

Dane County Contract Addendum Cover Sheet

Res 147 significant

Revised 06/2021

Contract # Admin will assign	14911B
--	--------

Dept./Division	Public Safety Communications	Vendor Name	RACOM
Brief Addendum Title/Description	Replacement/Update of DaneCom Microwave system and six batteries for radio tower sites.	Vendor MUNIS #	26968
		Addendum Term	08/01/2023-12/31/2023
		Amount (\$)	\$ 1,407,502.40

Department Contact Information		Vendor Contact Information	
Contact	Luis Bixler	Contact	Tim Romanelli
Phone #	608-267-2507	Phone #	800-722-6643
Email	bixler.luis@countyofdane.com	Email	timothy.romanelli@racom.net
Purchasing Officer	Megan Rogan		



Purchase Order – Maintenance or New PO					
<input type="checkbox"/>	PO Maintenance Needed	Org: CPPUBSAF	Obj: 58332	Proj:	\$ 1,168,823.40
	PO# 20230648	Org: CPPUBSAF	Obj: 58222	Proj:	\$ 238,679.00
<input type="checkbox"/>	No PO Maintenance Needed – <i>this addendum does not change the dollar amount of the contract.</i>				
<input type="checkbox"/>	New PO / Req. Submitted	Org:	Obj:	Proj:	
	Req#	Org:	Obj:	Proj:	

Budget Amendment	
<input type="checkbox"/>	A Budget Amendment has been requested via a Funds Transfer or Resolution. Upon addendum approval and budget amendment completion, the department shall update the requisition in MUNIS accordingly.

Total Contracted Amount – List the Original contract info, then subsequent addenda including this new addendum					
A resolution is required when the total contracted amount first exceeds \$100,000. Additional resolutions are then required whenever the sum(s) of any additional addenda exceed(s) \$100,000	Addendum #	Term	Amount	Resolution	
	Original	1/1/2023-12/31/2023	\$ 642,242.77	<input type="checkbox"/> None	Res# 255, 2022
	14911A	1/1/23-12/31/23	\$ 0.00	<input checked="" type="checkbox"/> None	Res#
	14911B	8/1/23 - 12/31/23	\$ 1,407,502.40	<input type="checkbox"/> None	Res# 2023 RES-147
				<input type="checkbox"/> None	Res#
				<input type="checkbox"/> None	Res#
				<input type="checkbox"/> None	Res#
Total Contracted Amount			\$ 2,049,745.17		

Contract Language Pre-Approval – prior to internal routing, this contract has been reviewed/approved by:		
<input type="checkbox"/> Corporation Counsel:	<input type="checkbox"/> Risk Management:	<input checked="" type="checkbox"/> No Pre-Approval

APPROVAL	
Dept. Head / Authorized Designee	
Bixler, Luis	Digitally signed by Bixler, Luis Date: 2023.08.14 14:17:39 -05'00'

APPROVAL – Contracts Exceeding \$100,000	
Director of Administration	Corporation Counsel
	

APPROVAL – Internal Contract Review – Routed Electronically – Approvals Will Be Attached			
DOA:	Date In: 9/12/23	Date Out: _____	<input checked="" type="checkbox"/> Controller, Purchasing, Corp Counsel, Risk Management

Goldade, Michelle

From: Goldade, Michelle
Sent: Tuesday, September 12, 2023 4:33 PM
To: Hicklin, Charles; Rogan, Megan; Gault, David; Lowndes, Daniel
Cc: Stavn, Stephanie; Oby, Joe
Subject: Contract #14911B
Attachments: 14911B.pdf

Tracking:	Recipient	Read	Response
	Hicklin, Charles	Read: 9/12/2023 4:36 PM	Approve: 9/12/2023 4:36 PM
	Rogan, Megan		Approve: 9/15/2023 8:13 AM
	Gault, David	Read: 9/12/2023 4:34 PM	Approve: 9/14/2023 4:45 PM
	Lowndes, Daniel	Read: 9/13/2023 8:16 AM	Approve: 9/13/2023 8:16 AM
	Stavn, Stephanie	Read: 9/13/2023 9:10 AM	
	Oby, Joe		

Please review the contract and indicate using the vote button above if you approve or disapprove of this contract.

