



Yamhill County
"Excellence in Service"

**Information Systems,
and Telecommunications**

636 NE 7th Street
McMinnville, Oregon 97128
(503) 434-7505
Fax: (503) 472-9179

4 September, 2014

Board of Commissioners:

Accompanying this memo is a proposed Agreement with Star Microwave, Inc.. This past Spring, we constructed and published a Request For Proposals to replace the microwave infrastructure located throughout the County. This microwave infrastructure provides the site-to-site communications for our Public Safety Radio system. Once the responses to the RFP were reviewed, a recommendation was forwarded to you that we release a Notice of Intent to award the contract to Star Microwave, Inc.. That NOI was released after your approval on July 31, 2014.

There being no protests to that Notice of Intent to award action, we proceeded to negotiate the accompanying Agreement with Star Microwave, and it is now ready for your approval. I am requesting that the Board approve this Agreement with Star Microwave, Inc. in the amount of \$284,240 to complete Phase I of the microwave replacement project.

I want to also note that I have received official notice from the State Office of Emergency Management that our proposed grant application for Phase II of this project was approved. That grant will be \$135,820 and will enable us to proceed on with further replacement of the microwave infrastructure. Once that grant agreement is prepared, it will come before you for consideration and approval as well. With the Board's approval, I will also apply for another Homeland Security grant this coming December which – if approved by OEM - will enable us to complete the entire replacement project with a third phase.

If there are any questions about this, please don't hesitate to let me know.

Thank you,

Murray L. Paolo
Information Systems

Cc: Laura Tschabold, County Administrator

Accepted by Yamhill County
Board of Commissioners on
9.11.14 by Board Order
14-550

**AGREEMENT BETWEEN STAR MICROWAVE
AND YAMHILL COUNTY**

THIS AGREEMENT for products and services ("Agreement") is entered into by and between Yamhill County, Oregon, a political subdivision of the state of Oregon ("COUNTY"), acting by and through its Information Technology Division ("IT") and Star Microwave Inc., a California Corporation, with its principal place of business located at 47560 Seabridge Drive, Fremont, California 94538 ("CONTRACTOR"), referred to individually as Party and collectively as Parties.

WHEREAS, the COUNTY desires to acquire and install replacement microwave radio and related equipment to support the public safety needs of Yamhill County in accordance with the applicable laws of the State of Oregon, for and on behalf of COUNTY; and

WHEREAS, CONTRACTOR provides Equipment and related services (as defined herein) and was the successful responder to the COUNTY's RFP described below; and

WHEREAS, the COUNTY and CONTRACTOR now desire to enter into this Agreement for CONTRACTOR to provide the Equipment and services to COUNTY in accordance with the terms herein and of the following Exhibits, which are attached hereto and incorporated herein by this reference::

Exhibit A	COUNTY's RFP
Exhibit B	CONTRACTOR's Response to COUNTY's RFP
Exhibit C	Agreement for Licensed Software (as needed)
Exhibit D	Insurance Requirements

NOW, THEREFORE, in consideration of the foregoing and of the mutual promises and covenants herein the Parties agree as follows:

1.0 Definitions. As used in this Agreement, the following capitalized terms shall have the following meanings:

- 1.1 "Confidential" shall have the meaning provided in Section 12.1.
- 1.2 "Documentation" shall mean manuals, training materials, information or diagrams relating to any aspects of the Equipment, including Software and Source Code, if any.
- 1.3 "Effective Date" shall be the date that the Agreement is fully executed and signed by all Parties to the Agreement.
- 1.4 "Equipment" means the microwave radio and related equipment purchased pursuant to this Agreement and as further described in Exhibit B.
- 1.5 "Final Acceptance" shall mean the Equipment has been Accepted by the COUNTY in accordance with this Agreement.
- 1.6 "Software" shall mean the software required by the Equipment provided by CONTRACTOR, including any and all modifications, interfaces, Source Code, third-party software, information about such applications, and any related elements required for the operation of the Equipment.
- 1.7 "Source Code" shall mean code in an industry-recognized high-level programming language, using industry accepted and proper programming procedures, documentation and methods, that when compiled will run the Equipment, or one or more components of the Equipment, purchased in this Agreement and that is readable and able to be manipulated by a human.

2.0 Products and Services

2.1 Work Requirements: In consideration for the payments described in Section 3.0 hereof, unless sooner terminated, CONTRACTOR will provide COUNTY with the Equipment described in Exhibit B.

2.2 Software: CONTRACTOR shall deliver to COUNTY a software license for all required software necessary to fully operate the Equipment.

3.0 Compensation and Payment Provisions

3.1 The COUNTY shall pay CONTRACTOR for the Equipment and services as noted below, in the amount set forth in Exhibit B. The COUNTY shall make hardware payments as follows: 25% upon ordering of hardware equipment, 60% upon shipment of hardware equipment, and 15% upon acceptance of the hardware equipment. All payment for services and shipping will be paid after project completion. All payments will be made upon receipt of invoice from CONTRACTOR for hardware and services as outlined. The COUNTY shall pay invoices within thirty (30) days after an invoice has been received at the COUNTY and approved by the authorized COUNTY representative. All orders of equipment and services from the CONTRACTOR will be performed only by Purchase Order(s) assembled by the COUNTY in response to specific quotes received from the CONTRACTOR as requested by the COUNTY for individual phases of this project. Multiple phases of this project are anticipated.

3.2 The costs set forth in Exhibit B constitute the entire compensation due to CONTRACTOR under this Agreement. As stated in the Request for Proposal document, the funding for this project will determine the final scope. Upon issuance of COUNTY Purchase Orders, the final amount for this project may exceed the amount of the initial award of this contract.

3.3 Any and all CONTRACTOR related travel expenses that are incurred as a direct result of this Agreement shall be CONTRACTOR's responsibility

Term

4.1 The Effective Date of this Agreement will be September 2, 2014 or upon the date of signatures by all Parties, whichever is later. This Agreement, unless terminated or renewed as elsewhere provided in the Agreement, shall terminate on the 1st of September, 2016. The Agreement may be extended for ninety (90) days beyond the Agreement period and is subject to the limits of available funding.

5.0 Access to Records

5.1 CONTRACTOR shall maintain fiscal records and all other records pertinent to this Agreement. All fiscal records shall be maintained pursuant to United States Generally Accepted Accounting Principles, and other records shall be maintained to the extent necessary to clearly reflect actions taken. All such records shall be retained and kept accessible for at least seven (7) years following final payment. COUNTY's authorized representatives shall have the right to direct access to all of CONTRACTOR's books, documents, papers and records related to this Agreement for the purpose of conducting audits and examinations and making copies, excerpts and transcripts. COUNTY shall reimburse CONTRACTOR for CONTRACTOR's reasonable cost of preparing such copies.

6.0 Compliance with Applicable Law

6.1 Each Party agrees to comply with all federal, state and local laws, rules and regulations in the performance of its duties and obligations under this Agreement. Any violation by CONTRACTOR of applicable law shall constitute an event of default under this Agreement and CONTRACTOR shall be liable for and hold the COUNTY harmless and defend the COUNTY from and against any and all liability arising out of, connected with, or as a result of the violation.

7.0 Indemnification

7.1 **Indemnification by CONTRACTOR.** CONTRACTOR shall defend, indemnify and hold harmless COUNTY, its officers, agents, and employees from any and all claims, liabilities, demands, damages, actions or proceedings arising from or relating to the negligence, wrongful acts or omissions of CONTRACTOR, its officers, agents, and employees in connection with the Equipment and the performance of any services under Agreement.

7.2 **Infringement Indemnification by CONTRACTOR.** CONTRACTOR agrees to indemnify and defend COUNTY against any claim or action brought by any third-party for actual or alleged infringement of any United States patent, copyright, trade secret or other intellectual property law based upon COUNTY's use of the Equipment or COUNTY's use of the Software in accordance with this Agreement and to pay any damages and costs finally awarded against COUNTY or paid in settlement. CONTRACTOR shall have the sole right to conduct the defense of any claim or action and all negotiations for its settlement, unless the parties to this Agreement agree otherwise in writing. COUNTY agrees to give CONTRACTOR prompt written notice of any threat, warning, or notice of any claim or action that could have an adverse impact on CONTRACTOR's rights in the Equipment. CONTRACTOR shall not be responsible for any settlement entered into without its consent. In the event of a claim or action under this section, CONTRACTOR may, in its sole discretion, (a) procure for COUNTY the right to continue using the Equipment; or (b) provide a substitute, non-infringing Equipment. Notwithstanding the above, CONTRACTOR shall have no obligation under this section with respect to any claim or action that is based upon (a) COUNTY's use of the Equipment in breach of any term or condition of this Agreement; (b) the use or combination of the Equipment with any third-party product, software, hardware, or system, except as provided herein or under any attached Schedule; or (c) modification of the Equipment other than by a representative of CONTRACTOR.

8.0 Insurance

8.1 Throughout the term of this Agreement, CONTRACTOR shall maintain at all times commercial general liability insurance and property damage insurance, covering its activities and operations under this Agreement. CONTRACTOR shall add COUNTY, its officers/officials, agents, employees, and volunteers as additional insureds for general liability and property damage insurance coverage and an Endorsement shall be issued by the company showing COUNTY as an Additional Insured and the coverage shall contain a 30-day Notice of Cancellation endorsement. Such insurance shall be in the forms and amounts not less than set forth in ORS 30.260 to 30.300, as requested in the attached Insurance Requirements, Exhibit D. All insurance shall be evidenced by a Certificate of Insurance and Endorsement provided to COUNTY, indicating coverages, limits and effective dates, by an insurance company licensed to do business in the State of Oregon.

8.2 CONTRACTOR shall obtain and maintain at all times during the term of this Agreement, workers' compensation insurance with statutory limits and employers' liability insurance.

8.3 CONTRACTOR shall provide COUNTY with evidence that it is a carrier-insured or self-insured employer in full compliance with the requirements of ORS Chapter 656, or that it employs no persons subject to the requirements of ORS 656, Workers' Compensation Coverage.

9.0 Warranty

9.1 CONTRACTOR warrants:

9.1.1 The Equipment will perform in accordance with CONTRACTOR's response to COUNTY's RFQ, this Agreement including all Exhibits and any attached Schedules, which are incorporated herein by this reference.

9.1.2 All Equipment will strictly comply with and be in conformity with the descriptions and representations of Exhibit B (including performance capabilities, accuracy, completeness, characteristics, specifications, configurations, standards, function and requirements).

9.1.3 CONTRACTOR acknowledges the standard of performance and professionalism required in the performance of its services in the delivery of the Equipment under this Agreement. CONTRACTOR agrees to perform and deliver the Equipment under this Agreement with the level of professionalism expected in its industry/profession in the community. Further, CONTRACTOR, while performing its obligations under this Agreement, will conduct itself in such a manner that will promote the best interests of the COUNTY. CONTRACTOR further agrees that it will not accept any fee or financial remuneration from any entity or person other than the COUNTY for its performance under this Agreement.

9.1.4 The Software Source Code provided to the COUNTY, if any, is the correct code, is human-readable, contains comments in the English language, and will, as provided, correctly compile into the Equipment and operate as intended without data loss or corruption.

10.0 Force Majeure

10.1 Neither Party shall be responsible for delays or failures in performance as a result of an Act of God, war, civil disturbance, labor dispute, or other cause beyond the reasonable control of such Party.

11.0 Ownership of Data and Software

11.1 COUNTY will retain all title, rights, and ownership of all data, and other data created and/or acquired by use of the Equipment. COUNTY may duplicate the data entered into the Equipment on any media. COUNTY will retain ownership of all data created by the use of the Equipment as stored on any media. CONTRACTOR retains all rights to its software, and COUNTY may only use such software pursuant to this Agreement. CONTRACTOR does not have any obligation to convert or transfer any data to any other format, to allow use of its Equipment other than as set forth herein. Customer or CONTRACTOR may develop, and Customer shall retain ownership of, all hooks, interfaces, or similar tools for use with the Equipment provided that the hook, interface, or tool require any modification or alteration of the underlying code of the Software. CONTRACTOR shall own all right, title, and interest (including all associated intellectual property rights) in and to any Customizations to the Software.

11.2 It is understood by both Parties that during the term of this Agreement CONTRACTOR requires access to certain data owned by the COUNTY in order to fulfill its duties as required by this Agreement. CONTRACTOR therefore agrees to destroy all such data in CONTRACTOR's possession within one (1) year after Final Acceptance, and to notify the COUNTY in writing that such destruction has occurred.

11.3 In the event CONTRACTOR, its heirs or assigns cease doing business or otherwise exit the business activity supporting the Equipment or the Software, CONTRACTOR will deliver the most current version of the underlying Software source code required to continue the functions of the Equipment to the COUNTY. COUNTY will be free, at COUNTY's sole discretion, to continue use of the Equipment and Software with no further financial obligation to CONTRACTOR, its heirs or assigns. COUNTY recognizes that the Equipment and Software will be unsupported at that point and that CONTRACTOR, its heirs or assigns, will have no obligation to COUNTY relating to updates, maintenance or other forms of technical support.

12.0 Confidential Information

12.1 The Parties acknowledge that in the course of performing its responsibilities under this Agreement, that each Party may be exposed to or acquire information which is proprietary and confidential to the other Party or its affiliated companies or their agents. Any and all information of one Party in any form obtained by the other Party or its employees, agents or representatives in the course of performing this Agreement shall be deemed to be proprietary and confidential information of such Party, subject to the Oregon public records law, ORS Chapter 192. The Parties agree to hold such information in strict confidence and not to copy, reproduce, sell, assign, license, market, transfer, give or otherwise disclose such information to third-parties or to use such information for any purposes whatsoever, without the express written permission of the other Party, other than for the delivery of Equipment or provision of services hereunder, and to advise each of its employees, agents and representatives of its obligations to keep such information confidential. All such confidential and proprietary information described herein and any deliverable provided hereunder, in whatever form, are hereafter collectively referred to as "Confidential Information." The Parties shall use reasonable efforts to assist each other in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limitation of the foregoing, the Parties shall use reasonable efforts to advise each other immediately in the event that either learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Agreement, and will reasonably cooperate in seeking injunctive relief against any such person.

12.2 Notwithstanding the obligations set forth in the previous paragraph, the confidentiality obligations of the Parties shall not extend to information that:

- (a) is, at the time of its disclosure, or thereafter becomes part of the public domain through a source other than the receiving party;
- (b) was known to the receiving party as of the time of its disclosure;

- (c) is independently developed by the receiving party;
- (d) is subsequently learned from a third party not under a confidentiality obligation to the disclosing party; or
- (e) is required to be disclosed pursuant to statute, court order or other governmental authority, whereupon the receiving party shall provide notice to the disclosing party so as to allow the disclosing party to take appropriate steps to protect its interests.

13.0 Termination

13.1 Default by CONTRACTOR: If CONTRACTOR defaults in the performance of any of its material obligations under this Agreement for a period of thirty (30) days after the sending of notice to the address on this Agreement that it is in default, COUNTY may, at its option, terminate the Agreement by delivering written notice to CONTRACTOR at the address in this document, and paying CONTRACTOR, in full satisfaction and discharge of all liabilities and obligations owed to CONTRACTOR, all sums due under this Agreement for all work performed by CONTRACTOR, and accepted by COUNTY, to the initial date of the default. For the purposes of this Agreement, material obligations are any obligation under the terms of this Agreement, which, if not completed according to the terms of the Agreement, would render the Equipment inoperable.

13.2 Mutual Consent/Convenience: All or part of this Agreement may be terminated by mutual consent of both parties; or by either party at any time for cause, upon sixty (60) days' notice in writing, and delivered by certified mail. All or part of this Agreement may be terminated by the COUNTY at the COUNTY's convenience upon sixty (60) days' notice in writing and delivered by certified mail.

13.3 Funding Out: If the Board of Commissioners of COUNTY reduces, changes, eliminates or otherwise modifies the funding for any of the Equipment or services identified, CONTRACTOR agrees to abide by any such decision, including termination. Additional phases of this contract and associated microwave project are anticipated. For additional phases, associated Purchase Orders will be produced by the COUNTY and provided to the CONTRACTOR.

13.4 Miscellaneous: The COUNTY may also terminate all or part of this Agreement for the following reasons:

- a. With ten (10) days' notice, if funding to the COUNTY from federal, state or other sources is not obtained or is not continued at levels sufficient to allow for purchase of the indicated quantity and quality of Equipment or services. The COUNTY will give more notice whenever possible.
- b. With thirty (30) days' notice, if federal or state regulations are modified or changed in such a way that the Equipment or services are no longer allowable for purchase under this Agreement.
- c. Upon notice of denial, revocation or non-renewal of any licensee or certification required by law or regulation to be held by CONTRACTOR to provide Equipment or a service under this Agreement.
- d. If CONTRACTOR fails to deliver Equipment or start services on the date agreed upon by the COUNTY and CONTRACTOR.
- e. Failure of CONTRACTOR or the COUNTY to comply with the provisions of this Agreement or all applicable federal, state and local laws and rules may be cause for termination of this Agreement. Such termination shall be without prejudice to any obligations or liabilities of either party accrued to such termination.
- f. Immediately in the event of an emergency or if it is deemed by the COUNTY in its reasonable discretion to be in the public interest.

13.5 COUNTY shall not be liable for anticipated profits based upon Equipment not yet delivered as of the date of termination. If payments previously made to CONTRACTOR exceed the amount CONTRACTOR is entitled to receive pursuant to this Section, CONTRACTOR shall immediately repay COUNTY the difference.

14.0 Data Backup

14.1 Data backup and restoration of data will be performed and maintained by the COUNTY.

15.0 Work Orders

15.1 COUNTY Initiated. In the event that the COUNTY desires to modify or amend this Agreement, including any Exhibit, the COUNTY will work with CONTRACTOR to initiate a Work Order to CONTRACTOR noting the general scope for the modified Equipment or services requested. CONTRACTOR shall respond in writing within ten (10) days of receipt of a COUNTY Work Order, or at another time as mutually agreed, providing a specific recommendation for the solution, and providing the COUNTY with a not-to-exceed cost for the Equipment or services proposed in the Work Order. CONTRACTOR's written response will include a breakdown of the number of staff hours, level of personnel needed to effect this change, and technical design information for the proposed solution. There shall be no charge for the preparation of this response.

15.2 CONTRACTOR Initiated. In the event that CONTRACTOR desires to modify or amend the Statement of Work, CONTRACTOR may submit an unsolicited Work Order Request to the COUNTY for COUNTY's consideration. CONTRACTOR's submission of an unsolicited Work Order Request to COUNTY does not modify or amend the Statement of Work in any way, and creates no COUNTY obligations whatsoever.

15.3 Approval. COUNTY approval for any modification or amendment to the Statement of Work will be indicated solely through COUNTY's written approval of a specific Work Order.

15.4 Out of Scope. In the event CONTRACTOR believes that the COUNTY is requiring work outside the scope of the Agreement requirements, CONTRACTOR's sole remedy is to provide a written Work Order Request for the COUNTY's approval or disapproval. CONTRACTOR shall include within such Work Order Request a description of the work required that CONTRACTOR considers to be outside the scope of the Agreement requirements, the date CONTRACTOR would start the work, and the complete cost of such work, including the cost and time to complete such work. COUNTY shall have fifteen (15) days from the date of receipt of the written Work Order Request, or such amount of time as is

mutually agreed, to approve or disapprove the Work Order Request. During the pendency of the Work Order Request, CONTRACTOR shall continue working without stoppage on all contractual work, including the work that is the subject of a Work Order Request. For clarification, and not as a limitation, stopping work during the pendency of a CONTRACTOR Work Order Request shall be considered a material breach.

15.5 All Work Order Requests will be in writing and approved by both Parties and will be treated as an amendment to this Agreement pursuant to subsection 16.7 of this section.

16.0 Miscellaneous

16.1 Governing Law and Venue: All questions concerning the validity, interpretation and performance of this Agreement will be governed by and decided in accordance with the laws of the State of Oregon. The Parties hereby submit and consent to the exclusive jurisdiction of the Yamhill County Circuit Court and irrevocably agree that all actions or proceedings relating to this Agreement will be litigated in this court and each of the Parties waives any objection which it may have based on improper venue or *forum non conveniens* to the conduct of any such action or proceeding in this court.

16.2 Equitable Remedies: The Parties agree that in the event of any breach or threatened breach of any provision of this Agreement concerning (i) Confidential Information, (ii) intellectual property rights or (iii) other matters for which equitable rights may be granted, money damages may be an inadequate remedy. Accordingly, such provisions may be enforced by the preliminary or permanent, mandatory or prohibitory injunction or other order of a court of competent jurisdiction.

16.3 Integration: This Agreement and the attached exhibits constitute the entire agreement between the Parties with respect to the subject matter described herein. No agreements, representations, or warranties other than those specifically included in this Agreement and the attached exhibits shall be binding on either of the Parties. In case of a conflict between the terms of this Agreement and any attached exhibit, the terms of this Agreement shall prevail.

16.4 Notices: Any notices or reports required by this Agreement to be given by one Party to the other Party shall be made in writing. The writing shall be delivered personally or mailed by United States Mail, postage prepaid, certified mail, return receipt requested. Notices shall be addressed to that Party at the address shown below or at such other address as that Party may designate in writing. Notice is deemed to have been given immediately if delivered in person, or on the third day following mailing.

Notice to Contractor:

Octavio Beas
Star Microwave
47560 Seabridge Drive
Fremont, CA 94538

Notice to COUNTY:

Yamhill County Information Technology
Attn.: Murray Paolo
535 NE 5th Street
McMinnville, OR 97128

16.5 Assignment: This Agreement shall be binding on the Parties hereto and its respective successors and assigns. Neither Party shall have the power to assign this Agreement without the prior written consent of the other.

16.6 Subcontractor: CONTRACTOR shall not enter into any subcontracts for any of the work scheduled under this Agreement, nor assign or transfer any of its interest in this Agreement, without the prior written consent of the COUNTY.

16.7 Waiver and Amendments: No waiver, consent, modification or change in the terms of this Agreement shall bind either party unless executed in writing signed by the authorized representatives of the Parties, which writing must refer to this Agreement. Any written waiver, consent, modification or change shall be effective only in the specific instance and for the specific purpose given once signed by both parties. All remedies afforded in this Agreement shall be taken and construed as cumulative, that is, in addition to every other remedy provided therein or by law. The failure of either party to enforce at any time any of the terms of this Agreement, or to exercise any option which is provided, or to require at any time performance by the other party of any of the provisions, shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of any part of this Agreement, or the right of either party to thereafter enforce each and every provision.

16.8 Waiver: A waiver of any part of this Agreement shall not be a waiver of the entire Agreement.

16.9 Severability: If any provision of this Agreement is unenforceable, that provision will be changed and interpreted to accomplish the objectives of the provision to the greatest extent possible under applicable law, and the remaining provisions will continue in full force and effect in order to best accomplish the original intent of the parties.

16.10 CONTRACTOR Responsibility for Taxes: Property, sales, and use taxes shall not be included in invoices submitted to the COUNTY pursuant to this Agreement.

16.11 Delivery: If applicable, CONTRACTOR shall arrange for delivery of any CONTRACTOR supplied hardware to the appropriate COUNTY installation site(s) in accordance with the Statement of Work (Exhibit C). Shipment of the hardware shall be F.O.B. the COUNTY's receiving point at the installation site(s). CONTRACTOR shall pay all reasonable transportation and insurance charges for the hardware up to the COUNTY's receiving point at the installation site(s).

16.12 Risk of Loss & Title: If applicable, CONTRACTOR shall bear the risk of loss or damage to the hardware while in transit to the COUNTY's premises and the installation site(s). The COUNTY shall bear all risk of loss or damage to the hardware after delivery to the installation site(s), unless such loss or damage is due to the negligence or willful acts of CONTRACTOR, its employees, agents, representatives or subcontractors. CONTRACTOR shall transfer title to the hardware to the COUNTY upon the COUNTY's full payment for said hardware in accordance with Exhibit D.

16.13 Independent Contractor Status: CONTRACTOR is, and shall remain at all times, an independent contractor with respect to activities and conduct while engaged in the performance of this Agreement. The COUNTY conducts open employment recruitment process when filling regular COUNTY positions.

16.14 Project Team Replacement. The COUNTY reserves the right to reject or request removal of any employee of CONTRACTOR identified as a key resource for the implementation of the Equipment provided under this Agreement. Any change or replacement of a key resource must have prior approval by the COUNTY and the key resource replacement must have substantially similar experience and knowledge of the Equipment and project as the individual being replaced, and such approval shall not be unreasonably withheld.

16.15 Integration and Merger: This written Agreement and the attached exhibits, all of which are incorporated herein by this reference, and any subsequent amendments executed in accordance with Section 16.7 and all exhibits constitute the entire Agreement between the parties and supersede any prior oral or written statements, discussions, or understanding between the parties.

16.16 Attachments: Attached to and made part of the Agreement are the following:

Exhibit A	COUNTY's RFP
Exhibit B	CONTRACTOR's Response to COUNTY's RFP
Exhibit C	Agreement for Licensed Software (as needed)
Exhibit D	Insurance Requirements

In the event of a conflict between this document and its exhibits, this document shall control over the Statement of Work, and the Statement of Work shall control over the other exhibits. In the event of any inconsistency between any of the provisions of the Agreement documents, the inconsistency shall be resolved by giving precedence in the following order:

- A. This Agreement,
- B. COUNTY's RFP (Exhibit A)
- C. CONTRACTOR's Response to the COUNTY's RFP (Exhibit B)

16.17 Further Documentation: The Parties agree to promptly execute such other and further documents and agreements as may be reasonably necessary or advisable to effectuate the terms of this Agreement.

16.18 Survival: The terms of Sections 7 (Indemnification), 9 (Warranty), 11 (Ownership of Data and Software), and 12 (Confidential Information) hereof shall survive the expiration or termination of this Agreement for a period of seven (7) years.

16.19 Civil Rights: CONTRACTOR agrees to comply with the Civil Rights Act of 1964, and 1991, Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973, and Title VI as implemented by 45 CFR 80 and 84 which states, in part, that no qualified person shall on the basis of disability, race, color, sex, religion, or national origin be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity which received or benefits from federal financial assistance.

16.20 Incorporation of statutory provisions required for public contracts. CONTRACTOR certifies it shall comply with all applicable public contract laws to include ORS 279B.200 through 279B.240 and ORS 279C.500 through 279C.530. ORS 279B.200 through 279B.240 and ORS 279C.500 through 279C.530 are incorporated into this Agreement by reference. More specifically:

Wages: As required for public contracts subject to ORS Chapter 279B, the following conditions concerning hours of labor shall apply:

CONTRACTOR shall not employ any person performing work under this Agreement for more than ten hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency, or where the

public policy absolutely requires it. CONTRACTOR shall pay all individuals performing work under this Agreement at least time-and-a-half pay:

- a. For all overtime in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; and
- b. For all overtime in excess of 10 hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and
- c. For all work performed on Saturday or Sunday and on any legal holiday specified in ORS 279B.020.

CONTRACTOR must give notice to employees who work on a public contract in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work.

Any CONTRACTOR or subcontractor or CONTRACTOR's or subcontractor's surety that violates the provisions of this section is liable to the affected employees in the amount of their unpaid overtime wages and in an additional amount equal to the unpaid overtime wages as liquidated damages. If the violation results from willful falsification of payroll records, CONTRACTOR or subcontractor or CONTRACTOR's or subcontractor's surety is liable to the affected employees in the amount of their unpaid overtime wages and an additional amount equal to twice the unpaid overtime wages as liquidated damages.

As required specifically under ORS 279B.235, the following provisions shall apply for conditions concerning hours of labor:

For a contract for personal services as defined in ORS 279A.055, CONTRACTOR shall pay all individuals performing personal services under this Agreement at least time and a half for all overtime worked in excess of 40 hours in any one week, except for individuals under personal services contracts who are excluded from receiving overtime under ORS 653.010 to 653.261 or under 29 USC 201 to 209.

For a contract for services, persons employed under this Agreement shall receive at least time and a half pay for work performed on the legal holidays specified in a collective bargaining agreement or in ORS 279B.020 (1)(b)(B) to (G) and for all time worked in excess of 10 hours in any one day or in excess of 40 hours in any one week, whichever is greater.

16.21. Attorney fees and costs. In the event that either party to this Agreement shall take any action, judicial or otherwise, to enforce or interpret any of the terms of this Agreement, each party shall be wholly responsible for its own expenses which it may incur in taking such action, including costs and attorney fees, whether incurred in a suit or action or appeal from a judgment or decree therein or in connection with any non-judicial action

16.22 Use of COUNTY Facilities. CONTRACTOR and its employees or agents shall have the right to use only those facilities of COUNTY that are necessary to perform under this Agreement and shall have no right of access to any facility of COUNTY without the prior written approval of COUNTY management. COUNTY shall have no responsibility for the loss, theft, mysterious disappearance of or damage to equipment, tools, materials, supplies and other personal property of CONTRACTOR or its employees, subcontractors or agents which may be stored on COUNTY premises, except to the extent that such loss, theft, disappearance or damage is caused by the sole negligence of the COUNTY.

16.23. Incorporation. The introductory paragraph and recitals appearing at the beginning of this Agreement are hereby incorporated into and made a part of this Agreement as if fully set forth herein.

16.24. No Third Party Beneficiaries. COUNTY and CONTRACTOR are the only parties to this Agreement and are the only parties entitled to enforce its terms. Nothing in this Agreement gives or provides any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such third persons are individually identified by name in this Agreement and expressly described as intended beneficiaries of this Agreement.

16.25 Counterparts. This Agreement may be executed by facsimile and in counterparts, which taken together shall form one legal instrument.

(Signature page follows)

(SAMPLE)

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the day and year first above written.

**YAMHILL COUNTY
BOARD OF COMMISSIONERS:**

STAR MICROWAVE

Allen Springer 9-11-14
Chair Date

Octavio Beas
Name: [Signature]

[Signature] 9-11-14
Commissioner Date

Signature Date

[Signature] 9-11-14
Commissioner Date

94-3182907
Tax ID#

Recommended by:

[Signature] 9/4/14
Yamhill County Information Technology Date

APPROVED AS TO FORM:

[Signature] 9/8/14
Yamhill County Legal Counsel Date

Accepted by Yamhill County
Board of Commissioners on
9.11.14 by Board Order
14-550

EXHIBIT A
YAMHILL COUNTY RFP

(Attached as separate document.)

EXHIBIT B
CONTRACTOR RESPONSE TO RFP

(Attached as separate document.)

EXHIBIT C

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Page 1688

AGREEMENT FOR LICENSED SOFTWARE

For this agreement, this exhibit(C) is not applicable

Exhibit D
INSURANCE REQUIREMENTS
Yamhill County

During the entire term of this Agreement (and for 5 years following expiration of this Agreement for Professional Liability Insurance), Contractor shall maintain in force, at its own expense, each insurance checked below. In the event of conflict in language regarding Insurance Requirements between this Exhibit H and the Agreement document, this Exhibit H shall take precedence.

TYPE OF INSURANCE	EXPLANATION OF REQUIREMENTS
<p>WORKERS' COMPENSATION, in compliance with ORS 656.017, which requires subject employers to provide Oregon workers' compensation coverage for all their workers.</p> <p><input checked="" type="checkbox"/> Required <input type="checkbox"/> Not required <i>(Contractor has one (Contractor has no Employees Or more employees) Must Provide written statement as such)</i></p>	<p>This coverage is necessary because the County is self-insured for Workers' Compensation and any claim would affect the County directly. Proof of this insurance must be provided before work begins. Coverage is required only if the Contractor has one or more employees.</p>
<p>PROFESSIONAL LIABILITY INSURANCE WITH A COMBINED SINGLE LIMIT, OR THE EQUIVALENT, OF NOT LESS THAN \$3,000,000 FOR EACH CLAIM, INCIDENT, OR OCCURRENCE.</p> <p><input checked="" type="checkbox"/> Required <input type="checkbox"/> NOT Required</p>	<p>This is to cover damages caused by error, omission or negligent acts related to the Equipment and services to be provided under this Agreement.</p> <p>The County does not need this insurance when the Contractor's activity or advice holds almost no risk of damaging property or harming employees, visitors, families, or others. Examples include: author, lecturer, staff trainer, interpreter, photographer, musician.</p> <p>This coverage is required when there is a chance the Contractor's work could do harm and someone might have reason to blame the County or department that retained the Contractor. Examples include: architect, engineer, investigator, accountant, legal advisor, and public works/improvement projects.</p>
<p>GENERAL LIABILITY insurance with a combined single limit of not less than \$1,500,000 for each occurrence for bodily injury and property damage.</p> <p><input checked="" type="checkbox"/> Required <input type="checkbox"/> NOT Required <input type="checkbox"/> Exclusion approved by Yamhill County-Risk Management</p>	<p>This insurance is required unless its deletion is approved by Yamhill County. Insurance shall include contractual liability coverage for the indemnity provided under this Agreement and provide by separate written endorsement that County its officials, agents, employees and volunteers, are added as insured, but only with respect to the Contractor's services to be provided under this Agreement.</p>
<p>AUTOMOBILE LIABILITY insurance with a combined single limit, or the equivalent, of not less than (check one):</p> <p><input type="checkbox"/> Oregon Financial Responsibility Law, ORS 806.060 (\$25,000 property damage/\$50,000 bodily injury, \$5,000 personal injury). OR For each accident for bodily injury and property damage, including coverage for owned, hired or non-owned vehicles, as applicable. (Coverage limits required for this Agreement will depend on nature of contracted services.)</p> <p><input checked="" type="checkbox"/> \$500,000 each accident <input type="checkbox"/> \$1,500,000 each accident <input type="checkbox"/> N/A</p>	<p>Automobile liability coverage is required of a Contractor when it, its subcontractor, or the employees of either will operate, maintain, load, or unload vehicles as part of the work or Services provided under this Agreement.</p> <p><u>The County will determine the appropriate amount of coverage Contractor will need to provide depending on the severity of what could go wrong.</u> For instance, a Contractor transporting clients or staff is at a much greater risk than a Contractor driving his or her vehicle from one meeting site to another without passengers. Larger construction projects may require the higher combined single limit or equivalent. Contractor shall name County, its officials, agents, employees and volunteers, as additional insureds by a separate written endorsement, but only with respect to the Contractor's services provided under this Agreement.</p>
<p>Notice of cancellation or change. There shall be no cancellation, material change, reduction of limits, or intent not to renew the insurance coverage(s) without 30 days written notice from the Contractor or its insurer(s).</p>	
<p>Certificate of Insurance. Prior to commencing work, the Contractor shall provide a Certificate evidencing the insurance required by this Agreement and a separate written endorsement adding Yamhill County its officials, agents, employees, and volunteers as insured. The Certificate shall state that coverage afforded the County as an Insured shall apply as primary and not excess to any insurance issued the County, provide a Cross Liability Clause, and state that the Contractor is responsible for payment of all insurance deductibles on the above-described policies.</p>	
<p>Send the Certificate of Insurance to: Yamhill County, ATTN: County Counsel, 434 NE Evans, McMinnville, OR 97128</p>	

ANY CHANGES IN COVERAGE MUST BE APPROVED IN ADVANCE BY YAMHILL COUNTY RISK MANAGEMENT - Revised January 2011



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

5/22/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER PAULSON INSURANCE AGENCY 39962 CEDAR BL. STE: 290 NEWARK, CA 94560	CONTACT NAME: TERRY W. PAULSON, CPCU PHONE (A/C, No, Ext): (510)490-2545 E-MAIL ADDRESS: terry@paulsonins.com	FAX (A/C, No): (510)490-7170	
	INSURER(S) AFFORDING COVERAGE INSURER A: TRUCK INSURANCE EXCHANGE INSURER B: COMPANION PROPERTY & CASUALTY INSURER C: INSURER D: INSURER E: INSURER F:		NAIC #
INSURED STAR MICROWAVE SERVICE CORP ATTN: MARILU BEAS 47560 SEABRIDGE DR. FREMONT, CA 94538			

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR		<input checked="" type="checkbox"/>	60225-61-48	2/24/2014	2/24/2015	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COM/OP AGG \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						
	<input type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS		<input checked="" type="checkbox"/>	60225-61-48	2/24/2014	2/24/2015	<input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB OCCUR <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	CPCA16338	10/1/2013	10/1/2014	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

ADDITIONAL INSURED TO READ; YAMHILL COUNTY ITS OFFICIALS, AGENTS, EMPLOYEES, AND VOLUNTEERS AS INSURED. INSURANCE IS PRIMARY.

