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
SPACE DIV IMPROVE FACTOR	THERMAL	45.9	45.9
MULTIPATH OUTAGE SECONDS	THERMAL	12.3	12.3
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	24.7	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999218	24.7 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

Final Design		RED MTN # 1	SANTA ROSA PEAK
SITE NAME		NAD83 33 37 47.4 N 116 50 52.6 W	NAD83 33 32 43.0 N 116 28 09.7 W
GROUND ELEVATION	Feet	4565.0	7478.0
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
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	45.0	75.0
MAIN FEEDER LENGTH	Feet	80.0	110.0
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 E-60
MAIN FEEDER LOSS	dB	1.0	1.3
DIVERSITY CENTERLINE	Feet	15.0	45.0
DIVERSITY FEEDER LENGTH	Feet	50.0	80.0
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	72.9	72.6
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	22.6	
MEAN ANNUAL TEMPERATURE	Deg F	65.8	
ABSOLUTE HUMIDITY	g/m^3	12.2	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	139.5	
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	5.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-30.6 MAX POWER	-30.6 MAX POWER
DIV RECEIVED SIGNAL	dBm	-32.8	-32.8
THERMAL FADE MARGIN	dB	41.9	41.9
SPACE DIV THERMAL FM	dB	39.7	39.7
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.9	41.9

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design			RED MTN # 1	SANTA ROSA PEAK
SITE NAME			NAD83 33 37 47.4 N 116 50 52.6 W	NAD83 33 32 43.0 N 116 28 09.7 W
SPACE DIV IMPROVE FACTOR		THERMAL	161.1	161.1
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	.8	
UPFADE OUTAGE	2-WAY	seconds	0.0	
PATH AVAILABILITY	2-WAY	percent	99.9999974	.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		RIVERSIDE	ALESSANDRO
SITE NAME		NAD83 33 58 39.5 N 117 22 24.0 W	NAD83 33 55 16.1 N 117 20 07.4 W
GROUND ELEVATION	Feet	844.0	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	211.0	25.0
MAIN FEEDER LENGTH	Feet	200.0	120.0
MAIN FEED LOSS IN dB/100	Feet	3.1 EW-90	3.1 EW-90
MAIN FEEDER LOSS	dB	6.2	3.7
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	64.4	66.9
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A30-161	
RADIO IDENTIFIER		95MPR11-L128A30-161	
FREQUENCY BAND	MHz	11200	30M0D7W
PATH LENGTH	Miles	4.5	
MEAN ANNUAL TEMPERATURE	Deg F	64.0	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		HORIZONTAL	
FREE SPACE LOSS	dB	130.6	
ABSORPTION LOSS	dB	.1	
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	-33.2	-33.2
THERMAL FADE MARGIN	dB	37.8	37.8
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	37.8	37.8

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			RIVERSIDE	ALESSANDRO
SITE NAME			NAD83 33 58 39.5 N 117 22 24.0 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	2.2	2.2
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	4.6	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	1.4	
PATH AVAILABILITY	2-WAY	percent	99.9999812	5.9 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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REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		WILEY'S WELL	BLACK ROCK
SITE NAME		NAD83 33 36 19.0 N 114 54 09.4 W	NAD83 33 36 50.0 N 114 46 10.4 W
GROUND ELEVATION	Feet	392.0	788.0
MAIN ANTENNA SIZE	Feet	4.0 SU4-107A	4.0 SU4-107A
MAIN ANTENNA GAIN	dBi	40.5	40.5
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	30.0	46.0
MAIN FEEDER LENGTH	Feet	60.0	76.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.7	2.1
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	2.1	2.1
OTHER RECEIVE LOSSES	dB	2.2	2.2
CALCULATED EIRP	dBm	68.3	67.9
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A10-52	
RADIO IDENTIFIER		95MPR11-L128A10-52	
FREQUENCY BAND	MHz	11200	10M0D7W
PATH LENGTH	Miles	7.7	
MEAN ANNUAL TEMPERATURE	Deg F	69.9	
ABSOLUTE HUMIDITY	g/m^3	13.3	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	47.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	135.3	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-75.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-33.0	-33.0
THERMAL FADE MARGIN	dB	42.5	42.5
MINIMUM FADE MARGIN	dB	24.0	24.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	42.5	42.5