Contract #14911B
Department: Public Safety Communications
Vendor: RACOM Corporation
Contract Description: Addendum to replace/update DaneCom Microwave System and six batteries at radio tower sites (Res 147)
Contract Term: 8/1/23 – 12/31/23
Contract Amount: \$1,407,502.40

Michelle Goldade

Administrative Manager
Dane County Department of Administration
Room 425, City-County Building
210 Martin Luther King, Jr. Boulevard
Madison, WI 53703
PH: 608/266-4941
Fax: 608/266-4425
TDD: Call WI Relay 711

Please Note: I currently have a modified work schedule...I am in the office Mondays and Wednesdays and working remotely Tuesdays, Thursdays and Fridays in accordance with COVID 19 response guidelines.

2023 RES-147

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

**AMENDMENT TO RACOM RADIO CONTRACT TO INCLUDE MICROWAVE AND
REPLACEMENT OF SIX RADIO TOWER SITE BATTERIES**

Dane County Public Safety Communications (PSC) utilizes RACOM, a L3 Harris National Center of Excellence provider to maintain and monitor the DaneCom radio system. As part of maintaining the health and functionality of the DaneCom radio system, both the Microwave system and six batteries that provide emergency electrical during a power outage need to be replaced. This contract amendment introduces the already budgeted items of the Microwave and Battery replacement(s) into the existing RACOM contract.

NOW, THEREFORE, BE IT RESOLVED that the Dane County Board of Supervisors does authorize a contract amendment to Dane County Contract #14911 with the total cost being \$1,407,502.40 and that the County Executive and County Clerk are authorized to execute the agreement.



DANE COUNTY CONTRACT

ADDENDUM #14911B

Revised 01/2022

THIS ADDENDUM, made and entered into effective as of the date by which both parties hereto have executed this document, by and between the County of Dane (hereinafter referred to as "County") and RACOM (hereinafter, "Provider").

WITNESSETH:

WHEREAS Provider and County, by a separate document (hereinafter, the "Master Agreement"), Dane County Contract # 14911 , have previously entered into a contractual relationship pursuant to which Provider provides Radio System Maintenance, and

WHEREAS County and Provider wish to amend the Master Agreement in order to upgrade the current Nokia MDR8000 Microwave Radios to the Aviat IRU600 Microwave Radios per the attached scope of work, and to replace site batteries for UPS per the attached site list.

NOW, THEREFORE, in consideration of the above premises and the mutual covenants of the parties hereinafter set forth, the receipt and sufficiency of which is hereby acknowledged by each party for itself, the parties do agree as follows:

1. The Master Agreement shall remain in full force and effect unchanged in any manner by this addendum except as changes are expressly set forth herein. This addendum shall control only to the extent of any conflict between the terms of the Master Agreement and this addendum.
2. The Master Agreement, and any amendment or addendum to it, may be executed and transmitted to any other party by legible facsimile reproduction or by scanned legible electronic PDF copy, and utilized in all respects as, an original, wet-inked manually executed document. Further, the Master Agreement and any amendment or addendum thereto, may be stored and reproduced by each party electronically, photographically, by photocopy or other similar process, and each party may at its option destroy any original document so reproduced. All parties hereto stipulate that any such legible reproduction shall be admissible in evidence as the original itself in any judicial, arbitration or administrative proceeding whether or not the original is in existence and whether or not such reproduction was made by each party in the regular course of business. This term does not apply to the service of notices under the Master Agreement, or any subsequent amendment or addendum.
3. PROVIDER shall upgrade the current Microwave Radios per the attached scope of work and spreadsheet with detailed list of equipment and replace site batteries for UPS per the attached list which identifies the sites and equipment to be installed at each location. The total cost of this combined project is \$1,407,502.40.

Site Battery Replacements for UPS - \$238,679.00
Microwave System Upgrade - \$1,168,823.40

Dane County, WI Microwave System Upgrade

RACOM Statement of Work

Project: Dane County, WI, Microwave System Upgrade

Scope:

Upgrade the Nokia MDR8000 Microwave radios to the Aviat IRU600 Microwave Radios.