CERTIFICATE HOLDER YAMHILL COUNTY ATTN: COUNTY COUNSEL 434 NE EVANS MCMINNVILLE, OR 97128	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE TERRY W. PAULSON, CPCU
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B.O. 14-550

YAMHILL COUNTY MICROWAVE RADIOS AND RELATED EQUIPMENT

REQUEST FOR PROPOSALS (RFP) – May 14, 2014

TO PROVIDE MICROWAVE RADIOS AND RELATED EQUIPMENT TO YAMHILL COUNTY

I. INTRODUCTION

A. General Information

Yamhill County requests Proposals (as defined herein) from vendors of public safety grade microwave radios and related hardware for the acquisition and installation of equipment to replace an aging legacy microwave network used to support Public Safety Communications in Yamhill County.

The successful Proposer shall provide proven and established microwave radio and related equipment that best meets Yamhill County requirements as provided herein, including equipment hardware, software, specification sheets, instruction manuals, training aids, maintenance and support, and all other things necessary to serve the business needs of Yamhill County. The new microwave radios and related equipment should have the ability to support future requirements through expansions instead of complete equipment replacement, be user friendly, easily managed, and provide the necessary management information to effectively manage growth and future radio system operations and requirements.

The successful Proposer shall be expected to deliver the purchased equipment within thirty (30) calendar days of effective date of contract, with installation to occur as soon as reasonably possible thereafter.

Proposers are encouraged to include any available discounts, incentives or other cost saving options, including methods to leverage existing Yamhill County radios and related equipment or existing services in its Proposal. All reasonable Proposals for the replacement of Yamhill County's existing microwave radios and related equipment will be considered.

Definition, "Proposer" refers to the entity that is providing the Proposal in response to this RFP.

"Proposal" refers to a Proposer's written submittal in response to this RFP.

B. Background of the existing microwave radios and related equipment

See Section II, General Requirements.

The new microwave radio system must at least replace the existing functionality of Yamhill County's current microwave radio system, as well as introduce the availability of reasonably current features and functionality available with new microwave radio systems.

It must also easily interface with our existing radio system. (See Section III, Technical Specifications)

C. RFP Schedule.

RFP Issued:	May 14, 2014
Proposals Due:	June 5, 2014
Evaluation	June 6 – June 13, 2014
Successful Proposer Selection	June 16, 2014
Target Contract Date:	June 27, 2014
Anticipated Completion Date:	December 31, 2014

Proposals received after 4pm on June 5, 2014 will not be considered and will be returned unopened.

Proposals will not be accepted by email or facsimile.

*****IMPORTANT NOTE: Proposers must include a properly completed and signed Proposal Response Sheet (See Technical Specifications) with their Proposals. Proposals received without a properly completed and signed Proposal Response Sheet shall be considered nonresponsive. *****

Proposers may arrange to tour Yamhill County facilities by contacting the Information Systems Manager, Murray Paolo, at the email address and telephone number listed herein. The purpose of any such tour would be to allow Proposers to develop a better understanding of the facilities infrastructure and specific microwave radio equipment requirements. Marketing activities will not be conducted during any tour and no changes to the RFP may be made orally during the tour.

II. GENERAL REQUIREMENTS:

- A. This project involves the purchase and installation of public safety grade microwave radios and related equipment to replace an aging legacy microwave network used to support public safety communications in Yamhill County. The scope of this project, and the associated number of sites initially replaced may be limited due to the available funding, and the Proposal which is actually selected for implementation. The following microwave hops are intended to be replaced, and the priority is listed in numerical order as follows:

Loop system:

- (#1) McMinnville Fire Station to High Heaven tower site, (6 ghz).
- (#2) High Heaven tower site to Mountaintop East tower site, (6 ghz).
- (#4) McMinnville Fire Station to Mountaintop East tower site, (6 ghz).
- (#6) Mountaintop East tower site to Eagle Crest tower site, (Diversity, 6 ghz).
- (#7) Eagle Crest tower site to Doane Creek tower site, (6 ghz).
- (#8) Doane Creek tower site to High Heaven tower site, (6 ghz).

Spurs from loop system:

- (#9) High Heaven tower site to Eola Hills towers site, (6 ghz).
- (#3) Mountaintop East tower site to Mountaintop West tower site, (18 ghz).
- (#5) Mountaintop East tower site to Bald Peak tower site, (6 ghz).

- B. Yamhill County intends to reuse the existing dishes and waveguide systems that are a part of the legacy microwave system if possible. Testing and confirming the reasonable use of existing dishes and waveguide systems will be taken into consideration when quoting the installation prices.
- C. Proposer to supply all materials, labor and equipment to fabricate, install, test, and implement for operation of the microwave radios and related equipment. System cutover will need to be planned in advance and downtime will need to be as minimal as possible. This system provides critical public safety communications to all the agencies and citizens in Yamhill County.
- D. All materials used in the fabrication of these products shall be of new manufacturer and use current technology.
- E. All products supplied shall meet the requirements of the National Electrical Code and all applicable Oregon state electrical codes for the intended use.
- F. All radio frequency devices shall comply with all applicable Federal Communication Commission Rules and Regulations (Part 101).
- G. All prices quoted shall be FOB McMinnville, Oregon. Proposer is responsible for proper packaging of the equipment and is responsible for any shipping damages which may occur in transit to the County's location(s).
- H. Proposers shall provide, with Proposal, microwave radio specification sheets and drawings necessary for evaluation of the Proposal.
- I. Yamhill County will supply a frequency list with the purchase order to the successful Proposer.

- J. Proposers are encouraged to supply pricing for any options available but not specified which will enhance the usefulness of these units.
- K. Yamhill County retains the right to reject any and all Proposals and to award based upon the best interests of the County and its partner Public Safety Agencies.
- L. Required FCC licensing will be supplied by others and is not part of this acquisition.
- M. Proposer to supply with the Proposal at least three references from customers that have purchased similar microwave radio systems. Contract information, contact names and contact telephone numbers to be supplied for these customers and attached to the Proposal Response Sheet.
- N. Proposer shall include with their Proposal a copy of the warranty for the microwave radio system and all related systems and subsystems. Warranty shall cover, at a minimum, one (1) year parts and labor. If an extended warranty is available, the Proposer shall provide pricing on the attached Proposal Response Sheet.
- O. Each radio shall be shipped with a complete maintenance manual, either in electronic or print form. A complete factory test printout shall also be provided showing all testing parameters and signed by the lead factory technician.
- P. If Proposer takes exception to any of the mandatory or optional items, they shall attach a complete explanation for the exception to the Proposal Response Sheet.
- Q. Proposer to provide optional pricing to conduct witness factory acceptance testing of all systems and subsystems that are part of the Proposal. All test equipment is to be provided by Proposer. Proposer to provide a qualified technician to conduct the tests and configure the loop/spur system for testing of the entire network
- R. Proposals are due by June 5, 2014, 4:00 PM Pacific Daylight Time and shall be delivered and a copy emailed to:

Yamhill County Board of Commissioners Office
Attention: Murray Paolo
434 NE Evans Street
McMinnville, OR 97128
Phone: (503)434-7401
Email: paolom@co.yamhill.or.us

- S. Any options that are mutually exclusive shall be listed by the Proposer and attached to the Proposal Response Sheet.

- T. Shipping address:

Yamhill County Information Systems
Attention: Murray Paolo
636 NE 7th Street
McMinnville, OR 97128
Phone: (503)434-7401
Email: paolom@co.yamhill.or.us

III. TECHNICAL SPECIFICATINS

- A. Proposer to supply the microwave radios configured for rack mounting in a customer supplied existing 19 inch EIA rack. The Proposer may use a product designed as an all indoor configuration or ODU/IDU configuration designed for mounting in the above rack configuration.
- B. All supplied equipment shall be designed to operate from the customers -48VDC (20VDC to 60 VDC) site battery plant. Circuit breakers for the individual radios will be supplied by the County.
- C. Microwave radios shall support both Ethernet (10/100 base T) and 16 DS1 end to end circuits per hop. The loop system may be designed as a repeater system, with Add/Drop DS1 circuits at each site or as end to end terminals with 16 DS1 circuits available at each site. The spurs will be supplied with Ethernet and 16 DS1 capacity in a terminal configuration. Proposer shall supply, with the proposal, pricing for loop configuration hops using the repeater configuration with 4 DS1 drops at each remote site and 16 DS1 circuits at the head end site. Proposer shall also supply a separate price for terminal hops with all 16 DS1/Ethernet circuits available at each microwave radio terminal.
- D. IP Interfaces: 2X10/100 Base-T Ethernet interfaces terminating in separate RJ45 connectors. Ethernet interface shall support IPV6 and IPV4. Port based VLAN and QOS operation to be included. Each User IP port shall provide for transport of an Ethernet stream to the far side radio. An Ethernet switch shall provide layer 2 switching functions between the near and far side radios.
- E. DS1 Interfaces: DS1 interfaces shall be supplied via separate RJ45 connectors for each DS1 or via 25 pair connectors. DS1 circuits shall be fully compliant with Bell Standards for DS1 circuits. Radio management software shall allow for the DS1 build out and framing scheme to be set by a County maintenance technician to match the requirements of the County channel banks.
- F. Transmitter power output: When operating in the 128QAM mode (30 MHz. channel Bandwidth) the radio shall be capable of producing an output power of 25 dBm in the 6 GHz. models and 19 dBm in the 18 GHz. model. When operating in the 32 QAM mode (10 MHz. channel bandwidth) the radio shall be capable of producing an output power of 28dBm in the 6 GHz. models and 23 dBm in the 18 GHz model. A built in power attenuator shall be incorporated to allow the transmitter output power to be reduced in 0.5 db steps from 0 dBm to the maximum power listed above in the 6 GHz. model.
- G. Receiver thresholds: Microwave radios as proposed shall meet or exceed the following threshold levels:

G.1:	QPSK	-92 dBm
G.2	32QAM	-78 dBm
G.3	64QAM	-75 dBm
G.4	128QAM	-69 dBm
G.5	2.7.5 256	QAM-67 dBm
- H. Emission bandwidth: Radio shall be field software configurable, via the management port, to operate in 5 MHz, 10 MHz. or 30 MHz. bandwidth modes without additional licensing cost.

- I. Modulation: Radio shall be field software configurable, via the management port, to operate in the following modes:
- I.1 QPSK
 - I.2 16QAM
 - I.3 32QAM (in the 10 MHz. or 30 MHz. bandwidth mode)
 - I.4 64QAM (in the 30 MHz bandwidth mode)
 - I.5 128QAM (in the 30 MHz. bandwidth mode)
 - I.6 256QAM (in the 30 MHz. bandwidth mode)
- J. Monitored hot standby configuration: The microwave radios shall be supplied to operate in a fully redundant monitored hot standby configuration in which the failure of one set of radios will automatically cause a traffic hitless switch to the standby radio. All subsystems included in the microwave radio shall be redundant and protected by this mode of operation. If Proposer uses an IDU/ODU rack mounted combination then the Proposer shall supply backup MHSB units for the ODU and a MHSB IDU with redundant circuitry along with a waveguide combiner system.
- K. When using an Add/Drop design, for the loop network, the Proposer shall incorporate a route diversity provision on the DS1 circuits to insure traffic can travel in the clockwise or counterclockwise direction over the loop system.
- L. Space Diversity: One loop hop (Mountaintop East to Eagle Crest) requires microwave radios configured for Space Diversity. These radios shall also meet the requirement of subsection III.J. for monitored hot standby operation.
- M. All radios supplied shall meet all FCC requirements for operation in part 101 including the bit rate efficiency requirements specified in 101.141 of the FCC rules and regulations.
- N. Proposer shall supply, with their Proposal, optional pricing to include "Automatic Transmitter Power Control" and "Adaptive Coded Modulation" in all 6 GHz microwave radios to be supplied under this Proposal.
- O. Radios shall be provided with an HTML GUI management interface, via the two management Ethernet ports, to allow a technician to monitor and configure all alarms, configuration settings, power levels, etc. related to that radio. Radios shall be capable of daisy changing the management interface to allow the entire system of radios to be managed from a single point on the network.
- P. A minimum of two form C alarm relays shall be provided which shall be factory programmable as to the alarm function they provide. These will interface to Yamhill County's alarm system.
- Q. LED power and fault lights shall be incorporated into the microwave radios and visible from the front of the equipment rack.
- R. Microwave radios shall be provided with vertical waveguide "stacks" to mate with the existing waveguide flex sections at each location if possible. Note: Radios are currently Harris model DVM6-12T units for 6 GHz and Harris model BCK8LIUST1808T1-1 radios on the 18 GHz hop.
- S. Proposer shall supply optional pricing for two complete sets of spares for the 6 GHz products and one complete set of spares for the 18 GHz products.

T. Proposer shall supply with their Proposal a technical support phone number, location and hours of operation.

IV. PROPOSAL RESPONSE SHEETS

Proposer's proposed costs must be submitted on the attached **Proposal Response Sheets (Attachment A)**

Proposal Response Sheets must be signed in the name of the Proposer, and must bear the original signature of the person (or persons) authorized to sign Proposal Response Sheet and contain firm costs. The name, title, office address, office telephone and fax number, and the signer's name must be clearly identified.

Proposals must be valid for a period of 120 days from submission deadline.

V. RETENTION OF PROPOSALS

Yamhill County reserves the right to retain all Proposals and to use ideas contained therein regardless of whether or not a Proposer's Proposal is selected. Submission of a Proposal in response to this RFP indicates Proposer's acceptance of these terms and of the conditions contained in the RFP.

VI. CRITERIA FOR SELECTION

The successful Proposer will be selected based on their Proposal, which will be evaluated solely on the information submitted and Proposers should ensure that their Proposals contain all of the necessary information to fairly and accurately evaluate each of the requirements. Yamhill County will review all Proposals and make a recommendation for selection using the following criteria:

- A. Satisfaction of the Technical Requirements (Maximum of 35 Points)**
- B. Organizational Qualifications, including references and experience with similar projects (Maximum of 15 Points)**
- C. Cost (Maximum of 35 Points)**

VII. PROJECT DIRECTOR

The Project Director for this project will be Murray Paolo, the Information Systems Manager for Yamhill County. The successful Proposer will perform all work required pursuant to the resulting contract subject to the approval of the Project Director.

VIII. EXPENSES OF PREPARING RESPONSES TO THIS RFP

Yamhill County accepts no responsibility for any expenses incurred by the Proposers to this RFP. Such expenses are to be borne exclusively by the Proposers.

IX. SUBMITTAL INSTRUCTIONS

NOTE: If necessary Yamhill County expects to enter into a nonexclusive, irrevocable, perpetual, nontransferable worldwide site license agreement, with one time up front license costs and no additional annual license costs for any and all required software that will be part of the purchased microwave radios

and related equipment. **Proposer should include proposed software license agreement terms and conditions with their Proposals.**

Proposed Software license costs should be inclusive of all updates and upgrades within a particular software version or software release.

Proposers should also state how long software versions shall be maintained and supported or if mandatory version upgrades will be required and if so, how often and at what cost.

Proposers to this RFP should mail/deliver two(2) copies of the Proposal, (including a complete copy of the RFP and signed Proposal Response Sheets), to arrive no later than 4pm on June 5, 2014 to the following address:

**Yamhill County, Attn: Murray Paolo
Board of Commissioners
434 NE Evans
McMinnville, Or 97128
(503) 434-7501**

Proposals must be clearly identified on the outside of the envelope with the Proposer's name and title of the RFP.

X. QUESTIONS; DISCLAIMER

All questions regarding this RFP should be addressed to Murray Paolo, Information Systems Manager at paolom@co.yamhill.or.us or (503) 434-7401. All questions are to be in writing. **Yamhill County encourages questions, inquiries, and requests for clarifications regarding any part of this RFP to be submitted as soon as possible.** Yamhill County shall prepare and distribute responses to questions to all parties who have requested a copy of the RFP.

Yamhill County has taken all reasonable efforts to include all the relevant information in this RFP, however, Yamhill County does not warrant the accuracy or completeness of this information or the underlying data. Each Proposer bears the responsibility to make its own assessments of the information contained in the RFP and to pose questions accordingly.

X. ACKNOWLEDGMENT OF ADDENDA

Addenda may be issued in response to changes in the RFP. Addenda must be acknowledged by signing and returning the Addendum form. Acknowledgments must be received no later than the Proposal due date. Failure to properly acknowledge any Addendum may result in a declaration of non-responsiveness by Yamhill County. RFP Addenda shall only be issued in writing; Yamhill County is not responsible for oral interpretations.

XI. PROTEST

A Proposer may protest an intent to award a contract by submitting their protest in writing to Yamhill County at the address above and stating the basis for the protest and the course of action that the protesting party desires Yamhill County to take.

A protest based upon restrictive specifications or other provisions of the RFP must be received by Murray Paolo at Yamhill County at the above listed address not later than seven (7) calendar days prior to the deadline set for receipt of Proposals. A protest based upon any other grounds must be received by Murray Paolo at Yamhill County not later than seven (7) calendar days after the date Yamhill County provides notice of the highest scoring Proposal, or within seven (7) calendar days after the time the protesting party first became aware of, or reasonably should have become aware of, the notice whichever is sooner.

If the protest does not meet these requirements, Yamhill County may, at their option, reject the protest or allow the protesting party a reasonable time to correct the deficiencies in the protest documentation. Yamhill County shall not be obligated to postpone a contract award in order to allow a Proposer to correct a deficient protest, unless otherwise required by law. Upon receipt of a properly submitted protest, Yamhill County shall review the protest and provide a written decision to the protesting party.

XII. CONFIDENTIAL INFORMATION

Proposers should identify any portions of its Proposal or any information submitted with its Proposal that Proposer wishes to be kept confidential or that constitutes a trade secret or other proprietary information and provide justification as to why such material or information should not be made public. Yamhill County cannot guarantee that this information will not become a public record but Yamhill County will use their reasonable best efforts to protect such information, in accordance with applicable state and federal public records requirements.

XIII. TERMS AND CONDITIONS; NEGOTIATIONS

See sample contract attached as Attachment B. Notwithstanding the sample contract and exhibits, Yamhill County reserves the right to negotiate the final terms and conditions contained in the sample contract and sample exhibits, as well as other terms and conditions contained in any sample documents submitted by Proposers as part of their Proposal.

THE COUNTY RESERVES THE RIGHT TO REJECT ANY AND ALL PROPOSALS, TO CANCEL THE RFP, OR TO WAIVE MINOR INFORMALITIES, AND TO RE-ADVERTISE IF IT IS DEEMED IN THE COUNTY'S BEST INTERESTS.

Sincerely,

Murray L. Paolo,
Information Systems Manager

Attachment A

PROPOSAL RESPONSE SHEET

Proposer providing Proposal:

Name: _____

Title: _____

Phone: _____

Address: _____

City: _____

State/Zip: _____

Email: _____

Pricing for mandatory items: (FOB McMinnville, Oregon)

A: 10 each 6 GHz microwave radios with associated equipment as needed configured as a five hop loop add/drop network with 4 DS1 drops plus Ethernet at each remote location and 16 DS1 drops plus Ethernet at the head end site.

\$ _____

B: 10 each 6 GHz microwave radios with associated equipment as needed configured as a five hop loop terminal network with 16 DS1 circuits plus Ethernet available at each site.

\$ _____

C: 4 each 6 GHz microwave radios with associated equipment as needed configured as two terminal spur systems.

\$ _____

D: 2 each 18 GHz microwave radios with associated equipment as needed configured as one terminal spur system.

\$ _____

Pricing for optional items. (County may purchase these items at its sole discretion).

E: Add on pricing to incorporate Adaptive Coded Modulation and Automatic Transmitter Power Control into the 14 radios operating in the 6 GHz band.

\$ _____

F: Optional add on pricing to provide for witnessed factory acceptance testing of all microwave radios. Airfare, lodging and meal expenses are not to be included for County witnesses.

\$ _____

G: Optional spare parts package for the radios as per section 2.20

\$ _____

Note: County intends to order Items A, C and D or B, C and D.

Signature of corporate officer of firm submitting proposal certifying that this proposal is complete and compliant with the proposal specifications contained in the RFP except as noted below.

Signature: _____ Date: _____

Title: _____

Exceptions: _____

_____ Attach added sheets as necessary.

Note to Proposers: You must attach specification sheets for all microwave radios and related equipment included in this proposal as well as all warranty documents and additional items which the vendor feels will assist the County in clearly understanding the proposed solution in response to the RFP.



June 5, 2014

Yamhill County Board of Commissioners Office
434 NE Evans Street
McMinnville, OR 97128

Attn: Mr. Murray Paolo

Dear Mr. Paolo,

Star Microwave Service Corporation is pleased to submit its equipment and services proposal in response to your RFP for the Yamhill County Microwave Project dated March 25, 2014. Star Microwave Service Corporation is a company based in Fremont, CA, now in its 23rd year of business providing equipment and services to the telecom industry.

Star Microwave's proposal is based on its Cirius LM and Cirius HM licensed radio products operating in the 6GHz and 18GHz bands. These radios offer the latest in high capacity Ethernet transport along with a full set of features appropriate for this kind of service. The radios come in a split mount configuration, but will be mounted indoors, and will be configured with T1 interfaces.

Our proposal includes pricing for the two options that completely fulfill the requirements in the RFP document:

- 1) Our Base Bid utilizes the Cirius LM radio as the base radio in the network with the Cirius HM used on the Space Diversity/ MHSB link.
- 2) Option 2 utilizes the Cirius HM throughout the entire network, which provides added features useful in the entire network, including ACM and ATPC. Option 2 offers real expansion capabilities should the County need to increase its bandwidth requirements in the future. This option also limits the need for additional spares as it uses only one radio model.

With regard to the technical requirements detailed in the RFP document, we meet or exceed all of them as outlined. The attached data sheets provide the relevant specifications of the radios being proposed. Note that each radio is fully software defined making it easy for deploying different rf channel bandwidths, modulation densities, transmitter powers, etc.

We have shown a new T1 Loop Switch system as an option. It may be possible to re-use the existing loop switch if it is in good working order. Star Microwave is very familiar with this switch, and we may have spare parts available if needed to bring it up to a serviceable level. This would save the County a considerable amount of money if this can be done. At this time, we are assuming the County will re-use the existing switch.

In addition, Star Microwave may be willing to decommission the existing network, and offer a buy-back on the existing hardware. Star Microwave carries a large inventory of legacy radios, so this falls into our existing business model.

STAR MICROWAVE, INC.
47560 Seabridge Drive
Fremont, CA 94538
Tel +1 510 498 7900

B.O. 14-550



In this proposal, we have included a spread sheet with individual pricing on a per site basis for the radios, antennas, and other required hardware. The spread sheets are clearly marked to show the various options outlined above. We will re-use the existing waveguide and antennas as indicated in the RFP.

Attached are the following required documents:

- 1) Data Sheets for the Cirius LM 170 Mbps Ethernet Radio and the Cirius HM 311 Mbps Ethernet Radio.
- 2) Price List on a per site basis for the hardware requirements of the system.
- 3) System Design Calculations (path calculations and path profiles).
- 4) System Layout Drawings.
- 5) Data Sheet for the Proposed T1 Loop Switch, if required.
- 6) Star Microwave References List.

Star Microwave sincerely appreciates the opportunity to bid this project for Yamhill County, and looks forward to working with you in the successful implementation of this project.

Sincerely,

A handwritten signature in black ink, appearing to read "L. Beas".

Luis Beas
President, CEO
Star Microwave Service Corporation

YAMHILL COUNTY MICROWAVE RADIOS AND RELATED EQUIPMENT

REQUEST FOR PROPOSALS (RFP) – May 14, 2014

TO PROVIDE MICROWAVE RADIOS AND RELATED EQUIPMENT TO
YAMHILL COUNTY

I. INTRODUCTION

A. General Information

Yamhill County requests Proposals (as defined herein) from vendors of public safety grade microwave radios and related hardware for the acquisition and installation of equipment to replace an aging legacy microwave network used to support Public Safety Communications in Yamhill County.

The successful Proposer shall provide proven and established microwave radio and related equipment that best meets Yamhill County requirements as provided herein, including equipment hardware, software, specification sheets, instruction manuals, training aids, maintenance and support, and all other things necessary to serve the business needs of Yamhill County. The new microwave radios and related equipment should have the ability to support future requirements through expansions instead of complete equipment replacement, be user friendly, easily managed, and provide the necessary management information to effectively manage growth and future radio system operations and requirements.

The successful Proposer shall be expected to deliver the purchased equipment within thirty (30) calendar days of effective date of contract, with installation to occur as soon as reasonably possible thereafter.

Proposers are encouraged to include any available discounts, incentives or other cost saving options, including methods to leverage existing Yamhill County radios and related equipment or existing services in its Proposal. All reasonable Proposals for the replacement of Yamhill County's existing microwave radios and related equipment will be considered.

Definition, "Proposer" refers to the entity that is providing the Proposal in response to this RFP.

"Proposal" refers to a Proposer's written submittal in response to this RFP.

B. Background of the existing microwave radios and related equipment

See Section II, General Requirements.

The new microwave radio system must at least replace the existing functionality of Yamhill County's current microwave radio system, as well as introduce the availability of reasonably current features and functionality available with new microwave radio systems.

It must also easily interface with our existing radio system. (See Section III, Technical Specifications)

C. RFP Schedule.

RFP Issued:	May 14, 2014
Proposals Due:	June 5, 2014
Evaluation	June 6 – June 13, 2014
Successful Proposer Selection	June 16, 2014
Target Contract Date:	June 27, 2014
Anticipated Completion Date:	December 31, 2014

Proposals received after 4pm on June 5, 2014 will not be considered and will be returned unopened.

Proposals will not be accepted by email or facsimile.

***IMPORTANT NOTE: Proposers must include a properly completed and signed Proposal Response Sheet (See Technical Specifications) with their Proposals. Proposals received without a properly completed and signed Proposal Response Sheet shall be considered nonresponsive. ***

Proposers may arrange to tour Yamhill County facilities by contacting the Information Systems Manager, Murray Paolo, at the email address and telephone number listed herein. The purpose of any such tour would be to allow Proposers to develop a better understanding of the facilities infrastructure and specific microwave radio equipment requirements. Marketing activities will not be conducted during any tour and no changes to the RFP may be made orally during the tour.

II. GENERAL REQUIREMENTS:

- A. This project involves the purchase and installation of public safety grade microwave radios and related equipment to replace an aging legacy microwave network used to support public safety communications in Yamhill County. The scope of this project, and the associated number of sites initially replaced may be limited due to the available funding, and the Proposal which is actually selected for implementation. The following microwave hops are intended to be replaced, and the priority is listed in numerical order as follows:

Loop system:

- (#1) McMinnville Fire Station to High Heaven tower site, (6 ghz).
- (#2) High Heaven tower site to Mountaintop East tower site, (6 ghz).
- (#4) McMinnville Fire Station to Mountaintop East tower site, (6 ghz).
- (#6) Mountaintop East tower site to Eagle Crest tower site, (Diversity, 6 ghz).
- (#7) Eagle Crest tower site to Doane Creek tower site, (6 ghz).
- (#8) Doane Creek tower site to High Heaven tower site, (6 ghz).

Spurs from loop system:

- (#9) High Heaven tower site to Eola Hills towers site, (6 ghz).
- (#3) Mountaintop East tower site to Mountaintop West tower site, (18 ghz).
- (#5) Mountaintop East tower site to Bald Peak tower site, (6 ghz).

- B. Yamhill County intends to reuse the existing dishes and waveguide systems that are a part of the legacy microwave system if possible. Testing and confirming the reasonable use of existing dishes and waveguide systems will be taken into consideration when quoting the installation prices.
- C. Proposer to supply all materials, labor and equipment to fabricate, install, test, and implement for operation of the microwave radios and related equipment. System cutover will need to be planned in advance and downtime will need to be as minimal as possible. This system provides critical public safety communications to all the agencies and citizens in Yamhill County.
- D. All materials used in the fabrication of these products shall be of new manufacturer and use current technology.
- E. All products supplied shall meet the requirements of the National Electrical Code and all applicable Oregon state electrical codes for the intended use.
- F. All radio frequency devices shall comply with all applicable Federal Communication Commission Rules and Regulations (Part 101).
- G. All prices quoted shall be FOB McMinnville, Oregon. Proposer is responsible for proper packaging of the equipment and is responsible for any shipping damages which may occur in transit to the County's location(s).
- H. Proposers shall provide, with Proposal, microwave radio specification sheets and drawings necessary for evaluation of the Proposal.
- I. Yamhill County will supply a frequency list with the purchase order to the successful Proposer.

- J. Proposers are encouraged to supply pricing for any options available but not specified which will enhance the usefulness of these units.
- K. Yamhill County retains the right to reject any and all Proposals and to award based upon the best interests of the County and its partner Public Safety Agencies.
- L. Required FCC licensing will be supplied by others and is not part of this acquisition.
- M. Proposer to supply with the Proposal at least three references from customers that have purchased similar microwave radio systems. Contract information, contact names and contact telephone numbers to be supplied for these customers and attached to the Proposal Response Sheet.
- N. Proposer shall include with their Proposal a copy of the warranty for the microwave radio system and all related systems and subsystems. Warranty shall cover, at a minimum, one (1) year parts and labor. If an extended warranty is available, the Proposer shall provide pricing on the attached Proposal Response Sheet.
- O. Each radio shall be shipped with a complete maintenance manual, either in electronic or print form. A complete factory test printout shall also be provided showing all testing parameters and signed by the lead factory technician.
- P. If Proposer takes exception to any of the mandatory or optional items, they shall attach a complete explanation for the exception to the Proposal Response Sheet.
- Q. Proposer to provide optional pricing to conduct witness factory acceptance testing of all systems and subsystems that are part of the Proposal. All test equipment is to be provided by Proposer. Proposer to provide a qualified technician to conduct the tests and configure the loop/spur system for testing of the entire network
- R. Proposals are due by June 5, 2014, 4:00 PM Pacific Daylight Time and shall be delivered and a copy emailed to:

Yamhill County Board of Commissioners Office
Attention: Murray Paolo
434 NE Evans Street
McMinnville, OR 97128
Phone: (503)434-7401
Email: paolom@co.yamhill.or.us

- S. Any options that are mutually exclusive shall be listed by the Proposer and attached to the Proposal Response Sheet.
- T. Shipping address:

Yamhill County Information Systems
Attention: Murray Paolo
636 NE 7th Street
McMinnville, OR 97128
Phone: (503)434-7401
Email: paolom@co.yamhill.or.us

III. TECHNICAL SPECIFICATINS

- A. Proposer to supply the microwave radios configured for rack mounting in a customer supplied existing 19 inch EIA rack. The Proposer may use a product designed as an all indoor configuration or ODU/IDU configuration designed for mounting in the above rack configuration.
- B. All supplied equipment shall be designed to operate from the customers -48VDC (20VDC to 60 VDC) site battery plant. Circuit breakers for the individual radios will be supplied by the County.
- C. Microwave radios shall support both Ethernet (10/100 base T) and 16 DS1 end to end circuits per hop. The loop system may be designed as a repeater system, with Add/Drop DS1 circuits at each site or as end to end terminals with 16 DS1 circuits available at each site. The spurs will be supplied with Ethernet and 16 DS1 capacity in a terminal configuration. Proposer shall supply, with the proposal, pricing for loop configuration hops using the repeater configuration with 4 DS1 drops at each remote site and 16 DS1 circuits at the head end site. Proposer shall also supply a separate price for terminal hops with all 16 DS1/Ethernet circuits available at each microwave radio terminal.
- D. IP Interfaces: 2X10/100 Base-T Ethernet interfaces terminating in separate RJ45 connectors. Ethernet interface shall support IPV6 and IPV4. Port based VLAN and QOS operation to be included. Each User IP port shall provide for transport of an Ethernet stream to the far side radio. An Ethernet switch shall provide layer 2 switching functions between the near and far side radios.
- E. DS1 Interfaces: DS1 interfaces shall be supplied via separate RJ45 connectors for each DS1 or via 25 pair connectors. DS1 circuits shall be fully compliant with Bell Standards for DS1 circuits. Radio management software shall allow for the DS1 build out and framing scheme to be set by a County maintenance technician to match the requirements of the County channel banks.
- F. Transmitter power output: When operating in the 128QAM mode (30 MHz. channel Bandwidth) the radio shall be capable of producing an output power of 25 dBm in the 6 GHz. models and 19 dBm in the 18 GHz. model. When operating in the 32 QAM mode (10 MHz. channel bandwidth) the radio shall be capable of producing an output power of 28dBm in the 6 GHz. models and 23 dBm in the 18 GHz model. A built in power attenuator shall be incorporated to allow the transmitter output power to be reduced in 0.5 db steps from 0 dBm to the maximum power listed above in the 6 GHz. model.
- G. Receiver thresholds: Microwave radios as proposed shall meet or exceed the following threshold levels:
- | | | |
|------|-----------|------------|
| G.1: | QPSK | -92 dBm |
| G.2 | 32QAM | -78 dBm |
| G.3 | 64QAM | -75 dBm |
| G.4 | 128QAM | -69 dBm |
| G.5 | 2.7.5 256 | QAM-67 dBm |
- H. Emission bandwidth: Radio shall be field software configurable, via the management port, to operate in 5 MHz, 10 MHz. or 30 MHz. bandwidth modes without additional licensing cost.

