



CONTRACT

State of Oklahoma

Dispatch via Print

Vendor ID 0000206410
RADIO FREQUENCY SYSTEMS INC
1688 GLEN ELLYN RD
GLENDALE HEIGHTS IL 60139-2504

Contract ID 000000000000000000000000002576		Page 1 of 1	
Contract Dates 05/19/2010 to 10/29/2010	Currency USD	Rate Type CRRNT	Rate Date PO Date
Description: SW402		Contract Maximum 0.00	
TYPE: STATEWIDE			

Tax Exempt? Y Tax Exempt ID:736017987

Line #	Item ID/Item Desc	Minimum Order		Maximum / Open	
		Qty	Amt	Qty	Amt
1	1000009471 RADIO: Equipment to include Two-Way, Radios, Transmitters, Tranceivers, Mobile, Equipment WSCA PUBLIC SAFETY COMMUNICATIONS EQUIPMENT CONTRACT #02702 REFER TO CONTRACT INFORMATION PAGES.	1.00	1.00	0.00	0.00

COMMENTS:

REPLACES CONTRACT #0-154 DUE TO ITEM MAINTENANCE CONVERSION PROJECT.

Final = The price is final after adjustments
Hard = Apply adjustments regardless of other adjustments
Skip = Skip adjustments if any other adjustments have been applied

Authorized Signature

Radio Frequency System**Category 7 Microwave Antennas, Waveguide & Associated Hardware****REPAIR FACILITIES**

In the event that an item should need repair, the Sales Administrator will provide the customer with a Return Material Authorization (RMA) number. The sales administrator then records all pertinent information into RFS' database and advises the customer of the correct location to which the material must be shipped. Note that the RMA number must be clearly marked on the outside of the shipping container.

When the material arrives at the designated location, the receiving department updates the system showing the return as "Received". The material is then forwarded for evaluation. After the evaluation is complete, the database is again updated. Computer generated reports are issued on a daily basis to advise sales of the status of all returns.

Once sales has received the evaluation, a course of action takes place based on the reason for the return and the quality assurance evaluation. The customer is then notified and the item is either repaired or replaced. All repairs are made by RFS employees at RFS facilities.

All returns should be sent to the following locations:

Antennas and Dehydrators

Radio Frequency Systems, Inc
175 Corporate Court
Meriden, CT 06450

Cable, Connectors, Jumpers & Accessories

Radio Frequency System, Inc.
29 Research Parkway
Wallingford, CT 06492

CONTACTS AND PHONE NUMBERS (Revised)

STATE	CONTACT NAME	PHONE NUMBER
Alaska	Laura Damiani	630-790-8930 ext 1175
Arizona	Laura Damiani	630-790-8930 ext 1175
Northern California	Carla Salas	630-790-8930 ext 1162
Southern California	Laura Damiani	630-790-8930 ext 1175
Colorado	Laura Damiani	630-790-8930 ext 1175
Georgia	Rick Barbieri	203-630-3311 ext 1096
Hawaii	Laura Damiani	630-790-8930 ext 1175
Idaho	Laura Damiani	630-790-8930 ext 1175
Minnesota	Kim Contreras	630-790-8930 ext 1166
Montana	Laura Damiani	630-790-8930 ext 1175
Northern Nevada	Carla Salas	630-790-8930 ext 1162
Southern Nevada	Laura Damiani	630-790-8930 ext 1175
New Mexico	Laura Damiani	630-790-8930 ext 1175
Oklahoma	Carla Salas	630-790-8930 ext 1162
Oregon	Carla Salas	630-790-8930 ext 1162
South Dakota	Kim Contreras	630-790-8930 ext 1166
Utah	Laura Damiani	630-790-8930 ext 1175
Washington	Carla Salas	630-790-8930 ext 1162
Wyoming	Laura Damiani	630-790-8930 ext 1175

Radio Frequency System**General**

This specification covers the latest state of the art Microwave Antennas and Associated Equipment of use in specified frequency bands to meet the needs of the State of Washington, its departments and agencies, universities, colleges, community colleges and schools and all political subdivisions.

Classification

All antennas, transmission line connectors and associated hardware selected as suitable for purchase will be given classification within the frequency band groups as follows:

Frequency Band

0932	-	0960	MHz
2110	-	2200	MHz
2290	-	2500	MHz
5725	-	5850	MHz
5925	-	6875	MHz
10.7	-	11.7	GHz
17.7	-	19.7	GHz
21.8	-	23.6	GHz

