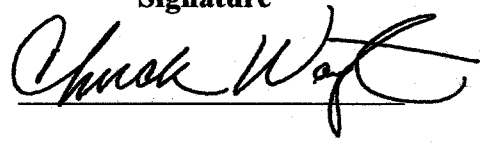


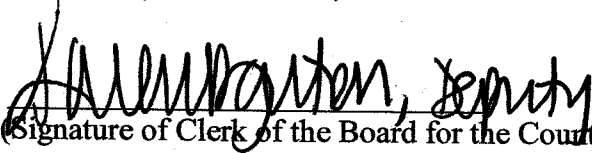
CERTIFICATE OF INCUMBENCY

I, _____ (Signature of Clerk of the Board of the County of Riverside) do hereby certify that I am Clerk of the Board of COUNTY OF RIVERSIDE, an entity duly organized and existing under the laws of the State of California that I have custody of the records of such entity, and that, as of the date hereof, the individuals named below are the duly elected or appointed officers of such entity holding offices set forth opposite of their respective names. I further certify that (i) the signatures set opposite their respective names and titles are their true and authentic signatures and (ii) such officers have the authority on behalf of such entity to enter into that certain EQUIPMENT LEASE-PURCHASE AGREEMENT #24483 dated December 11, 2018, between COUNTY OF RIVERSIDE and Motorola Solutions, Inc.

Name	Title	Signature
<u>CHUCK WASHINGTON</u>	Chairman of the Board of Supervisors	

(Individual who signed Lease documents should be listed here and sign where applicable)

IN WITNESS WHEREOF, I have executed this certificate and affixed the seal of the County of Riverside, hereto this 11th day of December, 2018.

By: 
(Signature of Clerk of the Board for the County of Riverside)

SEAL

FORM APPROVED COUNTY COUNSEL
BY:  SUSANNA N. OH
12/14/18
DATE

OPINION OF COUNSEL

With respect to that certain Equipment Lease-Purchase Agreement #24483 dated December 11, 2018 by and between Motorola Solutions, Inc. and the County of Riverside ("Lessee"), I am of the opinion that: (i) the Lessee is, within the meaning of Section 103 of the Internal Revenue Code of 1986, a state or a fully constituted political subdivision or agency of the State of California; (ii) the execution, delivery and performance by the Lessee of the Lease have been duly authorized by all necessary action on the part of the Lessee; and (iii) the Lease constitutes a legal, valid and binding obligation of the Lessee enforceable in accordance with its terms.

Gregory P. Priamos, COUNTY COUNSEL for the County of Riverside
Deputy County Counsel Susanna Oh

OJT represents the opportunity to enable experienced employees to learn in smaller groups faster and more efficiently when concentrating on specific learning needs. Furthermore, this is an opportunity to ensure that employees actually apply learning in their daily work right away and target their learning to the relevant job tasks.

The needed learning scope is defined in an interview (face-to-face or phone) between a Nokia expert and a key representative of the customer's organization. Estimation of the existing competence level of the participants is provided by the customer. The training scope is based on the Nokia standard training portfolio. Furthermore, OJT scope definition details the learning environment and any limitations in respect to the learning, outlined by the Nokia expert and commonly agreed between him/her and the customer's key representative. It also outlines the duration per each participant group per OJT session.

The service includes an end report written by the instructor containing the achievements and problems of the delivery and recommendations for further learning areas for the group or individuals. Learning areas can be covered in training or further OJT sessions. This way iterative competence development sessions, focusing on the employees' needs, can be arranged without intensive pre-evaluation and assessment effort.

Statements of skills and knowledge levels or other grading of performance that would require the application of tests are not within scope of the OJT. Assessment of competencies or licensing is not included in the OJT service, but they can be purchased as separate services.

OJT cannot be applied to content related to service interrupting tasks or certain topics in network element troubleshooting and any system administration. OJT is strictly limited to competence transfer only; the instructor must not perform, support or take part in any operation and maintenance activities unless it can be justified as part of the learning process.

Deliverables

The deliverables of OJT include:

- Learning scope definition agreed between Nokia expert and customer's key representative.
- OJT delivery between the Nokia instructor and the participants.
- An end report written by the instructor containing the achievements, problems of the delivery and recommendations for further learning areas for the group or individuals.

Prerequisites and Assumptions

OJT can be delivered to a maximum of 4 participants at a time working on the same tasks, tools and network technologies with similar competence level.

The managers and supervisors of the participants must ensure that enough time is allocated to the instructional sessions. The participants' work time allocation should allow a dedication of 80% of their time to learning and maximum 20% of their time to their normal job duties.

The service is targeted for more experienced employees; therefore, the participants are expected to have good understanding in at least two of the three following areas: tasks, tools or network technologies.

All participants, the Nokia instructor and the manager should attend the start of the OJT session for defining the final output of the service delivery.

A room conducive to discussions, review and appraisal should be available.

Tools

Full access to the environment used during the service delivery needs to be available at the beginning of the OJT. This typically includes WAN/LAN connection to the network environment with PCs, and user accounts and passwords according to the training scope. Operational equipment required is described for each case separately in the scope definition of the OJT.

6.4.5 New Techniques and Technologies

Nokia is continuously designing and developing new techniques and technology to be able to share more practical content with customer's target groups to increase their level of competence.



6.5 COURSES PROPOSED

Course Number	Course Title	Optionality	Course Duration	Course Duration Unit	Course Type	Course Level	Delivery Type	Maximum Number of Students per class	Curriculum Title	Quantity Unit	Quantity	Total Student Days
<u>TWT42034_V5.0</u>	5620 SAM rel. 14.0R7 for 9500MPR management O&M TWT42034_V5.0		5	days	PTB - Practical and theoretical course with testbed	Standard	CILT Private	8		per event	1	40
<u>TWT42037_V6.0</u>	9500 MPR (Microwave Packet Radio) R7.1 Global Market Ethernet Traffic Operations and Maintenance TWT42037_v6.0		2	days	PTB - Practical and theoretical course with testbed	Standard	CILT Private	8		per event	1	16
<u>TWT42036_V6.0</u>	9500 MPR (Microwave Packet Radio) R7.1 Global Market Node (MSS-O/MSS-1/MSS-4/MSS-8) Common Functionality Operations and Maintenance TWT42036_v6.0		2	days	PTB - Practical and theoretical course with testbed	Standard	CILT Private	8		per event	1	16
<u>TWT42035_V6.0</u>	9500 MPR R 7.1 Global Market Functional and HW description TWT42035_V.6.0		1	days	THY - Theoretical course	Standard	CILT Private	12		per event	1	12
<u>TER36055_ILT_3.0</u>	7705 SAR Strategic Industries TER36055_v3.0		5	days	PTB - Practical and theoretical course with testbed	Standard	CILT Private	8		per event	1	40
<u>TER36066W</u>	SR-OS Fundamentals eLearning TER36066W_V1.2		07:00	hrs	THY - Theoretical course	Standard	Web Based Training	n.a.		per student	8	

Use or disclosure of this proposal is subject to the restrictions on the cover page.

Course Number	Course Title	Optionality	Course Duration	Course Duration Unit	Course Type	Course Level	Delivery Type	Maximum Number of Students per class	Curriculum Title	Quantity Unit	Total Student Days
<u>TOS36033WS01</u>	TOS36033WS01 5620 SAM Product Overview 1.0		01:00	hrs	THY - Theoretical course	Standard	Web Based Training	n.a.	TOS36033WS0K V 1.0 5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum TOS36033WS0K	8 per student	
<u>TOS36033WS02</u>	TOS36033WS02 5620 SAM R13.0 Fundamentals - System Overview 1.0		02:00	hrs	THY - Theoretical course	Standard	Web Based Training	n.a.	TOS36033WS0K V 1.0 5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum TOS36033WS0K	8 per student	
<u>TOS36033WS03</u>	TOS36033WS03 5620 SAM R13.0 Fundamentals - Network Management 3.0		02:00	hrs	THY - Theoretical course	Standard	Web Based Training	n.a.	TOS36033WS0K V 1.0 5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum TOS36033WS0K	8 per student	
<u>TOS36033WS04</u>	TOS36033WS04 5620 SAM R13.0 Fundamentals - Fault Management 1.0		02:00	hrs	THY - Theoretical course	Standard	Web Based Training	n.a.	TOS36033WS0K V 1.0 5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum TOS36033WS0K	8 per student	
<u>TOS36033WS05</u>	TOS36033WS05 5620 SAM R13.0 Fundamentals - Performance Management 1.0		01:00	hrs	THY - Theoretical course	Standard	Web Based Training	n.a.	TOS36033WS0K V 1.0 5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum TOS36033WS0K	8 per student	

Use or disclosure of this proposal is subject
to the restrictions on the cover page.

6.6 COURSE DESCRIPTIONS

6.6.1 5620 SAM rel. 14.0R7 for 9500MPR Management O&M| TWT42034_V5.0

Course number		TWT42034_V5.0
Brief Description	<p>Course Objective</p> <p>During the course, the participant will obtain a general knowledge of the 5620 SAM used to manage the 9500 MPR. This course can be used in both ANSI and ETSI environments.</p> <p>By the end of this course, the participant will be able to:</p> <ul style="list-style-type: none"> - Launch the Graphical User Interface (GUI). - Use the Maps. - Configure and discover the 9500 MPR elements. - Discover and create services. - Use the alarm surveillance tool for alarm checking. - Perform troubleshooting procedures. - Use the performance monitoring tool. 	
Delivery Type	Classroom	
Contents	<ul style="list-style-type: none"> - 5620 SAM overview - Launch the 5620 SAM GUI - 5620 SAM support of the 9500 MPR - Topology Map management - 9500 MPR configuration - Network Element Discovery - Services Discovery and Creation - Alarm Monitoring - Performance Monitoring - Network Element Backup and Restore - Network Element Software Upgrade - 9500 MPR Hardware Provisioning - Appendix - Policy creation - Appendix - Network Element Commissioning 	
Learning Target		
Prerequisites	<p>Basic knowledge of 9500 MPR operations.</p> <p>Equipment</p> <p>A bench with 5620 SAM in rel. 14.0R7 and some 9500 MPR family equipment , according to the customer network.</p>	
Target Group	Technicians and engineers in charge of using the 5620 SAM to manage the 9500 MPR.	
Duration	5 days	
Maximum Number of Students	8	

Course number	TWT42034_V5.0
Course Type	PTB - Practical and theoretical course with testbed
Course Level	Standard



6.6.2 9500 MPR (Microwave Packet Radio) R7.1 Global Market Ethernet Traffic Operations and Maintenance| TWT42037_v6.0

Course number		TWT42037_V6.0
Brief Description	This is a 9500 MPR O&M course that is focused on Ethernet traffic into and out of the 9500 MPR.	
Delivery Type	Classroom	
Contents	<ul style="list-style-type: none"> - Ethernet traffic configuration - Ethernet traffic management 	
Learning Target	<p>By the end of the course the students will be able to:</p> <ul style="list-style-type: none"> - Provision Ethernet user ports. - Configure QoS and VLAN functions. - Generate Ethernet PM statistics. - Work with Ethernet-related alarms. 	
Prerequisites	<ul style="list-style-type: none"> - General knowledge about Telecommunication Networks. Working knowledge of digital transmission and Ethernet networks. Experience in microwave links operation and maintenance. PC and Windows literate. <p>Equipment: Traditional classroom setup, overhead projector with screen, whiteboard with markers, and login means to a working MPR 9500 R7.1 system (either ANSI or ETSI).</p>	
Target Group	O&M technicians	
Duration	2 days	
Maximum Number of Students	8	
Course Type	PTB - Practical and theoretical course with testbed	
Course Level	Standard	



6.6.3 9500 MPR (Microwave Packet Radio) R7.1 Global Market Node (MSS-O/MSS-1/MSS-4/MSS-8) Common Functionality Operations and Maintenance| TWT42036_v6.0

Course number		TWT42036_V6.0
Brief Description	<p>This is an O&M course based upon the 9500 MPR. It includes a description of the craft terminal GUI and how to use it to configure the 9500 MPR, perform system maintenance, performance monitoring, and troubleshooting. By the end of the course, participants will be able to:</p> <ul style="list-style-type: none"> - Use the Craft Terminal for local configuration of the Node configuration (MPT-HL, MSS-8, MSS-4, MSS-1 and MSS-O). - Perform system maintenance. - Perform troubleshooting starting from alarm indication. 	
Delivery Type	Classroom	
Contents	<ul style="list-style-type: none"> - Common Functionalities. - Common Functionalities Configuration. - Common Functionalities Maintenance. 	
Learning Target		
Prerequisites	<p>General knowledge of telecommunications transport networks (PDH or Ethernet), digital transmission and radio delivery.</p> <p>Experience in microwave links operation and maintenance, PC and Windows literate.</p> <p>It is highly recommended that the following course be completed prior to attending this class: - Basics of the Internet and Internet Protocols - 3FL99159AAAA</p> <p>Equipment: Traditional classroom setup, overhead projector with screen, whiteboard with markers, and login means to a working 9500 MPR R. 7.1 system.</p>	
Target Group	O&M technicians.	
Duration	2 days	
Maximum Number of Students	8	
Course Type	PTB - Practical and theoretical course with testbed	
Course Level	Standard	



6.6.4 9500 MPR R 7.1 Global Market Functional and HW description| TWT42035_V.6.0

Course number		TWT42035_V.6.0
Brief Description	In this training, a description of the hardware architecture and main features of the 9500MPR is provided. This course can be taken in addition to the 9500MPR common functionality O&M course.	
Delivery Type	Classroom	
Contents	<p>Session 1: Hardware description</p> <ul style="list-style-type: none"> - Microwave Service Switch - Control, access and radio cards - RF Radio Transceivers (MPT-x and ODU300) <p>Session 2: Functional description</p> <ul style="list-style-type: none"> - 9500 MPR Innovations and Overview - System Description - Network Architecture - Traffic Profiles - Traffic Management - Quality of Service (QoS) - Ethernet Ring Protection (ERP) - Packet Throughput Booster (Header Compression) - Cross-connections - Transmit Power Control (TPC) - Adaptive Modulation - AES Management Encryption, vice management - Cross-Polarized Interference Cancelation (XPIC) - Link Aggregation Group (LAG) - Protections - Mono-directional link - Automatic Link Discovery - MPT-x connectivity and relevant configurations - TMN Management 	
Learning Target	<p>By the end of the course, participants will be able to:</p> <ul style="list-style-type: none"> - Describe the functionality of the MSS-8, MSS-4, MSS-1 and MSS-O. - Describe the functionality of each card of the MSS-8 and -4. - Describe the functionality of the MPT-HL and MPT-HLC (ANSI). - Describe the functionality of the ODUs. - Describe the basic concepts of the 9500 MPR. - Describe the functionality of the 9500 MPR. 	



Course number		TWT42035_V.6.0
Prerequisites	General knowledge of digital radio systems and of PDH-SDH-ETHERNET technologies. Equipment: Traditional classroom setup, overhead projector with screen, whiteboard with markers.	
Target Group	Sales, pre-sales, Designers and O&M technicians	
Duration	1 day	
Maximum Number of Students	12	
Course Type	THY - Theoretical course	
Course Level	Standard	



6.6.5 7705 SAR Strategic Industries| TER36055_v3.0

Course number		TER36055_ILT_3.0
Brief Description	7705 SAR Strategic Industries TER36055_v3.0	
Delivery Type	Classroom	
Contents		
Learning Target	<p>By the end of the course, participants will be able to:</p> <ul style="list-style-type: none"> - Identify the various Nokia Strategic Industries Solutions. - Define the role of the 5620 SAM in the Strategic Industries market. - Describe the services supported for the Strategic Industry market. - Configure and troubleshoot the 7705 SAR IP/MPLS infrastructure and services. - Understand the synchronization method and high availability capabilities of the 7705 SAR. - Explain how legacy services are supported and how the 7705 SAR incorporates the Nokia packet microwave solution. - Understand how Service Level Agreements (SLAs) are enforced and how performance measurements are performed. - Identify the 7705 SAR network resilience and high-availability features. - Describe the Ethernet OAM tools supported by the 7705 SAR. <p>Description: This course describes the 7705 SAR features and solutions that meet the specialized requirements of the Strategic Industries networks. The course describes all services related to the Strategic Industries market, and provides a lab exercise for each service. These are Layer 2 point-to-point services: Cpipe (Circuit emulation), Ipipe (IP) and Epipe (Ethernet) services. The course also covers Layer 2 and Layer 3 point-to-multi-point services: VPLS (Virtual Private LAN Service) and VPRN (Virtual Private Routed Service), as well as the Internet Enhanced Service or IES. A module in this course is dedicated to the synchronization capabilities of the 7705 SAR. Unlike the traditional telecom operators, the Strategic Industries Market requires special connectivity services such as SCADA (Supervisory Control and Data Acquisition) and Teleprotection. A module in this course is dedicated to these types of services, and describes how the services are connected and guaranteed over the network. This course also explains CWDM (Coarse Wavelength Division Multiplexer). Note: This course is available in full and abbreviated versions. The full version includes the 5620 SAM component. The abbreviated version (24 hours) does not include the 5620 SAM component. The full version will take 5 days, and the abbreviated version of the course takes 4 days.</p>	
Prerequisites	<p>TER36066W SR-OS Fundamentals 5620 SAM fundamentals (if the full version of the course is being taken). Equipment: A traditional classroom setup, an overhead projector with screen, a whiteboard or easel with markers. Minimum Lab Requirements: Ude 6 Node Topology with real equipment (Use the Antwerp lab equipment).</p>	

Course number		TER36055_ILT_3.0
Target Group	Course Outline: 1. Strategic Industries solution overview 2. Routing: OSPF and IS-IS 3. MPLS 4. Services 5. C-Pipe 6. Synchronization Overview 7. QoS 8. Resilience and high-availability 9. Ethernet OAM 10. Typical applications 11. 5620 SAM Audience: This course is intended for customers that work within the Strategic Industries markets; including those that require a basic understanding of the products and solutions, as well as those that are required to configure, troubleshoot and operate the equipment.	
Duration	5 days	
Maximum Number of Students	8	
Course Type	PTB - Practical and theoretical course with testbed	
Course Level	Standard	



6.6.6 SR-OS Fundamentals eLearning| TER36066W_V1.2

Course number		TER36066W
Brief Description	<p>The SR-OS Fundamentals eLearning course describes the key essentials of the SR-OS service router portfolio.</p> <p>The different hardware products are described along with the aspects on how a service is built.</p> <p>It also explains the IP and MPLS fundamentals needed to build this service.</p>	
Delivery Type	Web Based Training	
Contents		
Learning Target		
Prerequisites	This course is intended for students who have basic IP knowledge	
Target Group	<p>Network Operations</p> <p>Network Provisioning</p> <p>Network Design</p> <p>Network Engineering</p>	
Duration	07:00 hrs	
Maximum Number of Students	n.a.	
Course Type	THY - Theoretical course	
Course Level	Standard	

6.6.7 TOS36033WS01 5620 SAM Product Overview| 1.0

Course number		TOS36033WS01
Brief Description	Section 1 of the TOS36033WS0K V1.0:5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum 5620 SAM R13.0 Product Overview <ul style="list-style-type: none"> - 5620 SAM Overview - 5620 SAM Modularity - 5620 SAM Features Overview 	
Delivery Type	Web Based Training	
Contents		
Learning Target		
Prerequisites		
Target Group		
Duration	01:00 hr	
Maximum Number of Students	n.a.	
Course Type	THY - Theoretical course	
Course Level	Standard	



6.6.8 TOS36033WS02 5620 SAM R13.0 Fundamentals-System Overview| 1.0

Course number		TOS36033WS02
Brief Description	Section 2 of the TOS36033WS0K V1.0:5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum. System Overview <ul style="list-style-type: none"> - System Architecture. - Launch the SAM GUI. - GUI Components. - SAM Windows and Forms Components and Management. - Finding Information in SAM GUI Client. - SAM GUI Client Workspaces. - Launch SAM Applications. 	
Delivery Type	Web Based Training	
Contents		
Learning Target		
Prerequisites		
Target Group		
Duration	02:00 hrs	
Maximum Number of Students	n.a.	
Course Type	THY - Theoretical course	
Course Level	Standard	



6.6.9 TOS36033WS03 5620 SAM R13.0 Fundamentals-Network Management| 3.0

Course number		TOS36033WS03
Brief Description	The 3rd section of the TOS36033WS0K V1.0:5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum. Network Management <ul style="list-style-type: none"> - Node Preparation for SAM Discovery - Network Element Discovery - Equipment Management - Equipment Inventory - Topology Map - Components and management - Topology Map - Info Tables - Topology Map - Flat Maps - User Activity 	
Delivery Type	Web Based Training	
Contents		
Learning Target		
Prerequisites		
Target Group		
Duration	02:00 hrs	
Maximum Number of Students	n.a.	
Course Type	THY - Theoretical course	
Course Level	Standard	



6.6.10 TOS36033WS04 5620 SAM R13.0 Fundamentals-Fault Management| 1.0

Course number		TOS36033WS04
Brief Description	The fourth section of the TOS36033WS0K V1.0:5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum Fault Management <ul style="list-style-type: none"> - Alarm Status and Severity - Alarm Correlation, Affecting and Aggregated Alarms - Dynamic Alarm List - Alarm Information Form - Alarm Management tools - Fault Management App – Overview - Fault Management App – Views - Fault Management App - Alarm Impact and Correlation - Object Life Cycle State - Historical Alarms 	
Delivery Type	Web Based Training	
Contents		
Learning Target		
Prerequisites		
Target Group		
Duration	02:00 hrs	
Maximum Number of Students	n.a.	
Course Type	THY - Theoretical course	
Course Level	Standard	



6.6.11 TOS36033WS05 5620 SAM R13.0 Fundamentals- Performance Management| 1.0

Course number		TOS36033WS05
Brief Description	The fifth section of the TOS36033WS0K V1.0:5620 SAM (Service Aware Manager) R13.0 Fundamentals Curriculum. Performance Management - 5620 SAM Statistics Overview - Performance Statistics	
Delivery Type	Web Based Training	
Contents		
Learning Target		
Prerequisites		
Target Group		
Duration	01:00 hr	
Maximum Number of Students	n.a.	
Course Type	THY - Theoretical course	
Course Level	Standard	

6.7 MODES OF OFFERINGS

6.7.1 Public Offerings

Contact us for availability of seats in scheduled courses.