Description:

The project comprises a quantity of 11 microwave paths in Dane County, WI. The network topology is a 7-path microwave ring with 2 microwave spurs. All paths that are part of a ring configuration are designed with non-standby (NSB) microwave radios. All paths that are not part of a ring configuration are designed with monitored hot-standby (MHSB) microwave radios.

All paths are designed with the Aviat IRU600 all indoor radio.

Path Studies will be performed at each site to ensure there are no obstructions that would impact reliability predictions. Recommendations will be made if any paths are deemed insufficient.

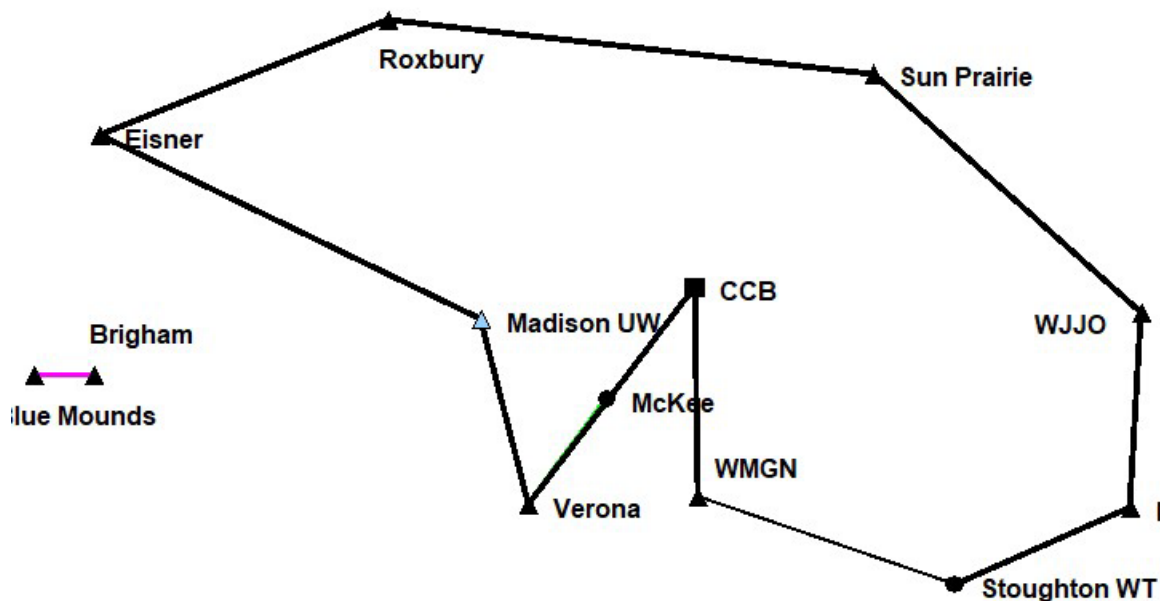


Figure 1: Microwave loop design.

Microwave radios will be replaced at the following sites:

WJJO (Note: This link will be modified to go to CCB instead of Verona – new antenna and lines required)

Sun Prairie

Roxbury

Eisner

Madison UW

Verona

McKee

CCB

Stoughton WT

Rockdale

A new link will be added between Brigham and Bluemound. T1 to IP modules will be added to the exiting Interplex MUX (Gates Air T1-IP MUX will be used to replicate T1s for the MSTR 3 equipment.)



The Aviat radios will connect via fiber to the existing Nokia 7705 Service Aggregation Router

8 of the microwave paths are designed in the L6 GHz band, 2 of the paths are designed in the U6 GHz band and 1 of the paths is designed in the 11 GHz band.

All of the microwave paths are designed with a fixed modulation of 128 QAM and a data throughput of 163 Mbps.

All paths are designed to provide a minimum 2-way availability of 99.999%.

The existing antennas and lines will be reused. Line Sweeps of existing antenna systems will be performed. Antenna or line problems will be reported with recommendations.

Microwave links will be replaced one at time, with traffic routed in the opposite direction so that no down time on the system should occur.

The existing -48-volt DC plan will be reused.