- I. Modulation: Radio shall be field software configurable, via the management port, to operate in the following modes:
 - I.1 QPSK
 - I.2 16QAM
 - I.3 32QAM (in the 10 MHz. or 30 MHz. bandwidth mode)
 - I.4 64QAM (in the 30 MHz bandwidth mode)
 - I.5 128QAM (in the 30 MHz. bandwidth mode)
 - I.6 256QAM (in the 30 MHz. bandwidth mode)

- J. Monitored hot standby configuration: The microwave radios shall be supplied to operate in a fully redundant monitored hot standby configuration in which the failure of one set of radios will automatically cause a traffic hitless switch to the standby radio. All subsystems included in the microwave radio shall be redundant and protected by this mode of operation. If Proposer uses an IDU/ODU rack mounted combination then the Proposer shall supply backup MHSB units for the ODU and a MHSB IDU with redundant circuitry along with a waveguide combiner system.

- K. When using an Add/Drop design, for the loop network, the Proposer shall incorporate a route diversity provision on the DS1 circuits to insure traffic can travel in the clockwise or counterclockwise direction over the loop system.

- L. Space Diversity: One loop hop (Mountaintop East to Eagle Crest) requires microwave radios configured for Space Diversity. These radios shall also meet the requirement of subsection III.J. for monitored hot standby operation.

- M. All radios supplied shall meet all FCC requirements for operation in part 101 including the bit rate efficiency requirements specified in 101.141 of the FCC rules and regulations.

- N. Proposer shall supply, with their Proposal, optional pricing to include "Automatic Transmitter Power Control" and "Adaptive Coded Modulation" in all 6 GHz microwave radios to be supplied under this Proposal.

- O. Radios shall be provided with an HTML GUI management interface, via the two management Ethernet ports, to allow a technician to monitor and configure all alarms, configuration settings, power levels, etc. related to that radio. Radios shall be capable of daisy changing the management interface to allow the entire system of radios to be managed from a single point on the network.

- P. A minimum of two form C alarm relays shall be provided which shall be factory programmable as to the alarm function they provide. These will interface to Yamhill County's alarm system.

- Q. LED power and fault lights shall be incorporated into the microwave radios and visible from the front of the equipment rack.

- R. Microwave radios shall be provided with vertical waveguide "stacks" to mate with the existing waveguide flex sections at each location if possible. Note: Radios are currently Harris model DVM6-12T units for 6 GHz and Harris model BCK8LIUST1808T1-1 radios on the 18 GHz hop.

- S. Proposer shall supply optional pricing for two complete sets of spares for the 6 GHz products and one complete set of spares for the 18 GHz products.

T. Proposer shall supply with their Proposal a technical support phone number, location and hours of operation.

IV. PROPOSAL RESPONSE SHEETS

Proposer's proposed costs must be submitted on the attached **Proposal Response Sheets (Attachment A)**

Proposal Response Sheets must be signed in the name of the Proposer, and must bear the original signature of the person (or persons) authorized to sign Proposal Response Sheet and contain firm costs. The name, title, office address, office telephone and fax number, and the signer's name must be clearly identified.

Proposals must be valid for a period of 120 days from submission deadline.

V. RETENTION OF PROPOSALS

Yamhill County reserves the right to retain all Proposals and to use ideas contained therein regardless of whether or not a Proposer's Proposal is selected. Submission of a Proposal in response to this RFP indicates Proposer's acceptance of these terms and of the conditions contained in the RFP.

VI. CRITERIA FOR SELECTION

The successful Proposer will be selected based on their Proposal, which will be evaluated solely on the information submitted and Proposers should ensure that their Proposals contain all of the necessary information to fairly and accurately evaluate each of the requirements. Yamhill County will review all Proposals and make a recommendation for selection using the following criteria:

- A. Satisfaction of the Technical Requirements (Maximum of 35 Points)**
- B. Organizational Qualifications, including references and experience with similar projects (Maximum of 15 Points)**
- C. Cost (Maximum of 35 Points)**

VII. PROJECT DIRECTOR

The Project Director for this project will be Murray Paolo, the Information Systems Manager for Yamhill County. The successful Proposer will perform all work required pursuant to the resulting contract subject to the approval of the Project Director.

VIII. EXPENSES OF PREPARING RESPONSES TO THIS RFP

Yamhill County accepts no responsibility for any expenses incurred by the Proposers to this RFP. Such expenses are to be borne exclusively by the Proposers.

IX. SUBMITTAL INSTRUCTIONS

NOTE: If necessary Yamhill County expects to enter into a nonexclusive, irrevocable, perpetual, nontransferable worldwide site license agreement, with one time up front license costs and no additional annual license costs for any and all required software that will be part of the purchased microwave radios

and related equipment. **Proposer should include proposed software license agreement terms and conditions with their Proposals.**

Proposed Software license costs should be inclusive of all updates and upgrades within a particular software version or software release.

Proposers should also state how long software versions shall be maintained and supported or if mandatory version upgrades will be required and if so, how often and at what cost.

Proposers to this RFP should mail/deliver two(2) copies of the Proposal, (including a complete copy of the RFP and signed Proposal Response Sheets), to arrive no later than 4pm on June 5, 2014 to the following address:

**Yamhill County, Attn: Murray Paolo
Board of Commissioners
434 NE Evans
McMinnville, Or 97128
(503) 434-7501**

Proposals must be clearly identified on the outside of the envelope with the Proposer's name and title of the RFP.

X. QUESTIONS; DISCLAIMER

All questions regarding this RFP should be addressed to Murray Paolo, Information Systems Manager at paolom@co.yamhill.or.us or (503) 434-7401. All questions are to be in writing. **Yamhill County encourages questions, inquiries, and requests for clarifications regarding any part of this RFP to be submitted as soon as possible.** Yamhill County shall prepare and distribute responses to questions to all parties who have requested a copy of the RFP.

Yamhill County has taken all reasonable efforts to include all the relevant information in this RFP, however, Yamhill County does not warrant the accuracy or completeness of this information or the underlying data. Each Proposer bears the responsibility to make its own assessments of the information contained in the RFP and to pose questions accordingly.

X. ACKNOWLEDGMENT OF ADDENDA

Addenda may be issued in response to changes in the RFP. Addenda must be acknowledged by signing and returning the Addendum form. Acknowledgments must be received no later than the Proposal due date. Failure to properly acknowledge any Addendum may result in a declaration of non-responsiveness by Yamhill County. RFP Addenda shall only be issued in writing; Yamhill County is not responsible for oral interpretations.

XI. PROTEST

A Proposer may protest an intent to award a contract by submitting their protest in writing to Yamhill County at the address above and stating the basis for the protest and the course of action that the protesting party desires Yamhill County to take.

A protest based upon restrictive specifications or other provisions of the RFP must be received by Murray Paolo at Yamhill County at the above listed address not later than seven (7) calendar days prior to the deadline set for receipt of Proposals. A protest based upon any other grounds must be received by Murray Paolo at Yamhill County not later than seven (7) calendar days after the date Yamhill County provides notice of the highest scoring Proposal, or within seven (7) calendar days after the time the protesting party first became aware of, or reasonably should have become aware of, the notice whichever is sooner.

If the protest does not meet these requirements, Yamhill County may, at their option, reject the protest or allow the protesting party a reasonable time to correct the deficiencies in the protest documentation. Yamhill County shall not be obligated to postpone a contract award in order to allow a Proposer to correct a deficient protest, unless otherwise required by law. Upon receipt of a properly submitted protest, Yamhill County shall review the protest and provide a written decision to the protesting party.

XII. CONFIDENTIAL INFORMATION

Proposers should identify any portions of its Proposal or any information submitted with its Proposal that Proposer wishes to be kept confidential or that constitutes a trade secret or other proprietary information and provide justification as to why such material or information should not be made public. Yamhill County cannot guarantee that this information will not become a public record but Yamhill County will use their reasonable best efforts to protect such information, in accordance with applicable state and federal public records requirements.

XIII. TERMS AND CONDITIONS; NEGOTIATIONS

See sample contract attached as Attachment B. Notwithstanding the sample contract and exhibits, Yamhill County reserves the right to negotiate the final terms and conditions contained in the sample contract and sample exhibits, as well as other terms and conditions contained in any sample documents submitted by Proposers as part of their Proposal.

THE COUNTY RESERVES THE RIGHT TO REJECT ANY AND ALL PROPOSALS, TO CANCEL THE RFP, OR TO WAIVE MINOR INFORMALITIES, AND TO RE-ADVERTISE IF IT IS DEEMED IN THE COUNTY'S BEST INTERESTS.

Sincerely,

Murray L. Paolo,
Information Systems Manager

Attachment A

PROPOSAL RESPONSE SHEET

Proposer providing Proposal:

Name: President, CEO
Title: Luis Beas (Star Microwave Service Corporation)
Phone: 510-498-7916
Address: 47560 Seabridge
City: Fremont
State/Zip: California
Email: lbeas@starmicrowave.com

Pricing for mandatory items: (FOB McMinnville, Oregon) Include All Services

A: 10 each 6 GHz microwave radios configured as a five hop loop add/drop network with 4 DS1 drops plus Ethernet at each remote location and 16 DS1 drops plus Ethernet at the head end site.

\$ 199,273.00

This price does not include T1 Protection Switches

B: 10 each 6 GHz microwave radios configured as a five hop loop terminal network with 16 DS1 circuits plus Ethernet available at each site.

\$ 199,273.00

This price does not include T1 Protection Switches

C: 4 each 6 GHz microwave radios configured as two terminal spur systems.

\$ 65,536

D: 2 each 18 GHz microwave radios configured as one terminal spur system.

\$ 32,716

Pricing for optional items. (County may purchase these items at its sole discretion).

E: Add on pricing to incorporate Adaptive Coded Modulation and Automatic Transmitter Power Control into the 14 radios operating in the 6 GHz band.

\$ 49,440.00

F: Optional add on pricing to provide for witnessed factory acceptance testing of all microwave radios. Airfare, lodging and meal expenses are not to be included for County witnesses.

\$ 4,000.00

G: Optional spare parts package for the radios as per section 2.20

\$ 24,040.00

Note: County intends to order Items A, C and D or B, C and D.

Signature of corporate officer of firm submitting quote certifying that this quote is complete and compliant with the quote specifications contained in the RFQ except as noted below.

Signature:  Date: 6/3/2014
Title: President, CEO
Exceptions: None Taken

_____ Attach added sheets as necessary.

Note to Vendors: You must attach specification sheets for all microwave radios and related equipment included in this quote as well as all warranty documents and additional items which the vendor feels will assist the County in clearly understanding the proposed solution in response to the RFQ.



June 02, 2014

Yamhill County Board of Commissioners
434 NE Evans Street
McMinnville OR 97128

RE: Warranty Satisfaction

Star Microwave Service Corporation fully warrants all Cirius Series Radios furnished under the terms of this bid for a period of two (2) years and all other additional equipment for one (1) Year upon receipt of order.

While under warranty, Star Microwave will repair or replace inoperable materials or equipment in a timely manner to minimize the disruption of Yamhill County operations.

A handwritten signature in black ink, appearing to read "Luis Beas".

Sincerely,

Luis Beas
CEO
Star Microwave Service Corporation



Star Microwave References

Cirius LM, HM Radios

Polk County - Dean Bender – (503) 623-9251 – 820 S.W. Ash, Dallas OR 97338

Nucla Naturita Telephone – Kent Tomlinson – (970) 864-7335 – 421 Main St, Nucla CO 81424

Midwest Mobile - Ernie Miller – (816) 279-2065 – 812 South 10th St, St. Joseph MO 64501

National Outdoor Leadership Schools - Bobby Johnson – (307) 332-8800 – 284 Lincoln St, Lander
WY 82520

KSNT - Jeff Groves – (785) 582-3253 – 6835 NW Hwy 24, Topeka KS 66619

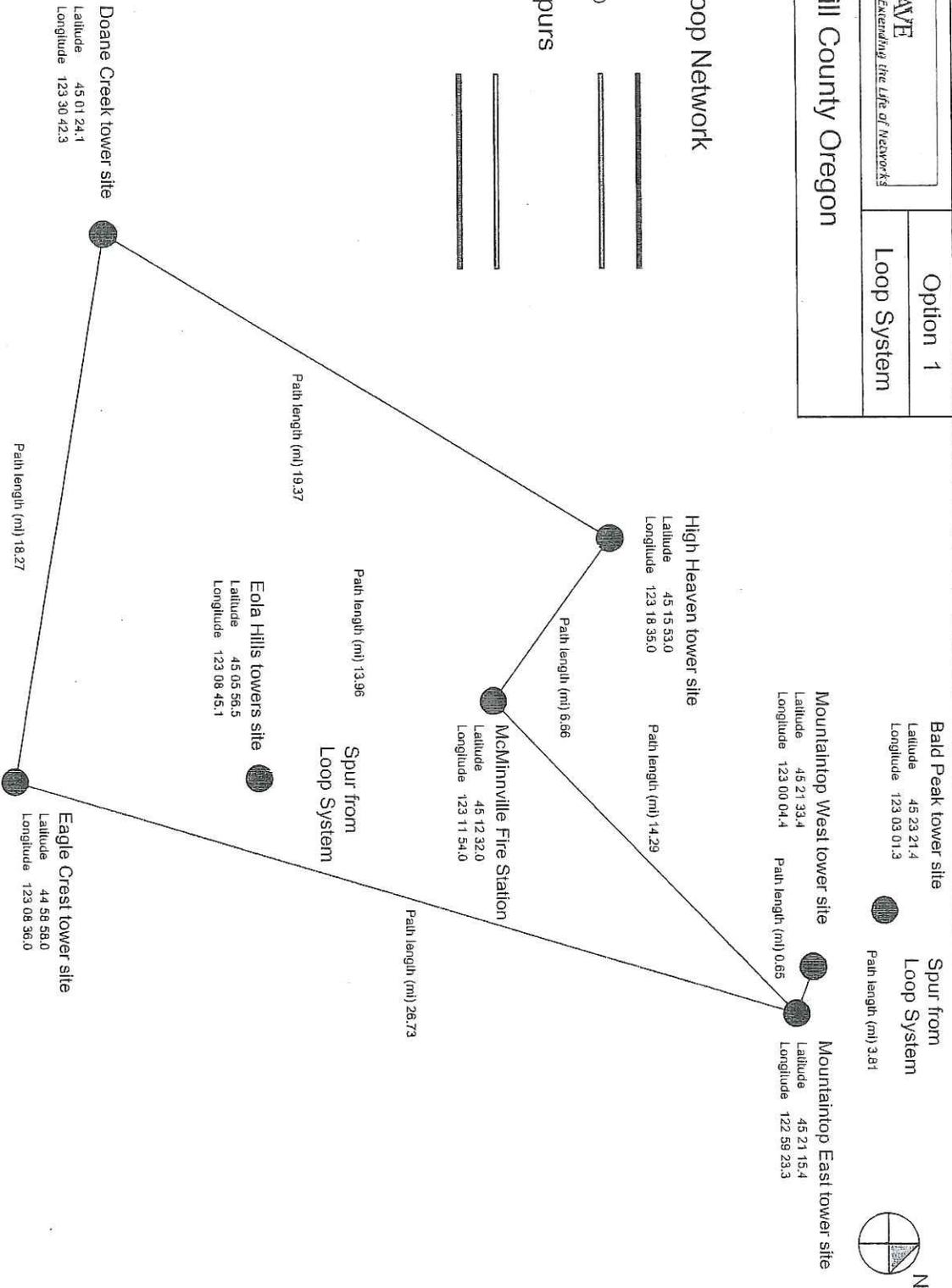


SPAR MICROWAVE
Your Partner in Building and Extending the Life of Networks

Yamhill County Oregon

Option 1
Loop System

- Microwave Radio Loop Network**
- SM Sirius LM 6L GHz 1+1
 - SM Sirius HM 6L GHz 1+1 SD
- Microwave Radio Spurs**
- SM Sirius LM 6U GHz 1+1
 - SM Sirius LM 18 GHz 1+1



47580 Sandhill Drive
Fremont, CA 94538
Tel: 415 898 7900
FCA # 1510-9587-901

Base Bid
Citrus LM Radio
Citrus HM on the SD Link

Warranty: Two years on Radio Products

Quote Number: Q14-06052014
Issue: A
Quote Date: 6/6/2014
Quote Expiration: 9/17/2017
Terms: 20% Down Payment Balance Net 30 days
Delivery: 4-5 weeks ARO and Inquiries
Flight: FCA Fremont, CA
Currency: USD

Invoice to: Yamhill County Board of Commissioners
434 NE Evans Street
McMinnville, Oregon 97128
USA
Henry Pardo 503.434.7401

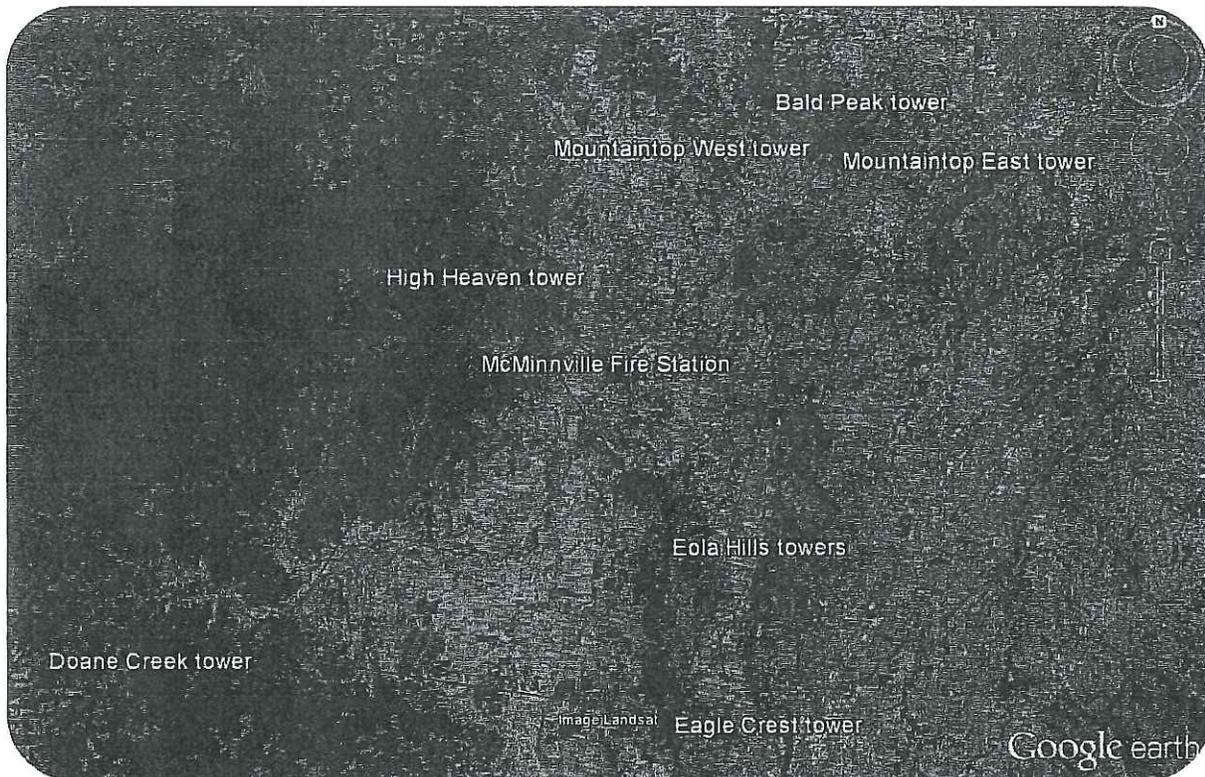
Site Detail

Item #	Model Number	Terminal Description	Damage Check	High Heaven	McMinnville Fire Station	Mountain Top West	Engle Crest	Echo Hills	Bald Peak	Mountain Top West	Total Terminals	Unit Price	Total Price
Microwave Radios, Loop Network													
1	Star Microwave Citrus LM Series 6GHz	Citrus LM EW 6GHz terminal w/ 1+1 configuration, operating in the 6 GHz band, consisting of (1) protected DU and (2) ODUs operating with standard power. Capacity is up to 170Mbps Ethernet. (Data sheet attached)	2	2	2	2	2	2	2	2	2	\$7,682	\$63,066
1.1	Star Microwave Citrus LM Series 6GHz	ODU Mounting Bracket (To mount if coupler to rack frame)	2	2	2	2	2	2	2	2	2	\$825	\$9,000
1.2	Star Microwave Citrus LM Series 6GHz	RF Coupler (to mount protected ODU to antenna lead)	2	2	2	2	2	2	2	2	2	\$1,250	\$10,000
1.3	Star Microwave Citrus LM Series 6GHz	Rack mounting bracket...to mount ODU/coupler in rack	2	2	2	2	2	2	2	2	2	\$1,165	\$1,480
1.4	Star Microwave Citrus LM Series 6GHz	Twist Flex waveguide...to connect if coupler to antenna lead	2	2	2	2	2	2	2	2	2	\$476	\$3,808
2	Star Microwave Citrus HM Series 6GHz	Citrus HM EW 6GHz terminal w/ 1+1 Space Diversity configuration, operating in the 6 GHz band, consisting of (2) protected DUs and (4) ODUs operating with standard power. Capacity is up to 311Mbps Ethernet. Includes ACM, ATFC licenses (Data sheet attached)	2	2	2	2	2	2	2	2	2	\$413	\$1,662
2.1	Star Microwave Citrus HM Series 6GHz	ODU Mounting Bracket (To mount if coupler to rack frame)	2	2	2	2	2	2	2	2	2	\$850	\$3,400
2.2	Star Microwave Citrus HM Series 6GHz	RF Coupler (to mount protected ODU to antenna lead)	2	2	2	2	2	2	2	2	2	\$165	\$740
2.3	Star Microwave Citrus HM Series 6GHz	Rack mounting bracket...to mount ODU/coupler in rack	2	2	2	2	2	2	2	2	2	\$447	\$1,780
2.4	Star Microwave Citrus HM Series 6GHz	Twist Flex waveguide...to connect if coupler to antenna lead	2	2	2	2	2	2	2	2	2	\$447	\$1,780
SPURS													
3	Star Microwave Citrus LM Series 18GHz	Citrus LM EW 18GHz terminal w/ 1+1 configuration, operating in the 18 GHz band, consisting of (1) protected DU and (2) ODUs operating with standard power. Capacity is up to 170Mbps Ethernet. (Data sheet attached)	2	2	2	2	2	2	2	2	2	\$7,982	\$15,764
3.1	Star Microwave Citrus LM Series 18GHz	ODU Mounting Bracket (To mount if coupler to rack frame)	2	2	2	2	2	2	2	2	2	\$825	\$1,650
3.2	Star Microwave Citrus LM Series 18GHz	RF Coupler (to mount protected ODU to antenna lead)	2	2	2	2	2	2	2	2	2	\$1,250	\$2,500
3.3	Star Microwave Citrus LM Series 18GHz	Rack mounting bracket...to mount ODU/coupler in rack	2	2	2	2	2	2	2	2	2	\$165	\$370
3.4	Star Microwave Citrus LM Series 18GHz	Twist Flex waveguide...to connect if coupler to antenna lead	2	2	2	2	2	2	2	2	2	\$476	\$952
4	Star Microwave Citrus LM Series 6GHz	Citrus LM EW 6GHz terminal w/ 1+1 configuration, operating in the 6 GHz band, consisting of (1) protected DU and (2) ODUs operating with standard power. Capacity is up to 170Mbps Ethernet. (Data sheet attached)	4	4	4	4	4	4	4	4	4	\$7,682	\$31,528
4.1	Star Microwave Citrus LM Series 6GHz	ODU Mounting Bracket (To mount if coupler to rack frame)	4	4	4	4	4	4	4	4	4	\$825	\$3,300
4.2	Star Microwave Citrus LM Series 6GHz	RF Coupler (to mount protected ODU to antenna lead)	4	4	4	4	4	4	4	4	4	\$1,250	\$5,000
4.3	Star Microwave Citrus LM Series 6GHz	Rack mounting bracket...to mount ODU/coupler in rack	4	4	4	4	4	4	4	4	4	\$165	\$740
4.4	Star Microwave Citrus LM Series 6GHz	Twist Flex waveguide...to connect if coupler to antenna lead	4	4	4	4	4	4	4	4	4	\$476	\$1,904
DS1 Loop Switch Accessory (to provide DS1 Loop Protection)													
5		(Optional, may not be required)	2	2	2	2	2	2	2	2	2	\$3,795	\$0
Shares (Recommended)													
6	Star Microwave Citrus LM Series 6GHz	Citrus LM Spare ODU 6GHz	2	2	2	2	2	2	2	2	2	\$3,860	\$5,720
6.1	Star Microwave Citrus LM Series 6GHz	Citrus LM Spare DU 1+1 Protected	2	2	2	2	2	2	2	2	2	\$3,870	\$7,240
6.2	Star Microwave Citrus LM Series 18GHz	Citrus LM Spare ODU 18GHz	1	1	1	1	1	1	1	1	1	\$2,660	\$2,660
6.3	Star Microwave Citrus HM Series 6GHz	Citrus HM Spare ODU 6GHz	1	1	1	1	1	1	1	1	1	\$3,280	\$3,280
6.4	Star Microwave Citrus HM Series 6GHz	Citrus HM Spare DU 1+1 Protected	1	1	1	1	1	1	1	1	1	\$4,240	\$4,240
Service Items													
7	Star Microwave Service Corporation	Factory Acceptance Testing In Fremont, CA. Estimated time to complete...4 working days.	4	4	4	4	4	4	4	4	4	\$1,000	\$4,000
7.1	Star Microwave Service Corporation	Install Radio Terminals	16	16	16	16	16	16	16	16	16	\$625	\$10,000
7.2	Star Microwave Service Corporation	Radio Test and Commissioning	16	16	16	16	16	16	16	16	16	\$625	\$10,000
7.3	Star Microwave Service Corporation	Radio Test Change, Alignment, and waveguide sweeps	18	18	18	18	18	18	18	18	18	\$990	\$15,200
7.4	Star Microwave Service Corporation	Program Management	18	18	18	18	18	18	18	18	18	\$1,032	\$16,612
7.5	Star Microwave Service Corporation	Material Management	18	18	18	18	18	18	18	18	18	\$1,477	\$23,482
7.6	Star Microwave Service Corporation	Material Management	18	18	18	18	18	18	18	18	18	\$1,600	\$1,600
7.7	Star Microwave Service Corporation	Documentation and Crosscut	18	18	18	18	18	18	18	18	18	\$1,147	\$2,342
7.8	Star Microwave Service Corporation	Site Cleanup and Disposal	18	18	18	18	18	18	18	18	18	\$176	\$2,816
7.9	Star Microwave Service Corporation	Decommissioning and Transport of Existing Equipment	18	18	18	18	18	18	18	18	18	\$1,585	\$25,580
Total, All Items, FCA Fremont, CA.												\$314,764	\$7,858
Shipping Charges, (Surface Freight) Fremont, California to McMinnville, Oregon													
Total, All Items, FCA McMinnville, OR												\$322,562	



Yamhill County Oregon Path Calcs

Option 1

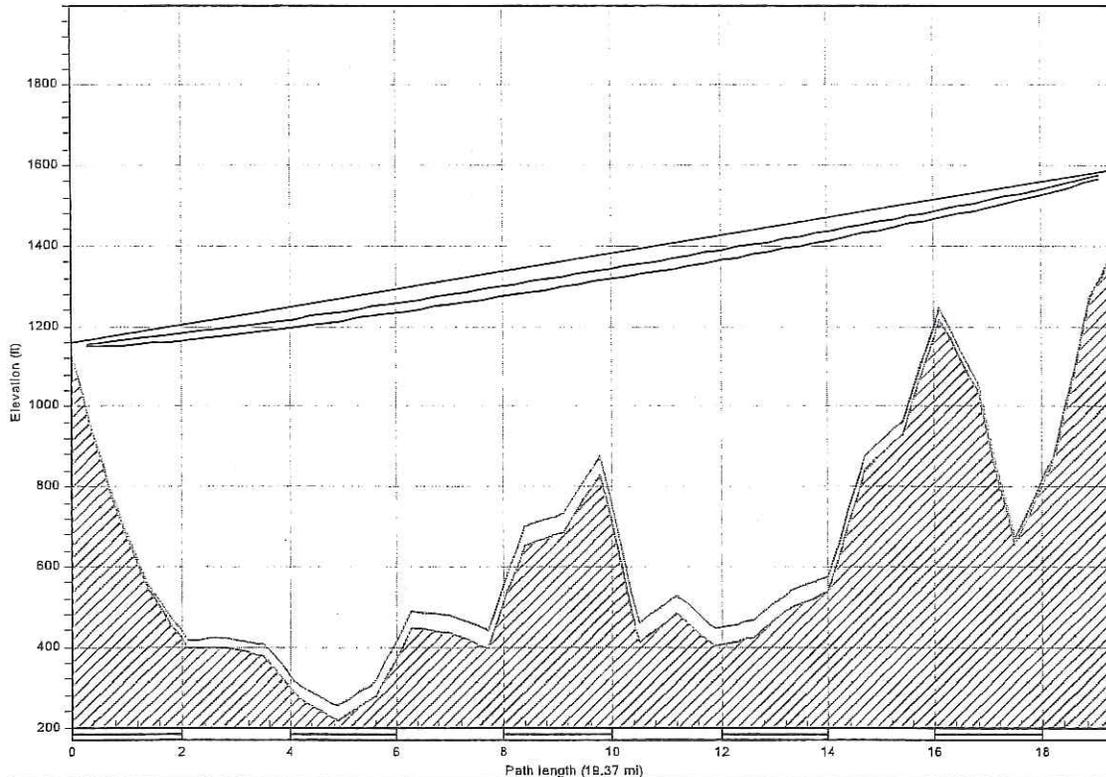




SM Cirius LM 1+1 6L GHz 16 DS1_175 Mbps_30 MHz_128 QAM

	Doane Creek tower	High Heaven tower
Elevation (ft)	1137.98	1400.94
Latitude	45 01 24.10 N	45 15 53.00 N
Longitude	123 30 42.30 W	123 18 35.00 W
True azimuth (°)	30.57	210.71
Vertical angle (°)	0.14	-0.35
Antenna model	PAR8-59W RF	PAR6-59W RF
Antenna height (ft)	22.00	190.00
Antenna gain (dBi)	41.00	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	19.37	
Free space loss (dB)	137.91	
Atmospheric absorption loss (dB)	0.26	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	64.48	64.48
Radio model	Cirius LM	Cirius LM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	63.00	60.70
Emission designator	30M0D7W	30M0D7W
TX Channels	5 5974.8500V	5 6226.8900V
RX threshold criteria	1x10 ⁻⁶	1x10 ⁻⁶
RX threshold level (dBm)	-69.00	-69.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-39.48	-39.48
Thermal fade margin (dB)	29.52	29.52
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	2.86E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99681	99.99681
(sec)	83.92	83.92
Annual - multipath (%)	99.99897	99.99897
(sec)	324.26	324.26
(% - sec)	99.99794 - 648.53	

Tue, Jun 03 2014
Doane Creek tower - High Heaven tower.pl4
Reliability Method - Vigants - Barnett



Doane Creek tower	Frequency (MHz) = 6000.0	High Heaven tower
Latitude 45 01 24.10 N	K = 1.33	Latitude 45 15 53.00 N
Longitude 123 30 42.30 W	%F1 = 100.00, 60.00	Longitude 123 18 35.00 W
Azimuth 30.57°		Azimuth 210.71°
Elevation 1138 ft ASL		Elevation 1401 ft ASL
Antenna CL 22.0 ft AGL		Antenna CL 190.0 ft AGL

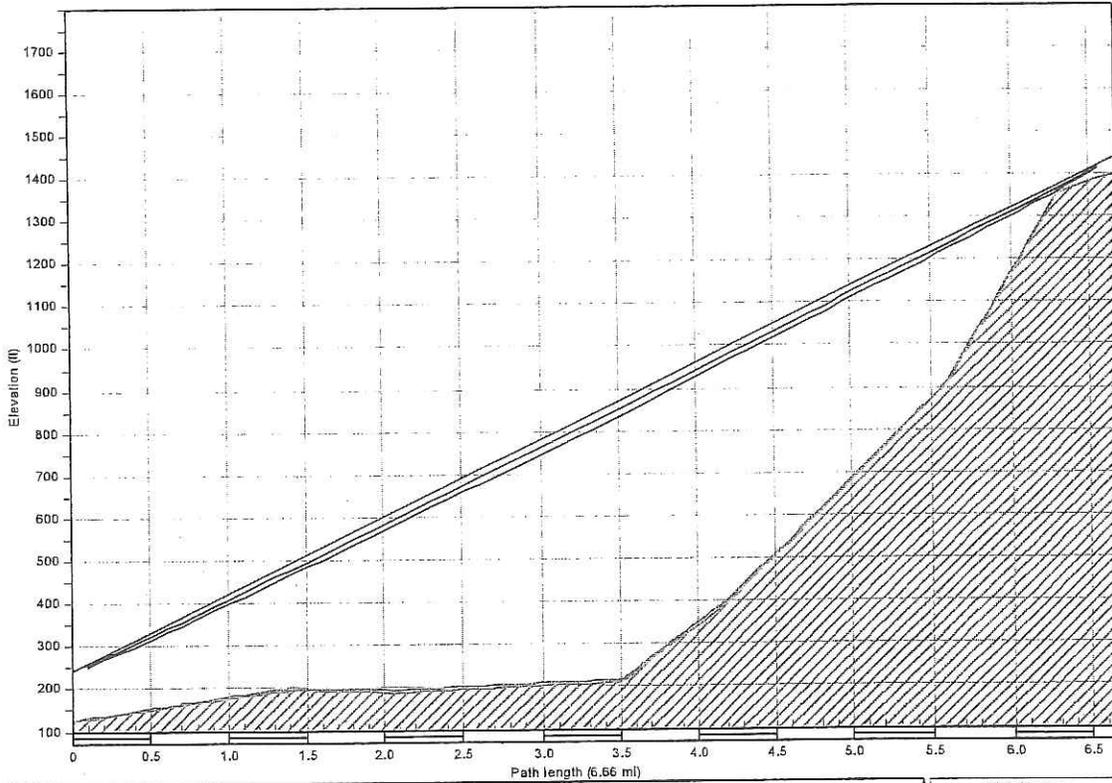
Jun 03 14



SM Cirius LM 1+1 6L GHz 16 DS1_175 Mbps_30 MHz_128 QAM

	McMinnville Fire Statio	High Heaven
Elevation (ft)	124.26	1400.94
Latitude	45 12 32.00 N	45 15 53.00 N
Longitude	123 11 54.00 W	123 18 35.00 W
True azimuth (°)	305.39	125.31
Vertical angle (°)	1.91	-1.98
Antenna model	PAR6-59W RF	PAR6-59W RF
Antenna height (ft)	120.10	40.00
Antenna gain (dBi)	38.70	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	6.66	
Free space loss (dB)	128.64	
Atmospheric absorption loss (dB)	0.09	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	57.34	57.34
Radio model	Cirius LM	Cirius LM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	60.70	60.70
Emission designator	30M0D7W	30M0D7W
TX Channels	1 6375.1400V	1 6123.1000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-69.00	-69.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-32.34	-32.34
Thermal fade margin (dB)	36.66	36.66
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	1.16E-03	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99997	99.99997
(sec)	0.66	0.66
Annual - multipath (%)	99.99999	99.99999
(sec)	2.55	2.55
(% - sec)	99.99998 - 5.10	