Standards

1. ~~Part~~ 101, Federal Communications Commission (FCC) Rules and Regulations and amendments; E. I. A. Standards and amendments, RS222.(Latest Version)
2. These specifications are exclusive of any and all equipment with proprietary items, components or devices inclusive therein. All technical tolerances, ratings, or any technically specified criteria contained within this specification are within the current state-of-the-art and are currently being met by commercially available equipment.
3. All material and workmanship will be of the type and grade most suitable for the application. All material will be free from defects, of current design, of recent manufacture and unused.
4. The State of Washington reserves the right to reject any bid proposing equipment that has proven in actual use and properly documented to be unreliable or unsuitable for the work to be accomplished and /or has shown that the operating or maintenance costs of which have been excessive in comparison with other makes of similar equipment working under like conditions.
5. All material and equipment furnished will be subject to approval by the State of Washington, Department of General Administration, Office of State Procurement, including engineers selected to review the products with regard to design, operation, performance and requirements of this specification. The acceptance of equipment or parts thereof will in no way relieve the contractor of responsibility for furnishing equipment that meets this specification in all detail.
6. Should any of the inspections, tests, or operation of the equipment under service conditions show the equipment does not meet the requirements of the specifications, the State will reject the equipment or parts thereof and require the contractor to make changes as necessary to meet the requirements of the specifications at the expense of the contractor.
7. The contractor(s) will hold and save the State, its officers, agents, servants, and employees harmless from liability of any nature of kind, including costs and expense, for or on account of any patented or unpatented invention, articles, or appliance manufactured or used in the performance of any and all contracts encompassing these specifications.
8. Unless specifically excepted by the terms of these specifications, any part or accessories ordinarily furnished or required to make the equipment, herein specified, a complete operating unit will be furnished by the contractor whether identified in these specifications or not.

Radio Frequency System

9. All units will be delivered to the purchaser with any and all equipment modifications intact and installed.

Technical Manuals

1. The contractor will make available equipment documentation to purchasers in any quantity specified by the purchaser over and above the quantity specified herein. This documentation will accompany the equipment at the time of delivery or may be delivered prior to equipment delivery. Documentation costs for purchaser specified manuals will be included as separate bid items. A copy of radiation patterns will be provided at not cost if requested.

Service, Installation and Operation Manuals

Installation and or operator manuals will be furnished with each order. Each manual will contain:

1. Complete diagrams including information outlining method of operation, supply voltages and currents and power requirements for each model of dehydrators.
2. Detailed drawings or clear photographs showing location of parts and hardware associated with antenna assembly or mounting.

Equipment Service Life

1. All equipment covered by these specifications and any resultant contracts will have a minimum service life of ten (10) years from date of delivery to the purchaser. The contractor will guarantee replacement parts stocking by the vendor and/or authorized distributor for this service life period.

Equipment and Parts Warranty

1. Each contractor will guarantee repair or replacement of any equipment or part thereof that fails in operation during normal and proper use within two (2) years from the date of purchaser's receipt due to defects in design, material or workmanship, consummation of final acceptance and payment notwithstanding. These replacements will be made with celerity and without charge to the purchaser. The cost of installation of these replacements will be borne by the contractor for the period of the warranty.
2. Any equipment or part replaced under the provisions of this warranty becomes the property of the contractor. If the vendor desires the defective equipment or part returned, the contractor will pay all transportation charges and make all arrangements for the return. If the contractor does not specifically request return of such replaced parts within thirty (30) days from the date of replacement, the equipment for parts become property of the purchaser.
3. Replacement parts will be regularly stocked by the contractor and/or authorized distributor. Delay in purchaser's receipt of replacement parts will not exceed ten (10) consecutive days from contractor's or distributor's receipt of order.
4. The contractor will guarantee delivery of emergency orders within forty-eight (48) hours from receipt of order. Emergency orders will be transported by the most expedient manner available with the transportation cost born by the purchaser less normal shipping cost.
5. The contractor will supply the purchaser, free of charge for the service life of the equipment, with all data, drawings, and specifications of modifications, plans or experiments by which the equipment may be improved or modernized.

Radio Frequency System**General Equipment characteristics**

The following characteristics apply to all equipment unless otherwise specified.

Environmental

1. All antennas will survive wind velocities of 125 miles per hour with one (1) inch of radial ice and no more than 0.1 degree of deflection in 70 mile per hour wind.
2. All antennas will remain operational within the temperature range of -58°F to 155°F.
3. All antennas and associated hardware will be non-corrosive, non-rust material. This can be accomplished by supplying Hot Dipped Galvanized or Stainless Steel hardware. Plated steel will not be accepted. Aluminum antennas will be painted with corrosion resistant paint.
4. Field assembly of all antennas shall only be between antenna parabola, feed, antenna mount and fixed and/or slide assemblies. **There shall be no field assembly parabola for that is too time consuming.** Antenna mount assembly is permitted.
5. Parabolic solid antennas shall be equipped to include mounting hardware for a **4.5"** vertical O.D. mounting pipe. Parabolic grid antennas shall be equipped to include mounting hardware for either a 1.9" – 3.5" or a **4.5"** vertical O.D.(Outside Diameter) mounting pipe.
6. For parabolic solid antenna shall have a reflector surface tolerance designed to 15GHz so that antenna feeds could be interchanged between 2GHz and 10GHz without loss to antenna gain. The same like between antenna feeds in the 18GHz and 23GHz bands.