P25 Tower Site Equipment		Site: WMGN		
Description	Manufacture	Part Number		QTY
Antennas/Combiners/TTA & MultiCoupler				
Antenna - 12.5dBd,Directional; 746-960 MHZ, DIN	Sinclair	SE419-SWBPALDF(D00)_R160		0
Antenna, Aurora - 12.5dBd, Directional 746-806Mhz, DIN 220deg	Sinclair	SR4BC-HF4P4LDF(D03-PIP)		0
Antenna, Aurora - 13.5dBd, Bi-Directional 746-806Mhz, DIN	Sinclair	SR4BD-HF4P2LDF(D00-PIP)		0
Antenna - 12dBd, Omni 746-869 MHZ, DIN (PIM-PIP)	dbSpectra	DS7C12P36U-D		0
Antenna Clampset	Sinclair	CLAMP006B		0
Non-Torsion Antenna Mount for 20' Dipole antennas	dbSpectra	DSH3V3N		0
Antenna - 3dB, Omni Dipole 150-160Mhz for Paging	Tessco	DB222-A		0
Antenna - 11.5dBi, Omni Dipole 450-470Mhz for Paging	Tessco	DB420B		0
TX Ceramic Combiner, 4ch	dbSpectra	DSCC85-04DS1 (AC)		0
800Mhz TX window filter same level TX and RX antennas	dbSpectra	MWF8AM-D		0
Tower Top Amplifier NEW	dbSpectra	DS7TMA17C		0
RX Multit-Coupler NEW	dbSpectra	DSX7PDU08-AC		0
19" 2 Post Equipment rack Silver	Tessco	SB556084XUSL		0
19" rack isolation kit	Tessco	SB254101		0
19" Vertical Rack ground bar kit	Talley	SBVB72K		0
19" 100Amp Dual buss fuse panel 20Amp output	Tessco	NPGMT1125		0
Cable				
RG58A/U coax	Belden	8219		0
1/4" Eupen Hiflex	Eupen	EC1-50-HF		0
LMR-400	Tessco	59520		0
1/2" Eupen Hiflex	Eupen	EC4-50-HF		0
1/2" Eupen Standard	Eupen	EC4-50		0
7/8" Eupen Standard	Eupen	EC5-50A		0
1-1/4" Eupen Standard	Eupen	EC6-50A		0
1-1/4" Eupen Standard	Eupen	EC6-50A		0
Connectors				
Connector, SMA male for RG58A/U	Amphenol	901-9876-RFX		0
Connector, BNC male for RG58A/U	Amphenol	031-320-RFX		0
Connector, BNC type male for 1/4" SuperFlex	CommScope	F1TBM-C		0
Connector, N male crimp for LMR400	Tessco	172102H243		0
Connector, TNC Rightangle male crimp for LMR400	Tessco	EZ-400-TM-RA-X		0
Connector, N straight male for 1/2" Eupen Standard	Eupen	NM50V12		0
Connector, N straight male for 1/2" Eupen Hiflex	Eupen	NM50B12X		0
Connector, N right angle male for 1/2" Eupen Hiflex	Eupen	NM50BL12X		0
Connector, N straight female for 1/2" Eupen standard	Eupen	NF50V12		0
Connector, DIN straight male for 1/2" Eupen standard	Eupen	7/16M50V12N1		0
Connector, DIN right angle male for 1/2" Eupen standard	Eupen	7/16M50VL12		0
Connector, DIN straight male for 1/2" Eupen Hiflex	Eupen	7/16M50B12X		0
Connector, DIN right angle male for 1/2" Eupen Hiflex	Eupen	7/16M50BL12X		0
Connector, DIN female for 7/8" Eupen	Eupen	7/16F50V78N1		0
Connector, N female for 7/8" Eupen	Eupen	NF50V78N1		0
Connector, N female for 1 1/4" Eupen	Eupen	NF50V114N1		0
Connector, DIN female for 1 1/4" Eupen	Eupen	7/16F50V114N1		0
uWave				
Elliptical waveguide 5.85-7.125Ghz	Eupen	EU63		144
6' Parabolic Dish 5.925-6.425GHz 39.0dBi	Tessco	HP6-59RS		0
Elliptical waveguide 5.85-7.125Ghz	Eupen	EU90		0
Connector, uWave EU63 5.85-7.125Ghz	Eupen	EU63PCPR137G		2
Connector, uWave EU90 10.20-11.70Ghz	Eupen	EU90PCPR90G		0
EU63 Flange hardware kit, CPR137	Eupen	HK-CPR137		2
EU90 Flange hardware kit, CPR90	Eupen	HK-CPR90		0
Half-thickness flange gasket, CPR137	Eupen	HGK63		2
Full-thickness flange gasket, CPR137	Eupen	FGK63		0
Half-thickness flange gasket, CPR90	Eupen	HGK90		0