6.7.2 Private Offerings

For scheduling and delivery planning of exclusive courses please concede approx. 2 months to us.



6.8 TRAINING DOCUMENTATION



6.9 COURSE EVALUATION

For any Nokia training delivery the default for course quality evaluation is electronic format (e-Evaluation). An evaluation mail with an encrypted link to the web based evaluation sheet will be sent to the participants 6 hours prior to the event end, but not before the event start. On the final day of the course, time will be set aside to complete the evaluation. It is therefore required that the participants bring their laptops to the training event to complete the electronic evaluation on the last day of the course. Up to two reminder mails will be sent to the participants in case they were not able to complete the e-Evaluation.

6.10 CERTIFICATE OF PARTICIPATION

For any Nokia training delivery the default record is a Certificate of Participation in electronic format (eCoP). The eCoP can be downloaded, saved and printed, on completion of the e-Evaluation. It is not mandatory for the participant to provide feedback on the e-Evaluation. However, the e-Evaluation needs to be opened and either completed or left blank, then submitted to activate the eCoP download link. The Electronic Certificate of Participation will appear in a separate window available to be saved and stored and/or printed.

6.11 INFORMATION AND EQUIPMENT

- Ownership of all copyright and other intellectual property rights of course materials provided during the training, including but not limited to documentation, data, technical information, know-how specifications, drawings, and designs, where in written, oral or electronic format (hereafter "Information") shall be the exclusive property of Nokia and shall be treated as confidential information by the Customer.
- Nokia grants Customer a non-exclusive, non-transferable, non-assignable limited license to use, internally, a single copy of the Nokia course material for the sole benefit of each eligible participant registered for the applicable Training, e-learning or virtual classroom training.
- All material and Information provided by Nokia to participants during the Training cannot be re-used to provide or assist in the delivery of, a similar Training to any Customer personnel or Customer third party.



6.12 TRAINING VENUE

- The Training shall be performed at the Training Venue on the date agreed and specified in the applicable purchase order.
- If the Training Venue is Customer premises, the Customer shall be responsible for providing an appropriate environment, necessary equipment and connectivity to deploy the Training, and copies of the materials to the participants. In addition, the Customer shall be responsible for identifying a contact person with whom Nokia will coordinate any applicable logistics.
- The Customer is responsible for providing the list of participants to Nokia no later than 14 (fourteen) days prior to the Training start date.
- Nokia will provide the participants with course materials in electronic format (e-doc) prior to the Training service in order for the material to be downloaded by the participant and printed if required. Paper format documentation may be provided, upon request, with an additional cost to the Customer.

6.13 CANCELLATION

Cancellation timeframes	Implications on cancellation
21 - 28 Calendar days	<p>If the Customer cancels or reschedules the Training 21-28 calendar days prior to Training start day, 50% of the course fee plus non-reimbursable travel costs will be charged to Customer.</p> <p>If Nokia cancels a Training during this time, an alternative Training delivery date will be provided in accordance to a date agreed with the Customer.</p>
0 - 20 calendar days	<p>If the Customer cancels the Training 0 -20 calendar days prior to Training start day, 100% of the course fee plus non-reimbursable travel costs will be charged to Customer.</p> <p>If Nokia cancels the Training during this time, an alternative Training delivery date will be provided in accordance to a date agreed with the Customer.</p>

6.14 NOKIA OBLIGATIONS

- Nokia agrees to provide a quality training experience to Customer. This includes: an instructor qualified to conduct the course(s) as well as all necessary training materials.
- The Customer will assure that the participants have completed the necessary pre-requisites. Otherwise, Nokia cannot be held liable for delivery quality.
- Every Training will be evaluated upon completion with a training evaluation, conducted online only; the participant is requested to complete the online evaluation during the last day of the course.
- The online evaluations submitted by Customer participants on the training delivery will be considered a key indicator of the Training quality.
- Whenever a Training event is evaluated by Customer as of inadequate quality, Nokia will investigate the incident and determine the underlying root causes. This investigation will take into account the input of the Customer participants as well as the instructor. Nokia will share the result of the investigation with the Customer.
- In case of inadequate quality, corrective actions will be decided upon by Nokia. Corrective actions could include among others (i) repetition of the same Training for the same group of Customer participants without any additional fees chargeable to customer except for travel

and accommodation expenses, (ii) refund of the training fees, partially or totally, except for travel and accommodation expenses.

- Each participant of a Training Course is required to attend for at least 80% of the Training duration in order to be considered 'Successful'. If a participant does not attend 80% of the training, the Trainer will have the option not to mark the participant 'Successful'. Therefore, the said participant will not be able to download their Recognition of Participation and their Training History will not be updated as having completed the Training.



SECTION 7

PRICING

7.1 PRICING SUMMARY

7.1.1 HGAC System Pricing Summary

Equipment and Services	Pricing
Equipment	\$8,535,824
System Implementation	\$6,788,238
HGAC Contract Discount	(\$1,266,405)
System Subtotal	\$14,057,657
Selected Options	
NOC Resident Engineer – 1 Year	\$572,727
DC / Battery Alarm System	\$664,543
Contingency	\$775,000
Line Sweeps for 55 Sites	No Charge
Total System	\$16,069,927
Estimated Tax at 8.75% (Equipment Only)	\$689,633
Grand Total with Estimated Tax at 8.75%	\$16,759,560
*System Maintenance (4 Years Post-Warranty) – invoiced annually in advance of each year of the plan	\$1,773,832

7.1.2 2018 System Pricing Incentive Summary

The following System Pricing Incentive Summary represents a one-time discount, applied to the HGAC contract level pricing shown in Table 7.1.1. This one-time discount offer is only valid for a Purchase Order on this proposed scope (System and System Maintenance) to Motorola Solutions, received by December 28, 2018. After this date, the system pricing will revert to the total in Table 7.1.1 or will be re-calculated based on current rates if this proposal has expired.

Equipment and Services	Pricing
Total System	\$16,069,927
System Incentive if Purchase Order is Received by December 28, 2018	(\$1,362,884)
Total System with Incentive	\$14,707,043
Estimated Tax at 8.75% (Equipment Only)	\$626,961
Grand Total with One-time Incentive, Tax and Freight	\$15,334,004
*System Maintenance (4 Years Post-Warranty) – invoiced annually in advance of each year of the plan	\$1,773,832



7.1.3 NOC Resident Engineer (Included in Pricing)

Throughout the effective period of this Service, Motorola Solutions / Nokia agrees to provide one (1) trained and knowledgeable IP/MPLS Architecture Resident Engineer (RE). The IP/MPLS Architecture RE is experienced in all network architecture, design, configuration, provisioning and operational aspects of the Nokia IP/MPLS Routers, and will work onsite with the County of Riverside's architecture/engineering team, providing support and assistance at the direction of a County of Riverside designated point of contact. The IP/MPLS Architecture RE has broad experience in IP/MPLS network and services architectures and deep product expertise on the Nokia 7950 XRS, 7750 SR, 7450 ESS, 7705 SAR and 7210 SAS. The IP/MPLS Architecture RE will provide support to the County of Riverside's architecture/engineering team in the areas of:

- Architecture and design of IP/MPLS networks
- Resiliency design
- Interoperability with other networks and technologies
- Access security design
- IGP Routing
- EGP Routing
- Service QoS strategies
- Development of Core Networks router configurations
- The IP/MPLS Architecture RE is a staff augmentation for the County of Riverside, and the engineer's skill set will be matched as closely as possible to the market/network application area of the County of Riverside. Work will be limited to individual Nokia router components of the network. Pricing includes a one-year engagement.

7.1.4 *System Maintenance Detail

Maintenance Years 2-5 (After Warranty)	Year 2	Year 3	Year 4	Year 5
Microwave System Maintenance	\$439,787	\$439,787	\$444,633	\$449,624

7.2 LEASING INFORMATION

Leasing Information is included on the pages that follow.

Riverside County sample lease payments-illustration only

Compound Period: Annual

Nominal Annual Rate: 3.657%

CASH FLOW DATA

Event	Date	Amount	Number	Period	End Date
1 Lease	1/1/2019	\$ 15,334,004.00	1		
2 Lease Payment	1/1/2021	\$ 1,558,037.99	13	Annual	1/1/2033

AMORTIZATION SCHEDULE - Normal Amortization, 360 Day Year

	Date	Lease Payment	Interest	Principal	Balance
Lease	1/1/2019				\$ 15,334,004.00
1	1/1/2021	\$ 1,558,037.99	\$ 1,141,949.30	\$ 416,088.69	\$ 14,917,915.31
2	1/1/2022	\$ 1,558,037.99	\$ 545,507.38	\$ 1,012,530.61	\$ 13,905,384.70
3	1/1/2023	\$ 1,558,037.99	\$ 508,481.90	\$ 1,049,556.09	\$ 12,855,828.61
4	1/1/2024	\$ 1,558,037.99	\$ 470,102.50	\$ 1,087,935.49	\$ 11,767,893.12
5	1/1/2025	\$ 1,558,037.99	\$ 430,319.68	\$ 1,127,718.31	\$ 10,640,174.81
6	1/1/2026	\$ 1,558,037.99	\$ 389,082.10	\$ 1,168,955.89	\$ 9,471,218.92
7	1/1/2027	\$ 1,558,037.99	\$ 346,336.58	\$ 1,211,701.41	\$ 8,259,517.51
8	1/1/2028	\$ 1,558,037.99	\$ 302,027.97	\$ 1,256,010.02	\$ 7,003,507.49
9	1/1/2029	\$ 1,558,037.99	\$ 256,099.12	\$ 1,301,938.87	\$ 5,701,568.62
10	1/1/2030	\$ 1,558,037.99	\$ 208,490.78	\$ 1,349,547.21	\$ 4,352,021.41
11	1/1/2031	\$ 1,558,037.99	\$ 159,141.52	\$ 1,398,896.47	\$ 2,953,124.94
12	1/1/2032	\$ 1,558,037.99	\$ 107,987.71	\$ 1,450,050.28	\$ 1,503,074.66
13	1/1/2033	\$ 1,558,037.99	\$ 54,963.33	\$ 1,503,074.66	\$ -
Grand Totals		\$ 20,254,493.87	\$ 4,920,489.87	\$ 15,334,004.00	

SECTION 8

TERMS AND CONDITIONS

8.1 COMMUNICATIONS SYSTEM AND SERVICES AGREEMENT

Motorola Solutions has provided a Communications System and Services Agreement (Lease) and Exhibits on the following pages.



Communications System And Services Agreement

(Lease)

Motorola Solutions, Inc. ("Motorola") and the County of Riverside ("Customer") enter into this "Agreement," pursuant to which Customer will purchase and Motorola will sell the System and Services, as described below. Motorola and Customer may be referred to individually as a "Party" and collectively as the "Parties." For good and valuable consideration, the Parties agree as follows:

WHEREAS, Customer desires to purchase from Motorola and Motorola desires to sell to Customer a Communications System; and

WHEREAS, Houston-Galveston Area Council ("H-GAC"), acting as the agent for various local governmental entities who are "End Users" under interlocal agreements (including Customer) has solicited proposals for radio communications equipment and conducted discussions with Motorola concerning its proposal and, where applicable, in accordance with the competitive procurement procedures of Texas law; and

WHEREAS, on July 25, 2018, H-GAC and Motorola entered into a contract (the "Contract"), which provides that End Users may purchase radio communications equipment from Motorola pursuant to certain terms contained therein;

WHEREAS, Customer desires to purchase and Motorola desires to sell said radio communications equipment from Motorola under the terms and conditions set forth in the Contract; and

WHEREAS, pursuant to Article 2 of the Contract Special Provisions, Motorola and Customer now wish to enter into this Communications System and Services Agreement to delineate the specific terms of the purchase of radio communications equipment from Motorola by Customer.

For good and valuable consideration, the Parties agree as follows:

Section 1 ATTACHMENTS

1.1. EXHIBITS. The Exhibits listed below are exhibits related to the System sale and implementation. These Exhibits are incorporated into and made a part of this Agreement.

Exhibit A "Motorola Software License Agreement"

Exhibit B "Payment"

Exhibit C Technical and Implementation Documents

C-1 "System Description" dated 11/19/2018, Section 1

C-2 "Pricing Summary & Equipment List" dated 11/19/2018, Section 7 & Section 2

C-3 "Implementation Statement of Work" dated 11/19/2018, Section 3

C-4 "Acceptance Test Plan" or "ATP" dated 11/19/2018, Section 5

C-5 "Performance Schedule" dated 11/19/2018, Section 4

Exhibit D "System Acceptance Certificate"

Exhibit E "Equipment Lease Purchase Agreement Delivery and Acceptance Certificate"

Exhibit F Cooperative Purchasing Program of Houston-Galveston Area Council of Governments ("HGAC") and Motorola's master agreement with HGAC, executed July 25, 2018, and identified as Contract No. RA-05-15

1.2. ADDENDUM (ADDENDA). Customer may elect to purchase professional or subscription services in addition to the System and related services. Any such services will be governed by the terms in the main body of the Agreement and an applicable Addendum containing terms specific to such service. Such Addenda will be labeled with the name of the service being purchased.

1.3 ORDER OF PRECEDENCE. In interpreting this Agreement and resolving any ambiguities: 1)

Exhibit F will take precedence over the main body of the Agreement, 2) the main body of this Agreement takes precedence over the exhibits (unless otherwise specified in an exhibit), and any inconsistency between Exhibits A through E will be resolved in their listed order; and 3) The applicable service Addendum will take precedence over the main body of the Agreement and the Exhibits.

Section 2 DEFINITIONS

Capitalized terms used in this Agreement have the following meanings:

“Acceptance Tests” means those tests described in the Acceptance Test Plan.

“Addendum (Addenda)” is the title of the document(s) containing a specific set of terms and conditions applicable to a particular service or other offering beyond the Communication System and System implementation services. The terms in the Addendum are applicable only to the specific service or offering described therein.

“Administrative User Credentials” means an account that has total access over the operating system, files, end user accounts and passwords at either the System level or box level. Customer’s personnel with access to the Administrative User Credentials may be referred to as the Administrative User.

“Beneficial Use” means when Customer first uses the System or a Subsystem for operational purposes (excluding training or testing).

“Confidential Information” means all information consistent with the fulfillment of this Agreement that is (i) disclosed under this Agreement in oral, written, graphic, machine recognizable, and/or sample form, being clearly designated, labeled or marked as confidential or its equivalent or (ii) obtained by examination, testing or analysis of any hardware, software or any component part thereof provided by discloser to recipient. The nature and existence of this Agreement are considered Confidential Information. Confidential Information that is disclosed orally must be identified as confidential at the time of disclosure and confirmed by the discloser by submitting a written document to the recipient within thirty (30) days after such disclosure. The written document must contain a summary of the Confidential Information disclosed with enough specificity for identification purpose and must be labeled or marked as confidential or its equivalent.

“Contract Price” means the price for the System and implementation Services, excluding applicable sales or similar taxes and freight charges. Further, unless otherwise stated in Exhibit B, “Payment” or the pricing pages of the proposal, recurring fees for maintenance, SUA, or subscription services are not included in the Contract Price.

“Deliverables” means all written information (such as reports, specifications, designs, plans, drawings, analytics, Solution Data, or other technical or business information) that Motorola prepares for Customer in the performance of the Services and is obligated to provide to Customer under this Agreement. The Deliverables, if any, are more fully described in the Statement of Work.

“Derivative Proprietary Materials” means derivatives of the Proprietary Materials that Motorola may from time to time, including during the course of providing the Services, develop and/or use and/or to which Motorola provides Customer access.

“Effective Date” means that date upon which the last Party executes this Agreement.

“Equipment” means the hardware components of the Solution that Customer purchases from Motorola under this Agreement. Equipment that is part of the System is described in the Equipment List.

“Equipment Lease-Purchase Agreement” means the agreement by which Customer finances all or a portion of the Contract Price.

"Feedback" means comments or information, in oral or written form, given to Motorola by Customer in connection with or relating to Equipment or Services, during the term of this Agreement.

"Force Majeure" means an event, circumstance, or act that is beyond a Party's reasonable control, such as an act of God, an act of the public enemy, an act of a government entity, strikes, other labor disturbances, supplier performance, hurricanes, earthquakes, fires, floods, epidemics, embargoes, war, riots, or any other similar cause.

"Motorola Software" means software that Motorola or its affiliated companies owns.

"Non-Motorola Software" means software that a party other than Motorola or its affiliated companies owns.

"Open Source Software" (also called "freeware" or "shareware") means software with either freely obtainable source code, license for modification, or permission for free distribution.

"Proprietary Materials" means certain software tools and/or other technical materials, including, but not limited to, data, modules, components, designs, utilities, subsets, objects, program listings, models, methodologies, programs, systems, analysis frameworks, leading practices and specifications which Motorola has developed prior to, or independently from, the provision of the Services and/or which Motorola licenses from third parties.

"Proprietary Rights" means the patents, patent applications, inventions, copyrights, trade secrets, trademarks, trade names, mask works, know-how, and other intellectual property rights in and to the Equipment and Software, including those created or produced by Motorola under this Agreement and any corrections, bug fixes, enhancements, updates or modifications to or derivative works from the Software whether made by Motorola or another party.

"Services" means system implementation, maintenance, support, subscription, or other professional services provided under this Agreement, which may be further described in the applicable Addendum and/or SOW.

"Software" (i) means proprietary software in object code format, and adaptations, translations, de-compilations, disassemblies, emulations, or derivative works of such software; (ii) means any modifications, enhancements, new versions and new releases of the software provided by Motorola; and (iii) may contain one or more items of software owned by a third party supplier. The term "Software" does not include any third party software provided under separate license or third party software not licensable under the terms of this Agreement.

"Software License Agreement" means the Motorola Software License Agreement (Exhibit A).

"Software Support Policy" ("SwSP") means the policy set forth at <http://www.motorolasolutions.com/softwarepolicy> describing the specific technical support that will be provided to Customers under the Warranty Period and during any paid maintenance support period for Motorola Software. This policy may be modified from time to time at Motorola's discretion.

"Solution" means the combination of the System(s) and Services provided by Motorola under this Agreement.

"Solution Data" means Customer data that is transformed, altered, processed, aggregated, correlated or operated on by Motorola, its vendors or other data sources and data that has been manipulated or retrieved using Motorola know-how to produce value-added content to data consumers, including customers or citizens which is made available to Customer with the Solution and Services.

"Specifications" means the functionality and performance requirements that are described in the Technical and Implementation Documents.

"SUA" means Motorola's Software Upgrade Agreement program.

"Subsystem" means a major part of the System that performs specific functions or operations. Subsystems are described in the Technical and Implementation Documents.

"System" means the Equipment, including incidental hardware and materials, Software, and design, installation and implementation services that are combined together into an integrated system; the System(s) is (are) described in the Technical and Implementation Documents.

"System Acceptance" means the Acceptance Tests have been successfully completed.

"System Data" means data created by, in connection with or in relation to Equipment or the performance of Services under this Agreement.

"Warranty Period" for System Hardware, Software, or services related to system implementation means one (1) year from the date of System Acceptance or Beneficial Use, whichever occurs first. Unless otherwise stated in the applicable Addendum, Warranty Period for other Services means ninety (90) days from performance of the Service.

Section 3 SCOPE OF AGREEMENT AND TERM

3.1. **SCOPE OF WORK.** Motorola will provide, install and test the System(s), and perform its other contractual responsibilities to provide the Solution, all in accordance with this Agreement. Customer will perform its contractual responsibilities in accordance with this Agreement.

3.2. **CHANGE ORDERS.** Either Party may request changes within the general scope of this Agreement. If a requested change causes an increase or decrease in the cost or time required to perform this Agreement, the Parties will agree to an equitable adjustment of the Contract Price or applicable subscription fees, Performance Schedule, or both, and will reflect the adjustment in a change order or Addendum. Neither Party is obligated to perform requested changes unless both Parties execute a written change order.

3.3. **TERM.** Unless terminated in accordance with other provisions of this Agreement or extended by mutual agreement of the Parties, the term of this Agreement begins on the Effective Date and continues until the date of Final Project Acceptance (as described in section 9.4 below) or expiration of the Warranty Period, or completion of the Services, whichever occurs last. The term and the effective date of recurring Services will be set forth in the applicable Addendum.

3.4. **ADDITIONAL EQUIPMENT OR SOFTWARE.** For three (3) years after the expiration date of the Agreement, Customer may order additional Equipment or Software, if it is then available. Each purchase order must refer to this Agreement, the expiration date of the Agreement, and must specify the pricing and delivery terms. The Parties agree that, notwithstanding expiration of the Agreement, the applicable provisions of this Agreement (except for pricing, delivery, passage of title and risk of loss to Equipment, warranty commencement, and payment terms) will govern the purchase and sale of the additional Equipment or Software. Additional or contrary terms in the purchase order will be inapplicable, unless signed by both parties. Title and risk of loss to additional Equipment will pass at shipment, warranty will commence upon delivery, and payment is due within thirty (30) days after the invoice date. Motorola will send Customer an invoice as the additional Equipment is shipped or Software is licensed. Alternatively, Customer may register with and place orders through Motorola Online ("MOL"), and this Agreement will be the "Underlying Agreement" for those MOL transactions rather than the MOL On-Line Terms and Conditions of Sale. MOL registration and other information may be found at <https://businessonline.motorolasolutions.com> and the MOL telephone number is (800) 814-0601.

3.5. **MOTOROLA SOFTWARE.** Any Motorola Software, including subsequent releases, is licensed to Customer solely in accordance with the Software License Agreement. Customer hereby accepts and agrees to abide by all of the terms and restrictions of the Software License Agreement.

3.6. **NON-MOTOROLA SOFTWARE.** Any Non-Motorola Software is licensed to Customer in accordance with the standard license, terms, and restrictions of the copyright owner on the Effective Date unless the copyright owner has granted to Motorola the right to sublicense the Non-Motorola Software pursuant to the Software License Agreement, in which case it applies and the copyright owner will have all of Licensor's rights and protections under the Software License Agreement. Motorola makes no representations or warranties of any kind regarding Non-Motorola Software. Non-Motorola Software may include Open Source Software.

