

Microwave Path Data Sheet
COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147
(703)726-5810 www.comsearch.com
Job Number: 110908COMSKN01

Date: 09/08/2011

Adaptive Modulation Prior Coordination Notice

One or more paths in this Prior Coordination Notice (PCN) use microwave radios with Adaptive Modulation. These paths can be identified by a numerical superscript notation immediately following the Radio Code on the path data sheet.

The superscript notation can be cross referenced to the corresponding table(s) below to identify the various modulation modes in which the microwave path will operate.

(1) Master Radio Code: X23116 - DRAGONWAVE INC

Pages: 1-4

Radio Code	Model	Model Description	Emission Designator	Modulation	Loading (Mbps)	Stability (%)	Coordinated Power (dBm)
TENA60	23QD50HFC364 V04	HORIZON QUANTUM	47M1D7W	256 QAM	1 CH DIG 364.0	0.001	11.0
TENE72	23QD50HFC271 V03	HORIZON QUANTUM	47M8D7W	128 QAM	1 CH DIG 271.0	0.001	11.0

(2) Master Radio Code: X23118 - DRAGONWAVE INC

Pages: 5-6

Radio Code	Model	Model Description	Emission Designator	Modulation	Loading (Mbps)	Stability (%)	Coordinated Power (dBm)
TENA60	23QD50HFC364 V04	HORIZON QUANTUM	47M1D7W	256 QAM	1 CH DIG 364.0	0.001	10.0
TENE72	23QD50HFC271 V03	HORIZON QUANTUM	47M8D7W	128 QAM	1 CH DIG 271.0	0.001	10.0

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PCN Date: 09/08/2011
Job Number: 110908COMSKN01

Prev Job Num: 110819COMSKN03
RCN Number: 11090813

Administrative Information

City/County Avenal/Kings
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code KINGED
Licensee Name Kings County Office of Education
Radio Service / Station Class MW -- Microwave Public Safety Pool

AES CA

Avenal/Kings
Engineering Proposal / PRIMARY OPERATION

KINGED
Kings County Office of Education
FXO -- Fixed

Site Information

Latitude (NAD 83)	36 °0' 29.5" N	36 °0' 16.8" N
Longitude (NAD 83)	120 °7' 31.3" W	120 °8' 18.0" W
Ground Elevation (m/ft-AMSL)	256.00 / 839.9	242.01 / 794.0
Antenna Structure Registration #	1241527	
Path Azimuth (°)	251.499	71.491
Path Length (km / miles)	1.233 / 0.766	

Transmit Antenna

Manufacturer	96702D	96702D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-23G-2	A-ANT-23G-2
Centerline (m / ft - AGL)	40.2 / 1.70 / -1.93	40.2 / 1.70 / 1.92
	33.53 / 110.0	6.10 / 20.0

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	X23116 ¹	X23116 ¹
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23QD50HFC364V04	23QD50HFC364V04
Emission Designator / Modulation	ACM QUANTUM 256QAM/128QAM (11.0 dBm)	ACM QUANTUM 256QAM/128QAM (11.0 dBm)
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)	11.0	11.0
Received Level (dBm)	-31.8	-31.8
EIRP (dBm)	50.2	50.2
Fixed Loss: Tx / Common (dB)	0.0 / 1.0	0.0 / 1.0
Free Space Loss (dB)		121.2

Transmit Frequencies (MHz)	23025.0000V(1)	<u>23175.0000V(4)</u>	21825.0000V(1)	<u>21975.0000V(4)</u>
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PCN Date: 09/08/2011
Job Number 110908COMSKN01

Prev Job Num: 110819COMSKN03
RCN Number: 11090813

Administrative Information	REEF SUNSET CA	AES CA
City/County	Avenal/Kings	Avenal/Kings
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
Licensee Code	KINGED	KINGED
Licensee Name	Kings County Office of Education	Kings County Office of Education
Radio Service / Station Class	MW -- Microwave Public Safety Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	36 °0' 29.5" N	36 °0' 16.8" N
Longitude (NAD 83)	120 °7' 31.3" W	120 °8' 18.0" W
Ground Elevation (m/ft-AMSL)	256.00 / 839.9	242.01 / 794.0
Antenna Structure Registration #	1241527	
Path Azimuth (°)	251.499	71.491
Path Length (km / miles)	1.233 / 0.766	