Full-thickness flange gasket, CPR90	Eupen	FGK90	0
Pressure window, CPR137, EU63	Eupen	PW63FF137	1
Pressure window, CPR90, EU90	Eupen	PW90FF90	0
Dehydrator,100I/H 48VDC TCP/IP Ethernet-SNMP, 3/8" unions	Eupen	281401	0
Gas port fitting, 3/8" tubing	Eupen	87000-06-02	1
Tubing, 3/8" OD PE for Dehydrator per foot	Eupen	3/8 TUBING	10
Txist Flex, EU63, CPR137 ends check catalog for config	Eupen	TF3663GG	1
Txist Flex, EU90, CPR90 ends check catalog for config	Eupen	TF3690GG	0
Hoisting grip, lace-up, EU63	Eupen	HG-64	1
Hoisting grip, lace-up, EU90	Eupen	HG-85	0
Ground kit, Standard, EU63	Eupen	GK-S63	3
Ground kit, Standard, EU90	Eupen	GK-S85	0
Snap-in hanger, EU63, kit 10	Eupen	SH-U63	3
Snap-in hanger, EU90, kit 10	Eupen	SH-U90	0
Cushion hanger assembly for EU63 kit of 5	Eupen	CH-A63-1	1
Cushion hanger assembly for EU90 kit of 5	Eupen	CH-A90-1	0
Misc.			
Hoisting grip for LMR400	Tessco	HG400T	0
Pre-laced hoisting grip for 1/2"	Eupen	HG-12L	0
Lace-up hoisting grip for 1/2"	Eupen	HG-12	0
Pre-laced hoisting grip for 7/8"	Eupen	HG-78L	0
Lace-up hoisting grip for 7/8"	Eupen	HG-78	0
Pre-laced hoisting grip for 1 1/4"	Eupen	HG-114L	0
Lace-up hoisting grip for 1 1/4"	Eupen	HG-114	0
1/4" Screw pin shackle for hoisting grips	Tessco	C40053001	0
Polyphaser, 700-2700Mhz 750 watt DIN(F), DIN(M)	Tessco	TSX-DFM-P2-BF	0
Polyphaser, 400-1200 MHz+36VDC NMNF for TTA t/p	Tessco	CGXZ+36NMNF-A	0
Polyphaser, 100-512 MHz NMNF for Paging	Tessco	VHF50HN-MA	0
Polyphaser, 125-1000 MHz NMNF for Paging	Tessco	IS-B50HN-C2-MA	0
Polyphaser, Hardware for N Bulkhead	Tessco	9100-0129	0
Polyphaser, 125-1000 MHz NMNF for Split uWave ODU	Tessco	DT-NFM	0
Polyphaser, 125-1000 MHz NFNF for Split uWave Inside	Tessco	RGT	0
Ground kit for 3/8" LMR400	Tessco	GK-S400TT	0
Ground kit for Eupen 1/2" cable	Eupen	GK-C12	0
Ground Kit for Eupen 7/8" cable	Eupen	GK-C78	0
Ground Kit for Eupen 1 1/4" cable	Eupen	GK-C114	0
Electrical Tape, Type Super 88 3/4" 1 roll	Tessco	88-Super-3/4x66FT	0
Weatherproofing kit	Tessco	WK-99	0
3/8" Cushion Insert for use with 1/2" Snap-In 10 pkg	Eupen	CIN3812	0
1/2" stackable snap-in hangers, 10 pack	Eupen	SH-S12	0
7/8" stackable snap-in hangers, 10 pack	Eupen	SH-S78	0
1 1/4" stackable snap-in hangers, 10 pack	Eupen	SH-S114	0
Stand-off Adapter, 3 way Kit of 10	Eupen	SA-38X	0
Universal round member Support Bracket Kit of 10	Eupen	RM-USBG	0
Banding, 1/2" x 100' Stainless Steel	Eupen	MT-640	0
Banding, 1/2" stainless steel buckle 100 pack	Eupen	MT-641	0
Banding Tool	Eupen	MT-644	0
Snap-in Stand-off Adapters for round members 10 pkg	Eupen	SA-SS200	0
Angle Adapter, with 3/8" tapped holes 10pkg	Eupen	AA-SL	0
Angle Adapter, Universal 10pkg	Eupen	AA-U	0
Threaded Rod Support kit 3/8" x 12" kit of 5	Eupen	TR-SK12-5	0
4" port, BOOTS, ORDER CUSHION SEPARATELY	Eupen	BA-400	1
4.5" port, BOOTS, ORDER CUSHION SEPARATELY	Valmont	B450	0
5" port, BOOTS, ORDER CUSHION SEPARATELY	Eupen	BA-500	0
3/8", CUSHIONS, 2 HOLES	Eupen	SC-38-2	0
1/2", CUSHIONS, 1 HOLES	Eupen	SC-12-1	0
7/8", CUSHIONS, 1 HOLES	Eupen	SC-78-1	0