Operational Characteristics

Material and workmanship will be of the type and grade most suitable for the application and will conform as a minimum unless otherwise specified to the latest applicable standards, specifications, recommended practices and procedures of such standardizing bodies as the I.E.E.E., E.I.A., N.E.M.A., F.C.C.

Radio Frequency System – Phase II

CATEGORY 7 PRICE SHEETS

Contractor	Link to Specifications
Radio Frequency Systems	http://www.ga.wa.gov/pca/bids/02702-Phase2-Category7.doc

ANTENNAS

The specifications listed herein are minimum requirements; a range variance of up to a maximum of .9DB has been identified as acceptable.

Diameter in Feet	Gain DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam width in °s	Cross Pol Disc. DB	F/B Ratio DB	VSRW	RFS P/N	PRICE EACH
4.0	18.3	18.6	19.1	B	17.4	25	21	1.4	MGA4-082N	\$632.50
6.0	21.2	21.3	21.6	A	12.6	25	30	1.4	MGA6-082N	\$1,144.00
8.0	23.7	24.4	25.0	A	9.0	26	24	1.35	GKL8-082N	\$1,628.00
10.0	25.6	26.3	27.0	A	7.2	26	27	1.35	GKL10-082N	\$1,974.50
12.0	27.4	28.2	28.8	A	5.9	26	30	1.3	GKA12-082M	\$3,184.50

Diameter in Feet	Gain-DB Bottom	Gain-DB MidBand	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH.
4.0	18.1	18.4	18.8	B	19.5	10	22	1.3		\$777.60
6.0	21.6	22.1	22.3	A	13.0	15	25	1.3		\$931.20
8.0	24.1	24.5	24.8	A	9.7	15	27	1.3		\$1,382.40
10.0	26.1	26.4	26.7	A	7.7	15	29	1.3		\$2,112.00
12.0	27.6	28.0	28.3	A	6.4	15	30	1.3	PAF12-890AE	\$3,686.40

C. Welded Grid Antenna 2.1-2.2 GHz, 7/8" EIA Flange or Type "N" Female Input Connector. "AIR DIELECTRIC FEED"

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	25.6	26.8	27.2	B	8.0	29	34	1.3	MGA4-19N	\$632.50
6.0	28.5	29.3	30.1	A	5.4	32	35	1.2	MGA6-19N	\$1,144.00
8.0	31.0	31.8	32.6	A	4.1	35	41	1.2	GKL8-19N	\$1,628.00
10.0	32.9	33.8	34.6	A	3.2	35	45	1.2	GKL10-19N	\$1,974.50
12.0	34.7	35.6	36.4	A	2.6	40	47	1.2	GKA12-19N	\$3,184.50
15.0	36.6	37.5	38.3	A	2.1	40	49	1.2	GPW15-19N	\$12,223.75

Radio Frequency System – Phase II**D. Welded Grid Antenna 2.1-2.2 GHz, 7/8" EIA Flange or Type "N" Female Input Connector. "FOAM FEED"****NOTE: NON PRESSURIZED FEEDS ARE NOT AVAILABLE SEE ABOVE**

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	26.5	26.7	26.9	B	7.9	29	32	1.3	N/A	\$
6.0	30.3	30.5	30.7	A	5.3	32	35	1.2	N/A	\$
8.0	32.0	32.2	32.4	A	4.0	35	39	1.2	N/A	\$
10.0	33.8	34.0	34.2	A	3.2	35	41	1.2	N/A	\$
12.0	35.3	35.5	35.7	A	2.6	40	44	1.2	N/A	\$
15.0	37.3	37.5	37.7	A	2.1	40	46	1.2	N/A	\$

E. Solid Parabolic Standard Antenna 2.1-2.2 GHz, 7/8" EIA Type "N" Female Input Connector.

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	24.8	25.7	26.6	B	8.1	27	33	1.2.	PAL4-19AN	\$844.80
6.0	28.7	29.6	30.5	B	5.5	30	37	1.15	PAL6-19AN	\$1,017.60
8.0	31.2	32.1	33.0	A	4.1	30	40	1.1	PAL8-19AN	\$1,449.60
10.0	33.1	34.0	34.9	A	3.3	30	43	1.1	PAL10-19AN	\$2,198.40
12.0	34.7	35.6	36.5	A	2.8	30	45	1.1	PAL12-19AN	\$3,979.20
15.0	36.4	37.3	38.3	A	2.2	30	49	1.0	PAL15-19AN	\$10,512.00

F. Solid Parabolic Standard Antenna 6.425-7.125 GHz, CPR 137G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	35.9	36.4	36.8	-	2.5	30	43	1.08	PAL4-65AC	\$844.80
6.0	39.4	39.9	40.3	B	1.7	30	47	1.06	PAL6-65AC	\$1,017.60
8.0	41.6	42.1	42.5	A	1.3	30	59	1.06	PAD8-65AC	\$1,608.00
	42.0	42.4	42.9	B	1.2	30	49	1.06	PAL8-65AC	\$1,449.60
10.0	43.5	43.9	44.3	A	1.0	30	52	1.06	PAD10-65AC	\$2,304.00
	43.7	44.1	44.6	B	1.1	30	63	1.06	PAL10-65AC	\$2,198.00
12.0	45.3	45.8	46.2	A	0.8	30	70	1.06	DA12-65AC	\$6,020.00