3.7. **SUBSTITUTIONS.** At no additional cost to Customer, Motorola may substitute any Equipment, Software, or services to be provided by Motorola, if the substitute meets or exceeds the Specifications and is of equivalent or better quality to the Customer. Any substitution will be reflected in a change order.

3.8. **OPTIONAL EQUIPMENT OR SOFTWARE.** This paragraph applies only if a "Priced Options" exhibit is shown in Section 1, or if the parties amend this Agreement to add a Priced Options exhibit. During the term of the option as stated in the Priced Options exhibit (or if no term is stated, then for one (1) year after the Effective Date), Customer has the right and option to purchase the equipment, software, and related services that are described in the Priced Options exhibit. Customer may exercise this option by giving written notice to Seller which must designate what equipment, software, and related services Customer is selecting (including quantities, if applicable). To the extent they apply, the terms and conditions of this Agreement will govern the transaction; however, the parties acknowledge that certain provisions must be agreed upon, and they agree to negotiate those in good faith promptly after Customer delivers the option exercise notice. Examples of provisions that may need to be negotiated are: specific lists of deliverables, statements of work, acceptance test plans, delivery and implementation schedules, payment terms, maintenance and support provisions, additions to or modifications of the Software License Agreement, hosting terms, and modifications to the acceptance and warranty provisions.

Section 4 SERVICES

4.1. If Customer desires and Motorola agrees to continue Services beyond the Term, Customer's issuance and Motorola's acceptance of a purchase order for Services will serve as an automatic extension of the Agreement for purposes of the continuing Services. Only the terms and conditions applicable to the performance of Services will apply to the extended Agreement.

4.2. During the Warranty Period, in addition to warranty services, Motorola will provide maintenance Services for the Equipment and support for the Motorola Software pursuant to the applicable maintenance and support Statements of Work. Support for the Motorola Software will be in accordance with Motorola's established Software Support Policy. Copies of the SwSP can be found at <http://www.motorolasolutions.com/softwarepolicy> and will be sent by mail, email or fax to Customer upon written request. Maintenance Services and support during the Warranty Period are included in the Contract Price. Unless already included in the Contract Price, if Customer wishes to purchase 1) additional maintenance or software support services during the Warranty Period; or 2) continue or expand maintenance, software support, installation, and/or SUA services after the Warranty Period, Motorola will provide the description of and pricing for such services in a separate proposal document. Unless otherwise agreed by the parties in writing, the terms and conditions in this Agreement applicable to maintenance, support, installation, and/or SUA Services, will be included in the Maintenance and Support Addendum, SUA Addendum, the applicable Statements of Work, and the proposal, (if applicable). These collective terms will govern the provision of such Services.

To obtain any such additional Services, Customer will issue a purchase order referring to this Agreement and the separate proposal document. Omission of reference to this Agreement in Customer's purchase

order will not affect the applicability of this Agreement. Motorola's proposal may include a cover page entitled "Service Agreement" or "Installation Agreement", as applicable, and other attachments. These cover pages and other attachments are incorporated into this Agreement by this reference

4.3. PROFESSIONAL AND SUBSCRIPTION SERVICES. If Customer purchases professional or subscription Services as part of the Solution, additional or different terms specific to such Service will be included in the applicable Addendum and will apply to those Services. Customer may purchase additional professional or subscription services by issuing a purchase order referencing this Agreement and Motorola's proposal for such additional services.

4.4. Any information in the form of specifications, drawings, reprints, technical information or otherwise furnished to Customer in providing Services under this Agreement or data viewed, accessed, will remain Motorola's property, will be deemed proprietary, Confidential Information. This Confidential Information will be promptly returned at Motorola's request.

4.5. TOOLS. All tools, equipment, dies, gauges, models, drawings or other materials paid for or furnished by Motorola for the purpose of providing Services under this Agreement will be and remain the sole property of Motorola. Customer will safeguard all such property while it is in Customer's custody or control, be liable for any loss or damage to this property, and return it to Motorola upon request. This property will be held by Customer for Motorola's use without charge and may be removed from Customer's premises by Motorola at any time without restriction. Upon termination of the Agreement for any reason, Customer shall return to Motorola all equipment paid for or furnished by Motorola and delivered to Customer.

4.6. COVENANT NOT TO EMPLOY. During the term of this Agreement and continuing for a period of two (2) years thereafter, Customer will not hire, engage on contract, solicit the employment of, or recommend employment to any third party of any employee of Motorola or its subcontractors without the prior written authorization of Motorola. This provision applies only to those employees of Motorola or its subcontractors who are responsible for rendering Services under this Agreement. If this provision is found to be overly broad under applicable law, it will be modified as necessary to conform to applicable law.

4.7. CUSTOMER OBLIGATIONS. If the applicable Statement of Work or Addendum contains assumptions that affect the Services or Deliverables, Customer will verify that they are accurate and complete. Any information that Customer provides to Motorola concerning the Services or Deliverables will be accurate and complete in all material respects. Customer will make timely decisions and obtain any required management approvals that are reasonably necessary for Motorola to perform the Services and its other duties under this Agreement. Unless the Statement of Work states the contrary, Motorola may rely upon and is not required to evaluate, confirm, reject, modify, or provide advice concerning any assumptions and Customer-provided information, decisions and approvals described in this paragraph.

4.8. ASSUMPTIONS. If any assumptions or conditions contained in this Agreement, applicable Addenda or Statements of Work prove to be incorrect or if Customer's obligations are not performed, Motorola's ability to perform under this Agreement may be impacted and changes to the Contract Price, subscription fees, project schedule, Deliverables, or other changes may be necessary.

4.9. NON-PRECLUSION. If, as a result of the Services performed under this Agreement, Motorola recommends that Customer purchase products or other services, nothing in this Agreement precludes Motorola from participating in a future competitive bidding process or otherwise offering or selling the recommended products or other services to Customer. Customer represents that this paragraph does not violate its procurement or other laws, regulations, or policies.

4.10. PROPRIETARY MATERIALS. Customer acknowledges that Motorola may use and/or provide Customer with access to Proprietary Materials and Derivative Proprietary Materials. The Proprietary Materials and the Derivative Proprietary Materials are the sole and exclusive property of Motorola and

Motorola retains all right, title and interest in and to the Proprietary Materials and Derivative Proprietary Materials.

4.11. **ADDITIONAL SERVICES.** Any services performed by Motorola outside the scope of this Agreement at the direction of Customer will be considered to be additional Services which are subject to additional charges. Any agreement to perform additional Services will be reflected in a written and executed change order, Addendum or amendment to this Agreement.

Section 5 PERFORMANCE SCHEDULE

The Parties will perform their respective responsibilities in accordance with the Performance Schedule. By executing this Agreement, Customer authorizes Motorola to proceed with contract performance.

Section 6 CONTRACT PRICE, PAYMENT AND INVOICING

6.1. Customer affirms that a purchase order or notice to proceed is not required for contract performance or for subsequent years of service, if any, and that sufficient funds have been appropriated in accordance with applicable law. The Customer will pay all invoices as received from Motorola and any changes in scope will be subject to the change order process as described in this Agreement. At the time of execution of this Agreement, the Customer will provide all necessary reference information to include on invoices for payment in accordance with this Agreement.

6.2. **CONTRACT PRICE.** The Contract Price in U.S. dollars is \$ 15,334,004. The Contract Price will be paid via the disbursement of the financing proceeds pursuant to the Equipment Lease-Purchase Agreement executed between the parties. If applicable, a pricing summary is included with the Payment schedule. Motorola has priced the Services, Software, and Equipment as an integrated System. Customer is not responsible for any fees or costs incurred above or beyond the contracted amount as approved by the Board of Supervisors and shall have no obligation to purchase any specified amount of services or products. Unless otherwise specifically stated in the Payment Schedule, Customer shall not be responsible for payment of any of Motorola's expenses related to this Agreement. A change in Software or Equipment quantities, or Services, may affect the overall Contract Price, including discounts if applicable; any price increases must be stated in a written amendment to this Agreement and approved (if needed) for budget funding by the Board of Supervisors. Fees for professional, SUA, and/or subscription services which are not included in the Contract Price may be listed and invoiced according to the pricing pages of the proposal, Exhibit B, or the applicable Addendum. For Customer's reference, the Federal Tax Identification Number for Motorola Solutions, Inc. is 36-1115800.

6.3. **FREIGHT, TITLE, AND RISK OF LOSS.** Motorola will pre-pay and add all freight charges to the invoices. Unless otherwise stated in the Equipment Lease-Purchase Agreement, title and risk of loss to the Equipment will pass to Customer upon shipment. Title to Software will not pass to Customer at any time. Motorola will pack and ship all Equipment in accordance with good commercial practices.

6.4. **INVOICING AND SHIPPING ADDRESSES.** Invoices will be sent to the Customer at the following address:

Name: _____
Address: _____
Phone: _____
Email: _____

The address which is the ultimate destination where the Equipment will be delivered to Customer is:

Name: _____
Address: _____

The Equipment will be shipped to the Customer at the following address (insert if this information is known):

Name: _____
Address: _____
Phone: _____

Customer may change this information by giving written notice to Motorola.

Section 7 SITES AND SITE CONDITIONS

7.1. **ACCESS TO SITES.** In addition to its responsibilities described elsewhere in this Agreement, Customer will provide a designated project manager; all necessary construction and building permits, zoning variances, licenses, and any other approvals that are necessary to develop or use the sites and mounting locations; and access to the worksites or vehicles identified in the Technical and Implementation Documents as reasonably requested by Motorola so that it may perform its duties in accordance with the Performance Schedule and Statement of Work. If the Statement of Work so indicates, Motorola may assist Customer in the local building permit process.

7.2. **SITE CONDITIONS.** Customer will ensure that all work sites it provides will be safe, secure, and in compliance with all applicable industry and OSHA standards. To the extent applicable and unless the Statement of Work states to the contrary, Customer will ensure that these work sites have adequate: physical space; air conditioning and other environmental conditions; adequate and appropriate electrical power outlets, distribution, equipment and connections; and adequate telephone or other communication lines (including modem access and adequate interfacing networking capabilities), all for the installation, use and maintenance of the System. Before installing the Equipment or Software at a work site, Motorola may inspect the work site and advise Customer of any apparent deficiencies or non-conformities with the requirements of this Section. This Agreement is predicated upon normal soil conditions as defined by the version of E.I.A. standard RS-222 in effect on the Effective Date.

7.3. **SITE ISSUES.** If a Party determines that the sites identified in the Technical and Implementation Documents are no longer available or desired, or if subsurface, structural, adverse environmental or latent conditions at any site differ from those indicated in the Technical and Implementation Documents, the Parties will promptly investigate the conditions and will select replacement sites or adjust the installation plans and specifications as necessary. If change in sites or adjustment to the installation plans and specifications causes a change in the cost or time to perform, the Parties will equitably amend the Contract Price, Performance Schedule, or both, by a change order.

Section 8 TRAINING

Any training to be provided by Motorola to Customer will be described in the applicable Statement of Work. Customer will notify Motorola immediately if a date change for a scheduled training program is required. If Motorola incurs additional costs because Customer reschedules a training program less than thirty (30) days before its scheduled start date, Motorola may recover these additional costs.

Section 9 SYSTEM ACCEPTANCE

9.1. **COMMENCEMENT OF ACCEPTANCE TESTING.** Motorola will provide to Customer at least ten (10) days notice before the Acceptance Tests commence. System testing will occur only in accordance with the Acceptance Test Plan.

9.2. **SYSTEM ACCEPTANCE.** System Acceptance will occur upon successful completion of the Acceptance Tests. Upon System Acceptance, the Parties will memorialize this event by promptly executing a System Acceptance Certificate. If the Acceptance Test Plan includes separate tests for individual Subsystems or phases of the System, acceptance of the individual Subsystem or phase will occur upon the successful completion of the Acceptance Tests for the Subsystem or phase, and the Parties will promptly execute an acceptance certificate for the Subsystem or phase. If Customer believes the System has failed the completed Acceptance Tests, Customer will provide to Motorola a written notice

that includes the specific details of the failure. If Customer does not provide to Motorola a failure notice within thirty (30) days after completion of the Acceptance Tests, System Acceptance will be deemed to have occurred as of the completion of the Acceptance Tests. Minor omissions or variances in the System that do not materially impair the operation of the System as a whole will not postpone System Acceptance or Subsystem acceptance, but will be corrected according to a mutually agreed schedule.

9.3. **BENEFICIAL USE.** Customer acknowledges that Motorola's ability to perform its implementation and testing responsibilities may be impeded if Customer begins using the System before System Acceptance. Therefore, Customer will not commence Beneficial Use before System Acceptance without Motorola's prior written authorization, which will not be unreasonably withheld. Motorola is not responsible for System performance deficiencies that occur during unauthorized Beneficial Use. Upon commencement of Beneficial Use, Customer assumes responsibility for the use and operation of the System.

9.4. **FINAL PROJECT ACCEPTANCE.** Final Project Acceptance will occur after System Acceptance when all deliverables and other work have been completed. When Final Project Acceptance occurs, the parties will promptly memorialize this final event by so indicating on the System Acceptance Certificate (Exhibit D) and the Equipment Lease Purchase Agreement Delivery and Acceptance Certificate (Exhibit E).

Section 10 REPRESENTATIONS AND WARRANTIES

10.1. **SYSTEM FUNCTIONALITY.** Motorola represents that the System will perform in accordance with the Specifications in all material respects. Upon System Acceptance or Beneficial Use, whichever occurs first, this System functionality representation is fulfilled. Motorola is not responsible for System performance deficiencies that are caused by ancillary equipment not furnished by Motorola which is attached to or used in connection with the System or for reasons or parties beyond Motorola's control, such as natural causes; the construction of a building that adversely affects the microwave path reliability or radio frequency (RF) coverage; the addition of frequencies at System sites that cause RF interference or intermodulation; or Customer changes to load usage or configuration outside the Specifications.

10.2. **EQUIPMENT WARRANTY.** During the Warranty Period, Motorola warrants that the Equipment under normal use and service will be free from material defects in materials and workmanship. If System Acceptance is delayed beyond six (6) months after shipment of the Equipment by events or causes beyond Motorola's control, this warranty expires eighteen (18) months after the shipment of the Equipment.

10.3. **SOFTWARE WARRANTY.** Except as described in the SwSP and unless otherwise stated in the Software License Agreement, during the Warranty Period, Motorola warrants the Software in accordance with the warranty terms set forth in the Software License Agreement and the provisions of this Section that are applicable to the Software. If System Acceptance is delayed beyond six (6) months after shipment of the Motorola Software by events or causes beyond Motorola's control, this warranty expires eighteen (18) months after the shipment of the Motorola Software. **Nothing in this Warranty provision is intended to conflict or modify the Software Support Policy. In the event of an ambiguity or conflict between the Software Warranty and Software Support Policy, the Software Support Policy governs.**

10.4. **EXCLUSIONS TO EQUIPMENT AND SOFTWARE WARRANTIES.** These warranties do not apply to: (i) defects or damage resulting from: use of the Equipment or Software in other than its normal, customary, and authorized manner; accident, liquids, neglect, or acts of God; testing, maintenance, disassembly, repair, installation, alteration, modification, or adjustment not provided or authorized in writing by Motorola; Customer's failure to comply with all applicable industry and OSHA standards; (ii) breakage of or damage to antennas unless caused directly by defects in material or workmanship; (iii) Equipment that has had the serial number removed or made illegible; (iv) batteries (because they carry their own separate limited warranty) or consumables; (v) freight costs to ship Equipment to the repair

depot; (vi) scratches or other cosmetic damage to Equipment surfaces that does not affect the operation of the Equipment; and (vii) normal or customary wear and tear.

10.5. SERVICE WARRANTY. During the Warranty Period, Motorola warrants that the Services will be provided in a good and workmanlike manner and will conform in all material respects to the applicable Statement of Work. Services will be free of defects in materials and workmanship for a period of ninety (90) days from the date the performance of the Services are completed. Customer acknowledges that the Deliverables may contain recommendations, suggestions or advice from Motorola to Customer (collectively, "recommendations"). Motorola makes no warranties concerning those recommendations, and Customer alone accepts responsibility for choosing whether and how to implement the recommendations and the results to be realized from implementing them.

10.6. WARRANTY CLAIMS. To assert a warranty claim, Customer must notify Motorola in writing of the claim before the expiration of the Warranty Period. Upon receipt of this notice, Motorola will promptly investigate the warranty claim. If this investigation confirms a valid Equipment or Software warranty claim, Motorola will (at no additional charge to Customer) repair the defective Equipment or Motorola Software, replace it with the same or equivalent product, or refund the price of the defective Equipment or Motorola Software. These actions will be the full extent of Motorola's liability for the warranty claim. In the event of a valid Services warranty claim, Customer's sole remedy is to require Motorola to re-perform the non-conforming Service or to refund, on a pro-rata basis, the fees paid for the non-conforming Service. If this investigation indicates the warranty claim is not valid, then Motorola may invoice Customer for responding to the claim on a time and materials basis using Motorola's then current labor rates. Repaired or replaced product is warranted for the balance of the original applicable warranty period. All replaced products or parts will become the property of Motorola.

10.7. ORIGINAL END USER IS COVERED. These express limited warranties are extended by Motorola to the original user purchasing the System or Services for commercial, industrial, or governmental use only, and are not assignable or transferable.

10.8. DISCLAIMER OF OTHER WARRANTIES. THESE WARRANTIES ARE THE COMPLETE WARRANTIES FOR THE EQUIPMENT AND MOTOROLA SOFTWARE PROVIDED UNDER THIS AGREEMENT AND ARE GIVEN IN LIEU OF ALL OTHER WARRANTIES. MOTOROLA DISCLAIMS ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE. Nothing in this Agreement shall be construed to limit or waive any rights or remedies that Customer may have at law or in equity.

Section 11 DELAYS

11.1. FORCE MAJEURE. Neither Party will be liable for its non-performance or delayed performance if caused by a Force Majeure. A Party that becomes aware of a Force Majeure that will significantly delay performance will notify the other Party promptly (but in no event later than fifteen days) after it discovers the Force Majeure. If a Force Majeure occurs, the Parties will execute a change order to extend the Performance Schedule or applicable Addenda for a time period that is reasonable under the circumstances.

11.2. PERFORMANCE SCHEDULE DELAYS CAUSED BY CUSTOMER. If Customer (including its other contractors) delays the Performance Schedule, it will make the promised payments according to the Payment schedule as if no delay occurred; and the Parties will execute a change order to extend the Performance Schedule and, if requested, compensate Motorola for all reasonable charges incurred because of the delay. Delay charges may include costs incurred by Motorola or its subcontractors for additional freight, warehousing and handling of Equipment; extension of the warranties; travel; suspending and re-mobilizing the work; additional engineering, project management, and standby time calculated at then current rates; and preparing and implementing an alternative implementation plan.

Section 12 DISPUTES

The Parties will use the following procedure to address any dispute arising under this Agreement (a "Dispute").

12.1. **GOVERNING LAW.** This Agreement will be governed by and construed in accordance with the laws of the State in which the System is installed.

12.2. **NEGOTIATION.** Either Party may initiate the Dispute resolution procedures by sending a notice of Dispute ("Notice of Dispute"). The Parties will attempt to resolve the Dispute promptly through good faith negotiations including 1) timely escalation of the Dispute to executives who have authority to settle the Dispute and who are at a higher level of management than the persons with direct responsibility for the matter and 2) direct communication between the executives. If the Dispute has not been resolved within ten (10) days from the Notice of Dispute, the Parties will proceed to mediation.

12.3. **MEDIATION.** The Parties will choose an independent mediator within thirty (30) days of a notice to mediate from either Party ("Notice of Mediation"). Neither Party may unreasonably withhold consent to the selection of a mediator. If the Parties are unable to agree upon a mediator, either Party may request that American Arbitration Association nominate a mediator. Each Party will bear its own costs of mediation, but the Parties will share the cost of the mediator equally. Each Party will participate in the mediation in good faith and will be represented at the mediation by a business executive with authority to settle the Dispute.

12.4. **LITIGATION, VENUE and JURISDICTION.** If a Dispute remains unresolved for sixty (60) days after receipt of the Notice of Mediation, either Party may then submit the Dispute to a court of competent jurisdiction in the state in which the System is installed. Each Party irrevocably agrees to submit to the exclusive jurisdiction of the courts in such state over any claim or matter arising under or in connection with this Agreement.

12.5. **CONFIDENTIALITY.** All communications pursuant to subsections 12.2 and 12.3 will be treated as compromise and settlement negotiations for purposes of applicable rules of evidence and any additional confidentiality protections provided by applicable law. The use of these Dispute resolution procedures will not be construed under the doctrines of laches, waiver or estoppel to affect adversely the rights of either Party.

Section 13 DEFAULT AND TERMINATION

13.1. **DEFAULT BY A PARTY.** If either Party fails to perform a material obligation under this Agreement, the other Party may consider the non-performing Party to be in default (unless a Force Majeure causes the failure) and may assert a default claim by giving the non-performing Party a written and detailed notice of default. Except for a default by Customer for failing to pay any amount when due under this Agreement which must be cured immediately, the defaulting Party will have thirty (30) days after receipt of the notice of default to either cure the default or, if the default is not curable within thirty (30) days, provide a written cure plan. The defaulting Party will begin implementing the cure plan immediately after receipt of notice by the other Party that it approves the plan. If Customer is the defaulting Party, Motorola may stop work on the project until it approves the Customer's cure plan.

13.2. **FAILURE TO CURE.** If a defaulting Party fails to cure the default as provided above in Section 13.1, unless otherwise agreed in writing, the non-defaulting Party may terminate any unfulfilled portion of this Agreement. In the event of termination for default, the defaulting Party will promptly return to the non-defaulting Party any of its Confidential Information. If Customer is the non-defaulting Party, terminates this Agreement as permitted by this Section, and completes the System through a third Party, Customer may as its exclusive remedy recover from Motorola reasonable costs incurred to complete the System to a capability not exceeding that specified in this Agreement less the unpaid portion of the Contract Price. Customer will mitigate damages and provide Motorola with detailed invoices substantiating the charges.