1-1/4", CUSHIONS, 1 HOLES	Eupen	SC-114-1	0
EU63, CUSHIONS, 1 hole	Eupen	SC-63-1	1
EU90, CUSHIONS, 1 hole	Eupen	SC-90-1	0
Flat cable support bracket fits 1-1/2" to 5-1/2" OD pipe	Eupen	SSIFB2550	0
star support brackets, T-BRACKET 1-1/2" - 5-9/16" PIPE	Eupen	SSTB2550	0
6 position waveguide bracket	Valmont	WG6	0
Ice Bridge 10' x 24" 14 gauge with 18' direct burial posts	Valmont	IB24D-216V	0
Ground buss bar 1/4" x 20" x 4" solid copper	Eupen	GB-0420-U	0
Ground buss bar 1/4" x 12" x 4" solid copper no hardware kit	Eupen	GB-0412-NH	0
Ground buss bar 1/4" x 10" x 2" solid copper no hardware kit	Eupen	GB-0210-NH	0
Universal Buss Bar Hardware Kit	Eupen	GB-IT	0
Harger ground clamp	Tessco	213T	0
Port window Trapeze 3 x 6	Eupen	AT-K306-U	0
HD Pipe to Pipe clamp set 1-1/4" to 10" for large taper leg	Valmont	UPC2	0
Universal stiff arm attachment for microwave	Valmont	SAM-U	1
Stiff arm attachment 2-3/8" OD pipe and up to 4-1/2" leg	Talley	MTSSA-B	0
Stiff arm attachment 2-3/8" OD pipe and up to 8-5/8" leg	Talley	MTSSA-BL	0
Heavy Duty Pipe to Pipe Clamp Set 1 1/2" to 3 1/2" pipe	Tessco	BC-30-10	0
Heavy Duty Pipe to Pipe Clamp Set 2 3/8" to 5" pipe	Tessco	BC-35-14	0
Heavy Duty Pipe to Pipe Clamp Set 2 3/8" to 5" pipe dual rod	Tessco	BC-35-14D	0
Heavy Duty Pipe to Pipe Clamp Set 1 1/2" to 3 1/2" pipe	Valmont	SCP10K	0
Welded Pipe to Pipe Clamp Set 1 1/2" to 3 1/2" pipe	Tessco	BB-S10-10	0
Welded Pipe to Pipe Clamp Set 2 3/8" to 5" pipe	Tessco	BB-S20-14	0
4-1/2" Adjustable uwave Mount 0" to 8" leg	Eupen	PM-SU4-63	2
4-1/2" Adjustable uwave Mount 0" to 16" leg	Tessco	PML-SU4-96	0
Galvanized Pipe 2-3/8" OD x 6'	Tessco	MT-651	0
Galvanized Pipe 3-1/2" OD x 6'	Tessco	MT54772	0
Galvanized Pipe 4-1/2" OD x 8'	Tessco	MT-654-96	0
Galvanized Pipe 2-7/8" OD x 84"	Tessco	MT54684	0
Crossover Plate. Bracket 1-1/2" OD pipe to 4-1/2" pipe	Valmont	SCX7-U	0
Crossover Plate. Bracket 2.875" OD pipe to 2.875" pipe each	Tessco	XP-2525	0
Monopole Collar 4 position 12" to 60" pole	Valmont	UQB4	0
Monopole Collar/ Quad collar mount	Sabre	C10110300	0
Monopole Collar/ Tri collar mount	Sabre	C10112300	0
uWave Dish ice shield 4'	Valmount	ISMD4	0
uWave Dish ice shield 6'	Valmount	ISMD6	0
36" Side Arm for tapered tower 4" to 8" leg for VHF Paging	Eupen	PBG3T4	0
36" Side Arm for tapered tower 2" to 5" leg for VHF Paging	Eupen	PBG3T2	0
36" Side Arm for straight tower 2" to 5" leg for VHF Paging	Eupen	PBG3S2	0
36" Antenna Side Arm for VHF Paging	Eupen	S-300	0
48" Antenna Side Arm Standard for UHF Paging	Eupen	S-400	0
48" Antenna Side Arm Heavy Duty for UHF Paging	Eupen	HS400	0
24" Panel Antenna Standoff	Eupen	P200	0
Antenna Side Arm heavy duty 6'	Eupen	HS600	0
Universal tieback 2-3/8" x 12'	Eupen	SA-B12	1