Radio Frequency System – Phase II

G. Solid Parabolic Dual Polarized Standard Antenna 6.425-7.125 GHz, CPR 137G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
6.0	39.2	39.7	40.1	B	1.7	30	47	1.06	PAX6-65AC	\$1,670.40
8.0	41.4	41.9	42.3	A	1.2	30	59	1.06	PADX8-65AC	\$2,145.60
10.0	43.5	43.9	44.4	A	1.0	30	52	1.06	PADX10-65AC	\$2,832.00
12.0	45.1	45.6	46.0	A	0.8	30	71	1.06	DAX12-65AC	\$6,468.00

H. Single Polarized Antenna, 6.425-7.125 GHz, CPR 137G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	35.6	36.0	36.5	-	2.5	30	58	1.08	DA4-65AC	\$1,536.00
6.0	39.4	39.8	40.2	B	1.7	30	64	1.06	DA6-64AC	\$2,820.00
8.0	41.9	42.3	42.8	A	1.3	30	66	1.06	DA8-65AC	\$3,498.00
10.0	43.7	44.1	44.6	A	1.0	30	69	1.06	DA10-65AC	\$4,444.00
12.0	45.3	45.8	46.2	A	0.8	30	70	1.06	DA12-65AC	\$6,020.00

I. Dual Polarized Antenna, 6.425-7.125 GHz, CPR 137G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	34.8	35.3	35.7	-	2.5	30	58	1.10	DAX4-65AC	\$1,794.00
6.0	39.1	39.5	39.9	A	1.7	30	64	1.07	DAX6-65AC	\$2,990.00
	39.2	39.7	40.1	B	1.7	30	47	1.06	PAX6-65 AC	\$1,670.40
8.0	41.6	42.0	42.4	A	1.3	34	68	1.06	DAX8-65AC	\$3,684.00
	41.8	42.2	42.7	B	1.3	30	52	1.06	PAX8-65 AC	\$1,987.20
10.0	43.6	44.0	44.4	A	1.0	34	70	1.06	DAX10-65AC	\$4,804.00
	43.5	43.9	44.4	B	1.0	30	58	1.06	PAX10-65AC	\$2,515.20
12.0	45.1	45.6	46.0	A	0.8	30	71	1.06	DAX12-65AC	\$6,468.00

J. Single Polarized Parabolic Antenna, 10.7-11.7 GHz, CPR 90G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	40.1	40.5	40.9	B	1.6	30	62	1.08	DA4-107AC	\$1,536.00
6.0	43.5	43.9	44.3	B	1.0	30	60	1.06	PAD6-107AC	\$1,080.00
8.0	46.0	46.4	46.8	A	0.7	30	62	1.06	PAD8-107AC	\$1,608.00
10.0	47.9	48.3	48.5	A	0.7	30	64	1.06	PAD10-107AC	\$2,304.00
12.0	49.4	49.8	50.0	A	0.5	30	71	1.06	DA12-107AC	\$6,020.00

Radio Frequency System – Phase II**K. Dual Polarized Parabolic Antenna, 10.7-11.7 GHz, CPR 90G Input Flange**

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	40.0	40.4	40.8	A	1.5	30	64	1.10	DAX4-107AC	\$1,794.00
6.0	43.4	43.8	44.2	A	1.0	30	60	1.08	PADX6-107AC	\$1,728.00
8.0	45.9	46.3	46.7	A	0.8	30	62	1.08	PADX8-107AC	\$2,145.60
10.0	47.8	48.2	48.4	A	0.7	30	64	1.08	PADX10-107AC	\$2,832.00
12.0	49.2	49.6	49.9	A	0.5	30	72	1.06	DAX12-107AC	\$6,468.00

L. Single Polarized Parabolic Antenna, 10.7-11.7 GHz, CPR 90G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	40.1	40.5	40.9	A	1.6	30	62	1.08	DA4-107AC	\$1,536.00
6.0	43.7	44.0	44.5	A	1.0	30	70	1.06	DA6-107AC	\$2,820.00
8.0	46.1	46.4	46.9	A	0.8	30	71	1.06	DA8-107AC	\$3,498.00
10.0	48.0	48.4	48.6	A	0.7	30	71	1.06	DA10-107AC	\$4,444.00
12.0	49.4	49.8	50.0	A	0.5	30	72	1.06	DA12-107AC	\$6,020.00