In the event Customer elects to terminate this Agreement for any reason other than default, Customer shall pay Motorola for the conforming Equipment and/or Software delivered and all services performed.

Section 14 INDEMNIFICATION

14.1. **GENERAL INDEMNITY BY Motorola.** Motorola will indemnify and hold Customer harmless from any and all liability, expense, judgment, suit, cause of action, or demand for personal injury, death, or direct damage to tangible property which may accrue against Customer to the extent it is caused by the negligence or willful misconduct of Motorola, its subcontractors, or their employees or agents, while performing their duties under this Agreement, if Customer gives Motorola prompt, written notice of any claim or suit. Customer will cooperate with Motorola in its defense or settlement of the claim or suit. This Section sets forth the full extent of Motorola's general indemnification of Customer from liabilities that are in any way related to Motorola's performance under this Agreement.

14.2. **GENERAL INDEMNITY BY CUSTOMER.** Customer will indemnify and hold Motorola harmless from any and all liability, expense, judgment, suit, cause of action, or demand for personal injury, death, or direct damage to tangible property which may accrue against Motorola to the extent it is caused by the negligence of Customer, its other contractors, or their employees or agents, while performing their duties under this Agreement, if Motorola gives Customer prompt, written notice of any the claim or suit. Motorola will cooperate with Customer in its defense or settlement of the claim or suit. This Section sets forth the full extent of Customer's general indemnification of Motorola from liabilities that are in any way related to Customer's performance under this Agreement.

14.3. PATENT AND COPYRIGHT INFRINGEMENT.

14.3.1. Motorola will defend at its expense any suit brought against Customer to the extent it is based on a third-party claim alleging that the Equipment manufactured by Motorola or the Motorola Software ("Motorola Product") directly infringes a United States patent or copyright ("Infringement Claim"). Motorola's duties to defend and indemnify are conditioned upon: Customer promptly notifying Motorola in writing of the Infringement Claim; Motorola having sole control of the defense of the suit and all negotiations for its settlement or compromise; and Customer providing to Motorola cooperation and, if requested by Motorola, reasonable assistance in the defense of the Infringement Claim. In addition to Motorola's obligation to defend, and subject to the same conditions, Motorola will pay all damages finally awarded against Customer by a court of competent jurisdiction for an Infringement Claim or agreed to, in writing, by Motorola in settlement of an Infringement Claim.

14.3.2 If an Infringement Claim occurs, or in Motorola's opinion is likely to occur, Motorola may at its option and expense: (a) procure for Customer the right to continue using the Motorola Product; (b) replace or modify the Motorola Product so that it becomes non-infringing while providing functionally equivalent performance; or (c) accept the return of the Motorola Product and grant Customer a credit for the Motorola Product, less a reasonable charge for depreciation. The depreciation amount will be calculated based upon generally accepted accounting standards.

14.3.3 Motorola will have no duty to defend or indemnify for any Infringement Claim that is based upon: (a) the combination of the Motorola Product with any software, apparatus or device not furnished by Motorola; (b) the use of ancillary equipment or software not furnished by Motorola and that is attached to or used in connection with the Motorola Product; (c) Motorola Product designed or manufactured in accordance with Customer's designs, specifications, guidelines or instructions, if the alleged infringement would not have occurred without such designs, specifications, guidelines or instructions; (d) a modification of the Motorola Product by a party other than Motorola; (e) use of the Motorola Product in a manner for which the Motorola Product was not designed or that is inconsistent with the terms of this Agreement; or (f) the failure by Customer to install an enhancement release to the Motorola Software that is intended to correct the claimed infringement. In no event will Motorola's liability resulting from its indemnity obligation to Customer extend in any way to royalties payable on a per use basis or the Customer's revenues, or any royalty basis other than a reasonable royalty based upon revenue derived

by Motorola from Customer from sales or license of the infringing Motorola Product.

14.3.4. This Section 14 provides Customer's sole and exclusive remedies and Motorola's entire liability in the event of an Infringement Claim. Customer has no right to recover and Motorola has no obligation to provide any other or further remedies, whether under another provision of this Agreement or any other legal theory or principle, in connection with an Infringement Claim. In addition, the rights and remedies provided in this Section 14 are subject to and limited by the restrictions set forth in Section 15.

Section 15 Insurance

15.1 INSURANCE. Without limiting or diminishing Motorola's obligation to indemnify or hold Customer harmless, Motorola shall procure and maintain or cause to be maintained, at its sole cost and expense, the following insurance coverage's during the term of this Agreement. As respects to the insurance section only, Customer herein refers to the County of Riverside, its Agencies, Districts, Special Districts, and Departments, their respective directors, officers, Board of Supervisors, employees, elected or appointed officials, agents, or representatives as Additional Insureds. 15.1.2 Workers' Compensation. If Motorola has employees as defined by the State of California, the CONTRACTOR shall maintain statutory Workers' Compensation Insurance (Coverage A) as prescribed by the laws of the State of California. Policy shall include Employers' Liability (Coverage B) including Bodily Injury be Disease with limits of \$1,000,000 each employee and policy limit. A Waiver of Subrogation shall be included under the policy. shall be endorsed to waive subrogation in favor of The County of Riverside.

15.1.3 Commercial General Liability. Commercial General Liability insurance coverage, including but not limited to, premises liability, contractual liability, products and completed operations liability, personal and advertising injury, and cross liability coverage, covering claims which may arise from or out of Motorola's performance of its obligations hereunder. Policy shall include Customer as Additional Insured. Policy's limit of liability shall not be less than \$1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this agreement or be no less than two (2) times the occurrence limit.

15.1.4 Any insurance carrier providing insurance coverage hereunder shall be admitted to the State of California and have an A M BEST rating of not less than A: VIII (A:8) unless such requirements are waived, in writing, by the County Risk Manager. If the County's Risk Manager waives a requirement for a particular insurer such waiver is only valid for that specific insurer and only for one policy term. Motorola shall be solely responsible for any policy deductibles or self-insured retentions must declare its insurance self-insured retention for each coverage required herein. If any such self-insured retention exceeds \$500,000 per occurrence each such retention shall have the prior written consent of the County Risk Manager before the commencement of operations under this Agreement. Upon notification of self-insured retention unacceptable to Customer, and at the election of the Country's Risk Manager, Motorola's carriers shall either; 1) reduce or eliminate such self-insured retention as respects this Agreement with Customer, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs and expenses. Motorola shall cause its insurance carrier(s) to furnish Customer with a Certificate(s) of Insurance and copies of Endorsements effecting coverage as required herein. In the event of cancellation of any policy required herein, Motorola shall provide thirty (30) days written notice to the Customer. In the event of a, cancellation, this Agreement shall terminate forthwith, unless Customer receives, prior to such effective date, another Certificate of Insurance and copies of endorsements evidencing coverage set forth herein and the insurance required herein is in full force and effect. Motorola shall not commence operations until Customer has been furnished Certificate (s) of Insurance and copies of endorsements as required in this Section. It is understood and agreed to by the parties hereto that Motorola's insurance shall be construed as primary insurance, and Customer's insurance and/or deductibles and/or self-insured retention's or self-insured programs shall not be construed as contributory. If, during the term of this Agreement or any extension thereof, there is a material change in the scope of services; or, there is a material change in the equipment to be used in the performance of the scope of work; or, the term of this Agreement, including any extensions thereof, exceeds five (5) years; Customer reserves the right to adjust the types of insurance and the monetary

limits of liability required under this Agreement, if in the County Risk Manager's reasonable judgment, the amount or type of insurance carried by Motorola has become inadequate. Motorola shall pass down the insurance obligations contained herein to all tiers of subcontractors working under this Agreement. The insurance requirements contained in this Agreement may be met with a program(s) of self-insurance acceptable to Customer. Motorola agrees to notify Customer of any claim by a third party or any incident or event noticed to Motorola that may give rise to a claim arising from the performance of this Agreement.

Section 15 LIMITATION OF LIABILITY

Except for personal injury or death, Motorola's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, indemnification, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the price of the Equipment, Software, or implementation and other one-time Services with respect to which losses or damages are claimed. With respect to all subscription or other ongoing Services and unless as otherwise provided under the applicable Addenda, Motorola's total liability will be limited to the direct damages recoverable under law, but not to exceed three times (3X) the price of twelve (12) months of Services preceding the incident giving rise to the claim. **ALTHOUGH THE PARTIES ACKNOWLEDGE THE POSSIBILITY OF SUCH LOSSES OR DAMAGES, THEY AGREE THAT MOTOROLA WILL NOT BE LIABLE FOR ANY COMMERCIAL LOSS, INCONVENIENCE, LOSS OF USE, LOSS TIME, DATA, GOODWILL, REVENUES, PROFITS OR SAVINGS; OR OTHER SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO OR ARISING FROM THIS AGREEMENT, THE SALE OR USE OF THE EQUIPMENT OR SOFTWARE, OR THE PERFORMANCE OF SERVICES BY MOTOROLA PURSUANT TO THIS AGREEMENT.** This limitation of liability provision survives the expiration or termination of the Agreement and applies notwithstanding any contrary provision.

Section 16 CONFIDENTIALITY AND PROPRIETARY RIGHTS

16.1. CONFIDENTIAL INFORMATION.

16.1.1. Each party is a disclosing party ("Discloser") and a receiving party ("Recipient") under this Agreement. All Deliverables will be deemed to be Motorola's Confidential Information. During the term of this Agreement and for a period of three (3) years from the expiration or termination of this Agreement, Recipient will (i) not disclose Confidential Information to any third party; (ii) restrict disclosure of Confidential Information to only those employees (including, but not limited to, employees of any wholly owned subsidiary, a parent company, any other wholly owned subsidiaries of the same parent company), agents or consultants who must be directly involved with the Confidential Information for the purpose and who are bound by confidentiality terms substantially similar to those in this Agreement; (iii) not copy, reproduce, reverse engineer, de-compile or disassemble any Confidential Information; (iv) use the same degree of care as for its own information of like importance, but at least use reasonable care, in safeguarding against disclosure of Confidential Information; (v) promptly notify Discloser upon discovery of any unauthorized use or disclosure of the Confidential Information and take reasonable steps to regain possession of the Confidential Information and prevent further unauthorized actions or other breach of this Agreement; and (vi) only use the Confidential Information as needed to fulfill this Agreement.

16.1.2. Recipient is not obligated to maintain as confidential, Confidential Information that Recipient can demonstrate by documentation (i) is now available or becomes available to the public without breach of this agreement; (ii) is explicitly approved for release by written authorization of Discloser; (iii) is lawfully obtained from a third party or parties without a duty of confidentiality; (iv) is known to the Recipient prior to such disclosure; or (v) is independently developed by Recipient without the use of any of Discloser's Confidential Information or any breach of this Agreement.

16.1.3. All Confidential Information remains the property of the Discloser and will not be copied or reproduced without the express written permission of the Discloser, except for copies that are absolutely necessary in order to fulfill this Agreement. Within ten (10) days of receipt of Discloser's written request, Recipient will return all Confidential Information to Discloser along with all copies and portions thereof, or

certify in writing that all such Confidential Information has been destroyed. However, Recipient may retain one (1) archival copy of the Confidential Information that it may use only in case of a dispute concerning this Agreement. No license, express or implied, in the Confidential Information is granted other than to use the Confidential Information in the manner and to the extent authorized by this Agreement. The Discloser warrants that it is authorized to disclose any Confidential Information it discloses pursuant to this Agreement.

16.2. PRESERVATION OF MOTOROLA'S PROPRIETARY RIGHTS. Motorola, the third party manufacturer of any Equipment, and the copyright owner of any Non-Motorola Software own and retain all of their respective Proprietary Rights in the Equipment and Software, and nothing in this Agreement is intended to restrict their Proprietary Rights. All intellectual property developed, originated, or prepared by Motorola in connection with providing to Customer the Equipment, Software, or related services remain vested exclusively in Motorola, and this Agreement does not grant to Customer any shared development rights of intellectual property. Except as explicitly provided in the Software License Agreement, Motorola does not grant to Customer, either directly or by implication, estoppel, or otherwise, any right, title or interest in Motorola's Proprietary Rights. Customer will not modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence does not apply to Open Source Software which is governed by the standard license of the copyright owner.

16.3 VOLUNTARY DISCLOSURE. Except as required to fulfill its obligations under this Agreement, Motorola will have no obligation to provide Customer with access to its Confidential Information and/or proprietary information. Under no circumstances will Motorola be required to provide any data related to cost and pricing.

16.4 DATA AND FEEDBACK.

16.4.1 To the extent permitted by law, Customer owns all right, title and interest in System Data created solely by it or its agents (hereafter, "Customer Data"), and grants to Motorola the right to use, host, cache, store, reproduce, copy, modify, combine, analyze, create derivatives from, communicate, transmit, publish, display, and distribute such Customer Data.

16.4.2 Motorola owns all right, title and interest in data resulting from System Data that is or has been transformed, altered, processed, aggregated, correlated or operated on (hereafter, "Derivative Data").

16.4.3 Any Feedback given by Customer is and will be entirely voluntary and, even if designated as confidential, will not create any confidentiality obligation for Motorola. Motorola will be free to use, reproduce, license or otherwise distribute and exploit the Feedback without any obligation to Customer. Customer acknowledges that Motorola's receipt of the Feedback does not imply or create recognition by Motorola of either the novelty or originality of any idea. The parties further agree that all fixes, modifications and improvements made to Motorola products or services conceived of or made by Motorola that are based, either in whole or in part, on the Feedback are the exclusive property of Motorola and all right, title and interest in and to such fixes, modifications or improvements to the Motorola product or service will vest solely in Motorola.

Section 17 GENERAL

17.1. TAXES. The Contract Price does not include any excise, sales, lease, use, property, or other taxes, assessments or duties, all of which will be paid by Customer except as exempt by law. If Motorola is required to pay any of these taxes, Motorola will send an invoice to Customer and Customer will pay to Motorola the amount of these taxes (including any interest and penalties) within thirty (30) days after the date of the invoice. Customer will be solely responsible for reporting the Equipment for personal property tax purposes, and Motorola will be solely responsible for reporting taxes on its income or net worth.

17.2. ASSIGNABILITY AND SUBCONTRACTING. Except as provided herein, neither Party may assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the other Party, which consent will not be unreasonably withheld. Any attempted assignment, delegation, or transfer without the necessary consent will be void. Notwithstanding the foregoing, Motorola may assign this Agreement to any of its affiliates or its right to receive payment without the prior consent of Customer. In addition, in the event Motorola separates one or more of its businesses (each a "Separated Business"), whether by way of a sale, establishment of a joint venture, spin-off or otherwise (each a "Separation Event"), Motorola may, without the prior written consent of the other Party and at no additional cost to Motorola, assign this Agreement such that it will continue to benefit the Separated Business and its affiliates (and Motorola and its affiliates, to the extent applicable) following the Separation Event. Motorola may subcontract any of the work, but subcontracting will not relieve Motorola of its duties under this Agreement.

17.3. WAIVER. Failure or delay by either Party to exercise a right or power under this Agreement will not be a waiver of the right or power. For a waiver of a right or power to be effective, it must be in a writing signed by the waiving Party. An effective waiver of a right or power will not be construed as either a future or continuing waiver of that same right or power, or the waiver of any other right or power.

17.4. SEVERABILITY. If a court of competent jurisdiction renders any part of this Agreement invalid or unenforceable, that part will be severed and the remainder of this Agreement will continue in full force and effect.

17.5. INDEPENDENT CONTRACTORS. Each Party will perform its duties under this Agreement as an independent contractor. The Parties and their personnel will not be considered to be employees or agents of the other Party. Nothing in this Agreement will be interpreted as granting either Party the right or authority to make commitments of any kind for the other. This Agreement will not constitute, create, or be interpreted as a joint venture, partnership or formal business organization of any kind.

17.6. HEADINGS AND SECTION REFERENCES. The section headings in this Agreement are inserted only for convenience and are not to be construed as part of this Agreement or as a limitation of the scope of the particular section to which the heading refers. This Agreement will be fairly interpreted in accordance with its terms and conditions and not for or against either Party.

17.7. NOTICES. Notices required under this Agreement to be given by one Party to the other must be in writing and either personally delivered or sent to the address provided by the other Party by certified mail, return receipt requested and postage prepaid (or by a recognized courier service, such as Federal Express, UPS, or DHL), or by facsimile with correct answerback received, and will be effective upon receipt.

17.8. COMPLIANCE WITH APPLICABLE LAWS. Each Party will comply with all applicable federal, state, and local laws, regulations and rules concerning the performance of this Agreement or use of the System. Customer will obtain and comply with all Federal Communications Commission ("FCC") licenses and authorizations required for the installation, operation and use of the System before the scheduled installation of the Equipment. Although Motorola might assist Customer in the preparation of its FCC license applications, neither Motorola nor any of its employees is an agent or representative of Customer in FCC or other matters.

17.9 FUTURE REGULATORY REQUIREMENTS. The Parties acknowledge and agree that this is an evolving technological area and therefore, laws and regulations regarding Services and use of Solution may change. Changes to existing Services or the Solution required to achieve regulatory compliance may be available for an additional fee. Any required changes may also impact the price for Services.

17.10. AUTHORITY TO EXECUTE AGREEMENT. Each Party represents that it has obtained all necessary approvals, consents and authorizations to enter into this Agreement and to perform its duties

under this Agreement; the person executing this Agreement on its behalf has the authority to do so; upon execution and delivery of this Agreement by the Parties, it is a valid and binding contract, enforceable in accordance with its terms; and the execution, delivery, and performance of this Agreement does not violate any bylaw, charter, regulation, law or any other governing authority of the Party.

17.11. ADMINISTRATOR LEVEL ACCOUNT ACCESS. If applicable to the type of System purchased by Customer, Motorola will provide Customer with Administrative User Credentials. Customer agrees to only grant access to the Administrative User Credentials to those personnel with the training and experience to correctly use them. Customer is responsible for protecting Administrative User Credentials from disclosure and maintaining Credential validity by, among other things, updating passwords when required. Customer may be asked to provide valid Administrative User Credentials when in contact with Motorola System support personnel. Customer understands that changes made as the Administrative User can significantly impact the performance of the System. Customer agrees that it will be solely responsible for any negative impact on the System or its users by any such changes. System issues occurring as a result of changes made using the Administrative User Credentials may impact Motorola's ability to perform Services or other obligations under the Agreement. In such cases, a revision to the appropriate provisions of the Agreement, including the Statement of Work, may be necessary. To the extent Motorola provides assistance to correct any issues caused by or arising out of the use of or failure to maintain Administrative User Credentials, Motorola will be entitled to bill Customer and Customer will pay Motorola on a time and materials basis for resolving the issue.

17.12. SURVIVAL OF TERMS. The following provisions will survive the expiration or termination of this Agreement for any reason: Section 3.5 (Motorola Software); Section 3.6 (Non-Motorola Software); if any payment obligations exist, Sections 6.2 and 6.3 (Contract Price and Invoicing and Payment); Subsection 10.8 (Disclaimer of Implied Warranties); Section 12 (Disputes); Section 15 (Limitation of Liability); and Section 16 (Confidentiality and Proprietary Rights); and all of the General provisions in Section 17.

17.13. ENTIRE AGREEMENT. This Agreement, including all Exhibits, constitutes the entire agreement of the Parties regarding the subject matter of the Agreement and supersedes all previous agreements, proposals, and understandings, whether written or oral, relating to this subject matter. This Agreement may be executed in multiple counterparts, and shall have the same legal force and effect as if the Parties had executed it as a single document. The Parties must sign in writing. In addition, a true and correct facsimile copy or computer image of this Agreement shall be treated as and shall have the same effect as an original signed copy of this document. This Agreement may be amended or modified only by a written instrument signed by authorized representatives of both Parties. The preprinted terms and conditions found on any Customer purchase or purchase order, acknowledgment or other form will not be considered an amendment or modification of this Agreement, even if a representative of each Party signs that document.

The Parties hereby enter into this Agreement as of the Effective Date.

Motorola Solutions, Inc.

By: _____

Name: _____

Title: _____

Customer

By: 

Name: CHUCK WASHINGTON

Title: CHAIRMAN, BOARD OF SUPERVISORS

ATTEST:

KECIA HARPER-IHEM, Clerk

By: 
DEPUTY

FORM APPROVED COUNTY COUNSEL
BY:  12/4/18
DATE
SUSANNA N. OH

Exhibit A

MOTOROLA SOFTWARE LICENSE AGREEMENT

This Exhibit A Motorola Software License Agreement ("License Agreement") is between Motorola Solutions, Inc., ("Motorola"), and the County of Riverside ("Licensee").

For good and valuable consideration, the parties agree as follows:

Section 1 DEFINITIONS

- 1.1 "Designated Products" means products provided by Motorola to Licensee with which or for which the Software and Documentation is licensed for use.
- 1.2 "Documentation" means product and software documentation that specifies technical and performance features and capabilities, and the user, operation and training manuals for the Software (including all physical or electronic media upon which such information is provided).
- 1.3 "Open Source Software" means software with either freely obtainable source code, license for modification, or permission for free distribution.
- 1.4 "Open Source Software License" means the terms or conditions under which the Open Source Software is licensed.
- 1.5 "Primary Agreement" means the Agreement to which this exhibit is attached.
- 1.6 "Security Vulnerability" means a flaw or weakness in system security procedures, design, implementation, or internal controls that could be exercised (accidentally triggered or intentionally exploited) and result in a security breach such that data is compromised, manipulated or stolen or the system damaged.
- 1.7 "Software" (i) means proprietary software in object code format, and adaptations, translations, de-compilations, disassemblies, emulations, or derivative works of such software; (ii) means any modifications, enhancements, new versions and new releases of the software provided by Motorola; and (iii) may contain one or more items of software owned by a third party supplier. The term "Software" does not include any third party software provided under separate license or third party software not licensable under the terms of this License Agreement.

Section 2 SCOPE

Motorola and Licensee enter into this License Agreement in connection with Motorola's delivery of certain proprietary software or products containing embedded or pre-loaded proprietary software, or both. This License Agreement contains the terms and conditions of the license Motorola is providing to Licensee, and Licensee's use of the proprietary software and affiliated documentation.