Tue, Jun 03 2014
McMinnville Fire Statio-High Heaven.pl4
Reliability Method - Vigants - Barnett



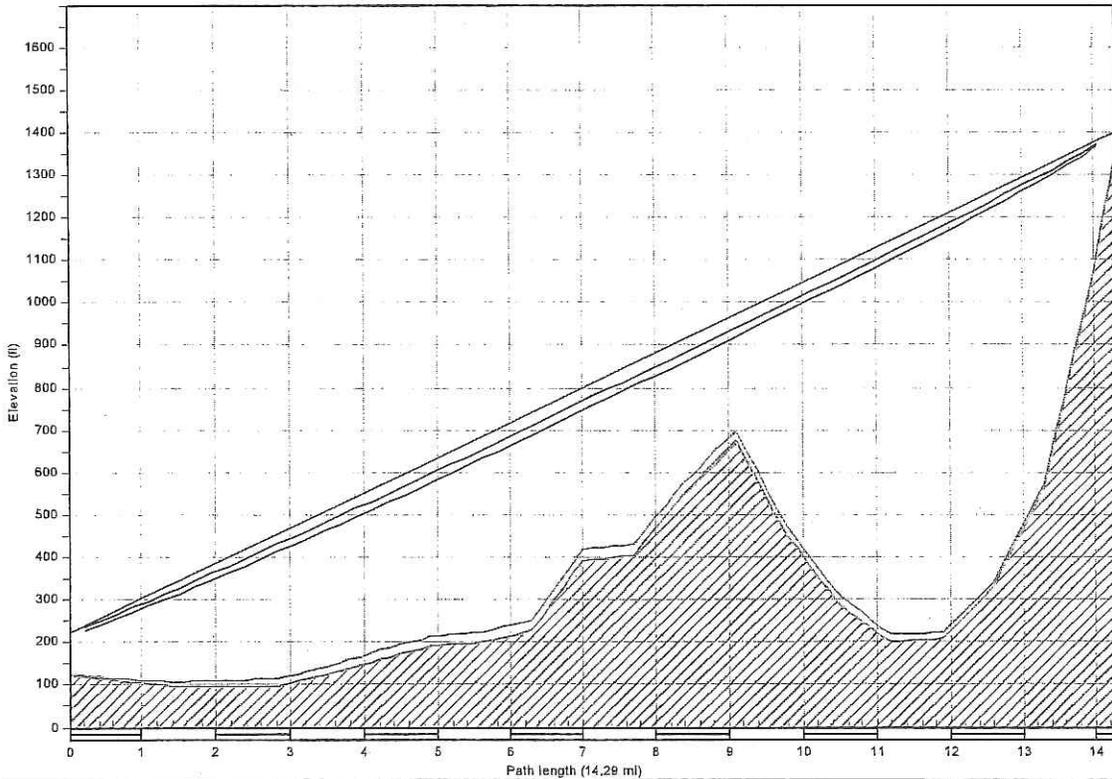
McMinnville Fire Station	Frequency (MHz) = 6000.0	High Heaven
Latitude 45 12 32.00 N	K = 1.33	Latitude 45 15 53.00 N
Longitude 123 11 54.00 W	%F1 = 100.00, 60.00	Longitude 123 18 35.00 W
Azimuth 305.39°		Azimuth 125.31°
Elevation 124 ft ASL		Elevation 1401 ft ASL
Antenna CL 120.1 ft AGL		Antenna CL 40.0 ft AGL
Path length (6.66 mi)		
		Jun 03 14



SM Cirius LM 1+1 6L GHz 16 DS1_175 Mbps_30 MHz_128 QAM

	McMinnville Fire Statio	Mountaintop East tower
Elevation (ft)	124.26	1347.32
Latitude	45 12 32.00 N	45 21 15.40 N
Longitude	123 11 54.00 W	122 59 23.30 W
True azimuth (°)	45.28	225.43
Vertical angle (°)	0.81	-0.97
Antenna model	PAR6-59W RF	PAR8-59W RF
Antenna height (ft)	101.70	49.90
Antenna gain (dBi)	38.70	41.00
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	14.29	
Free space loss (dB)	135.26	
Atmospheric absorption loss (dB)	0.20	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	61.77	61.77
Radio model	Cirius LM	Cirius LM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	60.70	63.00
Emission designator	30M0D7W	30M0D7W
TX Channels	2 6197.2400V	2 5945.2000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-69.00	-69.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-36.77	-36.77
Thermal fade margin (dB)	32.23	32.23
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	1.15E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99931	99.99931
(sec)	18.03	18.03
Annual - multipath (%)	99.99978	99.99978
(sec)	69.66	69.66
(% - sec)	99.99956 - 139.32	

Tue, Jun 03 2014
McMinnville Fire Statio- Mountaintop East tower.pl4
Reliability Method - Vigants - Barnett



McMinnville Fire Station
 Latitude 45 12 32.00 N
 Longitude 123 11 54.00 W
 Azimuth 45.28°
 Elevation 124 ft ASL
 Antenna CL 101.7 ft AGL

Frequency (MHz) = 6000.0
 K = 1.33
 %F1 = 100.00, 60.00

Mountaintop East tower
 Latitude 45 21 16.40 N
 Longitude 122 58 23.30 W
 Azimuth 225.43°
 Elevation 1347 ft ASL
 Antenna CL 49.9 ft AGL

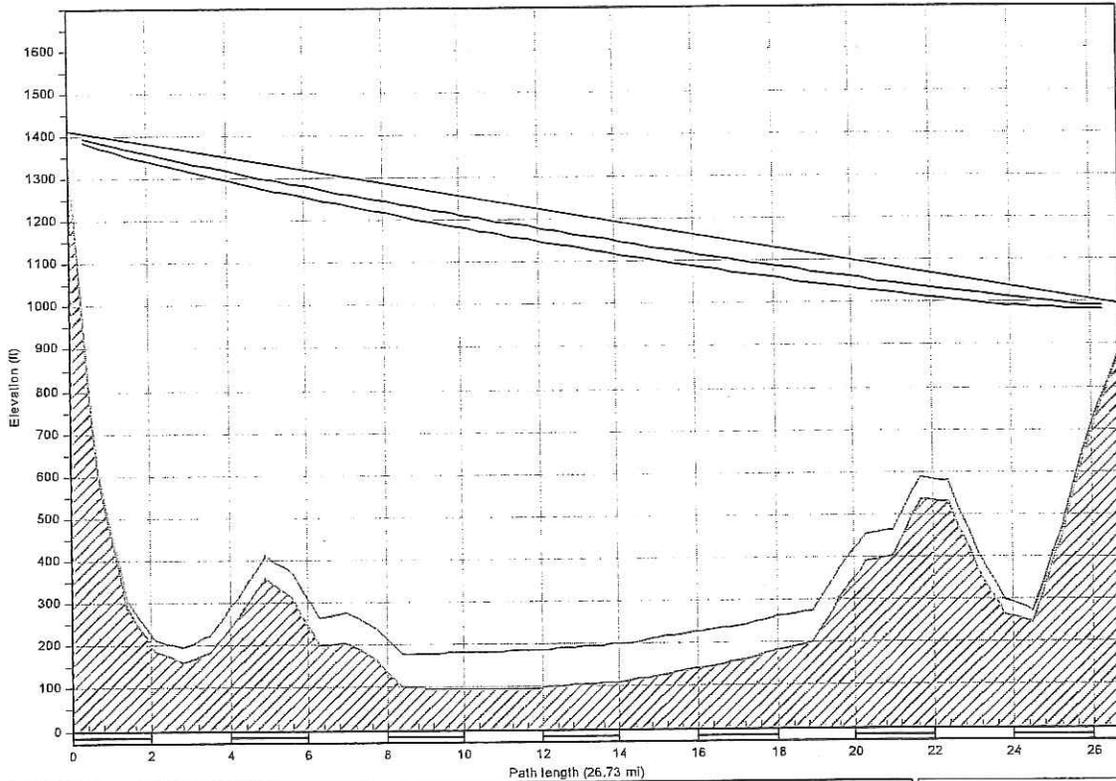
Jun 03 14



SM Cirius HM 1+1 SD 6L GHz 16 DS1_60 Mbps_10 MHz_256 QAM

	Mountaintop East tower	Eagle Crest tower
Elevation (ft)	1347.32	895.14
Latitude	45 21 15.40 N	44 58 58.00 N
Longitude	122 59 23.30 W	123 08 36.00 W
True azimuth (*)	196.35	16.24
Vertical angle (*)	-0.31	0.02
Antenna model	DRFB6-59BSE	DRFB8-59CSE
Antenna height (ft)	65.60	101.70
Antenna gain (dBi)	39.10	41.30
TX line type	Flex Twist	Flex Twist
TX line length (ft)	2.00	2.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	1.80e-03	1.80e-03
Circ. branching loss (dB)	2.70	2.70
Antenna model	DRFB6-59CSE	DRFB6-59CSE
Antenna height (ft)	39.40	31.10
Antenna gain (dBi)	39.10	39.10
TX line type	Flex Twist	Flex Twist
TX line length (ft)	2.00	2.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	1.80e-03	1.80e-03
Div RX circulator loss (dB)	2.70	2.70
Frequency (MHz)	6000.00	
Polarization	Horizontal	
Path length (mi)	26.73	
Free space loss (dB)	140.70	
Atmospheric absorption loss (dB)	0.37	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Main net path loss (dB)	66.07	66.07
Diversity net path loss (dB)	66.07	68.27
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.16	0.16
TX power (dBm)	22.00	22.00
EIRP (dBm)	58.40	60.60
Emission designator	10MOD7W	10MOD7W
TX Channels	3 6375.1400H	3 6123.1000H
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-71.00	-71.00
Maximum receive signal (dBm)	-20.00	-20.00
Main RX signal (dBm)	-44.07	-44.07
Diversity RX signal (dBm)	-44.07	-46.27
Thermal fade margin (dB)	26.93	26.93
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	7.51E-02	
Average annual temperature (°F)	64.40	
SD improvement factor	5.32	23.27
Worst month - multipath (%)	99.99713	99.99935
(sec)	75.29	17.21
Annual - multipath (%)	99.99908	99.99979
(sec)	290.94	66.50
(% - sec)	99.99887 - 357.43	

Tue, Jun 03 2014
Mountaintop East tower - Eagle Crest tower.pl4
Reliability Method - Vigants - Barnett
Space Diversity Method Nortel Baseband Switching



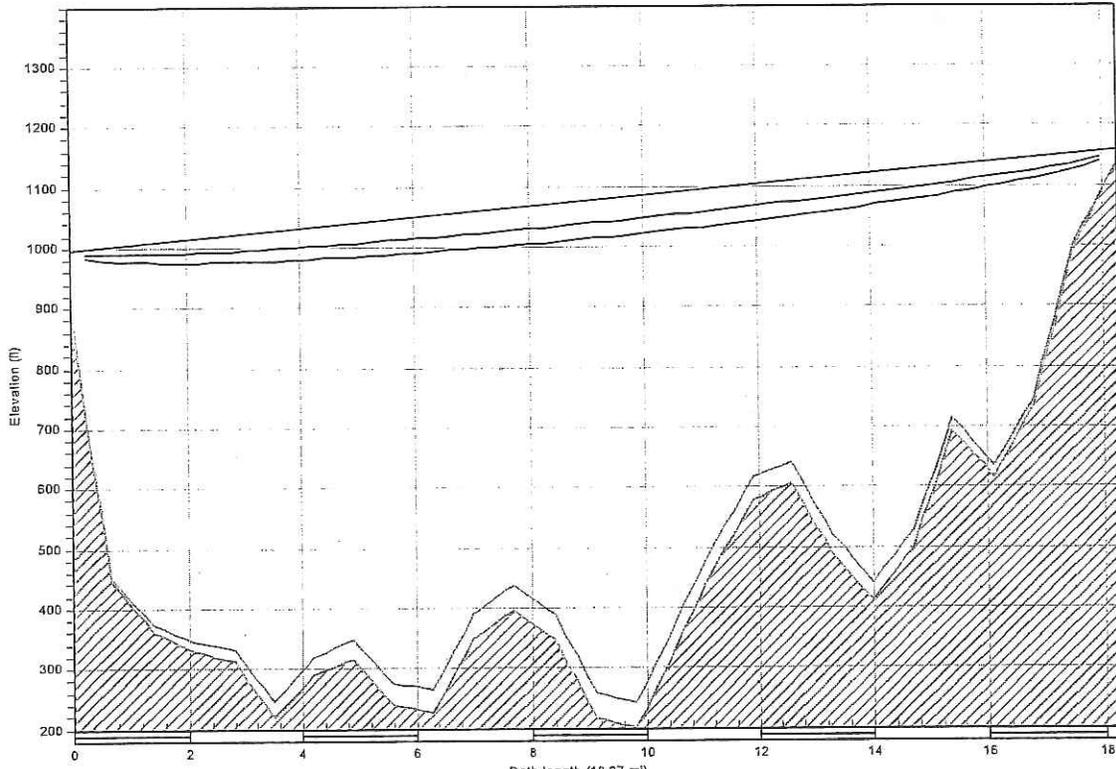
Mountainop East tower Latitude 45 21 15.40 N Longitude 122 58 23.30 W Azimuth 196.35° Elevation 1347 ft ASL Antenna CL 65.6, 39.4 ft AGL	Frequency (MHz) = 6000.0 K = 1.33 %F1 = 100.00, 60.00	Eagle Crest tower Latitude 44 58 58.00 N Longitude 123 08 36.00 W Azimuth 16.24° Elevation 895 ft ASL Antenna CL 101.7, 31.1 ft AGL
Jun 03 14		



SM Cirius LM 1+1 6L GHz 16 DS1_175 Mbps_30 MHz_128 QAM

	Eagle Crest tower	Doane Creek tower
Elevation (ft)	895.14	1137.98
Latitude	44 58 58.00 N	45 01 24.10 N
Longitude	123 08 36.00 W	123 30 42.30 W
True azimuth (°)	278.96	98.70
Vertical angle (°)	-3.72e-03	-0.19
Antenna model	DRFB6-59CSE	DRFB6-59CSE
Antenna height (ft)	101.70	19.70
Antenna gain (dBi)	39.10	39.10
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Horizontal	
Path length (mi)	18.27	
Free space loss (dB)	137.40	
Atmospheric absorption loss (dB)	0.25	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	65.45	65.45
Radio model	Cirius LM	Cirius LM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	61.10	61.10
Emission designator	30M0D7W	30M0D7W
TX Channels	4 6286.1900H	4 6034.1500H
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-69.00	-69.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-40.45	-40.45
Thermal fade margin (dB)	28.55	28.55
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	2.40E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99665	99.99665
(sec)	88.03	88.03
Annual - multipath (%)	99.99892	99.99892
(sec)	340.15	340.15
(% - sec)	99.99784 - 680.31	

Tue, Jun 03 2014
Eagle Crest tower -Doane Creek tower.pl4
Reliability Method - Vigants - Barnett



Eagle Crest tower
Latitude 44 58 58.00 N
Longitude 123 08 36.00 W
Azimuth 276.86°
Elevation 895 ft ASL
Antenna CL 101.7 ft AGL

Frequency (MHz) = 6000.0
K = 1.33
%F1 = 100.00, 60.00

Doane Creek tower
Latitude 45 01 24.10 N
Longitude 123 30 42.30 W
Azimuth 96.70°
Elevation 1138 ft ASL
Antenna CL 19.7 ft AGL

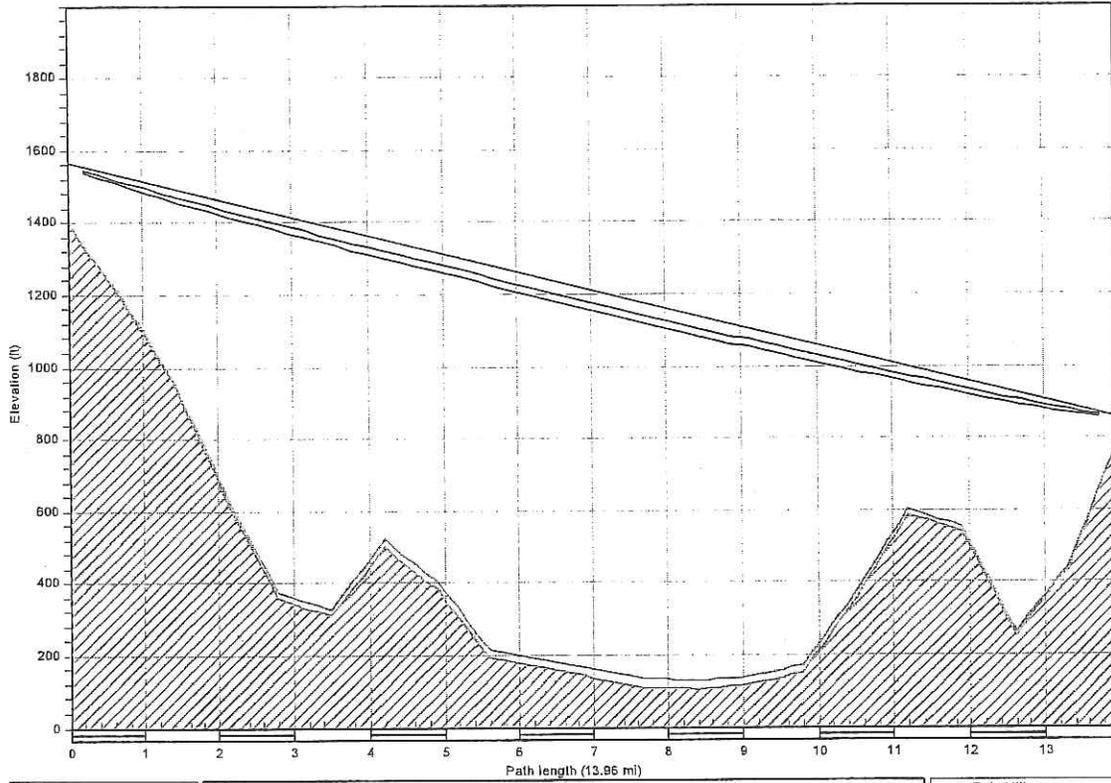
Jun 03 14



SM Cirius LM 1+1 6U GHz 16 DS1_56 Mbps_10 MHz_128 QAM

	High Heaven tower	Eola Hills towers
Elevation (ft)	1400.94	774.57
Latitude	45 15 53.00 N	45 05 56.50 N
Longitude	123 18 35.00 W	123 08 45.10 W
True azimuth (°)	144.97	325.09
Vertical angle (°)	-0.62	0.47
Antenna model	PAR6-59WA RF	PAR6-59WA RF
Antenna height (ft)	165.00	85.30
Antenna gain (dBi)	38.70	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	13.96	
Free space loss (dB)	135.06	
Atmospheric absorption loss (dB)	0.19	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	63.86	63.86
Radio model	Cirius LM	Cirius LM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	60.70	60.70
Emission designator	10M0D7W	10M0D7W
TX Channels	6 6555.0000V	6 6725.0000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-69.00	-69.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-38.86	-38.86
Thermal fade margin (dB)	30.14	30.14
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	1.07E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99896	99.99896
(sec)	27.26	27.26
Annual - multipath (%)	99.99967	99.99967
(sec)	105.32	105.32
(% - sec)	99.99933 - 210.65	

Tue, Jun 03 2014
High Heaven tower - Eola Hills towers.pl4
Reliability Method - Vigants - Barnett



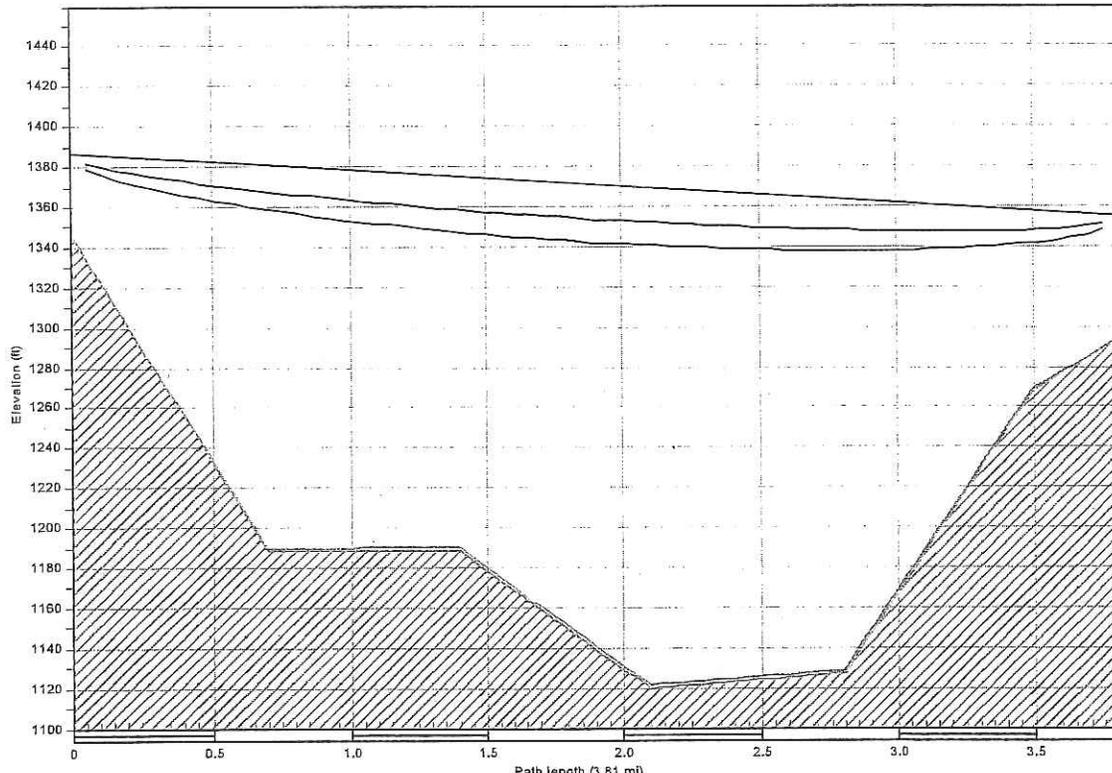
High Heaven tower Latitude 45 15 53.00 N Longitude 123 18 35.00 W Azimuth 144.97° Elevation 1401 ft ASL Antenna CL 165.0 ft AGL	Frequency (MHz) = 6000.0 K = 1.33 %F1 = 100.00, 60.00	Eola Hills towers Latitude 45 05 56.50 N Longitude 123 08 45.10 W Azimuth 325.00° Elevation 775 ft ASL Antenna CL 85.3 ft AGL
Jun 03 14		



SM Cirius LM 1+1 6U GHz 16 DS1_56 Mbps_10 MHz_128 QAM

	Mountaintop East tower	Bald Peak tower
Elevation (ft)	1347.32	1294.48
Latitude	45 21 15.40 N	45 23 21.40 N
Longitude	122 59 23.30 W	123 03 01.30 W
True azimuth (°)	309.37	129.33
Vertical angle (°)	-0.11	0.07
Antenna model	PAR6-59WA RF	PAR6-59WA RF
Antenna height (ft)	39.70	60.40
Antenna gain (dBi)	38.70	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	3.81	
Free space loss (dB)	123.79	
Atmospheric absorption loss (dB)	0.05	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	52.45	52.45
Radio model	Cirius LM	Cirius LM
TX power (watts)	0.08	0.08
TX power (dBm)	19.00	19.00
EIRP (dBm)	54.70	54.70
Emission designator	10M0D7W	10M0D7W
TX Channels	7 6575.0000V	7 6535.0000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-69.00	-69.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-33.45	-33.45
Thermal fade margin (dB)	35.55	35.55
Terrain roughness (ft)	58.62	
C factor	0.26	
Fade occurrence factor (Po)	2.18E-04	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99999	99.99999
(sec)	0.16	0.16
Annual - multipath (%)	100.00000	100.00000
(sec)	0.62	0.62
(% - sec)	100.00000 - 1.23	

Tue, Jun 03 2014
Mountaintop East tower - Bald Peak tower.pl4
Reliability Method - Vigants - Barnett



Mountaintop East tower
 Latitude 45 21 15.40 N
 Longitude 122 59 23.30 W
 Azimuth 306.37°
 Elevation 1347 ft ASL
 Antenna CL 39.7 ft AGL

Frequency (MHz) = 6000.0
 K = 1.33
 %F1 = 100.00, 60.00

Bald Peak tower
 Latitude 45 23 21.40 N
 Longitude 123 03 01.30 W
 Azimuth 129.33°
 Elevation 1294 ft ASL
 Antenna CL 60.4 ft AGL

Jun 03 14



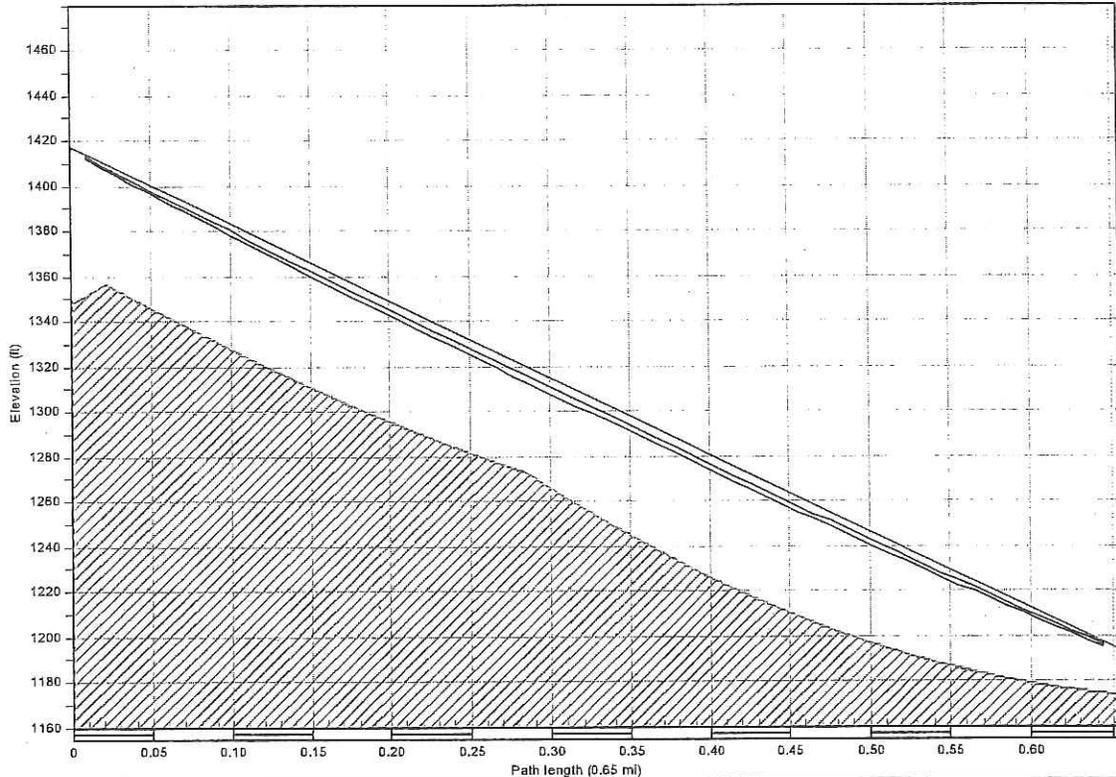
STAR MICROWAVE

Your Partner in Building and Extending the Life of Networks

SM Cirius LM 1+1 18 GHz 16 DS1_56 Mbps_10 MHz_128 QAM

	Mountaintop East tower	Mountaintop West tower
Elevation (ft)	1347.32	1173.88
Latitude	45 21 15.40 N	45 21 33.40 N
Longitude	122 59 23.30 W	123 00 04.40 W
True azimuth (°)	301.85	121.84
Vertical angle (°)	-3.70	3.70
Antenna model	HE2-180C	HE4-180B
Antenna height (ft)	70.00	20.00
Antenna gain (dBi)	38.90	44.90
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	18000.00	
Polarization	Vertical	
Path length (mi)	0.65	
Free space loss (dB)	118.02	
Atmospheric absorption loss (dB)	0.06	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	40.29	40.29
Radio model	Cirius LM	Cirius LM
TX power (watts)	0.01	0.01
TX power (dBm)	10.00	10.00
EIRP (dBm)	45.90	51.90
Emission designator	10M0D7W	10M0D7W
TX Channels	8 19435.0000V	8 17875.0000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-69.00	-69.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-30.29	-30.29
Thermal fade margin (dB)	38.71	38.71
Terrain roughness (ft)	20.00	
C factor	0.26	
Fade occurrence factor (Po)	3.31E-06	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	100.00000	100.00000
(sec)	1.17e-03	1.17e-03
Annual - multipath (%)	100.00000	100.00000
(sec)	4.52e-03	4.52e-03
(% - sec)	100.00000 - 0.01	

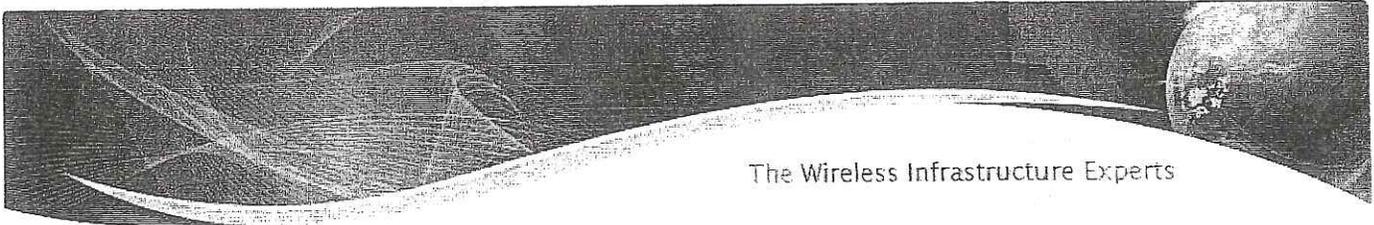
Tue, Jun 03 2014
 Mountaintop East tower - Mountaintop West tower.pl4
 Reliability Method - Vigants - Barnett



Mountaintop East tower Latitude 45 21 15.40 N Longitude 122 58 23.30 W Azimuth 301.85° Elevation 1347 ft ASL Antenna CL 70.0 ft AGL	Frequency (MHz) = 18000.0 K = 1.33 %F1 = 100,00, 60,00	Mountaintop West tower Latitude 45 21 33.40 N Longitude 123 00 04.40 W Azimuth 121.84° Elevation 1174 ft ASL Antenna CL 20.0 ft AGL
		Jun 03 14

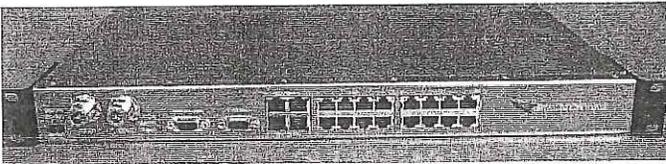


ANSI / ETSI



Cirius™ LM 175/200 + Mbps Ethernet + 16 T1s

Split TDM + Ethernet



The **Cirius LM** is a low-cost point-to-point FDD/PDH digital microwave radio system for T1 payloads plus Ethernet and meets carrier-grade standards for performance, reliability, and quality.

The Cirius LM Series supports capacities of up to 16 T1 lines and Wayside Ethernet Full Duplex capacity of up to 8.4 Mbps and operates in frequency ranges from 6 to 38 GHz. It is available in non-protected (1+0) and protected (1+1) mode in HSB, MHSB. It can be mounted directly on an antenna or mounted separately and connected using standard UBR flange series waveguide.