M. Dual Polarized Parabolic Antenna, 10.7-11.7GHz, CPR 90G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	40.0	40.4	40.8	A	1.5	30	64	1.10	DAX4-107AC	\$1,794.00
6.0	43.5	43.8	44.3	A	1.0	30	68	1.08	DAX6-107AC	\$2,990.00
8.0	45.9	46.2	46.7	A	0.8	30	69	1.06	DAX8-107AC	\$3,684.00
10.0	47.8	48.2	48.4	A	0.7	30	70	1.06	DAX10-107AC	\$4,804.00
12.0	49.2	49.6	49.9	A	0.5	30	72	1.06	DAX12-107AC	\$6,468.00

N. Single Polarized Parabolic Antenna, 17.7-19.7GHz, UG-595/U Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
2.0	38.1	38.6	39.1	A	1.9	32	62	1.20	SU2-190AZ	\$360.00
4.0	44.1	44.6	45.1	A	0.9	32	67	1.20	SU4-190AZ	\$896.00
	44.3	44.8	45.3		0.9	32	53	1.20	SP4-190AZ	\$739.00
6.0	47.5	48.0	48.5	A	0.7	32	71	1.20	SU6-190AZ	\$1,596.00
	47.7	48.2	48.7		.07	32	57	1.20	SP6-190AZ	\$852.00

Radio Frequency System – Phase II**O. Single Polarized Parabolic Antenna, 21.2-23.6 GHz, UG-595/U Input Flange**

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
2.0	39.6	40.1	40.6	A	1.6	32	66	1.20	SU2-220AZ	\$360.00
4.0	45.6	46.1	46.6	A	0.8	32	72	1.20	SU4-220AZ	\$896.00
	45.8	46.3	46.8		0.8	32	58	1.20	SP4-220AZ	\$739.20
6.0	49.0	49.5	50.0	A	0.5	32	75	1.15	SU6-220AZ	\$1,596.00
									SP6-220AZ	\$852.00

HIGH Performance and Ultra High Performance**A. High Performance, 6.425-7.125 GHz, Single Polarization, CPR 137G Input Flange**

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	35.4	36.0	36.5	-	2.5	30	58	1.08	DA4-65AC	\$1,536.00
6.0	39.4	39.8	40.2	A	1.7	30	64	1.06	DA6-65AC	\$2,820.00
8.0	41.9	42.3	42.8	A	1.3	30	66	1.06	DA8-65AC	\$3,498.00
10.0	43.7	44.1	44.6	A	1.0	30	70	1.06	DA10-65AC	\$4,444.00
12.0	45.3	45.8	46.2	A	0.8	30	71	1.05	DA12-65AC	\$6,020.00
15.0	47	47.5	47.9	A	0.7	30	71	1.06	DA15-65AC	\$9,780.00

B. High Performance, 6.425-7.125 GHz, Dual Polarization, CPR 137G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	34.8	35.3	35.7	-	2.5	30	58	1.08	DAX4-65AC	\$1,794.00
6.0	39.2	39.7	40.1	A	1.7	30	64	1.06	DAX6-65AC	\$2,990.00
8.0	41.8	42.2	42.7	A	1.3	30	68	1.06	DAX8-65AC	\$3,684.00
10.0	43.5	43.9	44.4	A	1.0	30	70	1.06	DAX10-65AC	\$4,804.00
12.0	45.1	45.6	46.0	A	0.8	30	71	1.05	DAX12-65AC	\$6,468.00
15.0	47	47.5	47.9	A	0.7	30	71	1.06	DAX15-65AC	\$10,864.00

Radio Frequency System – Phase II**C. High Performance, 6.425-7.125 GHz, Dual Polarization, Super Cross Polarization CPR 137G Input Flange**

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
6	39.2	39.7	40.1	A	1.7	40	69	1.08	UXA6-65AC	\$3,900.00
8	41.8	42.2	42.7	A	1.3	40	71	1.06	UXA8-65AC	\$4,900.00
10	43.5	43.9	44.4	A	1.0	40	74	1.06	UXA10-65AC	\$5,940.00
12	45.1	45.6	46.0	A	0.8	40	76	1.06	UXA12-65AC	\$8,094.00
15	47.0	47.5	47.9	A	0.7	40	77	1.05	UXA15-65AC	\$12,296.00

D. Ultra High Performance, 6.425-7.125 GHz, Dual Polarization, CPR 137G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
6	39.2	39.7	40.1	A	1.7	30	69	1.08	UDA6-65AC	\$2,408.00
8	41.8	42.2	42.7	A	1.3	30	71	1.06	UDA8-65AC	\$3,900.00
10	43.5	43.9	44.4	A	1.0	30	73	1.06	UDA10-65AC	\$5,940.00
12	45.1	45.6	46.0	A	0.8	30	75	1.06	UDA12-65AC	\$8,094.00
15	47.0	47.5	47.9	A	0.7	30	76	1.05	UDA15-65AC	\$12,296.00