Section 3 GRANT OF LICENSE

- 3.1. Subject to the provisions of this License Agreement and the payment of applicable license fees, Motorola grants to Licensee a personal, limited, non-transferable (except as permitted in Section 7) and non-exclusive license under Motorola's copyrights and Confidential Information (as defined in the Primary Agreement) embodied in the Software to use the Software, in object code form, and the Documentation solely in connection with Licensee's use of the Designated Products. This License Agreement does not grant any rights to source code.

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3.3 TO THE EXTENT, IF ANY, THAT THERE IS A SEPARATE LICENSE AGREEMENT PACKAGED WITH, OR PROVIDED ELECTRONICALLY WITH, A PARTICULAR PRODUCT THAT BECOMES EFFECTIVE ON AN ACT OF ACCEPTANCE BY THE END USER, THEN THAT AGREEMENT SUPERSEDES THE SOFTWARE LICENSE AGREEMENT AS TO THE END USER OF EACH SUCH PRODUCT.

Section 4 LIMITATIONS ON USE

4.1. Licensee may use the Software only for Licensee's internal business purposes and only in accordance with the Documentation. Any other use of the Software is strictly prohibited. Without limiting the general nature of these restrictions, Licensee will not make the Software available for use by third parties on a "time sharing," "application service provider," or "service bureau" basis or for any other similar commercial rental or sharing arrangement.

4.2. Licensee will not, and will not allow or enable any third party to: (i) reverse engineer, disassemble, peel components, decompile, reprogram or otherwise reduce the Software or any portion to a human perceptible form or otherwise attempt to recreate the source code; (ii) modify, adapt, create derivative works of, or merge the Software; (iii) copy, reproduce, distribute, lend, or lease the Software or Documentation to any third party, grant any sublicense or other rights in the Software or Documentation to any third party, or take any action that would cause the Software or Documentation to be placed in the public domain; (iv) remove, or in any way alter or obscure, any copyright notice or other notice of Motorola's proprietary rights; (v) provide, copy, transmit, disclose, divulge or make the Software or Documentation available to, or permit the use of the Software by any third party or on any machine except as expressly authorized by this License Agreement; or (vi) use, or permit the use of, the Software in a manner that would result in the production of a copy of the Software solely by activating a machine containing the Software. Licensee may make one copy of Software to be used solely for archival, back-up, or disaster recovery purposes; *provided* that Licensee may not operate that copy of the Software at the same time as the original Software is being operated. Licensee may make as many copies of the Documentation as it may reasonably require for the internal use of the Software.

4.3. Unless otherwise authorized by Motorola in writing, Licensee will not, and will not enable or allow any third party to: (i) install a licensed copy of the Software on more than one unit of a Designated Product; or (ii) copy onto or transfer Software installed in one unit of a Designated Product onto one other device. Licensee may temporarily transfer Software installed on a Designated Product to another device if the Designated Product is inoperable or malfunctioning, if Licensee provides written notice to Motorola of the temporary transfer and identifies the device on which the Software is transferred. Temporary transfer of the Software to another device must be discontinued when the original Designated Product is returned to operation and the Software must be removed from the other device. Licensee must provide prompt written notice to Motorola at the time temporary transfer is discontinued.

4.4 Licensee will maintain, during the term of this License Agreement and for a period of two years thereafter, accurate records relating to this license grant to verify compliance with this License Agreement. Motorola or an independent third party ("Auditor") may inspect Licensee's premises, books

and records, upon reasonable prior notice to Licensee, during Licensee's normal business hours and subject to Licensee's facility and security regulations. Motorola is responsible for the payment of all expenses and costs of the Auditor. Any information obtained by Motorola and the Auditor will be kept in strict confidence by Motorola and the Auditor and used solely for the purpose of verifying Licensee's compliance with the terms of this License Agreement.

Section 5 OWNERSHIP AND TITLE

Motorola, its licensors, and its suppliers retain all of their proprietary rights in any form in and to the Software and Documentation, including, but not limited to, all rights in patents, patent applications, inventions, copyrights, trademarks, trade secrets, trade names, and other proprietary rights in or relating to the Software and Documentation (including any corrections, bug fixes, enhancements, updates, modifications, adaptations, translations, de-compilations, disassemblies, emulations to or derivative works from the Software or Documentation, whether made by Motorola or another party, or any improvements that result from Motorola's processes or, provision of information services). No rights are granted to Licensee under this License Agreement by implication, estoppel or otherwise, except for those rights which are expressly granted to Licensee in this License Agreement. All intellectual property developed, originated, or prepared by Motorola in connection with providing the Software, Designated Products, Documentation or related services, remains vested exclusively in Motorola, and Licensee will not have any shared development or other intellectual property rights.

Section 6 LIMITED WARRANTY; DISCLAIMER OF WARRANTY

6.1. Unless otherwise stated in the Primary Agreement, the commencement date and the term of the Software warranty will be a period of ninety (90) days from Motorola's shipment of the Software (the "Warranty Period"). If Licensee is not in breach of any of its obligations under this License Agreement, Motorola warrants that the unmodified Software, when used properly and in accordance with the Documentation and this License Agreement, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Software. Whether a defect occurs will be determined by Motorola solely with reference to the Documentation. Motorola does not warrant that Licensee's use of the Software or the Designated Products will be uninterrupted, error-free, completely free of Security Vulnerabilities, or that the Software or the Designated Products will meet Licensee's particular requirements. Motorola makes no representations or warranties with respect to any third party software included in the Software. Notwithstanding, any warranty provided by a copyright owner in its standard license terms will flow through to Licensee for third party software provided by Motorola.

6.2 Motorola's sole obligation to Licensee and Licensee's exclusive remedy under this warranty is to use reasonable efforts to remedy any material Software defect covered by this warranty. These efforts will involve either replacing the media or attempting to correct significant, demonstrable program or documentation errors or Security Vulnerabilities. If Motorola cannot correct the defect within a reasonable time, then Motorola will replace the defective Software with functionally-equivalent Software, license to Licensee substitute Software which will accomplish the same objective, or terminate the license and refund the Licensee's paid license fee.

6.3. Warranty claims are described in the Primary Agreement.

6.4. The express warranties set forth in this Section 6 are in lieu of, and Motorola disclaims, any and all other warranties (express or implied, oral or written) with respect to the Software or Documentation, including, without limitation, any and all implied warranties of condition, title, non-infringement, merchantability, or fitness for a particular purpose or use by Licensee (whether or not Motorola knows, has reason to know, has been advised, or is otherwise aware of any such purpose or use), whether arising by law, by reason of custom or usage of trade, or by course of dealing. In addition, Motorola disclaims any warranty to any person other than Licensee with respect to the Software or Documentation.

Section 7 TRANSFERS

Licensee will not transfer the Software or Documentation to any third party without Motorola's prior written consent. Motorola's consent may be withheld at its discretion and may be conditioned upon transferee paying all applicable license fees and agreeing to be bound by this License Agreement. If the Designated Products are Motorola's radio products and Licensee transfers ownership of the Motorola radio products to a third party, Licensee may assign its right to use the Software (other than CPS and Motorola's FLASHport® software) which is embedded in or furnished for use with the radio products and the related Documentation; *provided* that Licensee transfers all copies of the Software and Documentation to the transferee, and Licensee and the transferee sign a transfer form to be provided by Motorola upon request, obligating the transferee to be bound by this License Agreement.

Section 8 TERM AND TERMINATION

8.1 Licensee's right to use the Software and Documentation will begin when the Primary Agreement is signed by both parties and will continue for the life of the Designated Products with which or for which the Software and Documentation have been provided by Motorola, unless Licensee breaches this License Agreement, in which case this License Agreement and Licensee's right to use the Software and Documentation may be terminated immediately upon notice by Motorola.

8.2 Within thirty (30) days after termination of this License Agreement, Licensee must certify in writing to Motorola that all copies of the Software have been removed or deleted from the Designated Products and that all copies of the Software and Documentation have been returned to Motorola or destroyed by Licensee and are no longer in use by Licensee.

8.3 Licensee acknowledges that Motorola made a considerable investment of resources in the development, marketing, and distribution of the Software and Documentation and that Licensee's breach of this License Agreement will result in irreparable harm to Motorola for which monetary damages would be inadequate. If Licensee breaches this License Agreement, Motorola may terminate this License Agreement and be entitled to all available remedies at law or in equity (including immediate injunctive relief and repossession of all non-embedded Software and associated Documentation unless Licensee is a Federal agency of the United States Government).

Section 9 Commercial Computer Software

9.1 *This Section 9 only applies to U.S. Government end users.* The Software, Documentation and updates are commercial items as that term is defined at 48 C.F.R. Part 2.101, consisting of "commercial computer software" and "computer software documentation" as such terms are defined in 48 C.F.R. Part 252.227-7014(a)(1) and 48 C.F.R. Part 252.227-7014(a)(5), and used in 48 C.F.R. Part 12.212 and 48 C.F.R. Part 227.7202, as applicable. Consistent with 48 C.F.R. Part 12.212, 48 C.F.R. Part 252.227-7015, 48 C.F.R. Part 227.7202-1 through 227.7202-4, 48 C.F.R. Part 52.227-19, and other relevant sections of the Code of Federal Regulations, as applicable, the Software, Documentation and Updates are distributed and licensed to U.S. Government end users: (i) only as commercial items, and (ii) with only those rights as are granted to all other end users pursuant to the terms and conditions contained herein.

9.2 If Licensee is licensing Software for end use by the United States Government or a United States Government agency, Licensee may transfer such Software license, but only if: (i) Licensee transfers all copies of such Software and Documentation to such United States Government entity or interim transferee, and (ii) Licensee has first obtained from the transferee (if applicable) and ultimate end user an enforceable end user license agreement containing restrictions substantially identical to the ones contained in this License Agreement. Except as stated in the foregoing, Licensee and any transferee(s) authorized by this subsection 9.2 may not otherwise use or transfer or make available any Motorola software to any third party nor permit any party to do so.

Section 10 CONFIDENTIALITY

Licensee acknowledges that the Software and Documentation contain Motorola's valuable proprietary and Confidential Information and are Motorola's trade secrets, and that the provisions in the Primary Agreement concerning Confidential Information apply.

Section 11 LIMITATION OF LIABILITY

The Limitation of Liability provision is described in the Primary Agreement.

Section 12 NOTICES

Notices are described in the Primary Agreement.

Section 13 GENERAL

13.1. **COPYRIGHT NOTICES.** The existence of a copyright notice on the Software will not be construed as an admission or presumption of publication of the Software or public disclosure of any trade secrets associated with the Software.

13.2. **COMPLIANCE WITH LAWS.** Licensee acknowledges that the Software is subject to the laws and regulations of the United States and Licensee will comply with all applicable laws and regulations, including export laws and regulations of the United States. Licensee will not, without the prior authorization of Motorola and the appropriate governmental authority of the United States, in any form export or re-export, sell or resell, ship or reship, or divert, through direct or indirect means, any item or technical data or direct or indirect products sold or otherwise furnished to any person within any territory for which the United States Government or any of its agencies at the time of the action, requires an export license or other governmental approval. Violation of this provision is a material breach of this License Agreement.

13.3 **FUTURE REGULATORY REQUIREMENTS.** The Parties acknowledge and agree that this is an evolving technological area and therefore, laws and regulations regarding Services and use of Solution may change. Changes to existing Services or the Solution required to achieve regulatory compliance may be available for an additional fee. Any required changes may also impact the price for Services.

13.4. **ASSIGNMENTS AND SUBCONTRACTING.** Motorola may assign its rights or subcontract its obligations under this License Agreement, or encumber or sell its rights in any Software, without prior notice to or consent of Licensee.

13.5. **GOVERNING LAW.** This License Agreement is governed by the laws of the United States to the extent that they apply and otherwise by the internal substantive laws of the State to which the Software is shipped if Licensee is a sovereign government entity, or the internal substantive laws of the State of Illinois if Licensee is not a sovereign government entity. The terms of the U.N. Convention on Contracts for the International Sale of Goods do not apply. In the event that the Uniform Computer Information Transaction Act, any version of this Act, or a substantially similar law (collectively "UCITA") becomes applicable to a party's performance under this License Agreement, UCITA does not govern any aspect of this License Agreement or any license granted under this License Agreement, or any of the parties' rights or obligations under this License Agreement. The governing law will be that in effect prior to the applicability of UCITA.

13.6. **THIRD PARTY BENEFICIARIES.** This License Agreement is entered into solely for the benefit of Motorola and Licensee. No third party has the right to make any claim or assert any right under this License Agreement, and no third party is deemed a beneficiary of this License Agreement. Notwithstanding the foregoing, any licensor or supplier of third party software included in the Software will be a direct and intended third party beneficiary of this License Agreement.

13.7. **SURVIVAL.** Sections 4, 5, 6.4, 7, 8, 9, 10, 11 and 13 survive the termination of this License Agreement.

13.8. **ORDER OF PRECEDENCE.** In the event of inconsistencies between this Exhibit and the Primary Agreement, the parties agree that this Exhibit prevails, only with respect to the specific subject matter of this Exhibit, and not the Primary Agreement or any other exhibit as it applies to any other subject matter.

13.9. **SECURITY.** Motorola uses reasonable means in the design and writing of its own Software and the acquisition of third party Software to limit Security Vulnerabilities. While no software can be guaranteed to be free from Security Vulnerabilities, if a Security Vulnerability is discovered, Motorola will take the steps set forth in Section 6 of this License Agreement.

Exhibit B
For the System purchase financed through Motorola, please refer to the payment schedule included in the Equipment Lease-Purchase Agreement

For Lifecycle Support Plan and Subscription Based Services:

Motorola will invoice Customer annually in advance of each year of the plan, or as otherwise stated in the applicable addenda.

EXHIBIT D

System Acceptance Certificate

Customer Name: _____

Project Name: _____

This System Acceptance Certificate memorializes the occurrence of System Acceptance. Motorola and Customer acknowledge that:

1. The Acceptance Tests set forth in the Acceptance Test Plan have been successfully completed.
2. The System is accepted.

Customer Representative:

Motorola Representative:

Signature: _____

Signature: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

FINAL PROJECT ACCEPTANCE:

Motorola has provided and Customer has received all deliverables, and Motorola has performed all other work required for Final Project Acceptance.

Customer Representative:

Motorola Representative:

Signature: _____

Signature: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

Exhibit E

EQUIPMENT LEASE PURCHASE AGREEMENT DELIVERY AND ACCEPTANCE CERTIFICATE

The undersigned Lessee hereby acknowledges receipt of the Equipment described below ("Equipment") and Lessee hereby accepts the Equipment after full inspection thereof as satisfactory for all purposes of lease Schedule A to the Equipment Lease Purchase Agreement executed by Lessee (Customer) and Lessor.

Equipment Lease Purchase Agreement No.: _____

Lease Schedule A No. : _____

EQUIPMENT INFORMATION

QUANTITY	MODEL NUMBER	EQUIPMENT DESCRIPTION
		Equipment referenced in lease Schedule A# _____. See Schedule A for a detailed Equipment List.

LESSEE/CUSTOMER:

By: _____

Title: _____

Date: _____

Please complete this form and send a copy via US mail or email to:

Motorola Solutions Credit Company LLC

Attn: Bill Stancik, Finance Manager | 500 W. Monroe, 44th Floor | Chicago, IL 60661

Email: bill.stancik@motorolasolutions.com | Telephone: (847) 538-453

MAINTENANCE AND SUPPORT ADDENDUM

This Addendum to the Communications System and Services Agreement or other previously executed Agreement currently in force, as applicable ("Primary Agreement") provides additional or different terms and conditions to govern the sale of Maintenance and Support services. The terms in this Addendum are integral to and incorporated into the Primary Agreement signed by the Parties.

1. DEFINITIONS

All capitalized terms not otherwise defined herein shall have the same meaning as defined in the Primary Agreement.

2. SCOPE

Motorola will provide Maintenance and Support Services as further described in the applicable Statement of Work, or attachment to Motorola's proposal for additional services.

3. TERMS AND CONDITIONS

The terms of the Primary Agreement combined with the terms of this Addendum will govern the products and services offered pursuant to this Addendum. To the extent there is a conflict between the terms and conditions of the Primary Agreement and the terms and conditions of this Addendum, this Addendum takes precedence.

3.1 MAINTENANCE AND SUPPORT SERVICES

3.1.1 **PURCHASE ORDER ACCEPTANCE.** Purchase orders for additional, continued, or expanded maintenance and software support, during the Warranty Period or after the Warranty Period, become binding only when accepted in writing by Motorola.

3.1.2 **START DATE.** The "Start Date" for Maintenance and Support Services will be indicated in the proposal or a cover page entitled "Service Agreement".

3.1.3 **AUTO RENEWAL.** Unless the cover page or SOW specifically states a termination date or one Party notifies the other in writing of its intention to discontinue the Services, this Agreement will renew for an additional one (1) year term on every anniversary of the Start Date. At the anniversary date, Motorola may adjust the price of the Services to reflect the renewal rate.

3.1.4 **TERMINATION.** Written notice of intent to terminate must be provided thirty (30) days or more prior to the anniversary date. If Motorola provides Services after the termination or expiration of this Addendum, the terms and conditions in effect at the time of the termination or expiration will apply to those Services and Customer agrees to pay for those services on a time and materials basis at Motorola's then effective hourly rates.

3.1.5 **EQUIPMENT DEFINITION.** For maintenance and support services, Equipment will be defined to mean the hardware specified in the applicable SOW or attachments to the maintenance and support proposal.

3.1.6 ADDITIONAL HARDWARE. If Customer purchases additional hardware from Motorola that becomes part of the System, the additional hardware may be added to this Addendum and will be billed at the applicable rates after the warranty period for that additional equipment expires. Such hardware will be included in the definition of Equipment.

3.1.7 MAINTENANCE. Equipment will be maintained at levels set forth in the manufacturer's product manuals and routine procedures that are prescribed by Motorola will be followed. Motorola parts or parts of equal quality will be used for Equipment maintenance.

3.1.8 EQUIPMENT CONDITION. All Equipment must be in good working order on the Start Date or when additional equipment is added to the Addendum. Upon reasonable request by Motorola, Customer will provide a complete serial and model number list of the Equipment. Customer must promptly notify Motorola in writing when any Equipment is lost, damaged, stolen or taken out of service. Customer's obligation to pay maintenance and support fees for this Equipment will terminate at the end of the month in which Motorola receives the written notice. If Equipment cannot, in Motorola's reasonable opinion, be properly or economically maintained for any reason, Motorola may modify the scope of Services related to that Equipment; remove that Equipment from the Agreement; or increase the price to maintain that Equipment.

3.1.9 EQUIPMENT FAILURE. Customer must promptly notify Motorola of any Equipment failure. Motorola will respond to Customer's notification in a manner consistent with the level of Service purchased as indicated in this Addendum and applicable SOW.

3.1.10 INTRINSICALLY SAFE. Customer must specifically identify any Equipment that is labeled intrinsically safe for use in hazardous environments.

3.1.11 EXCLUDED SERVICES.

a) Service excludes the repair or replacement of Equipment that has become defective or damaged from use in other than the normal, customary, intended, and authorized manner; use not in compliance with applicable industry standards; excessive wear and tear; or accident, liquids, power surges, neglect, acts of God or other force majeure events.

b) Unless specifically included in this Addendum, Service excludes items that are consumed in the normal operation of the Equipment, such as batteries or magnetic tapes.; upgrading or reprogramming Equipment; accessories, belt clips, battery chargers, custom or special products, modified units, or software; and repair or maintenance of any transmission line, antenna, microwave equipment, tower or tower lighting, duplexer, combiner, or multicoupler. Motorola has no obligations for any transmission medium, such as telephone lines, computer networks, the internet or the worldwide web, or for Equipment malfunction caused by the transmission medium.

3.1.12 TIME AND PLACE. Service will be provided at the location specified in this Addendum and/or the SOW. When Motorola performs maintenance, support, or installation at Customer's location, Customer will provide Motorola, at no charge, a non-hazardous work environment with adequate shelter, heat, light, and power and with full and free access to the Equipment. Waivers of liability from Motorola or its subcontractors will not be imposed as a site access requirement. Customer will provide all information pertaining to the hardware and

software elements of any system with which the Equipment is interfacing so that Motorola may perform its Services. Unless otherwise stated in this Addendum or applicable SOW, the hours of Service will be 8:30 a.m. to 4:30 p.m., local time, excluding weekends and holidays. Unless otherwise stated in this Addendum or applicable SOW, the price for the Services exclude any charges or expenses associated with helicopter or other unusual access requirements; if these charges or expenses are reasonably incurred by Motorola in rendering the Services, Customer agrees to reimburse Motorola for those charges and expenses.

3.1.13 CUSTOMER CONTACT. Customer will provide Motorola with designated points of contact (list of names and phone numbers) that will be available twenty-four (24) hours per day, seven (7) days per week, and an escalation procedure to enable Customer's personnel to maintain contact, as needed, with Motorola.

3.2.8 If Customer terminates this service and contractual commitment before the end of the term, for any reason other than Motorola's default, then the Customer will pay to Motorola a termination fee equal to the discount applied to the last three years of service payments related to the year commitment.

3.2.9 INFLATION ADJUSTMENT. After the end of the first year of the service period in this Addendum, if the change in the U.S. Department of Labor, Consumer Price Index, all Items, Unadjusted Urban Areas (CPI-U) annual index for each service year exceeds five percent (5%), the price for the coming year's services will increase by an incremental dollar amount per the following formula: Current year's maintenance price * (actual change in the CPI - 5 percentage points). The successive year's service will increase from this new baseline by the dollar amount as described in the Pricing Exhibit. This adjustment will be calculated 60 days prior to the 12th/24th/36th, etc. anniversary of the end of the last service period in this Addendum. It will be calculated based upon the CPI for the most recent twelve month increments beginning from the most current month available as posted by the U.S. Department of Labor. The price adjustment would fix the price for the following 12 months.

4. ENTIRE AGREEMENT. This Addendum, any related attachments, and the Primary Agreement, constitutes the entire agreement of the Parties regarding the subject matter of this Addendum and supersedes all previous agreements, proposals, and understandings, whether written or oral, relating to this subject matter. This Addendum may be amended or modified only by a written instrument signed by authorized representatives of both Parties. The preprinted terms and conditions found on any Customer purchase or purchase order, acknowledgment or other form will not be considered an amendment or modification of this Addendum, even if a representative of each Party signs that document.