Transmit Antenna

Manufacturer	96702D	96702D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-23G-2	A-ANT-23G-2
Centerline (m / ft - AGL)	40.2 / 1.70 / -1.93	40.2 / 1.70 / 1.92
	33.53 / 110.0	6.10 / 20.0

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	X23116 ¹	X23116 ¹
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23QD50HFC364V04	23QD50HFC364V04
Emission Designator / Modulation	ACM QUANTUM 256QAM/128QAM (11.0 dBm)	ACM QUANTUM 256QAM/128QAM (11.0 dBm)
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)	11.0	11.0
Received Level (dBm)	-31.8	-31.8
EIRP (dBm)	50.2	50.2
Fixed Loss: Tx / Common (dB)	0.0 / 1.0	0.0 / 1.0
Free Space Loss (dB)	121.2	

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

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PCN Date: 09/08/2011
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Prev Job Num: 110819COMSKN03
RCN Number: 11090813

Administrative Information	REEF SUNSET CA	RSMS CA
City/County	Avenal/Kings	Avenal/Kings
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
Licensee Code	KINGED	KINGED
Licensee Name	Kings County Office of Education	Kings County Office of Education
Radio Service / Station Class	MW -- Microwave Public Safety Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	36 °0' 29.5" N	36 °0' 44.2" N
Longitude (NAD 83)	120 °7' 31.3" W	120 °8' 19.0" W
Ground Elevation (m/ft-AMSL)	256.00 / 839.9	254.81 / 836.0
Antenna Structure Registration #	1241527	
Path Azimuth (°)	290.776	110.768
Path Length (km / miles)	1.278 / 0.794	

Transmit Antenna

Manufacturer	96702D	96702D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-23G-2	A-ANT-23G-2
Centerline (m / ft - AGL)	40.2 / 1.70 / -1.22	40.2 / 1.70 / 1.21
	32.00 / 105.0	6.10 / 20.0

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	X23116 ¹	X23116 ¹
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23QD50HFC364V04	23QD50HFC364V04
Emission Designator / Modulation	ACM QUANTUM 256QAM/128QAM (11.0 dBm)	ACM QUANTUM 256QAM/128QAM (11.0 dBm)
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)	11.0	11.0
Received Level (dBm)	-32.1	-32.1
EIRP (dBm)	50.2	50.2
Fixed Loss: Tx / Common (dB)	0.0 / 1.0	0.0 / 1.0
Free Space Loss (dB)	121.5	

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

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Prev Job Num: 110819COMSKN03
RCN Number: 11090813

Administrative Information

City/County Avenal/Kings
Status / License Basis Engineering Proposal / PRIMARY OPERATION
Call Sign
Licensee Code KINGED
Licensee Name Kings County Office of Education
Radio Service / Station Class MW -- Microwave Public Safety Pool

RSMS CA

Avenal/Kings
Engineering Proposal / PRIMARY OPERATION

KINGED
Kings County Office of Education
FXO -- Fixed

Site Information

Latitude (NAD 83)	36 °0' 29.5" N	36 °0' 44.2" N
Longitude (NAD 83)	120 °7' 31.3" W	120 °8' 19.0" W
Ground Elevation (m/ft-AMSL)	256.00 / 839.9	254.81 / 836.0
Antenna Structure Registration #	1241527	
Path Azimuth (°)	290.776	110.768
Path Length (km / miles)	1.278 / 0.794	

Transmit Antenna

Manufacturer	96702D	96702D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-23G-2	A-ANT-23G-2
Centerline (m / ft - AGL)	40.2 / 1.70 / -1.22	40.2 / 1.70 / 1.21
	32.00 / 105.0	6.10 / 20.0

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	X23116 ¹	X23116 ¹
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23QD50HFC364V04	23QD50HFC364V04
Emission Designator / Modulation	ACM QUANTUM 256QAM/128QAM (11.0 dBm)	ACM QUANTUM 256QAM/128QAM (11.0 dBm)
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)	11.0	11.0
Received Level (dBm)	-32.1	-32.1
EIRP (dBm)	50.2	50.2
Fixed Loss: Tx / Common (dB)	0.0 / 1.0	0.0 / 1.0
Free Space Loss (dB)		121.5

Transmit Frequencies (MHz)	23125.0000H(3)	<u>23275.0000H(6)</u>	21925.0000H(3)	<u>22075.0000H(6)</u>
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Prev Job Num: 110819COMSKN03
RCN Number: 11090813