E. High Performance, 10.7-11.7 GHz, Single Polarization, CPR 90G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4	40.1	40.5	40.9	A	1.6	30	61	1.08	DA4-107AC	\$1,536.00
6	43.7	44.0	44.5	A	1.0	30	70	1.06	DA6-107AC	\$2,820.00
8	46.1	46.4	46.9	A	0.8	30	71	1.06	DA8-107AC	\$3,498.00
10	48.0	48.4	48.6	A	0.7	30	70	1.06	DA10-107AC	\$4,440.00
12	49.4	49.8	50.0	A	0.5	30	70	1.05	DA12-107AC	\$6,020.00

F. High Performance, 10.7-11.7 GHz, Dual Polarization, CPR 90G Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4	39.8	40.4	40.8	A	1.5	30	64	1.08	DAX4-107AC	\$1,794.00
6	43.5	43.8	44.3	A	1.0	30	68	1.06	DAX6-107AC	\$2,990.00
8	45.9	46.2	46.7	A	0.8	30	69	1.06	DAX8-107AC	\$3,684.00
10	47.8	48.2	48.4	A	0.7	30	70	1.06	DAX10-107AC	\$4,804.00
12	49.2	49.6	49.9	A	0.5	30	72	1.05	DAX12-107AC	\$6,468.00

Radio Frequency System – Phase II**G. High Performance, 10.7-11.7 GHz, Dual Polarization, Super High Cross Polarization CPR 90G Input Flange**

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	RFS P/N	PRICE EACH
4	40.0	40.4	40.3	A	1.5	40	70	UXA4-107AC	\$2,408.00
6	43.5	43.8	44.3	A	1.1	40	73	UXA6-107AC	\$3,900.00
8	45.9	46.2	46.7	A	0.8	40	75	UXA8-107AC	\$4,900.00
10	47.8	48.2	48.4	A	0.7	40	77	UXA10-107AC	\$5,940.00
12	49.2	49.6	49.9	A	0.5	40	78	UXA12-107AC	\$8,094.00

H. Ultra High Performance, 10.7-11.7 GHz Dual Polarization, CPR90G

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	RFS P/N	PRICE EACH
4	40.0	40.4	40.8	A	1.5	40	70	UXA4-107AC	\$2,408.00
6	43.5	43.8	44.3	A	1.1	40	73	UXA6-107AC	\$3,900.00
8	45.9	46.2	46.7	A	0.8	30	75	UDA8-107AC	\$4,900.00
10	47.8	48.2	48.4	A	0.7	30	77	UDA10-107AC	\$5,940.00
12	49.2	49.6	49.9	A	0.5	30	78	UDA12-107AC	\$8,094.00

I. High Performance, 17.7-19.7 GHz, Singal Polarization, UG595/U Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	RFS P/N	PRICE EACH
8	49.9	50.3	50.8	A	0.45	30	74	DA8-190AZ	\$3,498.00

J. High Performance, 17.7-19.7 GHz, Super, Dual Polarization, UG595/U Input Flange

Diameter in Feet	Gain-DB Bottom	Gain-DB Mid Band	Gain-DB Top	FCC Category	Beam Width °s	Cross Pol Disc. DB	F/B Ratio DB	RFS P/N	PRICE EACH
1	32.7	33.3	33.8	-	3.4	30	55	SBX1-190AZ	\$379.20
2	37.8	38.3	38.7	A	1.9	36	66	UXA2-190BZ	\$1,910.00
4	44.0	44.5	44.9	A	1.0	36	72	UXA4-190BZ	\$2,408.00
6	47.5	48.0	48.4	A	0.7	36	76	UXA6-190AZ	\$3,900.00

Radio Frequency System – Phase II**Radomes PRICING**

Radome Type	Diameter in Feet	Attenuation 2 GHz	Attenuation 6 GHz	Attenuation 11 GHz	Attenuation 18 GHz	RFS P/N	PRICE EACH
Standard	2.0	0.10 dB	0.30dB	.9dB	2.0db	RANDOME 2	\$184.80
Standard	4.0	0.10 dB	0.30dB	1.0dB	2.0db	RANDOME 4	\$285.60
Standard	6.0	0.10 dB	0.40dB	1.0dB	2.1db	RANDOME 6	\$393.60
Standard	8.0	0.10 dB	0.50dB	1.1dB	--	RANDOME 8	\$621.60
Standard	10.0	0.20dB	0.80dB	1.5dB	--	RANDOME 10	\$912.00

Transmission Line PRICING

Transmission line or COAXIAL cable will be available according to the sizes listed below:

SIZE	DESCRIPTION	PRICE per foot
1/2"	Diameter Foam Dielectric Coaxial Cable	\$.93
7/8"	Diameter Foam Dielectric Coaxial Cable	\$2.13
1-1/4"	Diameter Foam Dielectric Coaxial Cable	\$4.14
7/8"	Diameter Air Dielectric Coaxial Cable	\$3.20
1-5/8"	Diameter Foam Dielectric Coaxial Cable	\$5.28
1/4"	Diameter Super Flexible Foam Dielectric Coaxial Cable	\$.61
1/2"	Diameter Super Flexible Foam Dielectric Coaxial Cable	\$1.36