END

SECTION 9

ATTACHMENTS

9.1 NOKIA MICROWAVE SYSTEM FEASIBILITY REPORT

Nokia Microwave System Feasibility Report is included on the pages that follow.



MEMORANDUM

To Sung Tran

cc: Andre Brown
File

From Scott Troyer

Date September 27, 2017

Ref Preliminary Path Study - Riverside County - Additional Paths

Attached are path calculations for 85 paths in California. The path design uses the 9500 MPR radio in the 6GHz and 11GHz bands.

The following assumptions were used:

- Site coordinates are from the customer. The site coordinates were provided using the North American Datum of 1983 (NAD83).
- Ground elevations at each site are taken from the USGS 30 meter terrain database.
- Profile data is from the USGS 30 meter terrain database.
- Paths were designed for a poor propagation area.
- Centerlines used were the existing centerlines. Paths used surveyed tree heights + 10ft growth.
- The main antenna clearance criteria is the higher of:
 - Grazing @ $K=1/2$.
 - 1.0 of the 1st Fresnel zone @ $K=4/3$.
- Paths were designed to a 2-way availability of 99.9999% per year, using the 10^{-6} bit error rate threshold. Paths were also designed using a minimum fade margin to protect against obstruction fading and ducting conditions.

Nokia strongly recommends that a field survey be performed to verify site coordinates, path clearances and obstruction heights.

Attached is a copy of our 'Microwave Path Engineering Warranty' which should be included with any transmittals of feasibility studies, proposals and/or final designs and frequency coordination.

If you have any questions, please call.

Scott Troyer

972-477-7932



Microwave System Feasibility Report

Riverside County 9500 Upgrade

This report is intended to discover the feasibility of constructing a microwave system to meet the customer's needs as outlined to Nokia. It is based on customer supplied data unless noted otherwise. This information should be used solely to determine if a more formal engineering effort is worthwhile.

No equipment orders, site work, tower structural analysis, frequency coordination or similar activity should be based on this document.

This document was prepared by: Scott Troyer
Microwave Application Senior Engineer

(972) 806-1854

Nokia
North American Mobile Networks
601 Data Drive
Plano, Texas, 75075

PROPRIETARY NOTICE: This document is the result of technical investigations made by the engineering staff of Nokia. The disclosure of the information herein may pertain to proprietary rights, and the furnishing of this document does not constitute an expressed or implied license to use such materials.

JOSHUA TREE

Belle Mt

Edom Hill

INDIO HILL

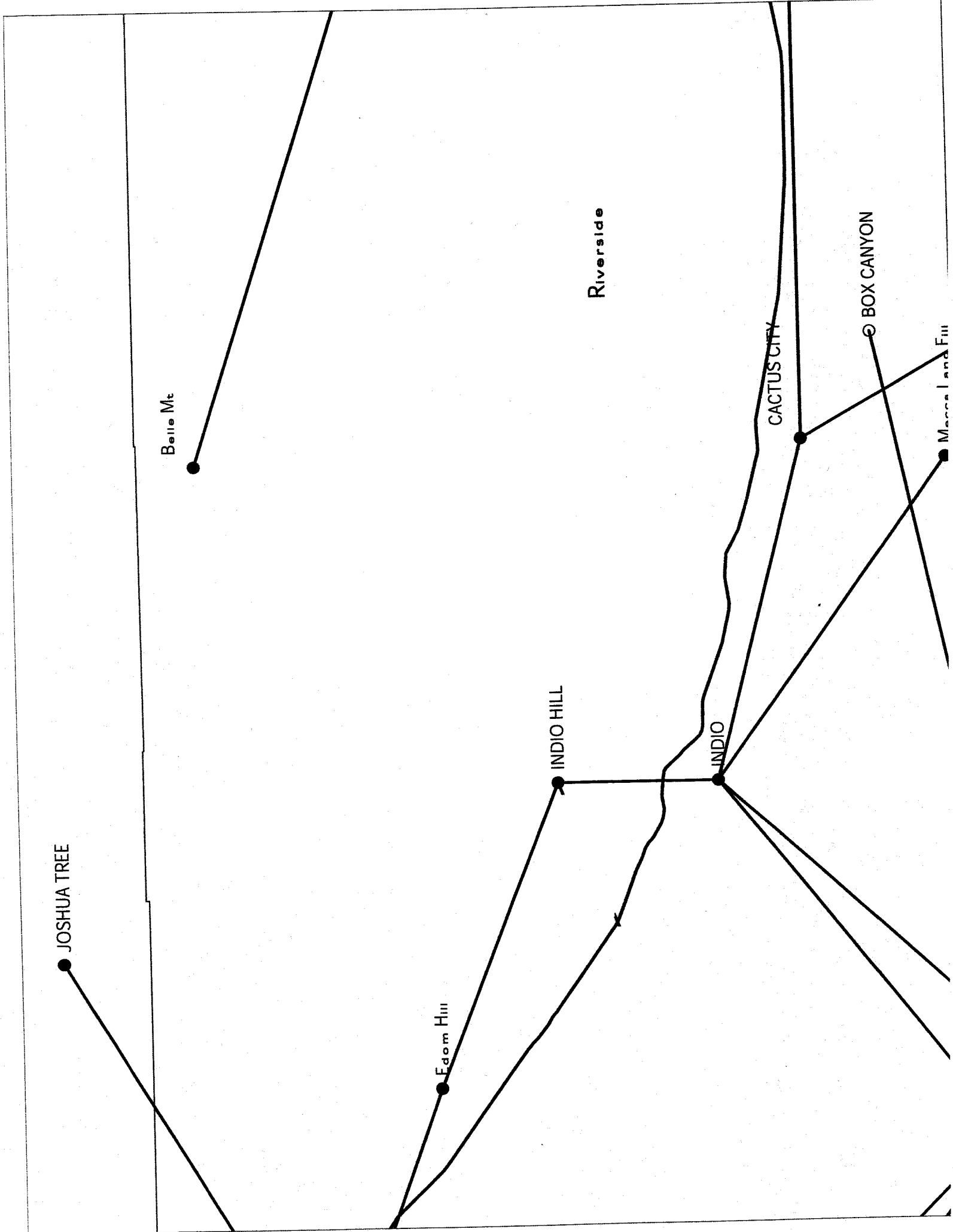
Riverside

INDIO

CACTUS CITY

BOX CANYON

Marcel Land Fill



SYSTEM: County of Riverside
 ROUTE: MURRIETA PD
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\SYSTEM\RECORD-4
 REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Nokia Final Design		RIVERSIDE PD	ARLINGTON
TROYER		NAD83 33 54 29.1 N 117 27 54.9 W	NAD83 33 55 07.0 N 117 27 39.1 W
GROUND ELEVATION	Feet	730.0	764.0
MAIN ANTENNA SIZE	Feet	2.0 SC2-W100BC	2.0 SC2-W100BC
MAIN ANTENNA GAIN	dBi	34.3	34.3
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	32.0	98.0
MAIN FEEDER LENGTH	Feet	156.0	128.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E105	2.8 E105
MAIN FEEDER LOSS	dB	4.4	3.6
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	3.0	3.0
OTHER TRANSMIT LOSSES	dB	2.4	2.4
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	44.6	45.4
MAXIMUM EIRP (PART 101)	dBm	45.7	45.7
RADIO EQUIPMENT TYPE		95MPR10-L128F5-25	
RADIO IDENTIFIER		95MPR10-L128F5-25	
FREQUENCY BAND	MHz	10600	5M00D7W
PATH LENGTH	Miles	.8	
MEAN ANNUAL TEMPERATURE	Deg F	63.2	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	20.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	114.8	
ABSORPTION LOSS	dB	0.0	
DISPERSIVE FADE MARGIN	dB	61.0	
TRANSMIT POWER	dBm	18.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-80.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-43.8	-43.8
THERMAL FADE MARGIN	dB	36.7	36.7
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	36.7	36.7

SYSTEM: County of Riverside
 ROUTE: MURRIETA PD
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\SYSTEM\RECORD-4
 REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Nokia Final Design		RIVERSIDE PD	ARLINGTON
TROYER		NAD83 33 54 29.1 N 117 27 54.9 W	NAD83 33 55 07.0 N 117 27 39.1 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	.2	.2
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds		.3
UPFADE OUTAGE 2-WAY	seconds		0.0
CRANE RAIN OUTAGE 2-WAY	seconds		0.0
PATH AVAILABILITY 2-WAY	percent	99.9999989	.3 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: County of Riverside
 ROUTE: MURRIETA PD
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\SYSTEM\RECORD-4
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Nokia Final Design		Murrieta PD		Elsinore Peak	
TROYER		NAD83 33 33 31.5 N 117 12 35.1 W		NAD83 33 36 08.2 N 117 20 36.7 W	
GROUND ELEVATION	Feet	1120.0		3550.0	
MAIN ANTENNA SIZE	Feet	3.0 SC3-W100AC		4.0 UHX4-107	
MAIN ANTENNA GAIN	dBi	38.6		40.4	
MAIN RADOME LOSS	dB	0.0 PLASTIC		0.0 TEFLON	
MAIN CENTERLINE	Feet	24.0		44.0	
MAIN FEEDER LENGTH	Feet	98.0		100.0	
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105		2.8 E-105	
MAIN FEEDER LOSS	dB	2.7		2.8	
PROTECT CHANNEL LOSS	dB	11.7		11.7	
OTHER FEEDER LOSSES	dB	.9		.9	
WET RADOME LOSS	dB	2.3		2.3	
OTHER TRANSMIT LOSSES	dB	2.1		2.1	
OTHER RECEIVE LOSSES	dB	2.2		2.2	
CALCULATED EIRP	dBm	63.4		65.1	
MAXIMUM EIRP (PART 101)	dBm	85.0		85.0	
RADIO EQUIPMENT TYPE		95MPR11-L128F5-25		95MPR11-L128F5-25	
RADIO IDENTIFIER		11200		5M00D7W	
FREQUENCY BAND	MHz	8.3			
PATH LENGTH	Miles	62.9			
MEAN ANNUAL TEMPERATURE	Deg F	12.0			
ABSOLUTE HUMIDITY	g/m^3	2.0			
CLIMATE FACTOR		140.0			
ROUGHNESS FACTOR	Feet	HORIZONTAL			
POLARIZATION		135.9			
FREE SPACE LOSS	dB	.3			
ABSORPTION LOSS	dB	60.0			
DISPERSIVE FADE MARGIN	dB	30.5		HOT-STANDBY	
TRANSMIT POWER	dBm	0.0			
ATPC POWER REDUCTION	dB	-22.0			
MAXIMUM RECEIVED SIGNAL	dBm	-80.5		BER= 10-6	
RECEIVER THRESHOLD	dBm				
MAIN RECEIVED SIGNAL	dBm	-38.4		-38.4	
THERMAL FADE MARGIN	dB	42.1		42.1	
MINIMUM FADE MARGIN	dB	29.0		29.0	
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	42.1		42.1	

SYSTEM: County of Riverside
 ROUTE: MURRIETA PD
 FILE: Y:\CUSTOMER\FINAL\RIVERSIDE.CA\SYSTEM\RECORD-4
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Nokia	Final Design		Murrieta PD	Elsinore Peak
TROYER			NAD83 33 33 31.5 N 117 12 35.1 W	NAD83 33 36 08.2 N 117 20 36.7 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	5.1	5.1
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	.1	.1
TOTAL MULTIPATH	2-WAY	seconds		10.4
UPFADE OUTAGE	2-WAY	seconds		0.0
CRANE RAIN OUTAGE	2-WAY	seconds		3.3
PATH AVAILABILITY	2-WAY	percent	99.9999565	13.7 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

PATH CALCULATIONS

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PAGE 1.1

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		BOX SPRINGS	ALESSANDRO
SITE NAME		NAD83 33 57 43.9 N 117 16 51.1 W	NAD83 33 55 16.1 N 117 20 07.4 W
GROUND ELEVATION	Feet	3067.0	1669.0
MAIN ANTENNA SIZE	Feet	4.0 UHX4-107	4.0 UHX4-107
MAIN ANTENNA GAIN	dBi	40.4	40.4
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	15.0	20.0
MAIN FEEDER LENGTH	Feet	45.0	120.0
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90	3.1 EW-90
MAIN FEEDER LOSS	dB	1.4	3.7
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	1.0	1.0
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.3	3.3
CALCULATED EIRP	dBm	67.5	65.2
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161	
RADIO IDENTIFIER		95MPR11-L128A30-161	
FREQUENCY BAND	MHz	11200	30M0D7W
PATH LENGTH	Miles	4.2	
MEAN ANNUAL TEMPERATURE	Deg F	64.0	
ABSOLUTE HUMIDITY	g/m ³	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	130.1	
ABSORPTION LOSS	dB	.1	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	32.5	NON-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-71.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-30.2 MAX POWER	-30.2 MAX POWER
THERMAL FADE MARGIN	dB	40.8	40.8
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	40.8	40.8

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVERSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design			BOX SPRINGS	ALESSANDRO
SITE NAME			NAD83 33 57 43.9 N 117 16 51.1 W	NAD83 33 55 16.1 N 117 20 07.4 W
SPACE DIV IMPROVE FACTOR	THERMAL		1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL		1.0	1.0
SPACE DIV IMPROVE FACTOR	DIGITAL		1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL		0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds		2.0
UPFADE OUTAGE	2-WAY	seconds		0.0
CRANE RAIN OUTAGE	2-WAY	seconds		.1
PATH AVAILABILITY	2-WAY	percent	99.9999934	2.1 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- 2 FREQUENCIES

PATH CALCULATIONS

18 Jan 2016 SRT

PAGE 2.1

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		PERRIS	BOX SPRINGS
SITE NAME		NAD83 33 47 23.0 N 117 13 52.3 W	NAD83 33 57 43.9 N 117 16 51.1 W
GROUND ELEVATION	Feet	1507.0	3067.0
MAIN ANTENNA SIZE	Feet	8.0 HP8-107	8.0 HDX8-107
MAIN ANTENNA GAIN	dBi	46.4	46.4
MAIN RADOME LOSS	dB	0.0 HYPALON	0.0 TEFLON
DIVERSITY ANTENNA SIZE	Feet	8.0 HP8-107	8.0 HDX8-107
DIVERSITY ANTENNA GAIN	dBi	46.4	46.4
DIVERSITY RADOME LOSS	dB	0.0 HYPALON	0.0 TEFLON
ANGLE DIV POWER LOSS	dB	0.0	13.0
MAIN CENTERLINE	Feet	29.0	21.0
MAIN FEEDER LENGTH	Feet	59.0	51.0
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90	3.1 EW-90
MAIN FEEDER LOSS	dB	1.8	1.6
DIVERSITY CENTERLINE	Feet	56.0	21.0
DIVERSITY FEEDER LENGTH	Feet	86.0	51.0
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	4.0	4.0
OTHER TRANSMIT LOSSES	dB	1.4	1.4
OTHER RECEIVE LOSSES	dB	1.7	1.7
CALCULATED EIRP	dBm	74.8	75.0
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161	
RADIO IDENTIFIER		95MPR11-L128A30-161	
FREQUENCY BAND	MHz	11200	30MOD7W
PATH LENGTH	Miles	12.4	
MEAN ANNUAL TEMPERATURE	Deg F	63.9	
ABSOLUTE HUMIDITY	g/m^3	11.3	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	111.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	139.4	
ABSORPTION LOSS	dB	.4	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	32.5	NON-STANDBY
ATPC POWER REDUCTION	dB	15.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-71.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-23.9 MAX POWER	-23.9 MAX POWER
DIV RECEIVED SIGNAL	dBm	-24.7	-36.9 SEE NOTES
THERMAL FADE MARGIN	dB	47.1	47.1
SPACE DIV THERMAL FM	dB	46.3	34.1
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.1	47.1

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVERSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design	PERRIS	BOX SPRINGS
SITE NAME	NAD83 33 47 23.0 N 117 13 52.3 W	NAD83 33 57 43.9 N 117 16 51.1 W
ANGLE DIV IMPROVE FACTOR	THERMAL 1.0	20.0
SPACE DIV IMPROVE FACTOR	THERMAL 200.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL 0.0	.4
ANGLE DIV IMPROVE FACTOR	DIGITAL 1.0	200.0
SPACE DIV IMPROVE FACTOR	DIGITAL 200.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL 0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	.4
UPFADE OUTAGE 2-WAY	seconds	0.0
CRANE RAIN OUTAGE 2-WAY	seconds	1.2
PATH AVAILABILITY 2-WAY	percent	99.9999950 1.6 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000 31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- CALCULATED ANGLE DIVERSITY RSL IS BASED ON THE ANTENNA PATTERN
 MEASURED ANGLE DIVERSITY RSL MAY BE UP TO 10 dB LOWER
- ANGLE DIVERSITY WORKS BEST WITH A LARGE DIFFERENCE IN RSL
 BETWEEN THE MAIN AND DIVERSITY RECEIVERS
- ANGLE DIVERSITY RSL WILL INCREASE DURING MULTIPATH FADING

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		Edom Hill		INDIO HILLS	
SITE NAME		NAD83 33 52 07.3 N 116 26 00.8 W		NAD83 33 47 55.4 N 116 13 19.2 W	
GROUND ELEVATION	Feet	1575.0		1653.0	
MAIN ANTENNA SIZE	Feet	6.0 HP6-107		6.0 HP6-107	
MAIN ANTENNA GAIN	dBi	44.0		44.0	
MAIN RADOME LOSS	dB	0.0 TEFLON		0.0 TEFLON	
DIVERSITY ANTENNA SIZE	Feet	4.0 HP4-107		4.0 HP4-107	
DIVERSITY ANTENNA GAIN	dBi	40.4		40.4	
DIVERSITY RADOME LOSS	dB	0.0 TEFLON		0.0 TEFLON	
MAIN CENTERLINE	Feet	59.0		57.0	
MAIN FEEDER LENGTH	Feet	99.0		157.0	
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90		3.1 EW-90	
MAIN FEEDER LOSS	dB	3.1		4.9	
DIVERSITY CENTERLINE	Feet	29.0		27.0	
DIVERSITY FEEDER LENGTH	Feet	69.0		127.0	
OTHER FEEDER LOSSES	dB	.9		.9	
WET RADOME LOSS	dB	1.0		1.0	
OTHER TRANSMIT LOSSES	dB	1.4		1.4	
OTHER RECEIVE LOSSES	dB	1.7		1.7	
CALCULATED EIRP	dBm	71.1		69.3	
MAXIMUM EIRP (PART 101)	dBm	85.0		85.0	
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161			
RADIO IDENTIFIER		95MPR11-L128A30-161			
FREQUENCY BAND	MHz	11200		30MOD7W	
PATH LENGTH	Miles	13.1			
MEAN ANNUAL TEMPERATURE	Deg F	72.4			
ABSOLUTE HUMIDITY	g/m^3	12.0			
CLIMATE FACTOR		2.0			
ROUGHNESS FACTOR	Feet	140.0			
POLARIZATION		VERTICAL			
FREE SPACE LOSS	dB	139.9			
ABSORPTION LOSS	dB	.5			
DISPERSIVE FADE MARGIN	dB	55.0			
TRANSMIT POWER	dBm	32.5		NON-STANDBY	
ATPC POWER REDUCTION	dB	0.0			
MAXIMUM RECEIVED SIGNAL	dBm	-22.0			
RECEIVER THRESHOLD	dBm	-71.0			
		BER= 10-6			
MAIN RECEIVED SIGNAL	dBm	-32.7		-32.7	
DIV RECEIVED SIGNAL	dBm	-35.4		-35.4	
THERMAL FADE MARGIN	dB	38.3		38.3	
SPACE DIV THERMAL FM	dB	35.6		35.6	
MINIMUM FADE MARGIN	dB	35.0		35.0	
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	38.3		38.3	

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVERSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design	Edom Hill	INDIO HILLS
SITE NAME	NAD83 33 52 07.3 N 116 26 00.8 W	NAD83 33 47 55.4 N 116 13 19.2 W
SPACE DIV IMPROVE FACTOR	THERMAL 196.5	196.5
MULTIPATH OUTAGE SECONDS	THERMAL .3	.3
SPACE DIV IMPROVE FACTOR	DIGITAL 200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL 0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds .6	
UPFADE OUTAGE 2-WAY	seconds 0.0	
CRANE RAIN OUTAGE 2-WAY	seconds 2.4	
PATH AVAILABILITY 2-WAY	percent 99.9999907	2.9 sec
OUTAGE OBJECTIVE YEAR	percent 99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		PERRIS	ELSINORE PEAK
SITE NAME		NAD83 33 47 23.0 N 117 13 52.3 W	NAD83 33 36 07.9 N 117 20 36.8 W
GROUND ELEVATION	Feet	1507.0	3550.0
MAIN ANTENNA SIZE	Feet	8.0 HP8-107	8.0 HDX8-107
MAIN ANTENNA GAIN	dBi	46.4	46.4
MAIN RADOME LOSS	dB	0.0 HYPALON	0.0 TEFLON
DIVERSITY ANTENNA SIZE	Feet	8.0 HP8-107	8.0 HDX8-107
DIVERSITY ANTENNA GAIN	dBi	46.4	46.4
DIVERSITY RADOME LOSS	dB	0.0 HYPALON	0.0 TEFLON
ANGLE DIV POWER LOSS	dB	0.0	13.0
MAIN CENTERLINE	Feet	29.0	35.0
MAIN FEEDER LENGTH	Feet	59.0	75.0
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90	3.1 EW-90
MAIN FEEDER LOSS	dB	1.8	2.3
DIVERSITY CENTERLINE	Feet	56.0	35.0
DIVERSITY FEEDER LENGTH	Feet	86.0	75.0
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	4.0	4.0
OTHER TRANSMIT LOSSES	dB	1.4	1.4
OTHER RECEIVE LOSSES	dB	1.7	1.7
CALCULATED EIRP	dBm	74.8	74.3
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161	
RADIO IDENTIFIER		95MPR11-L128A30-161	
FREQUENCY BAND	MHz	11200	30MOD7W
PATH LENGTH	Miles	14.3	
MEAN ANNUAL TEMPERATURE	Deg F	63.3	
ABSOLUTE HUMIDITY	g/m ³	11.8	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	140.7	
ABSORPTION LOSS	dB	.5	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	32.5	NON-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-71.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-26.0 MAX POWER	-26.0 MAX POWER
DIV RECEIVED SIGNAL	dBm	-26.8	-39.0 SEE NOTES
THERMAL FADE MARGIN	dB	45.0	45.0
SPACE DIV THERMAL FM	dB	44.2	32.0
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	45.0	45.0