UPS Battery Replacement - Equipment/Site List

Qty	Description	Price	Extended
Eisner			
24	Northstar, 12V, 170Ah Battery	\$ 747.50	\$ 17,940.00
2	Two Explorers, 5 String Battery w/ cables an	\$ 5,382.00	\$ 10,764.00
1	Installation, Removal, & Disposal	\$ 13,845.00	\$ 13,845.00
	Sub-Total:		\$ 42,549.00
Rockdale			
20	Northstar, 12V, 170Ah Battery	\$ 747.50	\$ 14,950.00
1	Two Explorers, 5 String Battery w/ cables an	\$ 5,382.00	\$ 5,382.00
1	Installation, Removal, & Disposal	\$ 13,845.00	\$ 13,845.00
	Sub-Total:		\$ 34,177.00
Roxbury			
20	Northstar, 12V, 170Ah Battery	\$ 747.50	\$ 14,950.00
1	Two Explorers, 5 String Battery w/ cables an	\$ 5,395.00	\$ 5,395.00
1	Installation, Removal, & Disposal	\$ 13,845.00	\$ 13,845.00
	Sub-Total:		\$ 34,190.00
Sun Prairie			
20	Northstar, 12V, 170Ah Battery	\$ 747.50	\$ 14,950.00
1	Two Explorers, 5 String Battery w/ cables an	\$ 5,382.00	\$ 5,382.00
1	Installation, Removal, & Disposal	\$ 13,845.00	\$ 13,845.00
	Sub-Total:		\$ 34,177.00
UW Tower			
28	Northstar, 12V, 190Ah Battery	\$ 799.50	\$ 22,386.00
2	Two Explorers, 5 String Battery w/ cables an	\$ 5,382.00	\$ 10,764.00
1	Installation, Removal, & Disposal	\$ 13,845.00	\$ 13,845.00
	Sub-Total:		\$ 46,995.00
Verona			
20	Northstar, 12V, 190Ah Battery	\$ 798.20	\$ 15,964.00
1	Two Explorers, 5 String Batteryw/ cables an	\$ 5,382.00	\$ 5,382.00
1	Installation, Removal, & Disposal	\$ 13,845.00	\$ 13,845.00
	Sub-Total:		\$ 35,191.00
Additional Services		Site total	\$227,279.00
6	Project Management	\$ 1,300.00	\$ 7,800.00
1	Freight Charges	\$ 3,600.00	\$ 3,600.00
	Total:		\$238,679.00