Elliptical and Rigid waveguide will be supplied according to the sizes and/or frequency band listed below:

TYPE	RANGE	PRICE per foot
Elliptical Waveguide for	5.925 – 7.125 GHz E65	\$6.01
Rigid Waveguide for	5.925 – 7.125 GHz	\$N/A
Elliptical Waveguide for	10.70 – 11.70 GHz E105	\$5.42
Rigid Waveguide for	10.7 – 11.70 GHz	\$N/A
Elliptical Waveguide for	17.70 – 19.70 GHz E185	\$3.89
Rigid Waveguide for	17.70 – 19.70 GHz	\$N/A
Elliptical Waveguide for	21.20 – 23.60 GHz E220	\$3.50
Rigid Waveguide for	21.20 – 23.60 GHz	\$N/A

Radio Frequency System – Phase II

Connectors PRICING

Connector for Foam

1/2" Connector	Price Each	7/8" Connector	Price Each	1-1/4" Connector	Price Each	1-5/8 Connector	Price	1/4" Super Flexible Connector	Price Each	1/2" Super Flexible Connector	Price Each
"N" Male	\$14.46	"N" Male	\$18.94	"N" Male	\$58.98	"N" Male	\$83.34	"N" Male	\$15.75	"N" Male	\$14.67
"N" Female	\$14.46	"N" Female	\$18.94	"N" Female	\$58.98	"N" Female	\$83.34	"N" Female	\$10.82	"N" Female	\$12.78
UHF Male	\$18.20	UHF Male	\$25.90	UHF Male	N/A	UHF Male	N/A	UHF Male	\$20.41	UHF Male	\$14.63
UHF Female	\$18.20	UHF Female	\$25.90	UHF Female	NA/	UHF Female	NA/	DIN Male	\$17.15	DIN Male	\$14.67
7/16 DIN Male	\$14.46	7/16 DIN Male	\$18.94	7/16 DIN Male	\$58.98	7/16 DIN Male	\$83.34	DIN Female	\$20.48	DIN Female	\$14.67
7/16 DIN Female	\$14.46	7/16 DIN Female	\$18.94	7/16 DIN Female	\$58.98	7/16 DIN Female	\$83.34	DIN Male Right Angle	N/A	DIN Male Right Angle	\$20.79
<u>7/8" EIA</u>	\$41.02	7/8" EIA	\$42.42	7/8" EIA	\$84.70	<u>7/8" EIA</u>	\$121.28				

7/8" Connectors for Air Dielectric

TYPE	PRICE EACH
"N" Male 738247	\$43.75
"N" Female 738226	\$41.65
7/8" EIA Flange 738229 (GB) OR 738230 (GB)	\$68.25 (GB) \$ 46.20 (GP)

DESCRIPTION	RFS P/N	PRICE EACH
EWP 63, Tunable, CPR and EW 63, Standard, CPR 137G	C137-065TG Tunable C137-065FG Standard	\$112.00 \$99.75
EWP 90, Tunable, CPR and EW 90, Standard, CPR 90G	C90-105TG Tunable C90-105FG Standard	\$119.00 \$108.50
EWP 180, Tunable, UG595/U and EW 180, Standard, UG595/U	G595-185TG Tunable	\$120.75
EW 220, Fixed Tuned	B220-220FP PBR FLANGE PLAST 2000 SEAL	\$87.50

**Radio Frequency System – Phase II
Dehydrators**

Flow Rate	Pressure	Dew	Recom.	Type	Voltage	Power	Alarms	RFS P/N	Price
SCFM	PSIG	Point	Volume ft³						
0.9	3-8	-33	0-10	D	115 VAC	230	none	SPD-10	\$553.90
0.05	5	-50	0-20	M	115 Vac	184	LP	APD-20	\$1,046.90
0.05	5	-50	0-20	M	115 Vac	184	Full	APD-20W/ALARMS*	\$2,162.38
0.2	5	-50	0.01-60	M	115/230 Vac	350/390	LP	APD-22	\$1,191.90
0.2	5	-50	0.01-60	M	115 Vac	350-550	LP	APD-20	\$1,046.90
0.2	5	-50	0.01-60	M	115 Vac	350-550	LP	APD-20	\$1,046.90
0.3	3-8	-50	2-80	M	115 Vac	390	LP	APD-20	\$1,046.90
0.3	3-8	-50	2-80	M	115 Vac	390	LP	APD-20	\$1,046.90
0.3	3-8	-50	2-80	M	115 Vac	390	Full	APD-20 W/ALARMS*	\$2,162.38
0.3	3-8	-50	2-80	M	115	390	Full	APD-20 W/ALARMS*	\$2,162.38