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVERSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design			PERRIS		ELSINORE PEAK	
SITE NAME			NAD83 33 47 23.0 N		NAD83 33 36 07.9 N	
			117 13 52.3 W		117 20 36.8 W	
ANGLE DIV IMPROVE FACTOR	THERMAL		1.0		20.0	
SPACE DIV IMPROVE FACTOR	THERMAL		200.0		1.0	
MULTIPATH OUTAGE SECONDS	THERMAL		.1		.7	
ANGLE DIV IMPROVE FACTOR	DIGITAL		1.0		200.0	
SPACE DIV IMPROVE FACTOR	DIGITAL		200.0		1.0	
MULTIPATH OUTAGE SECONDS	DIGITAL		0.0		0.0	
TOTAL MULTIPATH	2-WAY	seconds			.8	
UPFADE OUTAGE	2-WAY	seconds			0.0	
CRANE RAIN OUTAGE	2-WAY	seconds			2.2	
PATH AVAILABILITY	2-WAY	percent		99.999906	3.0 sec	
OUTAGE OBJECTIVE	YEAR	percent		99.9999000	31.5 sec	

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- CALCULATED ANGLE DIVERSITY RSL IS BASED ON THE ANTENNA PATTERN
 MEASURED ANGLE DIVERSITY RSL MAY BE UP TO 10 dB LOWER
- ANGLE DIVERSITY WORKS BEST WITH A LARGE DIFFERENCE IN RSL
 BETWEEN THE MAIN AND DIVERSITY RECEIVERS
- ANGLE DIVERSITY RSL WILL INCREASE DURING MULTIPATH FADING

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVERSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		RIVERSIDE	BOX SPRINGS
SITE NAME		NAD83 33 58 39.5 N 117 22 24.0 W	NAD83 33 57 43.9 N 117 16 51.1 W
GROUND ELEVATION	Feet	844.0	3067.0
MAIN ANTENNA SIZE	Feet	4.0 HPX4-107	4.0 HPX4-107
MAIN ANTENNA GAIN	dBi	40.3	40.3
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	211.0	15.0
MAIN FEEDER LENGTH	Feet	208.0	45.0
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90	3.1 EW-90
MAIN FEEDER LOSS	dB	6.4	1.4
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	1.0	1.0
OTHER TRANSMIT LOSSES	dB	1.4	1.4
OTHER RECEIVE LOSSES	dB	1.7	1.7
CALCULATED EIRP	dBm	64.1	69.1
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161	95MPR11-L128A30-161
RADIO IDENTIFIER		95MPR11-L128A30-161	95MPR11-L128A30-161
FREQUENCY BAND	MHz	11200	30MOD7W
PATH LENGTH	Miles	5.4	
MEAN ANNUAL TEMPERATURE	Deg F	64.0	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	132.3	
ABSORPTION LOSS	dB	.2	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	32.5	NON-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-71.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-32.1	-32.1
THERMAL FADE MARGIN	dB	38.9	38.9
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	38.9	38.9
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	3.1	3.1
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds		6.3
UPFADE OUTAGE 2-WAY	seconds		0.0
CRANE RAIN OUTAGE 2-WAY	seconds		.5
PATH AVAILABILITY 2-WAY	percent	99.9999785	6.8 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
 FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
 REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		TIMOTEO	Mt. David
SITE NAME		NAD83 33 57 59.5 N 117 09 25.6 W	NAD83 33 54 50.1 N 117 00 03.6 W
GROUND ELEVATION	Feet	2240.0	2831.0
MAIN ANTENNA SIZE	Feet	6.0 SU6-103B	6.0 SU6-103B
MAIN ANTENNA GAIN	dBi	43.5	43.5
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	138.0	22.0
MAIN FEEDER LENGTH	Feet	173.0	62.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	4.8	1.7
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	1.0	1.0
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	64.6	67.7
MAXIMUM EIRP (PART 101)	dBm	70.0	70.0
RADIO EQUIPMENT TYPE		95MPR10-L128A5-25	
RADIO IDENTIFIER		95MPR10-L128A5-25	
FREQUENCY BAND	MHz	10600	5M00D7W
PATH LENGTH	Miles	9.7	
MEAN ANNUAL TEMPERATURE	Deg F	64.7	
ABSOLUTE HUMIDITY	g/m ³	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	123.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	136.8	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	30.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-77.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-36.1	-36.1
THERMAL FADE MARGIN	dB	41.4	41.4
MINIMUM FADE MARGIN	dB	29.0	29.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.4	41.4

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		TIMOTEO		Mt. David	
SITE NAME		NAD83 33 57 59.5 N		NAD83 33 54 50.1 N	
		117 09 25.6 W		117 00 03.6 W	
SPACE DIV IMPROVE FACTOR	THERMAL	1.0		1.0	
MULTIPATH OUTAGE SECONDS	THERMAL	11.1		11.1	
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0		1.0	
MULTIPATH OUTAGE SECONDS	DIGITAL	.2		.2	
TOTAL MULTIPATH	2-WAY	seconds		22.6	
UPFADE OUTAGE	2-WAY	seconds		0.0	
CRANE RAIN OUTAGE	2-WAY	seconds		.6	
PATH AVAILABILITY	2-WAY	percent		99.9999264	23.2 sec
OUTAGE OBJECTIVE	YEAR	percent		99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design	QUAIL MESA	HIDDEN VALLEY H
SITE NAME	NAD83 33 45 55.0 N 114 26 26.0 W	NAD83 33 58 50.6 N 114 27 46.6 W
GROUND ELEVATION	Feet 374.0	327.0
MAIN ANTENNA SIZE	Feet 10.0 DA10-65A	8.0 DA8-65A
MAIN ANTENNA GAIN	dB 44.0	42.2
MAIN RADOME LOSS	dB 0.0 COMPLAN	0.0 COMPLAN
DIVERSITY ANTENNA SIZE	Feet 6.0 PAD6-65B	6.0 PAD6-65B
DIVERSITY ANTENNA GAIN	dB 39.5	39.5
DIVERSITY RADOME LOSS	dB .5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet 85.0	92.0
MAIN FEEDER LENGTH	Feet 125.0	132.0
MAIN FEED LOSS IN dB/100	Feet 1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB 1.6	1.7
DIVERSITY CENTERLINE	Feet 55.0	68.0
DIVERSITY FEEDER LENGTH	Feet 95.0	108.0
PROTECT CHANNEL LOSS	dB 11.9	11.9
OTHER FEEDER LOSSES	dB .6	.6
OTHER TRANSMIT LOSSES	dB 1.9	1.9
OTHER RECEIVE LOSSES	dB 2.8	2.8
CALCULATED EIRP	dBm 74.9	73.0
MAXIMUM EIRP (PART 101)	dBm 85.0	85.0
RADIO EQUIPMENT TYPE	95MPR67-L128A10-52	
RADIO IDENTIFIER	95MPR67-L128A10-52	
FREQUENCY BAND	MHz 6700	10MOD7W
PATH LENGTH	Miles 14.9	
MEAN ANNUAL TEMPERATURE	Deg F 67.9	
ABSOLUTE HUMIDITY	g/m^3 12.8	
CLIMATE FACTOR	1.0	
ROUGHNESS FACTOR	Feet 20.0	
FREE SPACE LOSS	dB 136.6	
ABSORPTION LOSS	dB .3	
FIELD MARGIN	dB 1.0	
DISPERSIVE FADE MARGIN	dB 61.0	
TRANSMIT POWER	dBm 35.0	HOT-STANDBY
ATPC POWER REDUCTION	dB 0.0	
MAXIMUM RECEIVED SIGNAL	dBm -22.0	
RECEIVER THRESHOLD	dBm -76.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm -25.9	-25.9
DIV RECEIVED SIGNAL	dBm -30.5	-28.8
THERMAL FADE MARGIN	dB 50.1	50.1
SPACE DIV THERMAL FM	dB 45.5	47.2
MINIMUM FADE MARGIN	dB 33.0	33.0
EXTERNAL INTERFERENCE FM	dB N/A	N/A
FLAT FADE MARGIN	dB 50.1	50.1

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design	QUAIL MESA	HIDDEN VALLEY H
SITE NAME	NAD83 33 45 55.0 N 114 26 26.0 W	NAD83 33 58 50.6 N 114 27 46.6 W
SPACE DIV IMPROVE FACTOR	THERMAL 200.0	200.0
MULTIPATH OUTAGE SECONDS	THERMAL .1	.1
SPACE DIV IMPROVE FACTOR	DIGITAL 200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL 0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	.2
UPFADE OUTAGE 2-WAY	seconds	0.0
PATH AVAILABILITY 2-WAY	percent	99.999993 .2 sec
OUTAGE OBJECTIVE YEAR	percent	99.999900 31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		QUAIL MESA	BLYTHE
SITE NAME		NAD83 33 45 55.0 N 114 26 26.0 W	NAD83 33 36 49.7 N 114 35 51.7 W
GROUND ELEVATION	Feet	374.0	271.0
MAIN ANTENNA SIZE	Feet	10.0 DA10-65A	8.0 DA8-65A
MAIN ANTENNA GAIN	dBi	44.0	42.2
MAIN RADOME LOSS	dB	0.0 COMPLAN	0.0 COMPLAN
MAIN CENTERLINE	Feet	135.0	109.0
MAIN FEEDER LENGTH	Feet	175.0	149.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	2.3	1.9
PROTECT CHANNEL LOSS	dB	11.9	11.9
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.9	1.9
OTHER RECEIVE LOSSES	dB	2.8	2.8
CALCULATED EIRP	dBm	71.7	70.3
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L64F10-44	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	13.8	
MEAN ANNUAL TEMPERATURE	Deg F	69.8	
ABSOLUTE HUMIDITY	g/m^3	13.5	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	20.0	
FREE SPACE LOSS	dB	135.9	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	69.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-28.6	-28.6
THERMAL FADE MARGIN	dB	52.9	52.9
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	52.9	52.9
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	8.3	8.3
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.2	.2
TOTAL MULTIPATH 2-WAY	seconds	16.9	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999463	16.9 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		SANTIAGO PEAK B	REDONDO MESA F
SITE NAME		NAD83 33 42 41.4 N 117 31 51.8 W	NAD83 33 29 46.9 N 117 20 41.3 W
GROUND ELEVATION	Feet	5612.0	2803.0
MAIN ANTENNA SIZE	Feet	8.0 PAD8-65A	8.0 PAD8-65A
MAIN ANTENNA GAIN	dBi	42.0	42.0
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	20.0	13.0
MAIN FEEDER LENGTH	Feet	60.0	43.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	.8	.6
PROTECT CHANNEL LOSS	dB	11.9	11.9
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.9	1.9
OTHER RECEIVE LOSSES	dB	2.8	2.8
CALCULATED EIRP	dBm	73.2	73.4
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	
RADIO IDENTIFIER		95MPR67-L128A10-52	
FREQUENCY BAND	MHz	6700	10M0D7W
PATH LENGTH	Miles	18.3	
MEAN ANNUAL TEMPERATURE	Deg F	63.0	
ABSOLUTE HUMIDITY	g/m^3	11.8	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	138.4	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	61.0	
TRANSMIT POWER	dBm	35.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-76.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-28.9	-28.9
THERMAL FADE MARGIN	dB	47.1	47.1
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.1	47.1
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	10.7	10.7
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.4	.4
TOTAL MULTIPATH 2-WAY	seconds	22.3	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999293	22.3 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		ORTEGA	SANTIAGO PEAK
SITE NAME		NAD83 33 30 09.6 N 117 36 06.9 W	NAD83 33 42 41.4 N 117 31 51.8 W
GROUND ELEVATION	Feet	1128.0	5612.0
MAIN ANTENNA SIZE	Feet	8.0 UHX8-59W	8.0 UHX8-59W
MAIN ANTENNA GAIN	dBi	41.9	41.9
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	37.0	20.0
MAIN FEEDER LENGTH	Feet	100.0	70.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.3	.9
PROTECT CHANNEL LOSS	dB	11.9	11.9
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.9	1.9
OTHER RECEIVE LOSSES	dB	2.8	2.8
CALCULATED EIRP	dBm	70.6	71.0
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR67-L128A5-25	
RADIO IDENTIFIER		95MPR67-L128A5-25	
FREQUENCY BAND	MHz	6700	5M00D7W
PATH LENGTH	Miles	15.0	
MEAN ANNUAL TEMPERATURE	Deg F	62.8	
ABSOLUTE HUMIDITY	g/m^3	11.8	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	136.6	
ABSORPTION LOSS	dB	.3	
DISPERSIVE FADE MARGIN	dB	61.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-78.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-28.7	-28.7
THERMAL FADE MARGIN	dB	49.3	49.3
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	49.3	49.3
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	3.5	3.5
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.2	.2
TOTAL MULTIPATH 2-WAY	seconds		7.5
UPFADE OUTAGE 2-WAY	seconds		0.0
PATH AVAILABILITY 2-WAY	percent	99.9999763	7.5 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		ALESSANDRO	NORTH MTN
SITE NAME		NAD83 33 55 16.1 N 117 20 07.4 W	NAD83 33 49 46.8 N 116 57 12.9 W
GROUND ELEVATION	Feet	1669.0	3715.0
MAIN ANTENNA SIZE	Feet	8.0 UHX8-59	8.0 UHX8-59
MAIN ANTENNA GAIN	dBi	41.3	41.3
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
DIVERSITY ANTENNA SIZE	Feet	8.0 UHX8-59	8.0 UHX8-59
DIVERSITY ANTENNA GAIN	dBi	41.3	41.3
DIVERSITY RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	42.0	62.0
MAIN FEEDER LENGTH	Feet	175.0	142.0
MAIN FEED LOSS IN dB/100	Feet	1.2 EW-52	1.2 E-60
MAIN FEEDER LOSS	dB	2.1	1.7
DIVERSITY CENTERLINE	Feet	24.0	32.0
DIVERSITY FEEDER LENGTH	Feet	157.0	112.0
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.3	1.3
OTHER RECEIVE LOSSES	dB	1.6	1.6
CALCULATED EIRP	dBm	72.3	72.7
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR61-L128A30-161	
RADIO IDENTIFIER		95MPR61-L128A30-161	
FREQUENCY BAND	MHz	6175	30M0D7W
PATH LENGTH	Miles	22.8	
MEAN ANNUAL TEMPERATURE	Deg F	64.4	
ABSOLUTE HUMIDITY	g/m^3	11.3	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	139.6	
ABSORPTION LOSS	dB	.4	
FIELD MARGIN	dB	.7	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	35.0	NON-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-31.0 MAX POWER	-31.0 MAX POWER
DIV RECEIVED SIGNAL	dBm	-30.7	-30.6
THERMAL FADE MARGIN	dB	41.5	41.5
SPACE DIV THERMAL FM	dB	41.8	41.9
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.8	41.9

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design			ALESSANDRO	NORTH MTN
SITE NAME			NAD83 33 55 16.1 N 117 20 07.4 W	NAD83 33 49 46.8 N 116 57 12.9 W
SPACE DIV IMPROVE FACTOR	THERMAL		87.5	200.0
MULTIPATH OUTAGE SECONDS	THERMAL		.8	.3
SPACE DIV IMPROVE FACTOR	DIGITAL		200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL		0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds		1.1
UPFADE OUTAGE	2-WAY	seconds		0.0
PATH AVAILABILITY	2-WAY	percent	99.9999965	1.1 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- 2 FREQUENCIES

PATH CALCULATIONS

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SYSTEM: RIVERSIDE COUNTY CA

ROUTE: 9500 UPGRADE

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Final Design		BLACK JACK	BLACK ROCK
SITE NAME		NAD83 33 49 34.7 N 114 51 39.6 W	NAD83 33 36 50.0 N 114 46 10.4 W
GROUND ELEVATION	Feet	981.0	788.0
MAIN ANTENNA SIZE	Feet	8.0 PAD8-65A	8.0 PAD8-65A
MAIN ANTENNA GAIN	dBi	42.0	42.0
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	20.0	60.0
MAIN FEEDER LENGTH	Feet	50.0	90.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.7	1.2
PROTECT CHANNEL LOSS	dB	11.9	11.9
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.9	1.9
OTHER RECEIVE LOSSES	dB	2.8	2.8
CALCULATED EIRP	dBm	73.3	72.8
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	
RADIO IDENTIFIER		95MPR67-L128A10-52	
FREQUENCY BAND	MHz	6700	10MOD7W
PATH LENGTH	Miles	15.6	
MEAN ANNUAL TEMPERATURE	Deg F	69.5	
ABSOLUTE HUMIDITY	g/m^3	13.3	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	82.0	
FREE SPACE LOSS	dB	137.0	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	61.0	
TRANSMIT POWER	dBm	35.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-76.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-28.0 MAX POWER	-28.0 MAX POWER
THERMAL FADE MARGIN	dB	48.0	48.0
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	48.0	48.0
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	5.8	5.8
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.3	.3
TOTAL MULTIPATH	2-WAY	seconds	12.2
UPFADE OUTAGE	2-WAY	seconds	0.0
PATH AVAILABILITY	2-WAY	percent	99.9999613 12.2 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000 31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design	BLACK ROCK		BLYTHE	
	NAD83 33 36 50.0 N 114 46 10.4 W		NAD83 33 36 49.6 N 114 35 51.6 W	
GROUND ELEVATION	Feet	788.0	271.0	
MAIN ANTENNA SIZE	Feet	8.0 DA8-107A	8.0 DA8-107A	
MAIN ANTENNA GAIN	dBi	46.4	46.4	
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON	
MAIN CENTERLINE	Feet	15.0	108.0	
MAIN FEEDER LENGTH	Feet	45.0	138.0	
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105	
MAIN FEEDER LOSS	dB	1.3	3.9	
PROTECT CHANNEL LOSS	dB	11.7	11.7	
OTHER FEEDER LOSSES	dB	.9	.9	
WET RADOME LOSS	dB	1.0	1.0	
OTHER TRANSMIT LOSSES	dB	3.6	3.6	
OTHER RECEIVE LOSSES	dB	3.8	3.8	
CALCULATED EIRP	dBm	73.1	70.5	
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0	
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161		
RADIO IDENTIFIER		95MPR11-L128A30-161		
FREQUENCY BAND	MHz	11200	30MOD7W	
PATH LENGTH	Miles	9.9		
MEAN ANNUAL TEMPERATURE	Deg F	70.4		
ABSOLUTE HUMIDITY	g/m^3	13.8		
CLIMATE FACTOR		1.0		
ROUGHNESS FACTOR	Feet	63.0		
POLARIZATION		VERTICAL		
FREE SPACE LOSS	dB	137.5		
ABSORPTION LOSS	dB	.4		
FIELD MARGIN	dB	1.0		
DISPERSIVE FADE MARGIN	dB	55.0		
TRANSMIT POWER	dBm	32.5	HOT-STANDBY	
ATPC POWER REDUCTION	dB	0.0		
MAXIMUM RECEIVED SIGNAL	dBm	-22.0		
RECEIVER THRESHOLD	dBm	-71.0	BER= 10-6	
MAIN RECEIVED SIGNAL	dBm	-27.9	-27.9	
THERMAL FADE MARGIN	dB	43.1	43.1	
MINIMUM FADE MARGIN	dB	27.0	27.0	
EXTERNAL INTERFERENCE FM	dB	N/A	N/A	
FLAT FADE MARGIN	dB	43.1	43.1	

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design			BLACK ROCK	BLYTHE
SITE NAME			NAD83 33 36 50.0 N 114 46 10.4 W	NAD83 33 36 49.6 N 114 35 51.6 W
SPACE DIV IMPROVE FACTOR	THERMAL		1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL		11.2	11.2
SPACE DIV IMPROVE FACTOR	DIGITAL		1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL		.7	.7
TOTAL MULTIPATH	2-WAY	seconds		23.8
UPFADE OUTAGE	2-WAY	seconds		0.0
CRANE RAIN OUTAGE	2-WAY	seconds		.5
PATH AVAILABILITY	2-WAY	percent	99.9999228	24.4 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- 2 FREQUENCIES

PATH CALCULATIONS

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SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design SITE NAME	CHUCKWALLA		BLACK ROCK	
	NAD83 33 39 18.4 N 115 27 14.1 W		NAD83 33 36 50.0 N 114 46 10.4 W	
GROUND ELEVATION	Feet	3764.0	788.0	
MAIN ANTENNA SIZE	Feet	8.0 UHX8-59	8.0 UHX8-59	
MAIN ANTENNA GAIN	dB	41.3	41.3	
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON	
DIVERSITY ANTENNA SIZE	Feet	8.0 UHX8-59	8.0 UHX8-59	
DIVERSITY ANTENNA GAIN	dB	41.3	41.3	
DIVERSITY RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON	
MAIN CENTERLINE	Feet	45.0	76.0	
MAIN FEEDER LENGTH	Feet	75.0	106.0	
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 E-60	
MAIN FEEDER LOSS	dB	.9	1.3	
DIVERSITY CENTERLINE	Feet	15.0	46.0	
DIVERSITY FEEDER LENGTH	Feet	45.0	76.0	
PROTECT CHANNEL LOSS	dB	11.9	11.9	
OTHER FEEDER LOSSES	dB	.6	.6	
OTHER TRANSMIT LOSSES	dB	1.9	1.9	
OTHER RECEIVE LOSSES	dB	2.8	2.8	
CALCULATED EIRP	dBm	72.9	72.5	
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0	
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52		
RADIO IDENTIFIER		95MPR67-L128A10-52		
FREQUENCY BAND	MHz	6700	10MOD7W	
PATH LENGTH	Miles	39.6		
MEAN ANNUAL TEMPERATURE	Deg F	69.5		
ABSOLUTE HUMIDITY	g/m^3	13.0		
CLIMATE FACTOR		1.0		
ROUGHNESS FACTOR	Feet	140.0		
FREE SPACE LOSS	dB	145.1		
ABSORPTION LOSS	dB	.7		
FIELD MARGIN	dB	1.0		
DISPERSIVE FADE MARGIN	dB	61.0		
TRANSMIT POWER	dBm	35.0	HOT-STANDBY	
ATPC POWER REDUCTION	dB	0.0		
MAXIMUM RECEIVED SIGNAL	dBm	-22.0		
RECEIVER THRESHOLD	dBm	-76.0	BER= 10-6	
MAIN RECEIVED SIGNAL	dBm	-37.3	-37.3	
DIV RECEIVED SIGNAL	dBm	-36.9	-36.9	
THERMAL FADE MARGIN	dB	38.7	38.7	
SPACE DIV THERMAL FM	dB	39.1	39.1	
MINIMUM FADE MARGIN	dB	33.0	33.0	
EXTERNAL INTERFERENCE FM	dB	N/A	N/A	
FLAT FADE MARGIN	dB	39.1	39.1	