Product Specifications

- IP interfaces: 2x10/100Base-T
- Software-configurable
- Capacity (8 Mbps to 170 Mbps)
- Modulation (QPSK, 8QAM, 16QAM, 32QAM, 64QAM, 128QAM, 256/QAM)
- Channel bandwidth (5 MHz, 10 MHz, 20 MHz, and 30 MHz)
- IP-PDH payload throughput-allocation
- 1+1 configuration with no additional switching hardware
- Rx protection switching
- Hot-Standby.
- Support of ring applications with East/West aggregate payload and local add/drop for T1s
- Auxiliary EOW voice and data channels
- SNMP management with integral routing
- Configuration backup via removable NVRAM
- Common 1RU IDU for all frequency bands, capacities, modulations and channel bandwidths
- Built-in BER Monitor
- Superior receiver sensitivity and system gain performance

Product Features

- Cost-effective high-capacity PDH and Ethernet IDU for microwave and millimeter-wave radios
 - ◊ up to 175 Mbps throughput
- Optimized for efficient cellular backhaul and private network applications
- Flexible modem and multiplexer
 - ◊ Programmable Bandwidths and Symbol Rates
 - ◊ Programmable Modulation Modes (up to 256 QAM)
 - ◊ Programmable FEC
 - ◊ Mix PDH and Ethernet traffic
- FlexBand™ technology allows arbitrary bandwidth occupancy from a single IDU via software command
- Built-in PDH and Ethernet line interfaces
 - ◊ PDH: 4T1/E1, 16xT1/E1
 - ◊ Built-in 2-port Ethernet with port-based VLAN & QOS features
- Optional hot stand-by operation
 - ◊ Protect 2 ODU's from single IDU
- Single cable interface to Outdoor Unit
- Extensive link management interface support
 - ◊ Web-based link management
 - ◊ SNMP monitoring and craft menu applications
- Low-power design -20 to -72 VDC
- Uses less than 58 Watts
- Field-upgradeable firmware
- 1U 19-inch indoor rack mount unit

RF/ODU Specifications

Description	Specifications - Typical												
	6UL	7	8	10	11	13	15	18	23	26	28	32	38
Frequency Range (GHz)	Frequency Bands (GHz)												
	5.925 - 7.110	7.125 - 7.725	7.9-8.5	10.15-10.65	10.7-11.7	12.75-13.25	14.4-15.4	17.7-19.7	21.2-23.6	24.2-26.5	27.5-29.5	31.8-33.4	37.0-40.0
	160	154	119	350	490	266	315	1008	1008	1008	TBA	812	700
	170	160	126		500		420	1010	1200				1260
	252.04	161	266		530		490	1092.5	1232				
T/R Spacing	300	168	311.32				644						
	340	196					728						
	350	245											
	Transmitter												
Max Power(dBm) QPSK	30	30	30	26.5	28	26	26	25.5	25	25			19
Max Power(dBm) 16/32QAM	28	28	28	22.5	25	24	24	23	23	22			
Max Power(dBm) 64/128QAM	25	25	25	20.5	22	20	20	19	19	19			
Xmtr Attn Step(dB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	NA	NA	1
Xmtr Power Range(dBm)	-10+30	-10+30	-10+30	-10+26.5	-10+28	-10+26	-10+26	-10+25.5	-10+25	-10+25			-10+19
TX Power Accuracy	+/- 2.0 @ <Max Pout, +1/-2@Pout=Max Pout												
	Group Delay over 48MHz												
Linear	<5.0ns												
Parabolic	<7.0ns												
Channel Flatness	2 dB, within 43% of Channel Bandwidth referenced from center frequency												
Tx Spectrum Mask	Meets ETSI Requirements												
Tx Power Accuracy over Command Range (Max)	+/-2.0dB (Maximum)												
Output Power Muted	< -50dBm												
Frequency Accuracy	+/-5ppm Max										+/-7ppm Max		
Synthesizer Step Size (kHz)	250 (except for 8GHz T/R311.32 and 6GHz T/R 252.04)												
Modulation	QPSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM												
Output Return Loss	>10dB										>6dB (>10dB optional)		
	Receiver												
Receiver Noise Figure@-65dBm	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	NA	8.0	8.0
Synthesizer Step Size (kHz)	250 (except for 8GHz T/R311.32 and 6GHz T/R 252.04)												
Typical High RSL (dBm)	-20dBm (QPSK, 16,32QAM)												
Typical Thresholds(-dBm)	QPSK-92, 16QAM-85, 32QAM-78, 64QAM-75, 128QAM-69, 256QAM-67												
CW Interference	Meets ANSI Requirements												
Receive Signal Level Indicator (Vbnc)	4.5@-20dBm RSL, 0.2@-90dBm RSL												
RSL Accuracy@Vbnc (db) (Max)	+/- 3.0, -70dBm <RSL <-30dBm												
RSL Accuracy* (dB)	+/- 2, -70dBm to -30dBm, +/- 3, -90dBm to -20dBm over temperature and frequency												
Input Return Loss	>10dB										>6dB (>10dB optional)		
	ODU Interface												
Connector Type	N Type												
Cable Impedance	50 Ohms												
TX IF Frequency	350 MHz												
RX IF Frequency	140MHz												
	ODU Primary Power												
Power Dissipation (Watts)	33.0 to 72.0 VDC, either polarity, 25 Typical, 35 Maximum										19.2 to 72.0VDC, either polarity 52 Nominal, 58		
Protection Circuit	Powered and Protected by the IDU												
	CW Rejection												
CW Rejection to adjacent channel													
7 MHz bandwidth (dB)	>10, outside Fc +/- 7Mhz, >30dB outside Fc +/- 14MHz												
30 MHz bandwidth (dB)	>10 outside Fc +/- 35Mhz, >30dB outside Fc +/- 60MHz												
56MHz bandwidth (dB)											6MHz >9, +/-112MHz		
14MHz bandwidth (dB)											14MHz >9, +/-28MHz >		
	Environmental, Etc.												
Operating Cold Start Conditions	ETS 300 019-2-4 Class 4M5(-33 to+55Degrees)												
Storage	Operational at -45 Degrees C, not guaranteed to fully specification compliant												
Transport	ETS 300-019-2-1												
Mechanical	ETS 300-019-2-2												
Finish	Weight, <9.5lbs., Size (inches) 10.9x9.4x3.6												
Ground Lug	Polyester Powder Coat (Gloss Gray)												
	M5 x 9LG												
Antenna Interface	N Type	WR112	WR112	WR90	WR75	WR75	WR62	WR42	WR42	WR42	NA	28	0.219
		WC112	WC112		WC75	WC75	WC62	WC51	WC42	WC42		0.25	

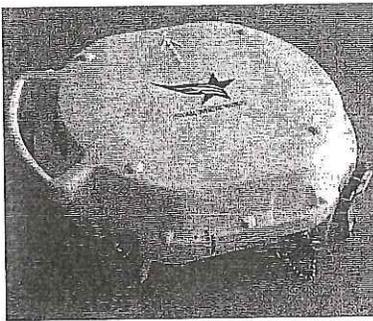
Technical Information

The Indoor Unit (IDU) is an extremely versatile high-capacity solution. This low-cost design is approved for the ANSI market.

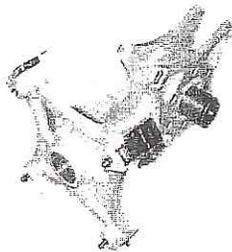
The IDU offers Flexible Signal Processing™ architecture, allows complete flexibility in combining Telco circuit-switched data (up to 16 T1s) and packet data (Ethernet) within the selected transport capacity.

Additional line interfaces can be accommodated via an optional line card. The transport capacity can be provisioned and monitored via the web-based Link Manager or craft interface. SNMP monitoring is provided.

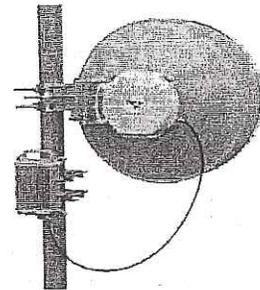
The Star Microwave Cirius LM provides significant flexibility in a low-cost mechanical design. It is feature-rich including SNMP, built-in ODU protection, auxiliary control and alarms, and a craft command-line interface.



Outdoor RF Unit (ODU)



Coupler for 1+1 Operation



Mounted ODU

Customer Network Data Interface Options

Physical

- Ethernet Full duplex 100BaseTX
- 4, 8 or 16 x T1 Full Duplex E1s

Connector

- Ethernet RJ-45
- BNC Female 75 Ohm
- Nx E1 2xRJ-48C, HD60

Compliance

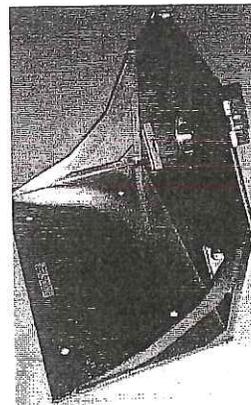
- Ethernet IEEE 802.3
- NxT1 ITU-T

Auxiliary Connections

- RS232 Data Service Channel
- Alarm Port Two Form C relay alarm outputs and two TTL inputs

Options

- Additional Modem/IF for single chassis protected or east/west mode
- Switching Fabric for drop-and-insert between TDM/IP traffic
- VOIP Voice Orderwire



ODU Bracket for connecting directly to Antenna or mount indoors and use a waveguide to Antenna

Compliance Summary

Outdoor Unit (ODU) Interface

Intermediate Freq. Range Tx: 350 MHz, Rx: 140 MHz
 Emissions Bandwidths ANSI/FCC
 ODU Command Interface ODU specific

Modem Capability

Capacity Options Throughput from 1 - 139 Mbps
 Modulation Programmable: QPSK, 16-QAM, 32-QAM, 64-QAM, 128-QAM
 FEC (Trellis Coded Modulation concatenated with Reed-Solomon Coding)

Network Management

Supports SNMP
 Connector 2x10/100BaseTX

Environmental

Temperature -5° to +45°C (IDU)
 Relative Humidity 0 to 95%, non-condensing
 Power 50-75 Watts (depending on Network Data Interface and ODU version)
 ODU: -33° to +55°C, 100% Humidity

Mechanical

Dimensions 1RU, ANSI compliant

Payload Parameters

IP Interface 2x10/100BaseT, RJ-45 connector
 Standards Compliance IEEE 802.3ab, 802.1Q
 User Data Channel 64 kbps, V.11, DB-15 connector
 Voice Orderwire 19.2 kbps, Standard handset interface or VOIP Capability

Configuration

Radio Protection 1+0 or 1+1 Hot standby, receiver switching with either frequency or space diversity
 Tributary Protection Single or Dual tributary
 Dual IF and power redundant feed (1+1 configuration)

Mechanical/Environmental

Dimensions IDU: 1U, 444.5 mm W x 240 mm D x 44.5 mm H
 Operating Temperature: IDU: -5° to +45°C, ODU: -33° to +55°C (ODU)
 Altitude: 4500 meters
 Humidity IDU: 95%non-condensing, ODU: 100% all-weather
 Power Input nominal: +24 or -48V DC (-20 to -72 VDC)
 Power Consumption: IDU+ODU: 1+0: 60 watts, 1+1 115W
 Power Connector: 2-pin male
 Cooling: Natural Convection
 IDU-ODU Interface: Coaxial N-type connector
 ODU Cable: Belden 9913/RG-8, up to 300m*

Management

Protocol: SNMPv1, 2
 Local Access: Ethernet 10Base-T, RJ-45
 Remote IDU Access: Out-of-band integrated routing over link and interconnected LANs
 Craft Interface: VT-100, via local craft RS-232/DB-9 port or remote via telnet session
 External Alarms: 4 inputs and 3 Form-C outputs, DB-25 connector

Standards Compliance Others:

ETSI EN 302 217-2, ETSI EN 301 489, ETSI EN 300 132-2, IEC EN 60950

Programmable Modulation Modes	QPSK, 8 PSK, 16-QAM, 32 QAM, 64 QAM, 128 QAM, 256 QAM		
Programmable Channel BWs (FlexBand™)	ANSI – 5, 10, 20, and 30 MHz		
Programmable Symbol Rates	2 to ~ 24 M baud / 2 Mbps – 170 Mbps		
Programmable Forward Error Correction	Configurable Reed-Solomon coding / Configurable interleaving frame length		
End-to-end latency	± 1 ms		
Link Quality Metrics	Supports ITU-T G.826		
Spurious and Out-of-Band Emissions	FCC Compliant		
Interference Immunity	FCC Compliant		
	Modulation	Net bps	Eb/No (dB)
	QPSK	1.81	8.8 dB
	8 PSK	2.72	12.2 dB
Sensitivity Threshold for BER of 10 ⁻⁸ (RS-encoded with T=12 error correcting)	16 QAM	3.62	12.3 dB
	32 QAM	4.53	14.4 dB
	64 QAM	5.44	16.9 dB
	128 QAM	6.34	19.4 dB
	256 QAM	7.24	21.9 dB
Line Interfaces	16xT1 with Ethernet, *optional 32xT1 – others per customer request		

Star Microwave | 47560 Seabridge Drive | Fremont, CA | 94538 | USA

Tel: +1 510-498-7900 | Fax: +1 510-498-7901 | Email: sales@starmicrowave.com | www.starmicrowave.com

Specifications and availability may change without notice. Contact Factory for test conditions and specification changes. Performance specifications are for 1+0 configurations and optimum conditions and may be affected by location, environment, and other operating conditions.

Coded Throughput

Nominal BW (MHz)	5.0	5.0	5.0	5.0	5.0
Modulation/Coding Type	QPSK	16QAM	32QAM	64QAM	128QAM
Coded Throughput (Mbps)	7.700	15.400	19.250	23.100	26.950
Eth uncoded throughput (Mbps)	0.21	0.61	0.83	1.03	1.23
T1 uncoded throughput (Mbps)	6.18	12.35	15.44	18.53	21.62
Total Uncoded Throughput (Mbps)	6.38	12.96	16.27	19.55	22.85

Nominal BW (MHz)	10.0	10.0	10.0	10.0	10.0	10.0
Modulation/Coding Type	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM
Coded Throughput (Mbps)	16.000	32.000	40.000	48.000	56.000	64.000
Eth uncoded throughput (Mbps)	1.22	2.63	9.72	16.81	23.91	31.00
T1 uncoded throughput (Mbps)	12.35	24.70	24.70	24.70	24.70	24.70
Total Uncoded Throughput (Mbps)	13.57	27.34	34.43	41.52	48.61	55.71

Nominal BW (MHz)	20.0	20.0	20.0	20.0	20.0	20.0
Modulation/Coding Type	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM
Coded Throughput (Mbps)	32.800	65.600	82.000	98.400	114.800	131.200
Eth uncoded throughput (Mbps)	3.60	31.60	46.16	60.68	75.24	89.76
T1 uncoded throughput (Mbps)	24.70	24.70	24.70	24.70	24.70	24.70
Total Uncoded Throughput (Mbps)	28.30	56.31	70.87	85.39	99.95	114.47

Nominal BW (MHz)	30.0	30.0	30.0	30.0	30.0	30.0
Modulation/Coding Type	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM
Coded Throughput (Mbps)	50.000	100.000	125.000	150.000	175.000	200.000
Eth uncoded throughput (Mbps)	17.97	61.52	83.69	105.89	128.03	150.17
T1 uncoded throughput (Mbps)	24.70	24.70	24.70	24.70	24.70	24.70
Total Uncoded Throughput (Mbps)	42.67	86.23	108.39	130.59	152.74	174.88

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Tel: +1 510-498-7900 | Fax: +1 510-498-7901 | Email: sales@starmicrowave.com | www.starmicrowave.com

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Performance specifications are for 1+0 configurations and optimum conditions and may be affected by location, environment, and other operating conditions.

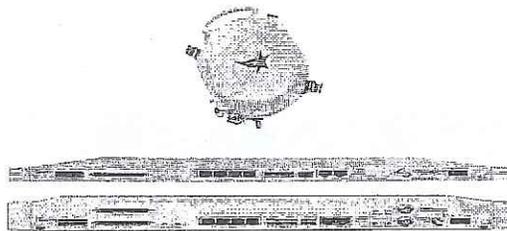


The Wireless Infrastructure Experts

Cirius SHC - Hybrid Microwave Transport Solution

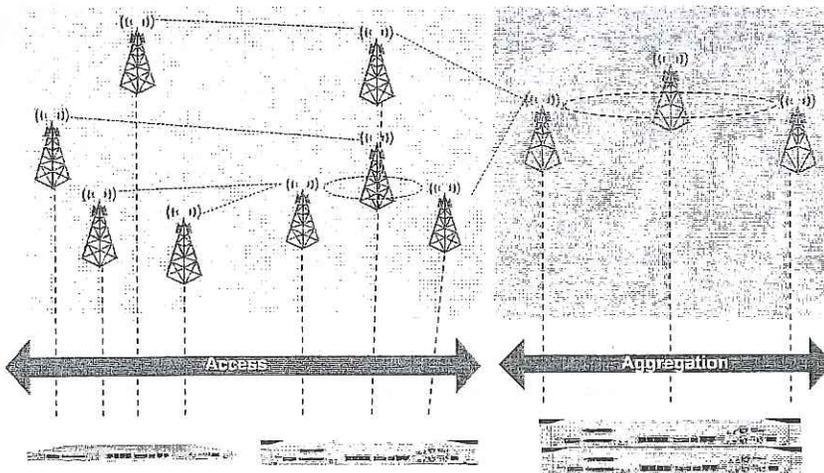
The Cirius SHC (Super High Performance) series is a carrier-grade, wireless Ethernet backhaul product line which includes both TDM (ADM) and Ethernet high-capacity devices.

All products in the Cirius SHC series are tightly coupled with Star Microwave's advanced microwave radios and are managed by comprehensive management system providing a complete solution for mobile backhaul, private networks, and wireline network last-mile extensions.



Product Description

The Cirius SHC series product line integrates superior networking functionality with the industry's most advanced microwave technology creating a superior transport solution.



Product Features

- Compliant system for 6-38 GHz
- All ETSI and FCC channels for 7-56 MHz
- Latest technology utilizing up to 1024 QAM modulation, delivering up to 900 Mbps Ethernet and up to 63 x E1/T1 channels in a single unit making it ideal for Hybrid networks
- Ultra high double capacity over same bandwidth using CCDP technology
- Integrated synchronization solution (Sync ETH, IEEE 1588v2, Native)
- ACM (Adaptive Coding and Modulation) and ATPC (Automatic Transmit Power Control) for high availability and high density deployment
- Up to 4K active VLAN entries
- Advanced Multilayer compression
- Jumbo frame size (9600 bytes)
- Advanced Ethernet allows building secure and self healing networks

Applications

- Ideal for carrier-class backhaul applications
- Tele-Medicine applications

Technical Specifications

GENERAL

Frequency Band	L6 / U6 / 7 / 8 / 11 / 13 / 15 / 18 / 23 / 26 / 28 / 32 / 38GHz
Channel Bandwidth	ETSI: 7, 14, 28, 56MHz; FCC: 10, 20, 30, 40, 50MHz
Modulation	QPSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM, 512QAM, 1024QAM or ACM
Transmission Capacity	10Mbps – 450Mbps (0.5U, 1+0); 20Mbps – 900Mbps (1U, 2+0)

PERFORMANCE

System Configuration	1+0, 2+0 XPIC, 1+1 (HSB, SD, FD) XPIC, N+1 XPIC, Nodal
Features	XPIC, Hitless ACM, ATPC, AGC, FEC, Frame Header Compression
MTBF	30 years

PORTS

ODU Interface	1 x TNC Female or 2 x TNC Female, up to 300m IF cable support
Ethernet	7 x Gigabit Ethernet (data traffic, management port)
E1/T1	Up to 63 x E1/T1
STM-1	2 x STM-1 (unvarnished transmission or ADM)
External Clock	2048 Kbit/s via MCX connector
Serial Port	RS-232 via RJ-45 connector
AUX/Alarm (Reuse)	4 digital inputs, 4 relay outputs (8 pin RJ-45) Async (19.2 Kbit/s) / Sync (64 Kbit/s); RS-422 protocol, RJ-45
LED Indicator	RUN, IDU Alarm, ODU Alarm
RSSI Port for RSL (ODU)	BNC test jack, output Voltage vs RSL: 0.1 to 4.5 VDC vs -90 to -20 dBm

SERVICE PARAMETERS

PDH Service	Interfaces Type	120Ω balanced (RJ-45) or 75Ω unbalanced (BNC) via MDR68 connector
	Bit Rate	E1: 2048 Kbit/s ± 50ppm; T1: 1544 Kbit/s ± 32ppm
	Standard	ITU-T G.703 compliance
SDH Service	Interfaces Type	SFP Transceiver, Electrical or Optical S-1.1, L-1.1
	Bit Rate	155.52Mbit/s
	Standard	ITU-T G.703, G.825, G.957
IP Service	Interfaces Type	4 x 10/100/1000 Base-T (RJ-45) + 3 x 1000 Base-X (SFP)
	Feature	LAG, APS, Spanning Tree Protocol, Pause Frame, Broadcast Storm Control, IEEE Std 802.1X Access Control, Access Control List, Ports Mirroring, Ports Statistics
	Frame Size	Up to 9600 bytes
	MAC Table Size	8K
	VLAN Tagging	IEEE 802.1Q (Up to 4K VLAN entries), QinQ
	QoS Priority	8 Queues; Support SP (Strict-Priority) and WRR (Weighted Round Robin) mode
	QoS Classification	IEEE 802.1P, Port, VLAN, CoS, ToS, DSCP
	IEEE1588v2	Transparent IEEE 1588v2 packets with fixed transmission delay
Sync ETH	ITU-T G.8261 compliance	

MANAGEMENT

Management Port	Ethernet VLAN or Separate Ethernet (RJ-45/SFP)
Security/Authentication	Authentication uses 2 level password
SNMP	SNMP traps, MIB, SNMPv2
Configuration System	Web-base NMS, Telnet, FTP, SSH, Serial ASCII
Loopbacks	Line Loopback, System Loopback

POWER

Power Consumption (IDU+ODU)	Up to 40W (0.5U), 80W (1U)
Power Supply Voltage	-48V DC (-36V DC to -72V DC), +24V DC / +220V AC adapter optional

MECHANICAL & ENVIRONMENTAL

Dimensions (H x W x D)	IDU : 22mm x 438mm x 280mm (0.5U); 44mm x 438mm x 280mm (1U)
	ODU: 279mm x 240mm x 92mm
Weight	IDU: 5.0 kg (0.5U) / 6.5 kg (1U)
	ODU: 4.2 kg
Temperature Range	IDU: -5°C to +55°C
	ODU: -33°C to +55°C
Humidity	IDU: ≤85%, non-condensing
	ODU: ≤100%, condensing

Technical Specifications

Appendix - Transmitter Radio Performance

Transmitter Technical Specifications									
Frequency band (GHz)		6-8	11	13-15	18-23	26	28	32	38
Maximum Tx Power (dBm)	QPSK	30	28	27	25	25	24	23	23
	16QAM / 32QAM	26	24	23	22	22	21	21	20
	64QAM / 128QAM	25	22	21	20	19	18	17	17
	256QAM	22	20	19	18	16	16	15	15
	512QAM	20	18	17	16	14	14	13	13
	1024QAM	18	16	15	14	12	11	11	11
Minimum Tx Power		0 dBm							
Tx Power Increment		1 dB							
Tx Power Accuracy		± 2 dB							

Appendix - Receiver Radio Performance

ETSI SYSTEM - Receiver Sensitivity (dBm)										
Capacity	BW	Mod	6-8	11	13-15	18-23	26	28	32	38
10	7 MHz	QPSK	-87.0	-86.5	-86.5	-86.0	-85.0	-84.5	-84.0	-83.5
20		16QAM	-83.0	-82.5	-82.5	-82.0	-81.0	-80.5	-80.0	-79.5
25		32QAM	-80.0	-79.5	-79.5	-79.0	-77.0	-76.5	-76.0	-75.5
32		64QAM	-78.0	-77.5	-77.5	-77.0	-73.0	-72.5	-72.0	-71.5
38		128QAM	-75.0	-74.5	-74.5	-74.0	-69.0	-68.5	-68.0	-67.5
44		256QAM	-71.0	-70.0	-70.0	-69.5	-65.0	-64.5	-64.0	-63.5
49		512QAM	-68.0	-67.0	-67.0	-66.5	-62.0	-61.5	-61.0	-60.0
53		1024QAM	-65.0	-64.5	-64.0	-64.0	-59.0	-58.0	-58.0	-57.0
21		14 / 13.75 MHz	QPSK	-87.0	-86.5	-86.5	-86.0	-82.0	-81.5	-81.0
42	16QAM		-80.0	-79.5	-79.5	-79.0	-78.0	-77.5	-77.0	-76.5
51	32QAM		-77.0	-76.5	-76.5	-76.0	-74.0	-73.5	-73.0	-72.5
66	64QAM		-74.0	-73.5	-73.5	-73.0	-70.0	-69.5	-69.0	-68.5
78	128QAM		-71.0	-70.5	-70.5	-70.0	-66.0	-65.5	-65.0	-64.5
90	256QAM		-67.0	-66.0	-66.0	-65.5	-62.0	-61.5	-61.0	-60.5
100	512QAM		-64.0	-63.5	-63.0	-62.5	-59.0	-58.0	-58.0	-57.0
108	1024QAM		-61.0	-60.5	-60.0	-59.0	-57.5	-55.5	-55.0	-54.0
42	28 / 27.5 MHz		QPSK	-84.0	-83.5	-83.5	-83.0	-79.0	-78.5	-78.0
84		16QAM	-78.0	-77.5	-77.5	-77.0	-75.0	-74.5	-74.0	-73.5
105		32QAM	-75.0	-74.5	-74.5	-74.0	-71.0	-70.5	-70.0	-69.5
133		64QAM	-72.0	-71.5	-71.5	-71.0	-67.0	-66.5	-66.0	-65.5
158		128QAM	-69.0	-68.5	-68.5	-68.0	-63.0	-62.5	-62.0	-61.5
183		256QAM	-66.0	-65.0	-65.0	-64.5	-59.0	-58.5	-58.0	-57.5
200		512QAM	-63.0	-62.0	-61.5	-61.0	-57.0	-55.5	-55.0	-54.5
225		1024QAM	-60.0	-59.0	-58.5	-58.5	-54.0	-53.0	-52.0	-51.5
84		56 / 55 MHz	QPSK	-80.0	-79.5	-79.5	-79.0	-76.0	-75.5	-75.0
168	16QAM		-75.0	-74.5	-74.5	-74.0	-72.0	-71.5	-71.0	-70.5
208	32QAM		-71.0	-70.5	-70.5	-70.0	-68.0	-67.5	-67.0	-66.5
265	64QAM		-69.0	-68.5	-68.5	-68.0	-64.0	-63.5	-63.0	-62.5
313	128QAM		-65.0	-64.5	-64.5	-64.0	-60.0	-59.5	-59.0	-58.5
363	256QAM		-61.0	-60.0	-60.0	-59.5	-56.0	-55.5	-55.0	-54.5
407	512QAM		-58.0	-57.0	-57.0	-56.0	-53.0	-52.5	-52.0	-51.0
465	1024QAM		-55.0	-54.5	-54.0	-53.0	-50.0	-49.0	-49.0	-48.0

Technical Specifications

Appendix - Receiver Radio Performance ... Cont.

FCC SYSTEM - Receiver Sensitivity (dBm)										
Capacity	BW	Mod	6-8	11	13-15	18-23	26	28	32	38
15	10 MHz	QPSK	-87.0	-86.5	-86.5	-86.0	-84.0	-83.5	-83.0	-82.5
30		16QAM	-82.0	-81.5	-81.5	-81.0	-80.0	-79.5	-79.0	-78.5
37		32QAM	-79.0	-78.5	-78.5	-78.0	-76.0	-75.5	-75.0	-74.5
45		64QAM	-76.0	-75.5	-75.5	-75.0	-72.0	-71.5	-71.0	-70.5
52		128QAM	-73.0	-72.5	-72.5	-72.0	-68.0	-67.5	-67.0	-66.5
60		256QAM	-70.0	-69.0	-69.0	-68.5	-64.0	-63.5	-63.0	-62.5
68		512QAM	-67.0	-66.0	-66.0	-64.0	-62.0	-61.5	-60.0	-59.5
75		1024QAM	-63.0	-62.0	-62.0	-62.0	-60.0	-58.0	-57.5	-57.0
30	20 MHz	QPSK	-85.0	-84.5	-84.5	-84.0	-82.0	-81.5	-81.0	-80.5
63		16QAM	-78.0	-77.5	-77.5	-77.0	-76.0	-75.5	-75.0	-74.5
79		32QAM	-76.0	-75.5	-75.5	-75.0	-73.0	-72.5	-72.0	-71.5
95		64QAM	-73.0	-72.5	-72.5	-72.0	-69.0	-68.5	-68.0	-67.5
110		128QAM	-69.0	-68.5	-68.5	-68.0	-64.0	-63.5	-63.0	-62.5
126		256QAM	-66.0	-65.0	-65.0	-64.5	-60.0	-59.5	-59.0	-58.5
143		512QAM	-63.0	-62.0	-62.0	-61.5	-57.0	-56.5	-56.0	-55.0
162		1024QAM	-60.0	-59.5	-59.0	-58.5	-55.0	-54.0	-53.0	-52.0
46	30 MHz	QPSK	-84.0	-83.5	-83.5	-83.0	-81.0	-80.5	-80.0	-79.5
94		16QAM	-78.0	-77.5	-77.5	-77.0	-76.0	-75.5	-75.0	-74.5
117		32QAM	-76.0	-75.5	-75.5	-75.0	-73.0	-72.5	-72.0	-71.5
142		64QAM	-72.0	-71.5	-71.5	-71.0	-68.0	-67.5	-67.0	-66.5
165		128QAM	-69.0	-68.5	-68.5	-68.0	-64.0	-63.5	-63.0	-62.5
188		256QAM	-65.0	-64.0	-64.0	-63.5	-59.0	-58.5	-58.0	-57.5
213		512QAM	-62.0	-61.0	-61.0	-60.5	-56.0	-55.5	-55.0	-54.5
245		1024QAM	-59.0	-58.0	-58.0	-57.6	-53.0	-52.5	-52.0	-51.0
64	40 MHz	QPSK	-82.0	-81.5	-81.5	-81.0	-78.0	-77.5	-77.0	-76.5
128		16QAM	-78.0	-77.5	-77.5	-77.0	-74.0	-73.5	-73.0	-72.5
159		32QAM	-74.0	-73.5	-73.5	-73.0	-70.0	-69.5	-69.0	-68.5
194		64QAM	-69.0	-68.5	-68.5	-68.0	-66.0	-65.5	-65.0	-64.5
226		128QAM	-67.0	-66.5	-66.5	-66.0	-62.0	-61.5	-61.0	-60.5
258		256QAM	-63.0	-62.0	-62.0	-61.5	-58.0	-57.5	-57.0	-56.5
302		512QAM	-60.0	-59.0	-59.0	-58.0	-55.0	-54.5	-54.0	-53.5
330		1024QAM	-57.0	-56.0	-56.0	-55.0	-52.0	-51.5	-51.0	-50.5
77	50 MHz	QPSK	-82.0	-81.5	-81.5	-81.0	-76.0	-75.5	-75.0	-74.5
156		16QAM	-77.0	-76.5	-76.5	-76.0	-72.0	-71.5	-71.0	-70.5
195		32QAM	-74.0	-73.5	-73.5	-73.0	-68.0	-67.5	-67.0	-66.5
236		64QAM	-69.0	-68.5	-68.5	-68.0	-64.0	-63.5	-63.0	-62.5
275		128QAM	-66.0	-65.5	-65.5	-65.0	-60.0	-59.5	-59.0	-58.5
314		256QAM	-62.0	-61.0	-61.0	-60.5	-56.0	-55.5	-55.0	-54.5
361		512QAM	-59.0	-58.0	-58.0	-57.5	-53.0	-52.5	-52.0	-51.5
404		1024QAM	-56.0	-55.0	-55.0	-54.5	-50.0	-49.5	-49.0	-48.0

Note:

For IEEE1588V2 transmission, the capacity is equal to typical throughput minus 8 Mbps
Maximum throughput - Capacity (Mbps) is tested in 1518 bytes/frame

Star Microwave | 47560 Seabridge Drive | Fremont, CA | 94538 | USA

Tel: +1 510-498-7900 | Fax: +1 510-498-7901 | Email: sales@starmicrowave.com | www.starmicrowave.com

Specifications and availability may change without notice.