**Radio Frequency System – Phase II
Spread Spectrum**

A. Welded Grid Antenna, 2300-2500 MHz “Spread Spectrum” Type “N” Female Input connector or 7/8” EIA Flange

Diameter in Feet	Gain – DB Bottom	Gain – DB Mid Band	Gain – DB Top	Beamwidth Degrees	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	26.8	27.0	27.2	7.0	32	1.35	MGAR4-23N	\$522.50
6.0	29.6	30.1	30.4	4.5	38	1.35	MGAR6-23N	\$940.50
8.0	32.0	32.4	32.8	3.4	41	1.35	GKLR8-23N	\$1,441.00
10.0	33.9	34.3	34.6	2.7	45	1.35	GKLR10-12N	\$1,881.00
12.0	36.0	36.4	36.7	2.6	47	1.35	GKAR12-23N	\$2,992.00
15.0	38.1	38.6	39.1	1.9	48	1.35	NO BID	\$

B. Solid Parabolic Reflector Standard Antenna, 2290-2450 MHz, “Spread Spectrum” Type “N” Female Input Connector or 7/8” EIA Flange.

Diameter in Feet	Gain – DB Bottom	Gain – DB Mid Band	Gain – DB Top	Beamwidth Degrees	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
4.0	26.7	27.1	27.3	6.9	25	36	1.3	SPF4-23AJ	\$720.00
6.0	30.2	30.6	30.9	4.6	25	39	1.1	SPF6-23AJ	\$852.00
8.0	32.9	33.3	33.3	3.5	30	40	1.1	PAF8-23AE	\$1,430.40
10.0	34.9	35.2	35.3	2.8	30	43	1.1	PAF10-23AE	\$2,112.00
12.0	36.5	36.8	37.2	2.3	30	45	1.1	PAF12-23AE	\$3,686.40

C. Solid Parabolic Reflector Standard Antenna, 5725-5850 MHz, “Spread Spectrum” CPR 137G Flange

Diameter in Feet	Gain – DB Bottom	Gain – DB Mid Band	Gain – DB Top	Beamwidth Degrees	Cross Pol Disc. DB	F/B Ratio DB	VSWR	RFS P/N	PRICE EACH
2.0	27.4	27.9	28.4	6.2	25	34	1.5	SPF2-52AN	\$408.00
3.0	30.9	31.4	31.9	4.2	25	38	1.5	SPF3-52AN	\$669.60
4.0	33.4	33.9	34.4	3.1	28	40	1.5	SPF4-52AN	\$739.20
6.0	37.0	37.4	37.9	2.1	30	44	1.5	SPF6-52AN	\$936.00

Radio Frequency System – Phase II**Accessory price discount off manufacturer price list**

Discount off Manufacturer Price List: See Below for rate

RADIO FREQUENCY SYSTEMS, INC.**PURCHASE DISCOUNTS****FOR****STATE OF WASHINGTON
AND OTHER WSCA STATES****Phase I**

High Performance Microwave Antennas	60%
Standard Performance Microwave Antennas	52%
Grid Microwave Antennas	45%
FlexwellB Elliptical Waveguide	65%
FlexwellB Elliptical Waveguide Connectors	65%
FlexwellB Elliptical Waveguide Accessories	65%
CELLFLEXB LCF Foam Dielectric Coaxial Cables	65%
CELLFLEXB LCF Coaxial Cable Connectors	65%
CELLFLEXB Installation Accessories	65%
FlexwellB Air Dielectric Coaxial Cables	60%
Pressurization Equipment	42%

Note: All pricing is FOB Destination with full standard surface freight allowed.

Per Section 32.a. of the RFP, Radio Frequency Systems is also offering a contractual project discount of three percent (3%) off the total value for any single purchase order or combination of purchase orders submitted at one time by a purchasing entity, or multiple entities, conducting a cooperative purchase for delivery at one time.

The above discounts shall be applied to the prices listed in the most current Radio Frequency Systems published price list and are subject to annual review.

7/24/03**Price List Dated 2003 included with all binders.**

Radio Frequency System – Phase II
RADIO FREQUENCY SYSTEMS, INC.

Volume Discount Program - Phase 1 and Phase 2 all categories

The volume discount will be cumulative and over the term of the contract.

(Initial Term of Three [3] Years)

Additional Discount off Net Contract Unit Price	Cumulative Total Sales from:	Cumulative Total Sales to:
1.0%	\$ 5,000,000	\$ 9,999,999
2.5%	\$ 10,000,000	\$ 14,999,999
3.5%	\$ 15,000,000	\$ 19,999,999
5.0%	\$ 20,000,000	\$ 29,999,999
6.0%	\$ 30,000,000	\$ 39,999,999
7.0%	\$ 40,000,000	\$ 49,999,999
7.5%	\$ 50,000,000	\$ 59,999,999
8.0%	\$ 60,000,000	\$ 69,999,999
8.5%	\$ 70,000,000	\$ 79,999,999
9.0%	\$ 80,000,000	\$ 89,999,999
9.5%	\$ 90,000,000	\$ 99,999,999
10.0%	\$100,000,000	\$ 100,000,000+