689
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	38 °7' 3.1~ N	38 °8' 43.7~ N
Longitude (NAD 83)	121 °17' 22.6~ W	121 °18' 57.8~ W
Ground Elevation (m/ft-AMSL)	12.00 / 39.4	11.60 / 38.1
Antenna Structure Registration #		1012649
Path Azimuth (°)	323.231	143.215
Path Length (km / miles)		3.873 / 2.406

Transmit Antenna

Manufacturer	91234R	91234R
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HPLPD1-23	HPLPD1-23
Centerline (m / ft - AGL)	34.9 / 2.70 / 0.54	34.9 / 2.70 / -0.57
	18.29 / 60.0	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)	-42.8	-42.8
EIRP (dBm)	53.4	53.4
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		131.1

Transmit Frequencies (MHz) 23125.0000V(3) 23275.0000V(6) 21925.0000V(3) 22075.0000V(6)

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5824 www.comsearch.com

PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-STK057B CA	CA-STK058A CA
City/County		/San Joaquin	/San Joaquin
Status / License Basis		Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQCY640	WQCY639
Licensee Code		FIXWIR	FIXWIR
Licensee Name		Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool	FXO -- Fixed
Site Information			
Latitude (NAD 83)		37 ° 49' 4.7~ N	37 ° 50' 41.5~ N
Longitude (NAD 83)		121 ° 17' 43.9~ W	121 ° 17' 7.5~ W
Ground Elevation (m/ft-AMSL)		3.00 / 9.8	4.57 / 15.0
Antenna Structure Registration #			
Path Azimuth (°)		16.604	196.610
Path Length (km / miles)		3.114 / 1.935	
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 / 0.13	35.3 / 3.00 / -0.15
		15.24 / 50.0	21.34 / 70.0
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		TEMQ47	TEMQ47
Model		DRAGONWAVE INC	DRAGONWAVE INC
Model Description		23HD50HFC271V02	23HD50HFC271V02
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)		-41.6	-41.6
EIRP (dBm)		52.3	52.3
Fixed Loss: Tx / Common (dB)		0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)			129.2
Transmit Frequencies (MHz)		23075.0000V(2)	23225.0000V(5)
		21875.0000V(2)	22025.0000V(5)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-STK020A CA	CA-STK022A CA
City/County	Tracy/San Joaquin	Tracy/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY637	WQCY638
Licensee Code	FIXWIR	FIXWIR
Licensee Name	Fixed Wireless Holdings, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed
Site Information		
Latitude (NAD 83)	37 ° 44' 54.0~ N	37 ° 42' 32.0~ N
Longitude (NAD 83)	121 ° 27' 6.0~ W	121 ° 25' 33.1~ W
Ground Elevation (m/ft-AMSL)	8.99 / 29.5	33.00 / 108.3
Antenna Structure Registration #		
Path Azimuth (°)	152.535	332.551
Path Length (km / miles)	4.934 / 3.066	
Transmit Antenna	87014A	87014A
Manufacturer	ANDREW CORPORATION	ANDREW CORPORATION
Model	VHLP1-23	VHLP1-23
Gain(dBi) / Beamwidth(°) / Tilt(°)	35.3 / 3.00 / 0.39	35.3 / 3.00 / -0.42
Centerline (m / ft - AGL)	24.38 / 80.0	35.05 / 115.0
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	TEMQ47	TEMQ47
Manufacturer	DRAGONWAVE INC	DRAGONWAVE INC
Model	23HD50HFC271V02	23HD50HFC271V02
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)	-45.6	-45.6
EIRP (dBm)	52.3	52.3
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		133.2
Transmit Frequencies (MHz)	21925.0000V(3)	22075.0000V(6)
		23125.0000V(3)
		23275.0000V(6)

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147
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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-STK014A CA	CA-STK999A CA
City/County	Stockton/San Joaquin	Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQCZ747	
Licensee Code	CLESP3	FIXWIR	
Licensee Name	Clearwire Spectrum Holdings III, LL	Fixed Wireless Holdings, LLC	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed	
Site Information			
Latitude (NAD 83)	38 °0' 52.6~ N	37 °59' 30.0~ N	
Longitude (NAD 83)	121 °16' 45.6~ W	121 °17' 21.0~ W	
Ground Elevation (m/ft-AMSL)	8.30 / 27.2	5.80 / 19.0	
Antenna Structure Registration #		1016801	
Path Azimuth (°)	198.736	18.730	
Path Length (km / miles)		2.689 / 1.671	
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 / 0.75	35.3 / 3.00 / -0.77	
	18.29 / 60.0	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	TEMQ55	TEMQ55	
Model	DRAGONWAVE INC	DRAGONWAVE INC	
Model Description	23HD50SFC215V02	23HD50SFC215V02	
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)	8.5	8.5	
Received Level (dBm)	-48.8	-48.8	
EIRP (dBm)	43.8	43.8	
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0	
Free Space Loss (dB)		127.9	
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: 04/01/2010