STAR MICROWAVE
Your Partner in Building and Extending the Life of Networks

Yamhill County Oregon

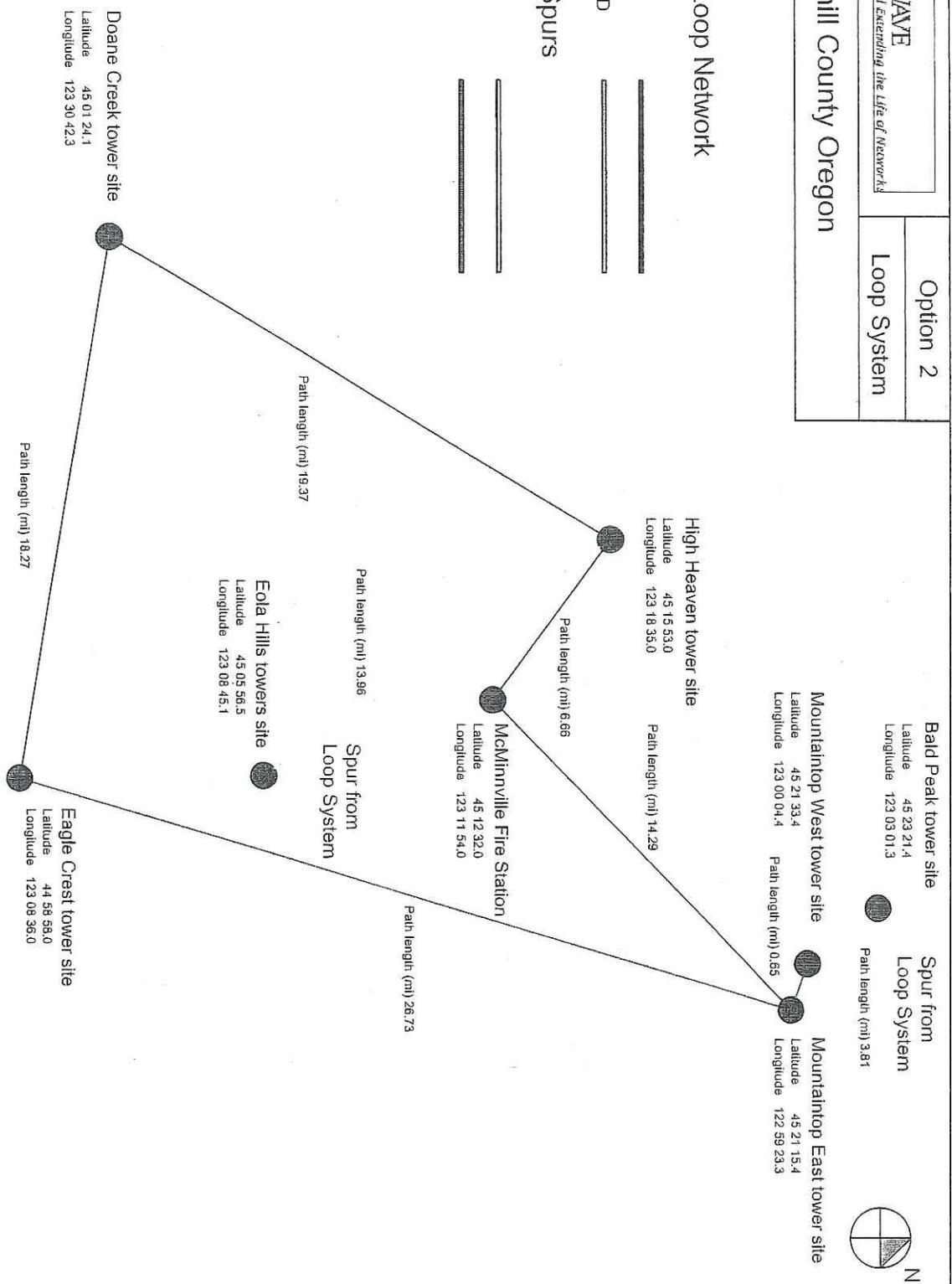
Option 2
Loop System

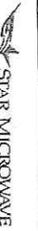
Microwave Radio Loop Network

- SM Cirrus HM 6L GHz 1+1
- SM Cirrus HM 6L GHz 1+1 SD

Microwave Radio Spurs

- SM Cirrus HM 6U GHz 1+1
- SM Cirrus HM 18 GHz 1+1





47500 Seabridge Drive
Fremont, CA 94538
Tel: +1 510 498 7900
Fax: +1 510 498 7901

Option 2
All Citrus Hill Radio
ACM and ATPC

Quote Number: Q14-06052014
Issue: A
Quote Date: 6/5/2014
Quote Expiration: 9/17/2017
Terms: 20% Down Payment, Balance Net30 days
Delivery: 8-10 weeks AFO and frequencies
Fremont: FCA Fremont, CA
Currency: USD
Warranty: Two years on Radio Products

Ship To:
Company Name
Address
City, State, Zip Code
County
Attention:

Yamhill County Information Systems
668 NE 7th St.
McMinnville, Oregon 97128
USA
email:psid@cc.yamhill.or.us

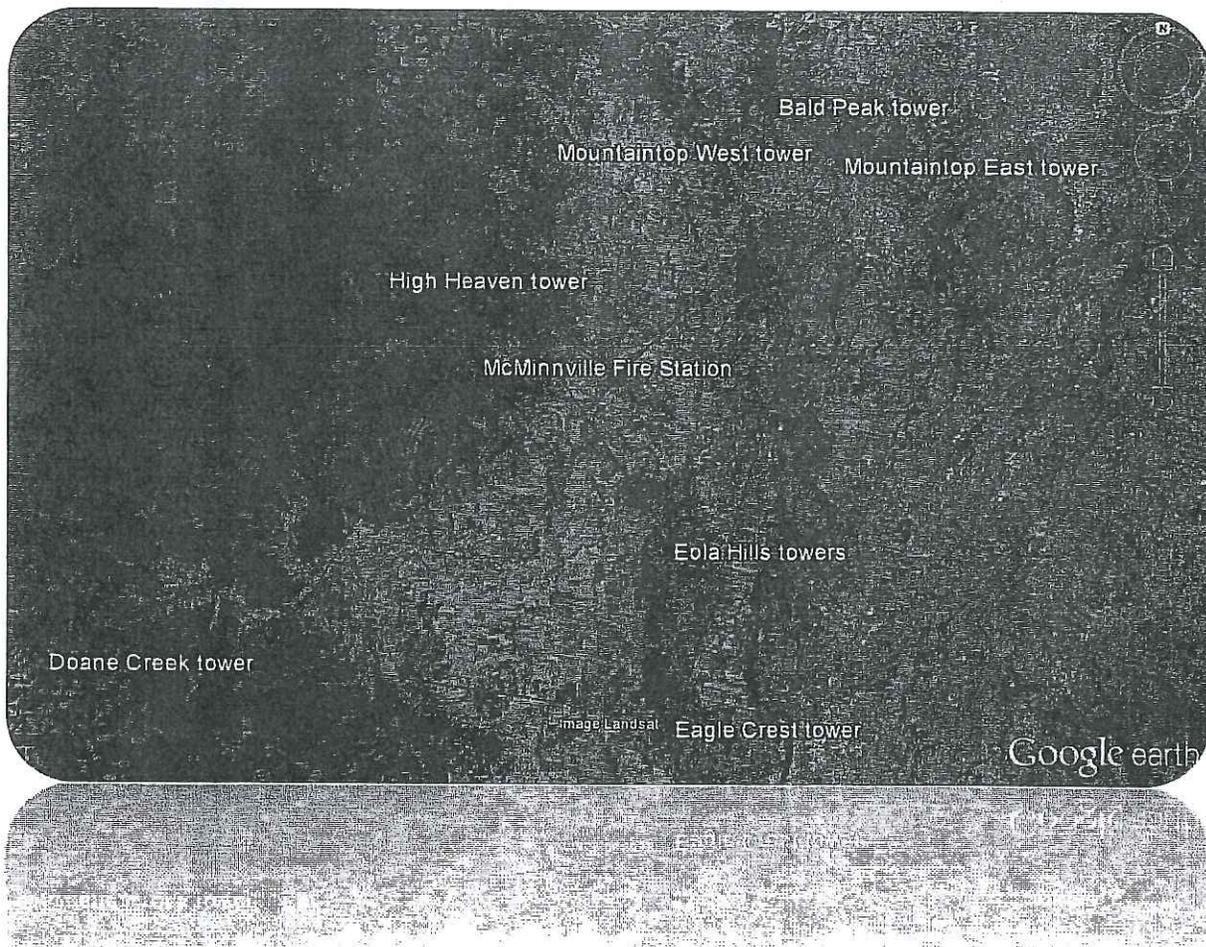
Invoice to:
Yamhill County Board of Commissioners
434 NE Evans Street
McMinnville, Oregon 97128
USA
McMinnville Radio 503 434 7501

Item #	Model Number	Terminal Description	Deane Creek	High Heaven	McMinnville Fire Station	Mountain Top East	Eagle Crest	Edin Hills	Bald Peak	Mountain Top West	Total Terminals	Unit Price	Total Price
Site Detail													
Microwave Radios, Loop Network													
1	Star Microwave Citrus Hill Series 6GHz	Citrus Hill EW 6GHz terminal w/ 1+1 configuration, operating in the 6 GHz band, consisting of (1) protected DU and (2) ODU's operating with standard power. Capacity is up to 311Mbps Ethernet. Includes ACM License. (Data sheet attached)	2	2	2	1	1	1	1	1	8	\$11,935	\$95,480
1.1	Star Microwave Citrus Hill Series 6GHz	ODU Mounting Bracket (To mount rf coupler to rack frame)	2	2	2	1	1	1	1	1	8	\$413	\$3,304
1.2	Star Microwave Citrus Hill Series 6GHz	RF Coupler (to mount protected ODUs to antenna lead)	2	2	2	1	1	1	1	1	8	\$950	\$9,800
1.3	Star Microwave Citrus Hill Series 6GHz	Rack mounting bracket...to mount ODU/coupler in rack	2	2	2	1	1	1	1	1	8	\$185	\$1,480
1.4	Star Microwave Citrus Hill Series 6GHz	Twist Flex waveguide...to connect rf coupler to antenna lead	2	2	2	1	1	1	1	1	8	\$447	\$3,576
2	Star Microwave Citrus Hill Series 6GHz	Citrus Hill EW 6GHz terminal w/ 1+1 Space Diversity configuration, operating in the 6 GHz band, consisting of (2) protected DUs and (4) ODU's operating with standard power. Capacity is up to 311Mbps Ethernet. Includes ACM License. (Data sheet attached)				1	1	1	1	1	2	\$23,870	\$47,740
2.1	Star Microwave Citrus Hill Series 6GHz	ODU Mounting Bracket (To mount rf coupler to rack frame)				2	2	2	2	2	4	\$413	\$1,652
2.2	Star Microwave Citrus Hill Series 6GHz	RF Coupler (to mount protected ODUs to antenna lead)				2	2	2	2	2	4	\$950	\$3,800
2.3	Star Microwave Citrus Hill Series 6GHz	Rack mounting bracket...to mount ODU/coupler in rack				2	2	2	2	2	4	\$185	\$740
2.4	Star Microwave Citrus Hill Series 6GHz	Twist Flex waveguide...to connect rf coupler to antenna lead				2	2	2	2	2	4	\$447	\$1,788
Spurs													
3	Star Microwave Citrus Hill Series 6GHz	Citrus Hill EW 18GHz terminal w/ 1+1 configuration, operating in the 18 GHz band, consisting of (1) protected DU and (2) ODU's operating with standard power. Capacity is up to 311Mbps Ethernet. Includes ACM License. (Data sheet attached)				1	1	1	1	1	2	\$11,935	\$23,870
3.1	Star Microwave Citrus Hill Series 6GHz	ODU Mounting Bracket (To mount rf coupler to rack frame)				1	1	1	1	1	2	\$413	\$826
3.2	Star Microwave Citrus Hill Series 6GHz	RF Coupler (to mount protected ODUs to antenna lead)				1	1	1	1	1	2	\$950	\$1,900
3.3	Star Microwave Citrus Hill Series 6GHz	Rack mounting bracket...to mount ODU/coupler in rack				1	1	1	1	1	2	\$185	\$370
3.4	Star Microwave Citrus Hill Series 6GHz	Twist Flex waveguide...to connect rf coupler to antenna lead				1	1	1	1	1	2	\$447	\$894
4	Star Microwave Citrus Hill Series 6GHz	Citrus Hill EW 6GHz terminal w/ 1+1 configuration, operating in the 6 GHz band, consisting of (1) protected DU and (2) ODU's operating with standard power. Capacity is up to 311Mbps Ethernet. Includes ACM License. (Data sheet attached)				1	1	1	1	1	4	\$11,935	\$47,740
4.1	Star Microwave Citrus Hill Series 6GHz	ODU Mounting Bracket (To mount rf coupler to rack frame)				1	1	1	1	1	4	\$413	\$1,652
4.2	Star Microwave Citrus Hill Series 6GHz	RF Coupler (to mount protected ODUs to antenna lead)				1	1	1	1	1	4	\$950	\$3,800
4.3	Star Microwave Citrus Hill Series 6GHz	Rack mounting bracket...to mount ODU/coupler in rack				1	1	1	1	1	4	\$185	\$740
4.4	Star Microwave Citrus Hill Series 6GHz	Twist Flex waveguide...to connect rf coupler to antenna lead				1	1	1	1	1	4	\$447	\$1,788
DS1 Loop Switch Accessory (to provide DS1 Loop Protection)													
(Optional, may not be required)													
Spares (Recommended)													
5	Star Microwave Citrus Hill Series 6GHz	Citrus Hill Spare ODU, 18GHz	2	2	2	2	2	2	2	2	4	\$3,795	\$0
6	Star Microwave Citrus Hill Series 6GHz	Citrus Hill Spare ODU, 18GHz									1	\$3,280	\$3,280
6.1	Star Microwave Citrus Hill Series 6GHz	Citrus Hill Spare ODU, 6GHz									2	\$3,280	\$6,560
6.2	Star Microwave Citrus Hill Series 6GHz	Citrus Hill Spare ODU, 6GHz									2	\$4,240	\$8,480
6.3	Star Microwave Citrus Hill Series 6GHz	Citrus Hill Spare ODU 1+1 Protected									2	\$4,240	\$8,480
Service Items													
7	Star Microwave Service Corporation	Factory Acceptance Testing, in Fremont, CA. Estimated time to complete...4 working days.	2	2	2	2	2	2	2	2	4	\$1,000	\$4,000
7.1	Star Microwave Service Corporation	Install Radio Terminals	2	2	2	2	2	2	2	2	4	\$625	\$2,500
7.2	Star Microwave Service Corporation	Radio Test and Commissioning	2	2	2	2	2	2	2	2	4	\$625	\$2,500
7.3	Star Microwave Service Corporation	ODU Feed Changes, reassignment, and waveguide sweeps	2	2	2	2	2	2	2	2	4	\$625	\$2,500
7.4	Star Microwave Service Corporation	Program Management	2	2	2	2	2	2	2	2	4	\$1,000	\$4,000
7.5	Star Microwave Service Corporation	Material Installation	2	2	2	2	2	2	2	2	4	\$1,000	\$4,000
7.6	Star Microwave Service Corporation	Documentation and Closeout	2	2	2	2	2	2	2	2	4	\$1,000	\$4,000
7.7	Star Microwave Service Corporation	Site Cleanup and Disposal	2	2	2	2	2	2	2	2	4	\$1,725	\$6,900
7.8	Star Microwave Service Corporation	Decommissioning and Transport of Existing Equipment	2	2	2	2	2	2	2	2	4	\$1,585	\$6,340
7.9	Star Microwave Service Corporation		2	2	2	2	2	2	2	2	4	\$1,585	\$6,340
8	Star Microwave Service Corporation	Total, All Items, FCA Fremont, CA										\$387,482	\$387,482
													\$9,494
													\$366,946



Yamhill County Oregon Path Calcs

Option 2

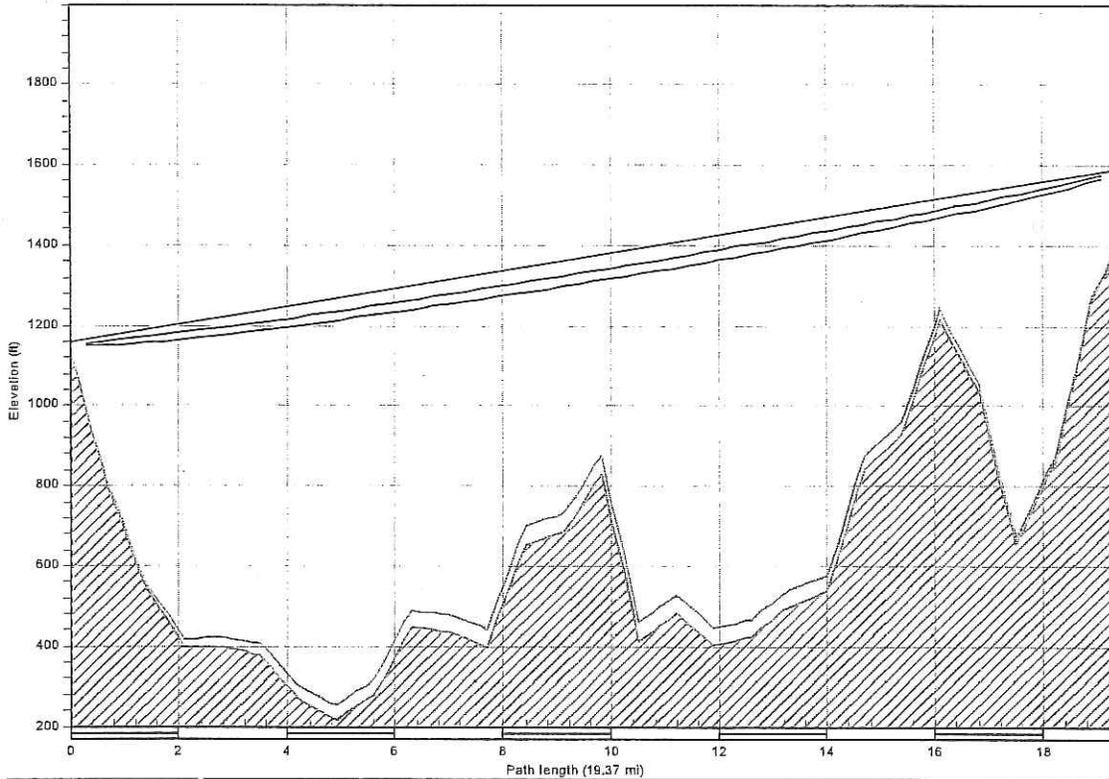




SM Cirius HM 1+1 6L GHz 16 DS1_165 Mbps_30 MHz_128 QAM

	Doane Creek tower	High Heaven tower
Elevation (ft)	1137.98	1400.94
Latitude	45 01 24.10 N	45 15 53.00 N
Longitude	123 30 42.30 W	123 18 35.00 W
True azimuth (°)	30.57	210.71
Vertical angle (°)	0.14	-0.35
Antenna model	PAR8-59W RF	PAR6-59W RF
Antenna height (ft)	22.00	190.00
Antenna gain (dBi)	41.00	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	19.37	
Free space loss (dB)	137.91	
Atmospheric absorption loss (dB)	0.26	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	64.48	64.48
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	63.00	60.70
Emission designator	30MOD7W	30MOD7W
TX Channels	5 5974.8500V	5 6226.8900V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-72.00	-72.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-39.48	-39.48
Thermal fade margin (dB)	32.52	32.52
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	2.86E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99840	99.99840
(sec)	42.06	42.06
Annual - multipath (%)	99.99948	99.99948
(sec)	162.52	162.52
(% - sec)	99.99897 - 325.03	

Tue, Jun 03 2014
Doane Creek tower - High Heaven tower.pl4
Reliability Method - Vigants - Barnett



Doane Creek tower
 Latitude 45 01 24.10 N
 Longitude 123 30 42.30 W
 Azimuth 30.57°
 Elevation 1138 ft ASL
 Antenna CL 22.0 ft AGL

Frequency (MHz) = 6000.0
 K = 1.33
 %F1 = 100.00, 60.00

High Heaven tower
 Latitude 45 15 53.00 N
 Longitude 123 18 35.00 W
 Azimuth 210.71°
 Elevation 1401 ft ASL
 Antenna CL 190.0 ft AGL

		Jun 03 14
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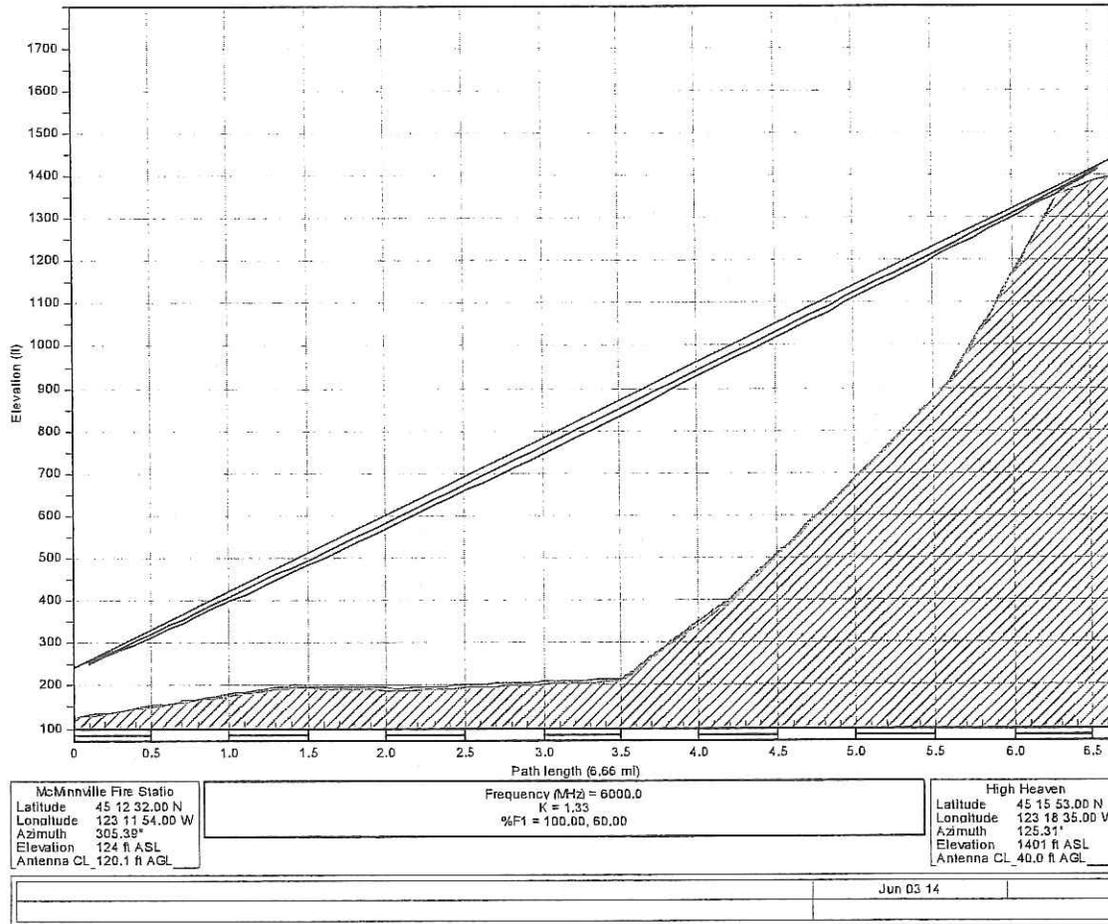
STAR MICROWAVE

Your Partner in Building and Extending the Life of Networks

SM Cirius HM 1+1 6L GHz 16 DS1_165 Mbps_30 MHz_128 QAM

	McMinnville Fire Statio	High Heaven
Elevation (ft)	124.26	1400.94
Latitude	45 12 32.00 N	45 15 53.00 N
Longitude	123 11 54.00 W	123 18 35.00 W
True azimuth (°)	305.39	125.31
Vertical angle (°)	1.91	-1.98
Antenna model	PAR6-59W RF	PAR6-59W RF
Antenna height (ft)	120.10	40.00
Antenna gain (dBi)	38.70	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	6.66	
Free space loss (dB)	128.64	
Atmospheric absorption loss (dB)	0.09	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	57.34	57.34
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	60.70	60.70
Emission designator	30M0D7W	30M0D7W
TX Channels	1 6375.1400V	1 6123.1000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-72.00	-72.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-32.34	-32.34
Thermal fade margin (dB)	39.66	39.66
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	1.16E-03	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99999	99.99999
(sec)	0.33	0.33
Annual - multipath (%)	100.00000	100.00000
(sec)	1.28	1.28
(% - sec)	99.99999 - 2.55	

Tue, Jun 03 2014
McMinnville Fire Statio-High Heaven.pl4
Reliability Method - Vigants - Barnett

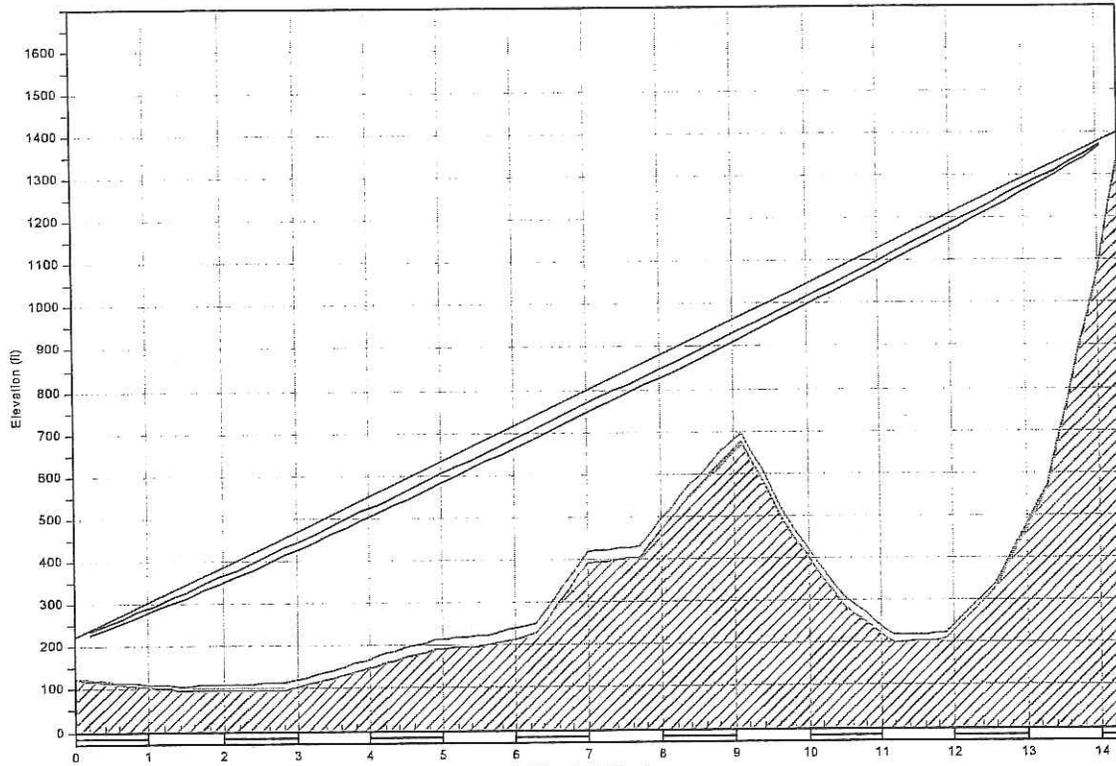




SM Cirius HM 1+1 6L GHZ 16 DS1_165 Mbps_30 MHz_128 QAM

	McMinnville Fire Statio	Mountaintop East tower
Elevation (ft)	124.26	1347.32
Latitude	45 12 32.00 N	45 21 15.40 N
Longitude	123 11 54.00 W	122 59 23.30 W
True azimuth (°)	45.28	225.43
Vertical angle (°)	0.81	-0.97
Antenna model	PAR6-59W RF	PAR8-59W RF
Antenna height (ft)	101.70	49.90
Antenna gain (dBi)	38.70	41.00
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	14.29	
Free space loss (dB)	135.26	
Atmospheric absorption loss (dB)	0.20	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	61.77	61.77
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	60.70	63.00
Emission designator	30M0D7W	30M0D7W
TX Channels	2 6197.2400V	2 5945.2000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-72.00	-72.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-36.77	-36.77
Thermal fade margin (dB)	35.23	35.23
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	1.15E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99966	99.99966
(sec)	9.04	9.04
Annual - multipath (%)	99.99989	99.99989
(sec)	34.91	34.91
(% - sec)	99.99978 - 69.83	

Tue, Jun 03 2014
McMinnville Fire Statio- Mountaintop East tower.pl4
Reliability Method - Vigants - Barnett



McMinnville Fire Station
 Latitude 45 12 32.00 N
 Longitude 123 11 54.00 W
 Azimuth 45.28°
 Elevation 124 ft ASL
 Antenna CL 101.7 ft AGL

Path length (14.29 mi)
 Frequency (MHz) = 6000.0
 K = 1.33
 %F1 = 100.00, 60.00

Mountaintop East tower
 Latitude 45 21 15.40 N
 Longitude 122 59 23.30 W
 Azimuth 225.43°
 Elevation 1347 ft ASL
 Antenna CL 49.9 ft AGL

Jun 03 14	
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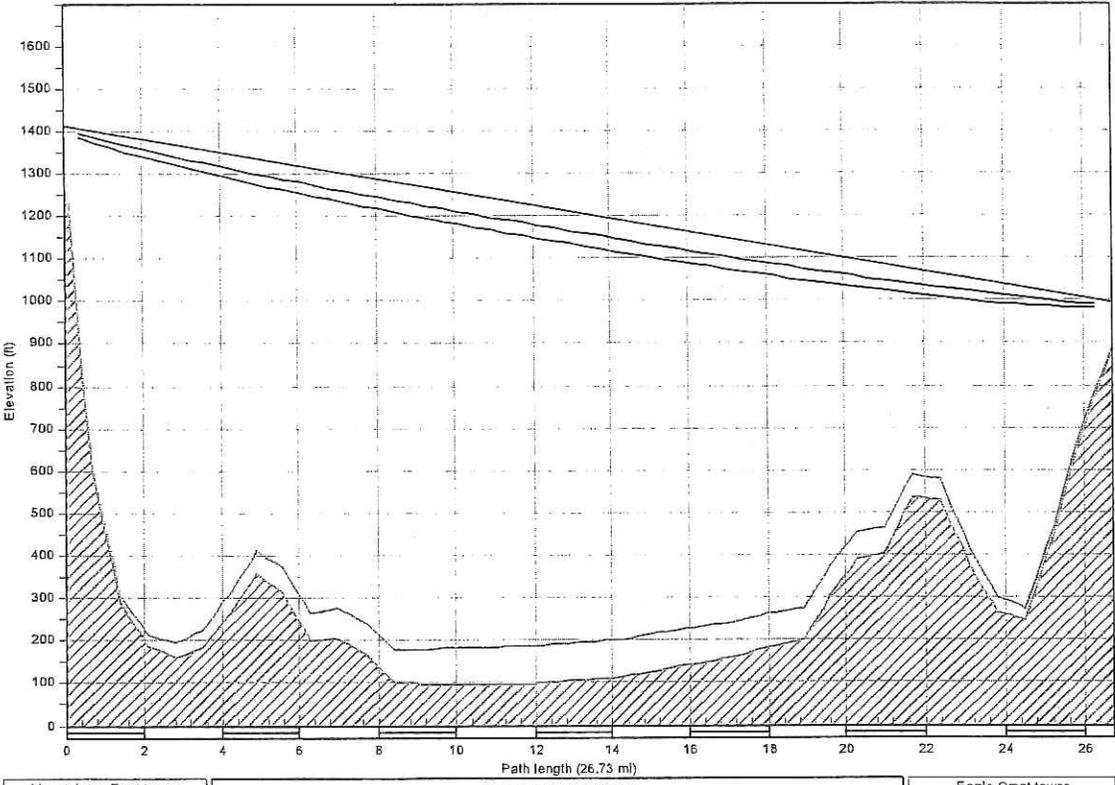
STAR MICROWAVE

Your Partner in Building and Extending the Life of Networks

SM Cirius HM 1+1 SD 6L GHz 16 DS1_60 Mbps_10 MHz_256 QAM

	Mountaintop East tower	Eagle Crest tower
Elevation (ft)	1347.32	895.14
Latitude	45 21 15.40 N	44 58 58.00 N
Longitude	122 59 23.30 W	123 08 36.00 W
True azimuth (°)	196.35	16.24
Vertical angle (°)	-0.31	0.02
Antenna model	DRFB6-59BSE	DRFB8-59CSE
Antenna height (ft)	65.60	101.70
Antenna gain (dBi)	39.10	41.30
TX line type	Flex Twist	Flex Twist
TX line length (ft)	2.00	2.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	1.80e-03	1.80e-03
Circ. branching loss (dB)	2.70	2.70
Antenna model	DRFB6-59CSE	DRFB6-59CSE
Antenna height (ft)	39.40	31.10
Antenna gain (dBi)	39.10	39.10
TX line type	Flex Twist	Flex Twist
TX line length (ft)	2.00	2.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	1.80e-03	1.80e-03
Div RX circulator loss (dB)	2.70	2.70
Frequency (MHz)	6000.00	
Polarization	Horizontal	
Path length (mi)	26.73	
Free space loss (dB)	140.70	
Atmospheric absorption loss (dB)	0.37	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Main net path loss (dB)	66.07	66.07
Diversity net path loss (dB)	66.07	68.27
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.16	0.16
TX power (dBm)	22.00	22.00
EIRP (dBm)	58.40	60.60
Emission designator	10M0D7W	10M0D7W
TX Channels	3 6375.1400H	3 6123.1000H
RX threshold criteria	1x10 ⁻⁶	1x10 ⁻⁶
RX threshold level (dBm)	-71.00	-71.00
Maximum receive signal (dBm)	-20.00	-20.00
Main RX signal (dBm)	-44.07	-44.07
Diversity RX signal (dBm)	-44.07	-46.27
Thermal fade margin (dB)	26.93	26.93
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	7.51E-02	
Average annual temperature (°F)	64.40	
SD improvement factor	5.32	23.27
Worst month - multipath (%)	99.99713	99.99935
(sec)	75.29	17.21
Annual - multipath (%)	99.99908	99.99979
(sec)	290.94	66.50
(% - sec)	99.99887 - 357.43	

Tue, Jun 03 2014
 Mountaintop East tower - Eagle Crest tower.pl4
 Reliability Method - Vigants - Barnett
 Space Diversity Method Nortel Baseband Switching



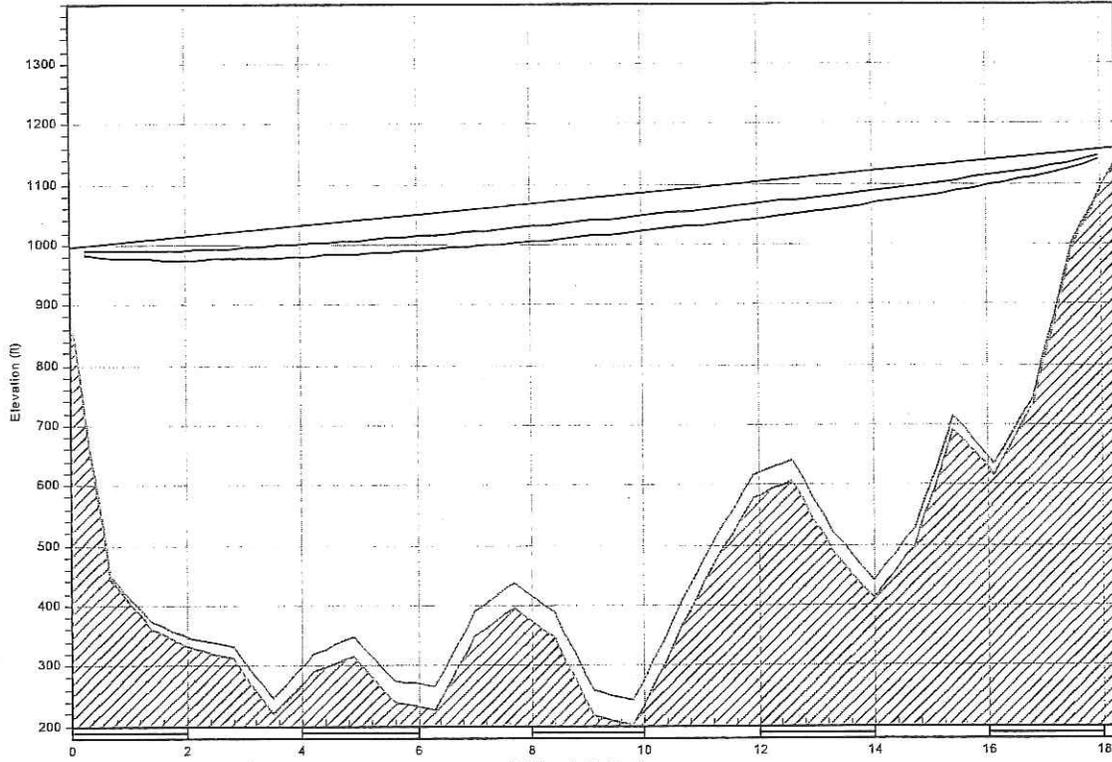
Mountaintop East tower Latitude 45 21 15.40 N Longitude 122 59 23.30 W Azimuth 186.35° Elevation 1347 ft ASL Antenna CL 65.6, 39.4 ft AGL	Frequency (MHz) = 6000.0 K = 1.33 %F1 = 100.00, 60.00	Eagle Crest tower Latitude 44 58 58.00 N Longitude 123 08 36.00 W Azimuth 16.24° Elevation 885 ft ASL Antenna CL 101.7, 31.1 ft AGL
Jun 03 14		



SM Cirius HM 1+1 6L GHz 16 DS1_165 Mbps_30 MHz_128 QAM

	Eagle Crest tower	Doane Creek tower
Elevation (ft)	895.14	1137.98
Latitude	44 58 58.00 N	45 01 24.10 N
Longitude	123 08 36.00 W	123 30 42.30 W
True azimuth (°)	278.96	98.70
Vertical angle (°)	-3.72e-03	-0.19
Antenna model	DRFB6-59CSE	DRFB6-59CSE
Antenna height (ft)	101.70	19.70
Antenna gain (dBi)	39.10	39.10
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Horizontal	
Path length (mi)	18.27	
Free space loss (dB)	137.40	
Atmospheric absorption loss (dB)	0.25	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	65.45	65.45
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.32	0.32
TX power (dBm)	25.00	25.00
EIRP (dBm)	61.10	61.10
Emission designator	30M0D7W	30M0D7W
TX Channels	4 6286.1900H	4 6034.1500H
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-72.00	-72.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-40.45	-40.45
Thermal fade margin (dB)	31.55	31.55
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	2.40E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99832	99.99832
(sec)	44.12	44.12
Annual - multipath (%)	99.99946	99.99946
(sec)	170.48	170.48
(% - sec)	99.99892 - 340.96	

Tue, Jun 03 2014
Eagle Crest tower -Doane Creek tower.pl4
Reliability Method - Vigants - Barnett