Administrative Information

City/County
Status / License Basis
Call Sign
Licensee Code
Licensee Name
Radio Service / Station Class

REEF SUNSET CA
Avenal/Kings
Engineering Proposal / PRIMARY OPERATION

KINGED
Kings County Office of Education
MW -- Microwave Public Safety Pool

TAMARACK CA

Avenal/Kings
Engineering Proposal / PRIMARY OPERATION

KINGED
Kings County Office of Education
FXO -- Fixed

Site Information

Latitude (NAD 83)	36 °0' 29.5" N	35 °59' 56.4" N
Longitude (NAD 83)	120 °7' 31.3" W	120 °7' 30.8" W
Ground Elevation (m/ft-AMSL)	256.00 / 839.9	242.01 / 794.0
Antenna Structure Registration #	1241527	
Path Azimuth (°)	179.297	359.297
Path Length (km / miles)	1.020 / 0.634	

Transmit Antenna

Manufacturer	96702D	96702D
Model	DRAGONWAVE INC	DRAGONWAVE INC
Gain(dBi) / Beamwidth(°) / Tilt(°)	A-ANT-23G-2	A-ANT-23G-2
Centerline (m / ft - AGL)	40.2 / 1.70 / -2.41	40.2 / 1.70 / 2.41
	33.53 / 110.0	4.57 / 15.0

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	X23118 ²	X23118 ²
Model	DRAGONWAVE INC	DRAGONWAVE INC
Model Description	23QD50HFC364V04	23QD50HFC364V04
Emission Designator / Modulation	ACM QUANTUM 256QAM/128QAM (10.0 dBm)	ACM QUANTUM 256QAM/128QAM (10.0 dBm)
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)	10.0	10.0
Received Level (dBm)	-31.1	-31.1
EIRP (dBm)	49.2	49.2
Fixed Loss: Tx / Common (dB)	0.0 / 1.0	0.0 / 1.0
Free Space Loss (dB)		119.5

Transmit Frequencies (MHz)	<u>23075.0000V(2)</u>	23225.0000V(5)	<u>21875.0000V(2)</u>	22025.0000V(5)
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PCN Date: 09/08/2011
Job Number 110908COMSKN01

Prev Job Num: 110819COMSKN03
RCN Number: 11090813

Administrative Information	REEF SUNSET CA	TAMARACK CA
City/County	Avenal/Kings	Avenal/Kings
Status / License Basis	Engineering Proposal / PRIMARY OPERATION	Engineering Proposal / PRIMARY OPERATION
Call Sign		
Licensee Code	KINGED	KINGED
Licensee Name	Kings County Office of Education	Kings County Office of Education
Radio Service / Station Class	MW -- Microwave Public Safety Pool	FXO -- Fixed

Site Information

Latitude (NAD 83)	36 °0' 29.5" N	35 °59' 56.4" N
Longitude (NAD 83)	120 °7' 31.3" W	120 °7' 30.8" W
Ground Elevation (m/ft-AMSL)	256.00 / 839.9	242.01 / 794.0
Antenna Structure Registration #	1241527	
Path Azimuth (°)	179.297	359.297
Path Length (km / miles)	1.020 / 0.634	

Transmit Antenna	96702D	96702D
Manufacturer	DRAGONWAVE INC	DRAGONWAVE INC
Model	A-ANT-23G-2	A-ANT-23G-2
Gain(dBi) / Beamwidth(°) / Tilt(°)	40.2 / 1.70 / -2.41	40.2 / 1.70 / 2.41
Centerline (m / ft - AGL)	33.53 / 110.0	4.57 / 15.0

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	X23118 ²	X23118 ²
Manufacturer	DRAGONWAVE INC	DRAGONWAVE INC
Model	23QD50HFC364V04	23QD50HFC364V04
Model Description	ACM QUANTUM 256QAM/128QAM (10.0 dBm)	ACM QUANTUM 256QAM/128QAM (10.0 dBm)
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)	10.0	10.0
Received Level (dBm)	-31.1	-31.1
EIRP (dBm)	49.2	49.2
Fixed Loss: Tx / Common (dB)	0.0 / 1.0	0.0 / 1.0
Free Space Loss (dB)		119.5

Transmit Frequencies (MHz)	<u>23075.0000H(2)</u>	23225.0000H(5)	<u>21875.0000H(2)</u>	22025.0000H(5)
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