Job Number 091001COMSTI02

Administrative Information	CA-MOD041B CA	CA-MOD085A CA
City/County	Modesto/Stanslaus	Modesto/Stanslaus
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign	WQCY649	WQCY646
Licensee Code	CLESP2	FIXWIR
Licensee Name	Clearwire Spectrum Holdings II, LLC	Fixed Wireless Holdings, LLC
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	37 °38' 30.0~ N	37 °39' 49.4~ N
Longitude (NAD 83)	121 °0' 11.0~ W	121 °1' 59.3~ W
Ground Elevation (m/ft-AMSL)	26.20 / 86.0	24.16 / 79.3
Antenna Structure Registration #		
Path Azimuth (°)	312.689	132.670
Path Length (km / miles)	3.611 / 2.244	

Transmit Antenna

Manufacturer	91234R	91234R
Model	RADIO WAVES, INC	RADIO WAVES, INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	HPLPD1-23	HPLPD1-23
Centerline (m / ft - AGL)	34.9 / 2.70 / -0.29	34.9 / 2.70 / 0.26
	44.20 / 145.0	28.96 / 95.0

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	TEMQ47	TEMQ47
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23HD50HFC271V02	23HD50HFC271V02
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)	-43.7	-43.7
EIRP (dBm)	51.9	51.9
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0
Free Space Loss (dB)		130.5

Transmit Frequencies (MHz) 21825.0000V(1) 21975.0000V(4) 23025.0000V(1) 23175.0000V(4)

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-STK008B CA	CA-STK014A CA
City/County	Stockton/San Joaquin	Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign			
Licensee Code	CLESP3	CLESP3	CLESP3
Licensee Name	Clearwire Spectrum Holdings III, LL	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 °59' 55.1~ N	38 °0' 52.6~ N	
Longitude (NAD 83)	121 °18' 30.7~ W	121 °16' 45.6~ W	
Ground Elevation (m/ft-AMSL)	5.10 / 16.7	8.30 / 27.2	
Antenna Structure Registration #			
Path Azimuth (°)	55.329	235.347	
Path Length (km / miles)		3.117 / 1.937	
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 / -0.12	35.3 / 3.00 / 0.10	
	27.43 / 90.0	18.29 / 60.0	
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	TEMQ55	TEMQ55	
Model	DRAGONWAVE INC	DRAGONWAVE INC	
Model Description	23HD50SFC215V02	23HD50SFC215V02	
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)	8.5	8.5	
Received Level (dBm)	-50.1	-50.1	
EIRP (dBm)	43.8	43.8	
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0	
Free Space Loss (dB)		129.2	
Transmit Frequencies (MHz)	21975.0000H(4)	22075.0000H(6)	23175.0000H(4) 23275.0000H(6)

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PCN Date: 04/01/2010

Job Number 091001COMSTI02

Administrative Information		CA-STK008B CA	CA-STK999A CA
City/County	Stockton/San Joaquin	Stockton/San Joaquin	Stockton/San Joaquin
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		WQCZ747	
Licensee Code	CLESP3	FIXWIR	
Licensee Name	Clearwire Spectrum Holdings III, LL	Fixed Wireless Holdings, LLC	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool	FXO -- Fixed	
Site Information			
Latitude (NAD 83)	37 °59' 55.1~ N	37 °59' 30.0~ N	
Longitude (NAD 83)	121 °18' 30.7~ W	121 °17' 21.0~ W	
Ground Elevation (m/ft-AMSL)	5.10 / 16.7	5.80 / 19.0	
Antenna Structure Registration #		1016801	
Path Azimuth (°)	114.462	294.474	
Path Length (km / miles)		1.868 / 1.161	
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 / 0.11	35.3 / 3.00 / -0.12	
	27.43 / 90.0	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			
Manufacturer	TEMO25	TEMO25	
Model	DRAGONWAVE INC	DRAGONWAVE INC	
Model Description	23HD50SFC271V02	23HD50SFC271V02	
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)	7.0	7.0	
Received Level (dBm)	-47.2	-47.2	
EIRP (dBm)	42.3	42.3	
Fixed Loss: Tx / Common (dB)	0.0 / 0.0	0.0 / 0.0	
Free Space Loss (dB)		124.8	
Transmit Frequencies (MHz)	21875.0000H(2)	22025.0000H(5)	23075.0000H(2) 23225.0000H(5)