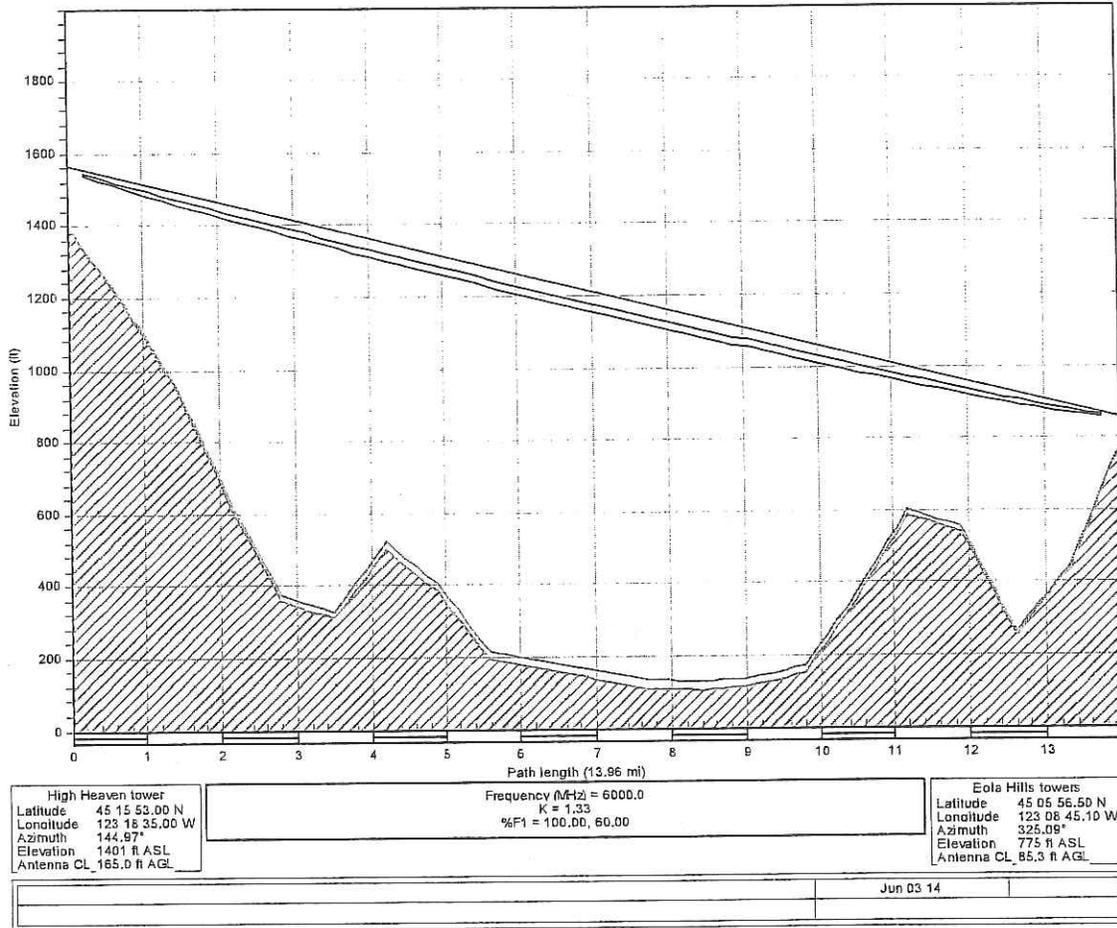
<p>Eagle Crest tower Latitude 44 58 58.00 N Longitude 123 08 36.00 W Azimuth 278.96° Elevation 895 ft ASL Antenna CL 101.7 ft AGL</p>	<p>Path length (18.27 mi) Frequency (MHz) = 6000.0 K = 1.33 %F1 = 100.00, 60.00</p>	<p>Doane Creek tower Latitude 45 01 24.10 N Longitude 123 30 42.30 W Azimuth 98.70° Elevation 1138 ft ASL Antenna CL 16.7 ft AGL</p>
		<p>Jun 03 14</p>



SM Cirius HM 1+1 6L GHz 16 DS1_60 Mbps_10 MHz_256 QAM

	High Heaven tower	Eola Hills towers
Elevation (ft)	1400.94	774.57
Latitude	45 15 53.00 N	45 05 56.50 N
Longitude	123 18 35.00 W	123 08 45.10 W
True azimuth (°)	144.97	325.09
Vertical angle (°)	-0.62	0.47
Antenna model	PAR6-59WA RF	PAR6-59WA RF
Antenna height (ft)	165.00	85.30
Antenna gain (dBi)	38.70	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	13.96	
Free space loss (dB)	135.06	
Atmospheric absorption loss (dB)	0.19	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	63.86	63.86
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.16	0.16
TX power (dBm)	22.00	22.00
EIRP (dBm)	57.70	57.70
Emission designator	10M0D7W	10M0D7W
TX Channels	6 6555.0000V	6 6725.0000V
RX threshold criteria	1x10 ⁻⁶	1x10 ⁻⁶
RX threshold level (dBm)	-71.00	-71.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-41.86	-41.86
Thermal fade margin (dB)	29.14	29.14
Terrain roughness (ft)	140.00	
C factor	0.26	
Fade occurrence factor (Po)	1.07E-02	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	99.99869	99.99869
(sec)	34.32	34.32
Annual - multipath (%)	99.99958	99.99958
(sec)	132.59	132.59
(% - sec)	99.99916 - 265.19	

Tue, Jun 03 2014
High Heaven tower - Eola Hills towers.pl4
Reliability Method - Vigants - Barnett

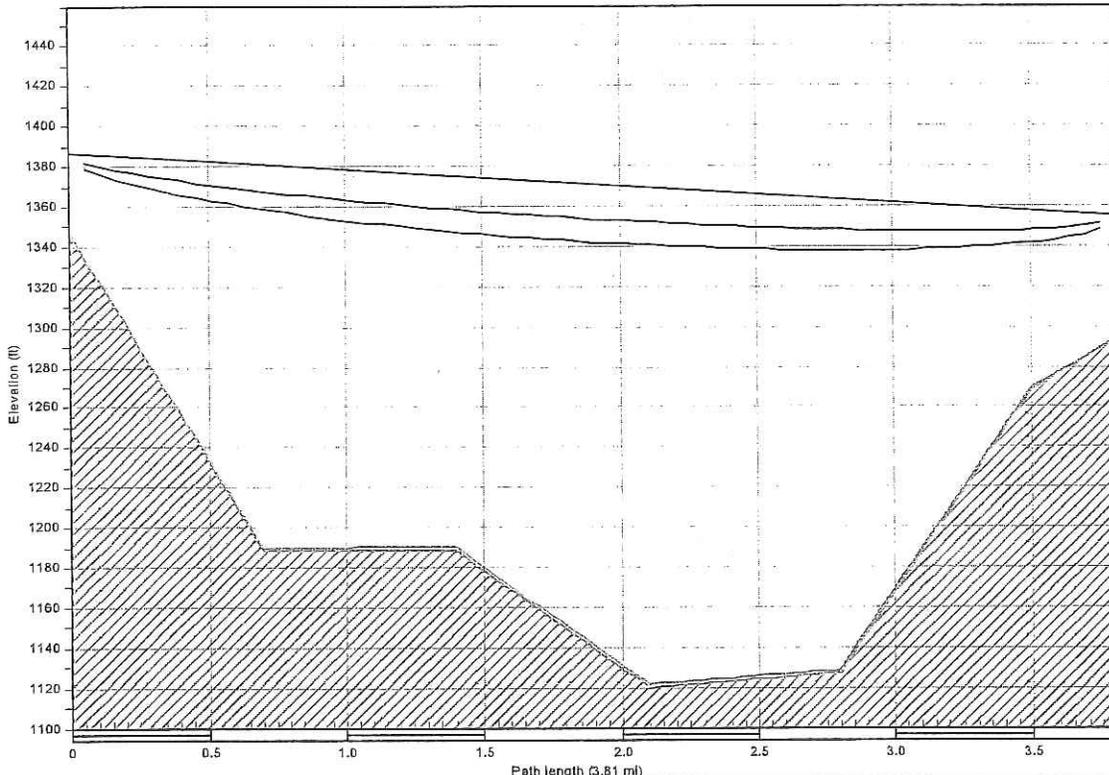




SM Cirius HM 1+1 6L GHz 16 DS1_60 Mbps_10 MHz_256 QAM

	Mountaintop East tower	Bald Peak tower
Elevation (ft)	1347.32	1294.48
Latitude	45 21 15.40 N	45 23 21.40 N
Longitude	122 59 23.30 W	123 03 01.30 W
True azimuth (°)	309.37	129.33
Vertical angle (°)	-0.11	0.07
Antenna model	PAR6-59WA RF	PAR6-59WA RF
Antenna height (ft)	39.70	60.40
Antenna gain (dBi)	38.70	38.70
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	6000.00	
Polarization	Vertical	
Path length (mi)	3.81	
Free space loss (dB)	123.79	
Atmospheric absorption loss (dB)	0.05	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	52.45	52.45
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.08	0.08
TX power (dBm)	19.00	19.00
EIRP (dBm)	54.70	54.70
Emission designator	10M0D7W	10M0D7W
TX Channels	7 6575.0000V	7 6535.0000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-71.00	-71.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-33.45	-33.45
Thermal fade margin (dB)	37.55	37.55
Terrain roughness (ft)	58.62	
C factor	0.26	
Fade occurrence factor (Po)	2.18E-04	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	100.00000	100.00000
(sec)	0.10	0.10
Annual - multipath (%)	100.00000	100.00000
(sec)	0.39	0.39
(% - sec)	100.00000 - 0.78	

Tue, Jun 03 2014
Mountaintop East tower - Bald Peak tower.pl4
Reliability Method - Vigants - Barnett



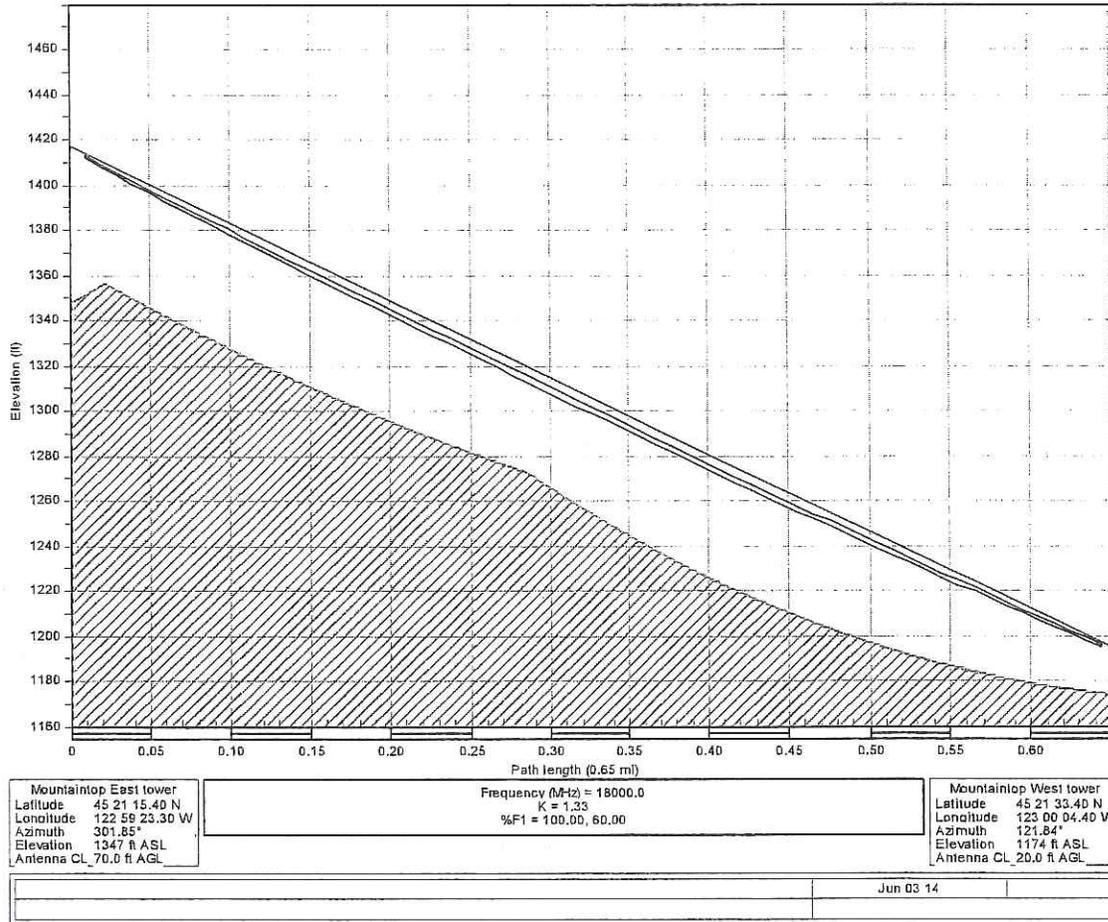
Mountaintop East tower Latitude 45 21 15.40 N Longitude 122 55 23.30 W Azimuth 309.37° Elevation 1347 ft ASL Antenna CL 39.7 ft AGL	Frequency (MHz) = 6000.0 K = 1.33 %F1 = 100.00, 80.00	Bald Peak tower Latitude 45 23 21.40 N Longitude 123 03 01.30 W Azimuth 129.33° Elevation 1294 ft ASL Antenna CL 60.4 ft AGL
Jun 03 14		



SM Cirius HM 1+1 6L GHz 16 DS1_60 Mbps_10 MHz_256 QAM

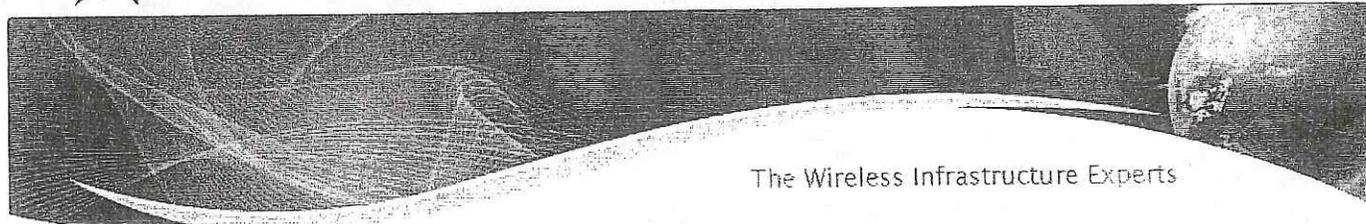
	Mountaintop East tower	Mountaintop West tower
Elevation (ft)	1347.32	1173.88
Latitude	45 21 15.40 N	45 21 33.40 N
Longitude	122 59 23.30 W	123 00 04.40 W
True azimuth (°)	301.85	121.84
Vertical angle (°)	-3.70	3.70
Antenna model	HE2-180C	HE4-180B
Antenna height (ft)	70.00	20.00
Antenna gain (dBi)	38.90	44.90
TX line type	Flex Twist	Flex Twist
TX line length (ft)	4.00	4.00
TX line unit loss (dB /100 ft)	0.09	0.09
TX line loss (dB)	3.60e-03	3.60e-03
Circ. branching loss (dB)	3.00	3.00
Frequency (MHz)	18000.00	
Polarization	Vertical	
Path length (mi)	0.65	
Free space loss (dB)	118.02	
Atmospheric absorption loss (dB)	0.06	
Field margin (dB)	0.00	
Diffraction loss (dB)	0.00	
Net path loss (dB)	40.29	40.29
Radio model	Cirius HM	Cirius HM
TX power (watts)	0.01	0.01
TX power (dBm)	10.00	10.00
EIRP (dBm)	45.90	51.90
Emission designator	10M0D7W	10M0D7W
TX Channels	8 19435.0000V	8 17875.0000V
RX threshold criteria	1x10-6	1x10-6
RX threshold level (dBm)	-71.00	-71.00
Maximum receive signal (dBm)	-20.00	-20.00
RX signal (dBm)	-30.29	-30.29
Thermal fade margin (dB)	40.71	40.71
Terrain roughness (ft)	20.00	
C factor	0.26	
Fade occurrence factor (Po)	3.31E-06	
Average annual temperature (°F)	64.40	
Worst month - multipath (%)	100.00000	100.00000
(sec)	7.37e-04	7.37e-04
Annual - multipath (%)	100.00000	100.00000
(sec)	2.85e-03	2.85e-03
(% - sec)	100.00000 - 0.01	

Tue, Jun 03 2014
Mountaintop East tower - Mountaintop West tower.pl4
Reliability Method - Vigants - Barnett





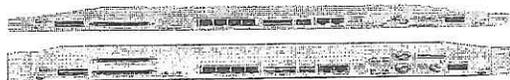
ETSI / FCC



Cirius SHC - Hybrid Microwave Transport Solution

The Cirius SHC (Super High Performance) series is a carrier-grade, wireless Ethernet backhaul product line which includes both TDM (ADM) and Ethernet high-capacity devices.

All products in the Cirius SHC series are tightly coupled with Star Microwave's advanced microwave radios and are managed by comprehensive management system providing a complete solution for mobile backhaul, private networks, and wireline network last-mile extensions.

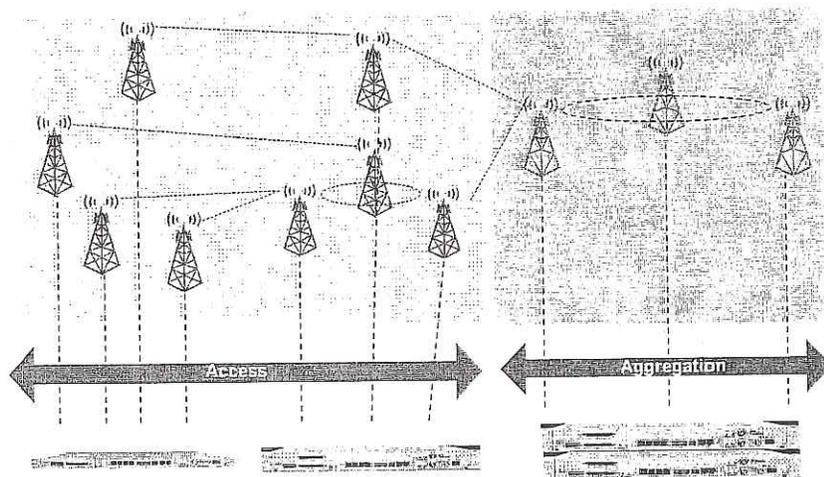


Product Features

- Compliant system for 6-38 GHz
- All ETSI and FCC channels for 7-56 MHz
- Latest technology utilizing up to 1024 QAM modulation, delivering up to 900 Mbps Ethernet and up to 63 x E1/T1 channels in a single unit making it ideal for Hybrid networks
- Ultra high double capacity over same bandwidth using CCDP technology
- Integrated synchronization solution (Sync ETH, IEEE 1588v2, Native)
- ACM (Adaptive Coding and Modulation) and ATPC (Automatic Transmit Power Control) for high availability and high density deployment
- Up to 4K active VLAN entries
- Advanced Multilayer compression
- Jumbo frame size (9600 bytes)
- Advanced Ethernet allows building secure and self healing networks

Product Description

The Cirius SHC series product line integrates superior networking functionality with the industry's most advanced microwave technology creating a superior transport solution.



Applications

- Ideal for carrier-class backhaul applications
- Tele-Medicine applications

Technical Specifications

GENERAL

Frequency Band	L6 / U6 / 7 / 8 / 11 / 13 / 15/ 18 / 23 / 26 /28 / 32 / 38GHz
Channel Bandwidth	ETSI: 7, 14, 28, 56MHz; FCC: 10, 20, 30, 40, 50MHz
Modulation	QPSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM, 512QAM, 1024QAM or ACM
Transmission Capacity	10Mbps – 450Mbps (0.5U, 1+0); 20Mbps – 900Mbps (1U, 2+0)

PERFORMANCE

System Configuration	1+0, 2+0 XPIC, 1+1 (HSB, SD, FD) XPIC, N+1 XPIC, Nodal
Features	XPIC, Hitless ACM, ATPC, AGC, FEC, Frame Header Compression
MTBF	30 years

PORTS

ODU Interface	1 x TNC Female or 2 x TNC Female, up to 300m IF cable support
Ethernet	7 x Gigabit Ethernet (data traffic, management port)
E1/T1	Up to 63 x E1/T1
STM-1	2 x STM-1 (unvarnished transmission or ADM)
External Clock	2048 Kbit/s via MCX connector
Serial Port	RS-232 via RJ-45 connector
AUX/Alarm (Reuse)	4 digital inputs, 4 relay outputs (8 pin RJ-45) Async (19.2 Kbit/s) / Sync (64 Kbit/s); RS-422 protocol, RJ-45
LED Indicator	RUN, IDU Alarm, ODU Alarm
RSSI Port for RSL (ODU)	BNC test jack, output Voltage vs RSL: 0.1 to 4.5 VDC vs -90 to -20 dBm

SERVICE PARAMETERS

PDH Service	Interfaces Type	120Ω balanced (RJ-45) or 75Ω unbalanced (BNC) via MDR68 connector
	Bit Rate	E1: 2048 Kbit/s ± 50ppm; T1: 1544 Kbit/s ± 32ppm
	Standard	ITU-T G.703 compliance
SDH Service	Interfaces Type	SFP Transceiver, Electrical or Optical S-1.1, L-1.1
	Bit Rate	155.52Mbit/s
	Standard	ITU-T G.703, G.825, G.957
IP Service	Interfaces Type	4 x 10/100/1000 Base-T (RJ-45) + 3 x 1000 Base-X (SFP)
	Feature	LAG, APS, Spanning Tree Protocol, Pause Frame, Broadcast Storm Control, IEEE Std 802.1X Access Control, Access Control List, Ports Mirroring, Ports Statistics
	Frame Size	Up to 9600 bytes
	MAC Table Size	8K
	VLAN Tagging	IEEE 802.1Q (Up to 4K VLAN entries), QinQ
	QoS Priority	8 Queues; Support SP (Strict-Priority) and WRR (Weighted Round Robin) mode
	QoS Classification	IEEE 802.1P, Port, VLAN, CoS, ToS, DSCP
	IEEE1588v2	Transparent IEEE1588v2 packets with fixed transmission delay
Sync ETH	ITU-T G.8261 compliance	

MANAGEMENT

Management Port	Ethernet VLAN or Separate Ethernet (RJ-45/SFP)
Security/Authentication	Authentication uses 2 level password
SNMP	SNMP traps, MIB, SNMPv2
Configuration System	Web-base NMS, Telnet, FTP, SSH, Serial ASCII
Loopbacks	Line Loopback, System Loopback

POWER

Power Consumption (IDU+ODU)	Up to 40W (0.5U), 80W (1U)
Power Supply Voltage	-48V DC (-36V DC to -72V DC), +24V DC / +220V AC adapter optional

MECHANICAL & ENVIRONMENTAL

Dimensions (H x W x D)	IDU : 22mm x 438mm x 280mm (0.5U); 44mm x 438mm x 280mm (1U)
	ODU: 279mm x 240mm x 92mm
Weight	IDU: 5.0 kg (0.5U) / 6.5 kg (1U)
	ODU: 4.2 kg
Temperature Range	IDU: -5°C to +55°C
	ODU: -33°C to +55°C
Humidity	IDU: ≤85%, non-condensing
	ODU: ≤100%, condensing

Technical Specifications

Appendix - Transmitter Radio Performance

Transmitter Technical Specifications									
Frequency band (GHz)		6-8	11	13-15	18-23	26	28	32	38
Maximum Tx Power (dBm)	QPSK	30	28	27	25	25	24	23	23
	16QAM / 32QAM	26	24	23	22	22	21	21	20
	64QAM / 128QAM	25	22	21	20	19	18	17	17
	256QAM	22	20	19	18	16	16	15	15
	512QAM	20	18	17	16	14	14	13	13
	1024QAM	18	16	15	14	12	11	11	11
Minimum Tx Power		0 dBm							
Tx Power Increment		1 dB							
Tx Power Accuracy		± 2 dB							

Appendix - Receiver Radio Performance

ETSI SYSTEM - Receiver Sensitivity (dBm)										
Capacity	BW	Mod	6-8	11	13-15	18-23	26	28	32	38
10	7 MHz	QPSK	-87.0	-86.5	-86.5	-86.0	-85.0	-84.5	-84.0	-83.5
20		16QAM	-83.0	-82.5	-82.5	-82.0	-81.0	-80.5	-80.0	-79.5
25		32QAM	-80.0	-79.5	-79.5	-79.0	-77.0	-76.5	-76.0	-75.5
32		64QAM	-78.0	-77.5	-77.5	-77.0	-73.0	-72.5	-72.0	-71.5
38		128QAM	-75.0	-74.5	-74.5	-74.0	-69.0	-68.5	-68.0	-67.5
44		256QAM	-71.0	-70.0	-70.0	-69.5	-65.0	-64.5	-64.0	-63.5
49		512QAM	-68.0	-67.0	-67.0	-66.5	-62.0	-61.5	-61.0	-60.0
53		1024QAM	-65.0	-64.5	-64.0	-64.0	-59.0	-58.0	-58.0	-57.0
21	14 / 13.75 MHz	QPSK	-87.0	-86.5	-86.5	-86.0	-82.0	-81.5	-81.0	-80.5
42		16QAM	-80.0	-79.5	-79.5	-79.0	-78.0	-77.5	-77.0	-76.5
51		32QAM	-77.0	-76.5	-76.5	-76.0	-74.0	-73.5	-73.0	-72.5
66		64QAM	-74.0	-73.5	-73.5	-73.0	-70.0	-69.5	-69.0	-68.5
78		128QAM	-71.0	-70.5	-70.5	-70.0	-66.0	-65.5	-65.0	-64.5
90		256QAM	-67.0	-66.0	-66.0	-65.5	-62.0	-61.5	-61.0	-60.5
100		512QAM	-64.0	-63.5	-63.0	-62.5	-59.0	-58.0	-58.0	-57.0
108		1024QAM	-61.0	-60.5	-60.0	-59.0	-57.5	-55.5	-55.0	-54.0
42	28 / 27.5 MHz	QPSK	-84.0	-83.5	-83.5	-83.0	-79.0	-78.5	-78.0	-77.5
84		16QAM	-78.0	-77.5	-77.5	-77.0	-75.0	-74.5	-74.0	-73.5
105		32QAM	-75.0	-74.5	-74.5	-74.0	-71.0	-70.5	-70.0	-69.5
133		64QAM	-72.0	-71.5	-71.5	-71.0	-67.0	-66.5	-66.0	-65.5
158		128QAM	-69.0	-68.5	-68.5	-68.0	-63.0	-62.5	-62.0	-61.5
183		256QAM	-66.0	-65.0	-65.0	-64.5	-59.0	-58.5	-58.0	-57.5
200		512QAM	-63.0	-62.0	-61.5	-61.0	-57.0	-55.5	-55.0	-54.5
225		1024QAM	-60.0	-59.0	-58.5	-58.5	-54.0	-53.0	-52.0	-51.5
84	56 / 55 MHz	QPSK	-80.0	-79.5	-79.5	-79.0	-76.0	-75.5	-75.0	-74.5
168		16QAM	-75.0	-74.5	-74.5	-74.0	-72.0	-71.5	-71.0	-70.5
208		32QAM	-71.0	-70.5	-70.5	-70.0	-68.0	-67.5	-67.0	-66.5
265		64QAM	-69.0	-68.5	-68.5	-68.0	-64.0	-63.5	-63.0	-62.5
313		128QAM	-65.0	-64.5	-64.5	-64.0	-60.0	-59.5	-59.0	-58.5
363		256QAM	-61.0	-60.0	-60.0	-59.5	-56.0	-55.5	-55.0	-54.5
407		512QAM	-58.0	-57.0	-57.0	-56.0	-53.0	-52.5	-52.0	-51.0
465		1024QAM	-55.0	-54.5	-54.0	-53.0	-50.0	-49.0	-49.0	-48.0

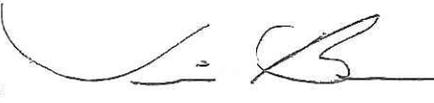
DATE: May 19, 2014
TO: Yamhill County Information Systems
Project: Addendum No. 1, Microwave Radios & Related Equipment

ACKNOWLEDGMENT OF RECEIPT OF THIS ADDENDUM:

A proposal will not be considered unless accompanied by this Addendum, signed below:

I the undersigned, a person authorized to sign the proposal for this project, hereby acknowledge receipt of this Addendum, and certify that any proposal submitted will reflect full consideration of the information contained therein.

Company Name : STAR MICROWAVE SERVICE CORP.

Signature 

Date 6-4-2014

Potential proposers who request and receive this file are reminded not to make any changes to this document and that Yamhill County will not be held responsible for any changes, revisions, deletions, modifications, etc., to the document that might render their proposal unacceptable. The official document remains the one included with the RFP (except as may be modified by Yamhill County in writing) and it is each Proposer's responsibility to ensure that the documents returned to Yamhill County as part of any proposal are the same.

EXCEPT AS EXPRESSLY MODIFIED HEREIN, THE REMAINDER OF THE ABOVE REFERENCED RFP REMAINS UNCHANGED.

ATTACHMENT B
SAMPLE CONTRACT

AGREEMENT BETWEEN _____
AND YAMHILL COUNTY

THIS AGREEMENT for products and services ("Agreement") is entered into by and between Yamhill County, Oregon, a political subdivision of the state of Oregon ("COUNTY"), acting by and through its Information Systems Division ("IS") and _____, a _____, with its principal place of business located at _____ ("CONTRACTOR"), referred to individually as Party and collectively as Parties.

WHEREAS, the COUNTY desires to acquire and install replacement microwave radio and related equipment to support the public safety needs of Yamhill County in accordance with the applicable laws of the State of Oregon, for and on behalf of COUNTY; and

WHEREAS, CONTRACTOR provides Equipment and related services (as defined herein) and was the successful responder to the COUNTY's RFP described below; and

WHEREAS, the COUNTY and CONTRACTOR now desire to enter into this Agreement for CONTRACTOR to provide the Equipment and services to COUNTY in accordance with the terms herein and of the following Exhibits, which are attached hereto and incorporated herein by this reference::

Exhibit A	COUNTY's RFP
Exhibit B	CONTRACTOR's Response to COUNTY's RFP
Exhibit C	Agreement for Licensed Software (as needed)
Exhibit D	Insurance Requirements

NOW, THEREFORE, in consideration of the foregoing and of the mutual promises and covenants herein the Parties agree as follows:

1.0 Definitions. As used in this Agreement, the following capitalized terms shall have the following meanings:

- 1.1 "Confidential" shall have the meaning provided in Section 12.1.
- 1.2 "Documentation" shall mean manuals, training materials, information or diagrams relating to any aspects of the Equipment, including Software and Source Code, if any.
- 1.3 "Effective Date" shall be the date that the Agreement is fully executed and signed by all Parties to the Agreement.
- 1.4 "Equipment" means the microwave radio and related equipment purchased pursuant to this Agreement and as further described in Exhibit B.
- 1.5 "Final Acceptance" shall mean the Equipment has been Accepted by the COUNTY in accordance with this Agreement.
- 1.6 "Software" shall mean the software required by the Equipment provided by CONTRACTOR, including any and all modifications, interfaces, Source Code, third-party software, information about such applications, and any related elements required for the operation of the Equipment.
- 1.7 "Source Code" shall mean code in an industry-recognized high-level programming language, using industry accepted and proper programming procedures, documentation and methods, that when compiled will run the Equipment, or one or more components of the Equipment, purchased in this Agreement and that is readable and able to be manipulated by a human.

2.0 Products and Services

2.1 **Work Requirements:** In consideration for the payments described in Section 3.0 hereof, unless sooner terminated, CONTRACTOR will provide COUNTY with the Equipment described in Exhibit B.

2.2 **Software:** CONTRACTOR shall deliver to COUNTY a software license for all required software necessary to fully operate the Equipment.

3.0 Compensation and Payment Provisions

3.1 The COUNTY shall pay CONTRACTOR for the Equipment in the amount and at such times as are set forth in Exhibit B. The COUNTY shall make payment upon receipt and acceptance of the Equipment as invoiced by CONTRACTOR. COUNTY shall pay invoices within thirty (30) days after an invoice has been received at the COUNTY and approved by the authorized COUNTY representative.

3.2 The costs set forth in Exhibit B constitute the entire compensation due to CONTRACTOR under this Agreement.

3.3 Any and all CONTRACTOR related travel expenses that are incurred as a direct result of this Agreement shall be CONTRACTOR's responsibility

4.0 **Term**

4.1 The Effective Date of this Agreement will be _____ 2014 or upon the date of signatures by all Parties, whichever is later. This Agreement, unless terminated or renewed as elsewhere provided in the Agreement, shall terminate on the ____ of _____, 201___. The Agreement may be extended for ninety (90) days beyond the Agreement period and is subject to the limits of available funding.

5.0 **Access to Records**

5.1 CONTRACTOR shall maintain fiscal records and all other records pertinent to this Agreement. All fiscal records shall be maintained pursuant to United States Generally Accepted Accounting Principles, and other records shall be maintained to the extent necessary to clearly reflect actions taken. All such records shall be retained and kept accessible for at least seven (7) years following final payment. COUNTY's authorized representatives shall have the right to direct access to all of CONTRACTOR's books, documents, papers and records related to this Agreement for the purpose of conducting audits and examinations and making copies, excerpts and transcripts. COUNTY shall reimburse CONTRACTOR for CONTRACTOR's reasonable cost of preparing such copies.

6.0 **Compliance with Applicable Law**

6.1 Each Party agrees to comply with all federal, state and local laws, rules and regulations in the performance of its duties and obligations under this Agreement. Any violation by CONTRACTOR of applicable law shall constitute an event of default under this Agreement and CONTRACTOR shall be liable for and hold the COUNTY harmless and defend the COUNTY from and against any and all liability arising out of, connected with, or as a result of the violation.

7.0 **Indemnification**

7.1 **Indemnification by CONTRACTOR.** CONTRACTOR shall defend, indemnify and hold harmless COUNTY, its officers, agents, and employees from any and all claims, liabilities, demands, damages, actions or proceedings arising from or relating to the negligence, wrongful acts or omissions of CONTRACTOR, its officers, agents, and employees in connection with the Equipment and the performance of any services under Agreement.

7.2 **Infringement Indemnification by CONTRACTOR.** CONTRACTOR agrees to indemnify and defend COUNTY against any claim or action brought by any third-party for actual or alleged infringement of any United States patent, copyright, trade secret or other intellectual property law based upon COUNTY's use of the Equipment or COUNTY's use of the Software in accordance with this Agreement and to pay any damages and costs finally awarded against COUNTY or paid in settlement. CONTRACTOR shall have the sole right to conduct the defense of any claim or action and all negotiations for its settlement, unless the parties to this Agreement agree otherwise in writing. COUNTY agrees to give CONTRACTOR prompt written notice of any threat, warning, or notice of any claim or action that could have an adverse impact on CONTRACTOR's rights in the Equipment. CONTRACTOR shall not be responsible for any settlement entered into without its consent. In the event of a claim or action under this section, CONTRACTOR may, in its sole discretion, (a) procure for COUNTY the right to continue using the Equipment; or (b) provide a substitute, non-infringing Equipment. Notwithstanding the above, CONTRACTOR shall have no obligation under this section with respect to any claim or action that is based upon (a) COUNTY's use of the Equipment in breach of any term or condition of this Agreement; (b) the use or combination of the Equipment with any third-party product, software, hardware, or system, except as provided herein or under any attached Schedule; or (c) modification of the Equipment other than by a representative of CONTRACTOR.