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Final Design		CHUCKWALLA		BLACK ROCK	
SITE NAME		NAD83 33 39 18.4 N 115 27 14.1 W		NAD83 33 36 50.0 N 114 46 10.4 W	
SPACE DIV IMPROVE FACTOR	THERMAL	79.9		79.9	
MULTIPATH OUTAGE SECONDS	THERMAL	4.7		4.7	
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0		200.0	
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0		0.0	
TOTAL MULTIPATH	2-WAY		seconds	9.3	
UPFADE OUTAGE	2-WAY		seconds	0.0	
PATH AVAILABILITY	2-WAY		percent	99.9999704	9.3 sec
OUTAGE OBJECTIVE	YEAR		percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- 2 FREQUENCIES
- PATH IN GEOSTATIONARY SATELLITE ORBIT

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		CLINTON KEITH	NORTH MTN
SITE NAME		NAD83 33 36 41.6 N 117 10 31.9 W	NAD83 33 49 46.8 N 116 57 12.9 W
GROUND ELEVATION	Feet	1968.0	3715.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-59B	6.0 PAD6-59B
MAIN ANTENNA GAIN	dBi	38.7	38.7
MAIN RADOME LOSS	dB	.4 FIBERGLASS	.4 FIBERGLASS
DIVERSITY ANTENNA SIZE	Feet	6.0 PAD6-59B	6.0 PAD6-59B
DIVERSITY ANTENNA GAIN	dBi	38.7	38.7
DIVERSITY RADOME LOSS	dB	.4 FIBERGLASS	.4 FIBERGLASS
MAIN CENTERLINE	Feet	40.0	75.0
MAIN FEEDER LENGTH	Feet	70.0	155.0
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 E-60
MAIN FEEDER LOSS	dB	.8	1.9
DIVERSITY CENTERLINE	Feet	20.0	45.0
DIVERSITY FEEDER LENGTH	Feet	50.0	125.0
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.3	1.3
OTHER RECEIVE LOSSES	dB	1.6	1.6
CALCULATED EIRP	dBm	70.6	69.5
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR61-L128A30-161	
RADIO IDENTIFIER		95MPR61-L128A30-161	
FREQUENCY BAND	MHz	6175	30MOD7W
PATH LENGTH	Miles	19.7	
MEAN ANNUAL TEMPERATURE	Deg F	63.9	
ABSOLUTE HUMIDITY	g/m^3	11.8	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	138.3	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	35.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	5.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-34.8 MAX POWER	-34.8 MAX POWER
DIV RECEIVED SIGNAL	dBm	-34.6	-34.5
THERMAL FADE MARGIN	dB	37.7	37.7
SPACE DIV THERMAL FM	dB	37.9	38.0
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	37.9	38.0

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		CLINTON KEITH	NORTH MTN
SITE NAME		NAD83 33 36 41.6 N	NAD83 33 49 46.8 N
		117 10 31.9 W	116 57 12.9 W
SPACE DIV IMPROVE FACTOR	THERMAL	51.2	115.3
MULTIPATH OUTAGE SECONDS	THERMAL	2.0	.9
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	2.9
UPFADE OUTAGE	2-WAY	seconds	0.0
PATH AVAILABILITY	2-WAY	percent	99.9999908 2.9 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000 31.5 sec

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SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		ELSINORE PEAK		HEMET	
SITE NAME		NAD83 33 36 08.4 N 117 20 36.8 W		NAD83 33 45 40.8 N 116 58 11.6 W	
GROUND ELEVATION	Feet	3550.0		1586.0	
MAIN ANTENNA SIZE	Feet	8.0 UHX8-59		10.0 PL10-59	
MAIN ANTENNA GAIN	dBi	41.3		43.3	
MAIN RADOME LOSS	dB	0.0 TEFLON		.9 FIBERGLASS	
DIVERSITY ANTENNA SIZE	Feet	8.0 UHX8-59		6.0 PL6-59	
DIVERSITY ANTENNA GAIN	dBi	41.3		38.9	
DIVERSITY RADOME LOSS	dB	0.0 TEFLON		.5 PLASTIC	
MAIN CENTERLINE	Feet	57.0		95.0	
MAIN FEEDER LENGTH	Feet	107.0		135.0	
MAIN FEED LOSS IN dB/100	Feet	1.2 EW-52		1.2 EW-52	
MAIN FEEDER LOSS	dB	1.3		1.6	
DIVERSITY CENTERLINE	Feet	36.0		64.0	
DIVERSITY FEEDER LENGTH	Feet	86.0		104.0	
OTHER FEEDER LOSSES	dB	.6		.6	
OTHER TRANSMIT LOSSES	dB	1.3		1.3	
OTHER RECEIVE LOSSES	dB	1.6		1.6	
CALCULATED EIRP	dBm	73.1		73.9	
MAXIMUM EIRP (PART 101)	dBm	85.0		85.0	
RADIO EQUIPMENT TYPE		95MPR61-L128A30-161			
RADIO IDENTIFIER		95MPR61-L128A30-161			
FREQUENCY BAND	MHz	6175		30M0D7W	
PATH LENGTH	Miles	24.2			
MEAN ANNUAL TEMPERATURE	Deg F	63.9			
ABSOLUTE HUMIDITY	g/m^3	11.8			
CLIMATE FACTOR		2.0			
ROUGHNESS FACTOR	Feet	140.0			
FREE SPACE LOSS	dB	140.1			
ABSORPTION LOSS	dB	.4			
FIELD MARGIN	dB	1.0			
DISPERSIVE FADE MARGIN	dB	55.0			
TRANSMIT POWER	dBm	35.0		NON-STANDBY	
ATPC POWER REDUCTION	dB	10.0		WITH ATPC	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0			
RECEIVER THRESHOLD	dBm	-72.5		BER= 10-6	
MAIN RECEIVED SIGNAL	dBm	-29.8 MAX POWER		-29.8 MAX POWER	
DIV RECEIVED SIGNAL	dBm	-29.5		-33.4	
THERMAL FADE MARGIN	dB	42.7			
SPACE DIV THERMAL FM	dB	43.0			
MINIMUM FADE MARGIN	dB	35.0			
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	43.0		42.7	

SYSTEM: RIVERSIDE COUNTY CA

ROUTE: 9500 UPGRADE

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Final Design	EL SINORE PEAK	HEMET
SITE NAME	NAD83 33 36 08.4 N 117 20 36.8 W	NAD83 33 45 40.8 N 116 58 11.6 W
SPACE DIV IMPROVE FACTOR	THERMAL 147.8	139.7
MULTIPATH OUTAGE SECONDS	THERMAL .4	.4
SPACE DIV IMPROVE FACTOR	DIGITAL 200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL 0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	.9
UPFADE OUTAGE 2-WAY	seconds	0.0
PATH AVAILABILITY 2-WAY	percent	99.9999972 .9 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000 31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design	HEMET	MARION RIDGE
SITE NAME	NAD83 33 45 40.8 N 116 58 11.6 W	NAD83 33 45 54.9 N 116 43 53.8 W
GROUND ELEVATION	Feet 1586.0	6549.0
MAIN ANTENNA SIZE	Feet 6.0 HP6-107	6.0 HP6-107
MAIN ANTENNA GAIN	dB 44.0	44.0
MAIN RADOME LOSS	dB 0.0 TEFLON	0.0 TEFLON
DIVERSITY ANTENNA SIZE	Feet 4.0 HP4-107	4.0 HP4-107
DIVERSITY ANTENNA GAIN	dB 40.4	40.4
DIVERSITY RADOME LOSS	dB 0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet 65.0	76.0
MAIN FEEDER LENGTH	Feet 107.0	133.0
MAIN FEED LOSS IN dB/100	Feet 3.1 EW-90	3.1 EW-90
MAIN FEEDER LOSS	dB 3.3	4.1
DIVERSITY CENTERLINE	Feet 35.0	46.0
DIVERSITY FEEDER LENGTH	Feet 77.0	103.0
OTHER FEEDER LOSSES	dB .9	.9
WET RADOME LOSS	dB 1.0	1.0
OTHER TRANSMIT LOSSES	dB 1.4	1.4
OTHER RECEIVE LOSSES	dB 1.7	1.7
CALCULATED EIRP	dBm 70.9	70.1
MAXIMUM EIRP (PART 101)	dBm 85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161
RADIO IDENTIFIER		95MPR11-L128A30-161
FREQUENCY BAND	MHz	11200 30M0D7W
PATH LENGTH	Miles	13.7
MEAN ANNUAL TEMPERATURE	Deg F	65.8
ABSOLUTE HUMIDITY	g/m ³	11.8
CLIMATE FACTOR		2.0
ROUGHNESS FACTOR	Feet	140.0
POLARIZATION		VERTICAL
FREE SPACE LOSS	dB	140.3
ABSORPTION LOSS	dB	.5
FIELD MARGIN	dB	1.0
DISPERSIVE FADE MARGIN	dB	55.0
TRANSMIT POWER	dBm	32.5 NON-STANDBY
ATPC POWER REDUCTION	dB	0.0
MAXIMUM RECEIVED SIGNAL	dBm	-22.0
RECEIVER THRESHOLD	dBm	-71.0 BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-33.7
DIV RECEIVED SIGNAL	dBm	-36.3
THERMAL FADE MARGIN	dB	37.3
SPACE DIV THERMAL FM	dB	34.7
MINIMUM FADE MARGIN	dB	35.0
EXTERNAL INTERFERENCE FM	dB	N/A
FLAT FADE MARGIN	dB	37.3

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		HEMET		MARION RIDGE	
SITE NAME		NAD83 33 45 40.8 N		NAD83 33 45 54.9 N	
		116 58 11.6 W		116 43 53.8 W	
SPACE DIV IMPROVE FACTOR	THERMAL	150.9		150.9	
MULTIPATH OUTAGE SECONDS	THERMAL	.5		.5	
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0		200.0	
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0		0.0	
TOTAL MULTIPATH	2-WAY	seconds		1.0	
UPFADE OUTAGE	2-WAY	seconds		0.0	
CRANE RAIN OUTAGE	2-WAY	seconds		3.0	
PATH AVAILABILITY	2-WAY	percent		99.9999872	
OUTAGE OBJECTIVE	YEAR	percent		99.9999000	
				4.0 sec	
				31.5 sec	

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

PATH CALCULATIONS

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SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		HEMET	NORTH MTN
SITE NAME		NAD83 33 45 40.8 N 116 58 11.6 W	NAD83 33 49 46.8 N 116 57 12.9 W
GROUND ELEVATION	Feet	1586.0	3715.0
MAIN ANTENNA SIZE	Feet	4.0 HP4-107	4.0 SU4-107A
MAIN ANTENNA GAIN	dB	40.4	40.5
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	28.0	30.0
MAIN FEEDER LENGTH	Feet	68.0	110.0
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90	2.8 E-105
MAIN FEEDER LOSS	dB	2.1	3.1
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	1.0	1.0
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.3	3.3
CALCULATED EIRP	dBm	66.8	65.9
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161	
RADIO IDENTIFIER		95MPR11-L128A30-161	
FREQUENCY BAND	MHz	11200	30MOD7W
PATH LENGTH	Miles	4.8	
MEAN ANNUAL TEMPERATURE	Deg F	64.8	
ABSOLUTE HUMIDITY	g/m^3	11.6	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	131.2	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	32.5	NON-STANDBY
ATPC POWER REDUCTION	dB	5.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-71.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-32.3 MAX POWER	-32.3 MAX POWER
THERMAL FADE MARGIN	dB	38.7	38.7
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	38.7	38.7

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design			HEMET	NORTH MTN
SITE NAME			NAD83 33 45 40.8 N . 116 58 11.6 W	NAD83 33 49 46.8 N 116 57 12.9 W
SPACE DIV IMPROVE FACTOR	THERMAL		1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL		2.3	2.3
SPACE DIV IMPROVE FACTOR	DIGITAL		1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL		.1	.1
TOTAL MULTIPATH	2-WAY	seconds		4.6
UPFADE OUTAGE	2-WAY	seconds		0.0
CRANE RAIN OUTAGE	2-WAY	seconds		.1
PATH AVAILABILITY	2-WAY	percent	99.9999849	4.8 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- 2 FREQUENCIES

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		HEMET	RED MTN # 1
SITE NAME		NAD83 33 45 40.8 N 116 58 11.6 W	NAD83 33 37 47.4 N 116 50 52.6 W
GROUND ELEVATION	Feet	1586.0	4565.0
MAIN ANTENNA SIZE	Feet	8.0 PAD8-59A	8.0 PAD8-59A
MAIN ANTENNA GAIN	dBi	41.3	41.3
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	28.0	42.0
MAIN FEEDER LENGTH	Feet	68.0	77.0
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 E-60
MAIN FEEDER LOSS	dB	.8	.9
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.3	1.3
OTHER RECEIVE LOSSES	dB	1.6	1.6
CALCULATED EIRP	dBm	70.6	70.5
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR61-L128A30-161	
RADIO IDENTIFIER		95MPR61-L128A30-161	
FREQUENCY BAND	MHz	6175	30MOD7W
PATH LENGTH	Miles	11.5	
MEAN ANNUAL TEMPERATURE	Deg F	65.8	
ABSOLUTE HUMIDITY	g/m^3	11.8	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	133.6	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	32.5	NON-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-26.5 MAX POWER	-26.5 MAX POWER
THERMAL FADE MARGIN	dB	46.0	46.0
MINIMUM FADE MARGIN	dB	32.0	32.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	46.0	46.0
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	3.2	3.2
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.4	.4
TOTAL MULTIPATH 2-WAY	seconds	7.3	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999768	7.3 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		INDIO HILLS		INDIO	
SITE NAME		NAD83 33 47 55.4 N 116 13 19.2 W		NAD83 33 42 49.4 N 116 13 15.6 W	
GROUND ELEVATION	Feet	1653.0		-10.0	
MAIN ANTENNA SIZE	Feet	4.0 HP4-107		4.0 HP4-107	
MAIN ANTENNA GAIN	dBi	40.4		40.4	
MAIN RADOME LOSS	dB	0.0 TEFLON		0.0 TEFLON	
MAIN CENTERLINE	Feet	27.0		30.0	
MAIN FEEDER LENGTH	Feet	100.0		96.0	
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90		3.1 EW-90	
MAIN FEEDER LOSS	dB	3.1		3.0	
OTHER FEEDER LOSSES	dB	.9		.9	
WET RADOME LOSS	dB	1.0		1.0	
OTHER TRANSMIT LOSSES	dB	1.4		1.4	
OTHER RECEIVE LOSSES	dB	1.7		1.7	
CALCULATED EIRP	dBm	67.5		67.6	
MAXIMUM EIRP (PART 101)	dBm	85.0		85.0	
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161			
RADIO IDENTIFIER		95MPR11-L128A30-161			
FREQUENCY BAND	MHz		11200		30M0D7W
PATH LENGTH	Miles		5.9		
MEAN ANNUAL TEMPERATURE	Deg F		73.2		
ABSOLUTE HUMIDITY	g/m^3		12.0		
CLIMATE FACTOR			2.0		
ROUGHNESS FACTOR	Feet		140.0		
POLARIZATION			VERTICAL		
FREE SPACE LOSS	dB		132.9		
ABSORPTION LOSS	dB		.2		
FIELD MARGIN	dB		1.0		
DISPERSIVE FADE MARGIN	dB		55.0		
TRANSMIT POWER	dBm		32.5		NON-STANDBY
ATPC POWER REDUCTION	dB		5.0		WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm		-22.0		
RECEIVER THRESHOLD	dBm		-71.0		BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-31.8 MAX POWER		-31.8 MAX POWER	
THERMAL FADE MARGIN	dB	39.2		39.2	
MINIMUM FADE MARGIN	dB	26.0		26.0	
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	39.2		39.2	
SPACE DIV IMPROVE FACTOR	THERMAL	1.0		1.0	
MULTIPATH OUTAGE SECONDS	THERMAL	4.2		4.2	
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0		1.0	
MULTIPATH OUTAGE SECONDS	DIGITAL	.1		.1	
TOTAL MULTIPATH	2-WAY	seconds	8.6		
UPFADE OUTAGE	2-WAY	seconds	0.0		
CRANE RAIN OUTAGE	2-WAY	seconds	.3		
PATH AVAILABILITY	2-WAY	percent	99.9999720	8.8 sec	
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec	

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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 REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		NORTH MTN	RANGER PEAK
SITE NAME		NAD83 33 49 46.8 N 116 57 12.9 W	NAD83 33 50 36.6 N 116 49 30.6 W
GROUND ELEVATION	Feet	3715.0	5043.0
MAIN ANTENNA SIZE	Feet	4.0 SU4-103A	4.0 SU4-103A
MAIN ANTENNA GAIN	dBi	39.9	39.9
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	23.0	33.0
MAIN FEEDER LENGTH	Feet	103.0	63.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	2.9	1.8
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	1.0	1.0
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	63.0	64.1
MAXIMUM EIRP (PART 101)	dBm	70.0	70.0
RADIO EQUIPMENT TYPE		95MPR10-L128A5-25	
RADIO IDENTIFIER		95MPR10-L128A5-25	
FREQUENCY BAND	MHz	10600	5M00D7W
PATH LENGTH	Miles	7.4	
MEAN ANNUAL TEMPERATURE	Deg F	65.8	
ABSOLUTE HUMIDITY	g/m^3	11.8	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	134.5	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	30.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-77.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-39.0	-39.0
THERMAL FADE MARGIN	dB	38.5	38.5
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	38.5	38.5

SYSTEM: RIVERSIDE COUNTY CA
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Final Design		NORTH MTN	RANGER PEAK
SITE NAME		NAD83 33 49 46.8 N	NAD83 33 50 36.6 N
		116 57 12.9 W	116 49 30.6 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	8.6	8.6
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH	2-WAY	seconds	17.3
UPFADE OUTAGE	2-WAY	seconds	0.0
CRANE RAIN OUTAGE	2-WAY	seconds	.3
PATH AVAILABILITY	2-WAY	percent	99.9999442 17.6 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000 31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: RIVERSIDE COUNTY CA
 ROUTE: 9500 UPGRADE
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Final Design		RANGER PEAK		JOSHUA TREE	
SITE NAME		NAD83 33 50 36.6 N 116 49 30.6 W		NAD83 34 04 53.9 N 116 20 34.6 W	
GROUND ELEVATION	Feet	5043.0		4894.0	
MAIN ANTENNA SIZE	Feet	8.0	PAD8-65A	8.0	PAD8-65A
MAIN ANTENNA GAIN	dBi	42.0		42.0	
MAIN RADOME LOSS	dB	.5	FIBERGLASS	.5	FIBERGLASS
DIVERSITY ANTENNA SIZE	Feet	6.0	PAD6-65B	6.0	PAD6-65B
DIVERSITY ANTENNA GAIN	dBi	39.5		39.5	
DIVERSITY RADOME LOSS	dB	.5	FIBERGLASS	.5	FIBERGLASS
MAIN CENTERLINE	Feet	111.0		198.0	
MAIN FEEDER LENGTH	Feet	141.0		298.0	
MAIN FEED LOSS IN dB/100	Feet	1.3	E-65	1.3	E-65
MAIN FEEDER LOSS	dB	1.8		3.9	
DIVERSITY CENTERLINE	Feet	81.0		168.0	
DIVERSITY FEEDER LENGTH	Feet	111.0		268.0	
PROTECT CHANNEL LOSS	dB	11.9		11.9	
OTHER FEEDER LOSSES	dB	.6		.6	
OTHER TRANSMIT LOSSES	dB	1.9		1.9	
OTHER RECEIVE LOSSES	dB	2.8		2.8	
CALCULATED EIRP	dBm	72.2		70.1	
MAXIMUM EIRP (PART 101)	dBm	85.0		85.0	
RADIO EQUIPMENT TYPE			95MPR67-L128A10-52		
RADIO IDENTIFIER			95MPR67-L128A10-52		
FREQUENCY BAND	MHz		6700		10MOD7W
PATH LENGTH	Miles		32.2		
MEAN ANNUAL TEMPERATURE	Deg F		68.5		
ABSOLUTE HUMIDITY	g/m ³		12.0		
CLIMATE FACTOR			2.0		
ROUGHNESS FACTOR	Feet		140.0		
FREE SPACE LOSS	dB		143.3		
ABSORPTION LOSS	dB		.6		
FIELD MARGIN	dB		1.0		
DISPERSIVE FADE MARGIN	dB		61.0		
TRANSMIT POWER	dBm		35.0		HOT-STANDBY
ATPC POWER REDUCTION	dB		0.0		
MAXIMUM RECEIVED SIGNAL	dBm		-22.0		
RECEIVER THRESHOLD	dBm		-76.0		BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-38.5		-38.5	
DIV RECEIVED SIGNAL	dBm	-40.6		-40.6	
THERMAL FADE MARGIN	dB	37.5		37.5	
SPACE DIV THERMAL FM	dB	35.4		35.4	
MINIMUM FADE MARGIN	dB	35.0		35.0	
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	37.5		37.5	