8.0 **Insurance**

8.1 Throughout the term of this Agreement, CONTRACTOR shall maintain at all times commercial general liability insurance and property damage insurance, covering its activities and operations under this Agreement. CONTRACTOR shall add COUNTY, its officers/officials, agents, employees, and volunteers as additional insureds for general liability and property damage insurance coverage and an Endorsement shall be issued by the company showing COUNTY as an Additional Insured and the coverage shall contain a 30-day Notice of Cancellation endorsement. Such insurance shall be in the forms and amounts not less than set forth in ORS 30.260 to 30.300, as requested in the attached Insurance Requirements, Exhibit D. All insurance shall be evidenced by a Certificate of Insurance and Endorsement provided to COUNTY, indicating coverages, limits and effective dates, by an insurance company licensed to do business in the State of Oregon.

8.2 CONTRACTOR shall obtain and maintain at all times during the term of this Agreement, workers' compensation insurance with statutory limits and employers' liability insurance.

8.3 CONTRACTOR shall provide COUNTY with evidence that it is a carrier-insured or self-insured employer in full compliance with the requirements of ORS Chapter 656, or that it employs no persons subject to the requirements of ORS 656, Workers' Compensation Coverage.

9.0 **Warranty**

9.1 CONTRACTOR warrants:

9.1.1 The Equipment will perform in accordance with CONTRACTOR's response to COUNTY's RFQ, this Agreement including all Exhibits and any attached Schedules, which are incorporated herein by this reference.

9.1.2 All Equipment will strictly comply with and be in conformity with the descriptions and representations of Exhibit B (including performance capabilities, accuracy, completeness, characteristics, specifications, configurations, standards, function and requirements).

9.1.3 CONTRACTOR acknowledges the standard of performance and professionalism required in the performance of its services in the delivery of the Equipment under this Agreement. CONTRACTOR agrees to perform and deliver the Equipment under this Agreement with the level of professionalism expected in its industry/profession in the community. Further, CONTRACTOR, while performing its obligations under this Agreement, will conduct itself in such a manner that will promote the best interests of the COUNTY. CONTRACTOR further agrees that it will not accept any fee or financial remuneration from any entity or person other than the COUNTY for its performance under this Agreement.

9.1.4 The Software Source Code provided to the COUNTY, if any, is the correct code, is human-readable, contains comments in the English language, and will, as provided, correctly compile into the Equipment and operate as intended without data loss or corruption.

10.0 Force Majeure

10.1 Neither Party shall be responsible for delays or failures in performance as a result of an Act of God, war, civil disturbance, labor dispute, or other cause beyond the reasonable control of such Party.

11.0 Ownership of Data and Software

11.1 COUNTY will retain all title, rights, and ownership of all data, and other data created and/or acquired by use of the Equipment. COUNTY may duplicate the data entered into the Equipment on any media. COUNTY will retain ownership of all data created by the use of the Equipment as stored on any media. CONTRACTOR retains all rights to its software, and COUNTY may only use such software pursuant to this Agreement. CONTRACTOR does not have any obligation to convert or transfer any data to any other format, to allow use of its Equipment other than as set forth herein. Customer or CONTRACTOR may develop, and Customer shall retain ownership of, all hooks, interfaces, or similar tools for use with the Equipment provided that the hook, interface, or tool require any modification or alteration of the underlying code of the Software. CONTRACTOR shall own all right, title, and interest (including all associated intellectual property rights) in and to any Customizations to the Software.

11.2 It is understood by both Parties that during the term of this Agreement CONTRACTOR requires access to certain data owned by the COUNTY in order to fulfill its duties as required by this Agreement. CONTRACTOR therefore agrees to destroy all such data in CONTRACTOR's possession within one (1) year after Final Acceptance, and to notify the COUNTY in writing that such destruction has occurred.

11.3 In the event CONTRACTOR, its heirs or assigns cease doing business or otherwise exit the business activity supporting the Equipment or the Software, CONTRACTOR will deliver the most current version of the underlying Software source code required to continue the functions of the Equipment to the COUNTY. COUNTY will be free, at COUNTY's sole discretion, to continue use of the Equipment and Software with no further financial obligation to CONTRACTOR, its heirs or assigns. COUNTY recognizes that the Equipment and Software will be unsupported at that point and that CONTRACTOR, its heirs or assigns, will have no obligation to COUNTY relating to updates, maintenance or other forms of technical support.

12.0 Confidential Information

12.1 The Parties acknowledge that in the course of performing its responsibilities under this Agreement, that each Party may be exposed to or acquire information which is proprietary and confidential to the other Party or its affiliated companies or their agents. Any and all information of one Party in any form obtained by the other Party or its employees, agents or representatives in the course of performing this Agreement shall be deemed to be proprietary and confidential information of such Party, subject to the Oregon public records law, ORS Chapter 192. The Parties agree to hold such information in strict confidence and not to copy, reproduce, sell, assign, license, market, transfer, give or otherwise disclose such information to third-parties or to use such information for any purposes whatsoever, without the express written permission of the other Party, other than for the delivery of Equipment or provision of services hereunder, and to advise each of its employees, agents and representatives of its obligations to keep such information confidential. All such confidential and proprietary information described herein and any deliverable provided hereunder, in whatever form, are hereafter collectively referred to as "Confidential Information." The Parties shall use reasonable efforts to assist each other in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limitation of the foregoing, the Parties shall use reasonable efforts to advise each other immediately in the event that either learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Agreement, and will reasonably cooperate in seeking injunctive relief against any such person.

12.2 Notwithstanding the obligations set forth in the previous paragraph, the confidentiality obligations of the Parties shall not extend to information that:

- (a) is, at the time of its disclosure, or thereafter becomes part of the public domain through a source other than the receiving party;
- (b) was known to the receiving party as of the time of its disclosure;
- (c) is independently developed by the receiving party;
- (d) is subsequently learned from a third party not under a confidentiality obligation to the disclosing party; or

- (e) is required to be disclosed pursuant to statute, court order or other governmental authority, whereupon the receiving party shall provide notice to the disclosing party so as to allow the disclosing party to take appropriate steps to protect its interests.

13.0 Termination

13.1 Default by CONTRACTOR: If CONTRACTOR defaults in the performance of any of its material obligations under this Agreement for a period of thirty (30) days after the sending of notice to the address on this Agreement that it is in default, COUNTY may, at its option, terminate the Agreement by delivering written notice to CONTRACTOR at the address in this document, and paying CONTRACTOR, in full satisfaction and discharge of all liabilities and obligations owed to CONTRACTOR, all sums due under this Agreement for all work performed by CONTRACTOR, and accepted by COUNTY, to the initial date of the default. For the purposes of this Agreement, material obligations are any obligation under the terms of this Agreement, which, if not completed according to the terms of the Agreement, would render the Equipment inoperable.

13.2 Mutual Consent/Convenience: All or part of this Agreement may be terminated by mutual consent of both parties; or by either party at any time for cause, upon sixty (60) days' notice in writing, and delivered by certified mail. All or part of this Agreement may be terminated by the COUNTY at the COUNTY's convenience upon sixty (60) days' notice in writing and delivered by certified mail.

13.3 Funding Out: If the Board of Commissioners of COUNTY reduces, changes, eliminates or otherwise modifies the funding for any of the Equipment or services identified, CONTRACTOR agrees to abide by any such decision, including termination.

13.4 Miscellaneous: The COUNTY may also terminate all or part of this Agreement for the following reasons:

- a. With ten (10) days' notice, if funding to the COUNTY from federal, state or other sources is not obtained or is not continued at levels sufficient to allow for purchase of the indicated quantity and quality of Equipment or services. The COUNTY will give more notice whenever possible.
- b. With thirty (30) days' notice, if federal or state regulations are modified or changed in such a way that the Equipment or services are no longer allowable for purchase under this Agreement.
- c. Upon notice of denial, revocation or non-renewal of any licensee or certification required by law or regulation to be held by CONTRACTOR to provide Equipment or a service under this Agreement.
- d. If CONTRACTOR fails to deliver Equipment or start services on the date agreed upon by the COUNTY and CONTRACTOR.
- e. Failure of CONTRACTOR or the COUNTY to comply with the provisions of this Agreement or all applicable federal, state and local laws and rules may be cause for termination of this Agreement. Such termination shall be without prejudice to any obligations or liabilities of either party accrued to such termination.
- f. Immediately in the event of an emergency or if it is deemed by the COUNTY in its reasonable discretion to be in the public interest.

13.5 COUNTY shall not be liable for anticipated profits based upon Equipment not yet delivered as of the date of termination. If payments previously made to CONTRACTOR exceed the amount CONTRACTOR is entitled to receive pursuant to this Section, CONTRACTOR shall immediately repay COUNTY the difference.

14.0 Data Backup

14.1 Data backup and restoration of data will be performed and maintained by the COUNTY.

15.0 Work Orders

15.1 COUNTY Initiated. In the event that the COUNTY desires to modify or amend this Agreement, including any Exhibit, the COUNTY will work with CONTRACTOR to initiate a Work Order to CONTRACTOR noting the general scope for the modified Equipment or services requested. CONTRACTOR shall respond in writing within ten (10) days of receipt of a COUNTY Work Order, or at another time as mutually agreed, providing a specific recommendation for the solution, and providing the COUNTY with a not-to-exceed cost for the Equipment or services proposed in the Work Order. CONTRACTOR's written response will include a breakdown of the number of staff hours, level of personnel needed to effect this change, and technical design information for the proposed solution. There shall be no charge for the preparation of this response.

15.2 CONTRACTOR Initiated. In the event that CONTRACTOR desires to modify or amend the Statement of Work, CONTRACTOR may submit an unsolicited Work Order Request to the COUNTY for COUNTY's consideration. CONTRACTOR's submission of an unsolicited Work Order Request to COUNTY does not modify or amend the Statement of Work in any way, and creates no COUNTY obligations whatsoever.

15.3 Approval. COUNTY approval for any modification or amendment to the Statement of Work will be indicated solely through COUNTY's written approval of a specific Work Order.

15.4 Out of Scope. In the event CONTRACTOR believes that the COUNTY is requiring work outside the scope of the Agreement requirements, CONTRACTOR's sole remedy is to provide a written Work Order Request for the COUNTY's approval or disapproval. CONTRACTOR shall include within such Work Order Request a description of the work required that CONTRACTOR considers to be outside the scope of the Agreement requirements, the date CONTRACTOR would start

the work, and the complete cost of such work, including the cost and time to complete such work. COUNTY shall have fifteen (15) days from the date of receipt of the written Work Order Request, or such amount of time as is (SAMPLE)

mutually agreed, to approve or disapprove the Work Order Request. During the pendency of the Work Order Request, CONTRACTOR shall continue working without stoppage on all contractual work, including the work that is the subject of a Work Order Request. For clarification, and not as a limitation, stopping work during the pendency of a CONTRACTOR Work Order Request shall be considered a material breach.

15.5 All Work Order Requests will be in writing and approved by both Parties and will be treated as an amendment to this Agreement pursuant to subsection 16.7 of this section.

16.0 Miscellaneous

16.1 **Governing Law and Venue:** All questions concerning the validity, interpretation and performance of this Agreement will be governed by and decided in accordance with the laws of the State of Oregon. The Parties hereby submit and consent to the exclusive jurisdiction of the Yamhill County Circuit Court and irrevocably agree that all actions or proceedings relating to this Agreement will be litigated in this court and each of the Parties waives any objection which it may have based on improper venue or *forum non conveniens* to the conduct of any such action or proceeding in this court.

16.2 **Equitable Remedies:** The Parties agree that in the event of any breach or threatened breach of any provision of this Agreement concerning (i) Confidential Information, (ii) intellectual property rights or (iii) other matters for which equitable rights may be granted, money damages may be an inadequate remedy. Accordingly, such provisions may be enforced by the preliminary or permanent, mandatory or prohibitory injunction or other order of a court of competent jurisdiction.

16.3 **Integration:** This Agreement and the attached exhibits constitute the entire agreement between the Parties with respect to the subject matter described herein. No agreements, representations, or warranties other than those specifically included in this Agreement and the attached exhibits shall be binding on either of the Parties. In case of a conflict between the terms of this Agreement and any attached exhibit, the terms of this Agreement shall prevail.

16.4 **Notices:** Any notices or reports required by this Agreement to be given by one Party to the other Party shall be made in writing. The writing shall be delivered personally or mailed by United States Mail, postage prepaid, certified mail, return receipt requested. Notices shall be addressed to that Party at the address shown below or at such other address as that Party may designate in writing. Notice is deemed to have been given immediately if delivered in person, or on the third day following mailing.

Notice to Contractor:

Notice to COUNTY:

Yamhill County Information Systems
Attn.: Murray Paolo
535 NE 5th Street
McMinnville, OR 97128

16.5 **Assignment:** This Agreement shall be binding on the Parties hereto and its respective successors and assigns. Neither Party shall have the power to assign this Agreement without the prior written consent of the other.

16.6 **Subcontractor:** CONTRACTOR shall not enter into any subcontracts for any of the work scheduled under this Agreement, nor assign or transfer any of its interest in this Agreement, without the prior written consent of the COUNTY.

16.7 **Waiver and Amendments:** No waiver, consent, modification or change in the terms of this Agreement shall bind either party unless executed in writing signed by the authorized representatives of the Parties, which writing must refer to this Agreement. Any written waiver, consent, modification or change shall be effective only in the specific instance and for the specific purpose given once signed by both parties. All remedies afforded in this Agreement shall be taken and construed as cumulative, that is, in addition to every other remedy provided therein or by law. The failure of either party to enforce at any time any of the terms of this Agreement, or to exercise any option which is provided, or to require at any time performance by the other party of any of the provisions, shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of any part of this Agreement, or the right of either party to thereafter enforce each and every provision.

16.8 **Waiver:** A waiver of any part of this Agreement shall not be a waiver of the entire Agreement.

16.9 **Severability:** If any provision of this Agreement is unenforceable, that provision will be changed and interpreted to accomplish the objectives of the provision to the greatest extent possible under applicable law, and the remaining provisions will continue in full force and effect in order to best accomplish the original intent of the parties.

16.10 CONTRACTOR Responsibility for Taxes: Property, sales, and use taxes shall not be included in invoices submitted to the COUNTY pursuant to this Agreement.

16.11 Delivery: If applicable, CONTRACTOR shall arrange for delivery of any CONTRACTOR supplied hardware to the appropriate COUNTY installation site(s) in accordance with the Statement of Work (Exhibit C). Shipment of the hardware shall be F.O.B. the COUNTY's receiving point at the installation site(s). CONTRACTOR shall pay all reasonable transportation and insurance charges for the hardware up to the COUNTY's receiving point at the installation site(s).

16.12 Risk of Loss & Title: If applicable, CONTRACTOR shall bear the risk of loss or damage to the hardware while in transit to the COUNTY's premises and the installation site(s). The COUNTY shall bear all risk of loss or damage to the hardware after delivery to the installation site(s), unless such loss or damage is due to the negligence or willful acts of CONTRACTOR, its employees, agents, representatives or subcontractors. CONTRACTOR shall transfer title to the hardware to the COUNTY upon the COUNTY's full payment for said hardware in accordance with Exhibit D.

16.13 Independent Contractor Status: CONTRACTOR is, and shall remain at all times, an independent contractor with respect to activities and conduct while engaged in the performance of this Agreement. The COUNTY conducts open employment recruitment process when filling regular COUNTY positions.

16.14 Project Team Replacement. The COUNTY reserves the right to reject or request removal of any employee of CONTRACTOR identified as a key resource for the implementation of the Equipment provided under this Agreement. Any change or replacement of a key resource must have prior approval by the COUNTY and the key resource replacement must have substantially similar experience and knowledge of the Equipment and project as the individual being replaced, and such approval shall not be unreasonably withheld.

16.15 Integration and Merger: This written Agreement and the attached exhibits, all of which are incorporated herein by this reference, and any subsequent amendments executed in accordance with Section 16.7 and all exhibits constitute the entire Agreement between the parties and supersede any prior oral or written statements, discussions, or understanding between the parties.

16.16 Attachments: Attached to and made part of the Agreement are the following:

Exhibit A	COUNTY's RFP
Exhibit B	CONTRACTOR's Response to COUNTY's RFP
Exhibit C	Agreement for Licensed Software (as needed)
Exhibit D	Insurance Requirements

In the event of a conflict between this document and its exhibits, this document shall control over the Statement of Work, and the Statement of Work shall control over the other exhibits. In the event of any inconsistency between any of the provisions of the Agreement documents, the inconsistency shall be resolved by giving precedence in the following order:

- A. This Agreement,
- B. COUNTY's RFP (Exhibit A)
- C. CONTRACTOR's Response to the COUNTY's RFP (Exhibit B)

16.17 Further Documentation: The Parties agree to promptly execute such other and further documents and agreements as may be reasonably necessary or advisable to effectuate the terms of this Agreement.

16.18 Survival: The terms of Sections 7 (Indemnification), 9 (Warranty), 11 (Ownership of Data and Software), and 12 (Confidential Information) hereof shall survive the expiration or termination of this Agreement for a period of seven (7) years.

16.19 Civil Rights: CONTRACTOR agrees to comply with the Civil Rights Act of 1964, and 1991, Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973, and Title VI as implemented by 45 CFR 80 and 84 which states, in part, that no qualified person shall on the basis of disability, race, color, sex, religion, or national origin be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity which received or benefits from federal financial assistance.

16.20 Incorporation of statutory provisions required for public contracts. CONTRACTOR certifies it shall comply with all applicable public contract laws to include ORS 279B.200 through 279B.240 and ORS 279C.500 through 279C.530. ORS 279B.200 through 279B.240 and ORS 279C.500 through 279C.530 are incorporated into this Agreement by reference. More specifically:

Wages: As required for public contracts subject to ORS Chapter 279B, the following conditions concerning hours of labor shall apply:

CONTRACTOR shall not employ any person performing work under this Agreement for more than ten hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency, or where the public policy absolutely requires it. CONTRACTOR shall pay all individuals performing work under this Agreement at least time-and-a-half pay:

- a. For all overtime in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; and
- b. For all overtime in excess of 10 hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and
- c. For all work performed on Saturday or Sunday and on any legal holiday specified in ORS 279B.020.

CONTRACTOR must give notice to employees who work on a public contract in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work.

Any CONTRACTOR or subcontractor or CONTRACTOR's or subcontractor's surety that violates the provisions of this section is liable to the affected employees in the amount of their unpaid overtime wages and in an additional amount equal to the unpaid overtime wages as liquidated damages. If the violation results from willful falsification of payroll records, CONTRACTOR or subcontractor or CONTRACTOR's or subcontractor's surety is liable to the affected employees in the amount of their unpaid overtime wages and an additional amount equal to twice the unpaid overtime wages as liquidated damages.

As required specifically under ORS 279B.235, the following provisions shall apply for conditions concerning hours of labor:

For a contract for personal services as defined in ORS 279A.055, CONTRACTOR shall pay all individuals performing personal services under this Agreement at least time and a half for all overtime worked in excess of 40 hours in any one week, except for individuals under personal services contracts who are excluded from receiving overtime under ORS 653.010 to 653.261 or under 29 USC 201 to 209.

For a contract for services, persons employed under this Agreement shall receive at least time and a half pay for work performed on the legal holidays specified in a collective bargaining agreement or in ORS 279B.020 (1)(b)(B) to (G) and for all time worked in excess of 10 hours in any one day or in excess of 40 hours in any one week, whichever is greater.

16.21. Attorney fees and costs. In the event that either party to this Agreement shall take any action, judicial or otherwise, to enforce or interpret any of the terms of this Agreement, each party shall be wholly responsible for its own expenses which it may incur in taking such action, including costs and attorney fees, whether incurred in a suit or action or appeal from a judgment or decree therein or in connection with any non-judicial action

16.22 Use of COUNTY Facilities. CONTRACTOR and its employees or agents shall have the right to use only those facilities of COUNTY that are necessary to perform under this Agreement and shall have no right of access to any facility of COUNTY without the prior written approval of COUNTY management. COUNTY shall have no responsibility for the loss, theft, mysterious disappearance of or damage to equipment, tools, materials, supplies and other personal property of CONTRACTOR or its employees, subcontractors or agents which may be stored on COUNTY premises, except to the extent that such loss, theft, disappearance or damage is caused by the sole negligence of the COUNTY.

16.23. Incorporation. The introductory paragraph and recitals appearing at the beginning of this Agreement are hereby incorporated into and made a part of this Agreement as if fully set forth herein.

16.24. No Third Party Beneficiaries. COUNTY and CONTRACTOR are the only parties to this Agreement and are the only parties entitled to enforce its terms. Nothing in this Agreement gives or provides any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such third persons are individually identified by name in this Agreement and expressly described as intended beneficiaries of this Agreement.

16.25 Counterparts. This Agreement may be executed by facsimile and in counterparts, which taken together shall form one legal instrument.

(Signature page follows)

(SAMPLE)

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the day and year first above written.

YAMHILL COUNTY
BOARD OF COMMISSIONERS:

CONTRACTOR

Chair Date

Name:

Commissioner Date

Signature Date

Commissioner Date

Tax ID#

Recommended by:

Yamhill County Information Systems Date

APPROVED AS TO FORM:

Yamhill County Legal Counsel Date

EXHIBIT A
YAMHILL COUNTY RFP

(Attached as separate document.)

EXHIBIT B
CONTRACTOR RESPONSE TO RFP

(Attached as separate document.)

EXHIBIT C
AGREEMENT FOR LICENSED SOFTWARE

**Exhibit D
INSURANCE REQUIREMENTS**

Yamhill County

During the entire term of this Agreement (and for 5 years following expiration of this Agreement for Professional Liability Insurance), Contractor shall maintain in force, at its own expense, each insurance checked below. In the event of conflict in language regarding Insurance Requirements between this Exhibit H and the Agreement document, this Exhibit H shall take precedence.

TYPE OF INSURANCE	EXPLANATION OF REQUIREMENTS
<p>WORKERS' COMPENSATION, in compliance with ORS 656.017, which requires subject employers to provide Oregon workers' compensation coverage for all their workers.</p> <p><input checked="" type="checkbox"/> Required <input type="checkbox"/> Not required (Contractor has one (Contractor has no Employees Or more employees) Must Provide written statement as such)</p>	<p>This coverage is necessary because the County is self-insured for Workers' Compensation and any claim would affect the County directly. Proof of this insurance must be provided before work begins. Coverage is required only if the Contractor has one or more employees.</p>
<p>PROFESSIONAL LIABILITY INSURANCE WITH A COMBINED SINGLE LIMIT, OR THE EQUIVALENT, OF NOT LESS THAN \$3,000,000 FOR EACH CLAIM, INCIDENT, OR OCCURRENCE.</p> <p><input checked="" type="checkbox"/> Required <input type="checkbox"/> NOT Required</p>	<p>This is to cover damages caused by error, omission or negligent acts related to the Equipment and services to be provided under this Agreement.</p> <p>The County does not need this insurance when the Contractor's activity or advice holds almost no risk of damaging property or harming employees, visitors, families, or others. Examples include: author, lecturer, staff trainer, interpreter, photographer, musician.</p> <p>This coverage is required when there is a chance the Contractor's work could do harm and someone might have reason to blame the County or department that retained the Contractor. Examples include: architect, engineer, investigator, accountant, legal advisor, and public works/improvement projects.</p>
<p>GENERAL LIABILITY insurance with a combined single limit of not less than \$1,500,000 for each occurrence for bodily injury and property damage.</p> <p><input checked="" type="checkbox"/> Required <input type="checkbox"/> NOT Required <input type="checkbox"/> Exclusion approved by Yamhill County-Risk Management</p>	<p>This insurance is required unless its deletion is approved by Yamhill County. Insurance shall include contractual liability coverage for the indemnity provided under this Agreement and provide by separate written endorsement that County its officials, agents, employees and volunteers, are added as insured, but only with respect to the Contractor's services to be provided under this Agreement.</p>
<p>AUTOMOBILE LIABILITY insurance with a combined single limit, or the equivalent, of not less than (check one):</p> <p><input type="checkbox"/> Oregon Financial Responsibility Law, ORS 806.060 (\$25,000 property damage/\$50,000 bodily injury, \$5,000 personal injury). OR For each accident for bodily injury and property damage, including coverage for owned, hired or non-owned vehicles, as applicable. (Coverage limits required for this Agreement will depend on nature of contracted services.)</p> <p><input checked="" type="checkbox"/> \$500,000 each accident <input type="checkbox"/> \$1,500,000 each accident <input type="checkbox"/> N/A</p>	<p>Automobile liability coverage is required of a Contractor when it, its subcontractor, or the employees of either will operate, maintain, load, or unload vehicles as part of the work or Services provided under this Agreement.</p> <p><u>The County will determine the appropriate amount of coverage Contractor will need to provide depending on the severity of what could go wrong.</u> For instance, a Contractor transporting clients or staff is at a much greater risk than a Contractor driving his or her vehicle from one meeting site to another without passengers. Larger construction projects may require the higher combined single limit or equivalent. Contractor shall name County, its officials, agents, employees and volunteers, as additional insureds by a separate written endorsement, but only with respect to the Contractor's services provided under this Agreement.</p>
<p>Notice of cancellation or change. There shall be no cancellation, material change, reduction of limits, or intent not to renew the insurance coverage(s) without 30 days written notice from the Contractor or its insurer(s).</p>	
<p>Certificate of Insurance. Prior to commencing work, the Contractor shall provide a Certificate evidencing the insurance required by this Agreement and a separate written endorsement adding Yamhill County its officials, agents, employees, and volunteers as insured. The Certificate shall state that coverage afforded the County as an Insured shall apply as primary and not excess to any insurance issued the County, provide a Cross Liability Clause, and state that the Contractor is responsible for payment of all insurance deductibles on the above-described policies.</p>	
<p>Send the Certificate of Insurance to: Yamhill County, ATTN: County Counsel, 434 NE Evans, McMinnville, OR 97128</p>	

ANY CHANGES IN COVERAGE MUST BE APPROVED IN ADVANCE BY YAMHILL COUNTY RISK MANAGEMENT - Revised January 2011

This document is an addendum to the Yamhill County Microwave replacement RFP. It is intended to clarify some items brought into question by one or more perspective responders.

Although this project is primarily replacing existing equipment already in service, it also has an upgrade component in order to better anticipate future needs of the associated Radio System which it serves. The current system is operating on a combination of 5 MHz and 10 MHz channels, which were just enough to provide the service needs at the time of installation. As part of this overall upgrade process the County has acquired larger channels as available to allow for increased data bandwidth requirements anticipated with future IP based Radio Systems, which may happen within the life span of this Microwave backbone network.

This project also includes building out the present Loop architecture to include the Mac Fire to Chehalem (Mt. Top East) site instead of the current Chehalem (Mt. Top East) to High Heaven hop. This removes the single path weakness currently in the system, which is Mac Fire to High Heaven.

The following is a site by site list of channel bandwidth, minimum required throughput, and changes which must be made as part of this project. At sites which require new dish installations and/or feed replacements (due to channel change from upper 6GHz to lower 6GHz), the materials will be provided by the county, but installation and tower work shall be part of this RFP.

Bald Peak to Chehalem: The polarization must be changed from Horizontal to Vertical at the time of installation. This is a 10 MHz channel with minimum throughput of 45 MB.

Chehalem to Mt. Top West: No antenna changes. This is a 10 MHz channel with 45 MB minimum throughput.

Chehalem to Mac Fire: This was formerly Chehalem to High Heaven, dish must be realigned to Mac Fire azimuth. This is a 30 MHz channel with 175 MB minimum throughput.

Chehalem to Eagle Crest: The polarity must be changed from Horizontal to Vertical at time of installation. This is a **10 MHz channel with 60 MB minimum throughput**. No 30 MHz channel was available for this hop, so increased modulation efficiency must be utilized to meet throughput requirement.

Doane Creek to Eagle Crest: This hop moves to the upper 6GHz band and requires feed replacement at time of installation. This is a 30 MHz channel with 175 MB minimum throughput.

Doane Creek to High Heaven: No Antenna changes. This is a 30 MHz channel with 175 MB minimum throughput.

Eagle Crest to Doane Creek: Feed replacement at time of installation (same as Doane to Eagle above).

Eagle Crest to Chehalem: Polarity change to Vertical at time of installation (same as Chehalem to Eagle above).

High Heaven to Doane Creek: Same as Doane to High Heaven above.

High Heaven to Mac Fire: Polarity changes to Vertical at time of installation. This is a 30 MHz channel with 175 MBs minimum throughput.

High Heaven to Eola Hills: No antenna changes. This is a 10 MHz channel with 45 MB minimum throughput.

Mac Fire to Chehalem: This is a new hop to include Mac Fire in the loop. An existing 4.9 GHz dish must be removed and replaced with a new 6GHz dish supplied by the County. ODU must be mounted at dish with vendor providing required hardware, adaptors, flex etc, as well as ODU to IDU cables and all installation hardware for same. This is a 30 MHz channel with 175 MB minimum throughput.

Mac Fire to High Heaven: Same as High Heaven to Mac Fire above.

Waveguide / Antenna Sweeps: The vendor is responsible for Microwave Waveguide / Antenna return loss sweeps at time of installation to verify integrity of said systems prior to equipment replacement. These sweeps must either be printed, or be witnessed by the County's Radio System maintenance vendor. Any deficiencies identified by this process will be mitigated at the County's expense.

Octavio Beas

From: Murray Paolo
Sent: Friday, May 23, 2014 2:12 PM
To: PCrocker@daywireless.com; tcappiello@futuretechllc.com;
 Anita.Kretzschmer@Aviatnet.com; obeas@starmicrowave.com;
 Deanna@contractorplancenter.com; Karen.Hays@djcoregon.com
Cc: Christian Boenisch; Carol White
Subject: Yamhill County RFP questions
Importance: High

You are receiving this e-mail as one of the parties that has requested a copy of the RFP for "Microwave Radios and Related Equipment". There have been a number of questions that have been asked by potential proposers. The list of those questions, and our accompanying answers follow:

What is the required bandwidth and minimum throughput requirements of each hop?

Mac Fire to High Heaven: 30 MHz channel with minimum throughput of 145 Mbps.
High Heaven to Mt. Top East: 30 MHz channel with minimum throughput of 145 Mbps.
Mt. Top East to Bald Peak: 10 MHz channel with minimum throughput of 45 Mbps.
Mt. Top East to Mt. Top West: 10 MHz channel with minimum throughput of 45 Mbps.
Mac Fire to Mt. Top East: 30 MHz channel with minimum throughput of 145 Mbps.
Mt. Top East to Eagle Crest: 10 MHz channel with 60 MB minimum throughput. No 30 MHz channel was available for this hop, so increased modulation efficiency must be utilized to meet the throughput requirement.
Eagle Crest to Doane Creek: 30 MHz channel with minimum throughput of 145 Mbps.
Doane Creek to High Heaven: 30 MHz channel with minimum throughput of 145 Mbps.
High Heaven to Eola Hills: 10 MHz channel with minimum throughput of 45 Mbps.

What are the coordinates of each tower location?

Mac Fire: 45-12-33.4N, 123-11-54.4W
 High Heaven: 45-15-59.4N, 123-18-34.4W
 Mt. Top East: 45-21-15.4N, 122-59-23.3W
 Mt. Top West: 45-21-33.4N, 123-00-04.4W
 Bald Peak: 45-23-20.7N, 123-03-02.3W
 Eagle Crest: 44-58-58.0N, 123-08-36.0W
 Doane Creek: 45-01-13.4N, 123-30-43.4W
 Eola Hills: 45-05-56.5N, 123-08-45.1W

Will the RFP require work on the towers?

As per the information contained in the RFP, if the existing antenna(dish), waveguide, and associated equipment can be reused, then the only tower work required would be the verification of the physical integrity of the existing tower equipment.

The number of radios listed on the response, Attachment A, may not exactly match the equipment proposed. Is that correct?

The number of links(hops) actually installed will depend upon the cost of the proposal(s) received. Presently there is a finite amount of money available to complete the first phase of this project. The final scope will be determined when the successful proposal selected, and matched with the available resources.

Can you please clarify the links in the loop system?

The links in the loop system are:

- High Heaven to Mt. Top East
- Mt. Top East to Eagle Crest
- Eagle Crest to Doane Creek
- Doane Creek to High Heaven

The main entry points into the loop are:

- The existing Mac Fire to High Heaven link
- The new link from Mac Fire to Mt. Top East – redundant link

The RFP refers to an "Attachment B" but there was not Attachment B in the RFP package.

Addendum 1 is Attachment B. All proposers should have now received Attachment B.

In Attachment A, pricing lines have only been provided for the radios/hardware and not for the associated installation services and existing waveguide/antenna system verification. Is this because you wish to have the radio unit sell price include all its' related services?

Yes, pricing provided needs to include all services.

For the existing radios, do we need to consider their de-commissioning/de-installation and disposal costs in our pricing?

Yes, the RFP is "to replace" the microwave equipment. This would include removal of the old equipment.

Is Prevailing Wages a requirement for the field services pricing?

Based upon our understanding, It appears that prevailing wages would not apply to this project. The sample contract (Attachment B) indicates compliance with all applicable laws pertaining to this project.

Has consideration been given to the cutover time, and possible downtime that will be involved with the removal and replacement of the equipment?

Yes, paragraph C. under General Requirements on page 3 of the RFP addresses the critical nature of these public safety communications links, and we expect that a significant amount of planning will be required to ensure minimal downtime of the microwave system.

These are all the questions that we have received as of now. Due to the fact that the due date for proposals is June 5, 2014, we may not be able to adequately address further detailed questions in a timely manner. Whereas we encourage questions being raised for clarification purposes, please understand that the time is getting relatively short. We will do our best.

CALL FOR PROPOSALS
YAMHILL COUNTY
MICROWAVE REPLACEMENT PROJECT

Yamhill County invites proposals from qualified providers ("Vendors") to provide microwave radio replacement equipment and installation services for the Yamhill County "Microwave Radio Replacement Project" (the "Project"). The Project locations are eight various communications sites located throughout rural Yamhill and Polk Counties, Oregon. The proposal requirements are set forth in the Request for Proposal Package available as described in this notice.

RESPONSE PERIOD: Sealed proposals, delivered to Board of Commissioners, 434 NE Evans Street, McMinnville, Oregon 97128, will be accepted until 4:00 p.m., June 5th, 2014, at which time all proposals received shall be opened and read aloud.

REQUEST FOR PROPOSAL PACKAGE: Copies of the Request for Proposal Package are available from the Board of Commissioners, 434 NE Evans Street, McMinnville, Oregon 97128, and by telephone request to (503) 434-7502. If there are any questions regarding this request for proposal, vendors may contact Murray Paolo, Information Systems Manager at (503) 434-7401.

Dated:

Murray Paolo, Information Systems Manager