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		WILEY'S WELL	BLACK ROCK
SITE NAME		NAD83 33 36 19.0 N 114 54 09.4 W	NAD83 33 36 50.0 N 114 46 10.4 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	8.7	8.7
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.2	.2
TOTAL MULTIPATH 2-WAY	seconds	17.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.3	
PATH AVAILABILITY 2-WAY	percent	99.9999427	18.1 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		Banning	White Water
SITE NAME		NAD83 33 55 37.4 N / 116 52 29.2 W	NAD83 33 55 25.6 N / 116 37 01.0 W
GROUND ELEVATION	Feet	2349.0	1733.0
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	63.0	98.0
MAIN FEEDER LENGTH	Feet	100.0	128.0
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 EW-52
MAIN FEEDER LOSS	dB	1.2	1.5
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	72.1	71.8
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	95MPR67-L128A10-52
RADIO IDENTIFIER		6700	10M0D7W
FREQUENCY BAND	MHz	14.8	
PATH LENGTH	Miles	68.2	
MEAN ANNUAL TEMPERATURE	Deg F	11.5	
ABSOLUTE HUMIDITY	g/m^3	2.0	
CLIMATE FACTOR		140.0	
ROUGHNESS FACTOR	Feet	136.5	
FREE SPACE LOSS	dB	.3	
ABSORPTION LOSS	dB	1.0	
FIELD MARGIN	dB	61.0	
DISPERSIVE FADE MARGIN	dB	35.0	HOT-STANDBY
TRANSMIT POWER	dBm	0.0	
ATPC POWER REDUCTION	dB	-22.0	
MAXIMUM RECEIVED SIGNAL	dBm	-76.0	BER= 10-6
RECEIVER THRESHOLD	dBm		
MAIN RECEIVED SIGNAL	dBm	-29.8	-29.8
THERMAL FADE MARGIN	dB	46.2	46.2
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	46.2	46.2
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	7.5	7.5
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.2	.2
TOTAL MULTIPATH 2-WAY	seconds	15.5	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999507	15.5 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		BEACON HILL	GLEN AVON E
SITE NAME		NAD83 33 56 03.5 N 117 33 43.2 W	NAD83 34 01 27.6 N 117 30 11.1 W
GROUND ELEVATION	Feet	928.0	1084.0
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	22.0	35.0
MAIN FEEDER LENGTH	Feet	50.0	85.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.4	2.4
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	64.5	63.5
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	7.1	
MEAN ANNUAL TEMPERATURE	Deg F	63.2	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	65.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	134.1	
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	-37.7	-37.7
THERMAL FADE MARGIN	dB	39.8	39.8
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	39.8	39.8

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

Final Design		BEACON HILL	GLEN AVON E
SITE NAME		NAD83 33 56 03.5 N 117 33 43.2 W	NAD83 34 01 27.6 N 117 30 11.1 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	14.0	14.0
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	28.4	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.4	
PATH AVAILABILITY 2-WAY	percent	99.9999088	28.8 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		BEACON HILL	GREEN RIVER J
SITE NAME		NAD83 33 56 03.5 N 117 33 43.2 W	NAD83 33 53 19.7 N 117 38 52.5 W
GROUND ELEVATION	Feet	928.0	701.0
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	20.0	26.0
MAIN FEEDER LENGTH	Feet	48.0	48.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.3	1.3
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	64.5	64.5
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	5.8	
MEAN ANNUAL TEMPERATURE	Deg F	62.6	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	65.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	132.4	
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	-34.9	-34.9
THERMAL FADE MARGIN	dB	42.6	42.6
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	42.6	42.6

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		BEACON HILL	GREEN RIVER J
SITE NAME		NAD83 33 56 03.5 N 117 33 43.2 W	NAD83 33 53 19.7 N 117 38 52.5 W
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	8.5	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999728	8.6 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		Box Springs		Mt. David	
SITE NAME		NAD83 33 57 44.0 N 117 16 51.0 W		NAD83 33 54 50.4 N 117 00 03.7 W	
GROUND ELEVATION	Feet	3069.0		2832.0	
MAIN ANTENNA SIZE	Feet	8.0	UXA8-59A	8.0	UHX8-59
MAIN ANTENNA GAIN	dBi	41.3		41.3	
MAIN RADOME LOSS	dB	0.0	COMPLAN	0.0	TEFLON
DIVERSITY ANTENNA SIZE	Feet	6.0	PAD6-59B	6.0	UHX6-59
DIVERSITY ANTENNA GAIN	dBi	38.7		38.8	
DIVERSITY RADOME LOSS	dB	.4	FIBERGLASS	0.0	TEFLON
MAIN CENTERLINE	Feet	50.0		50.0	
MAIN FEEDER LENGTH	Feet	95.0		80.0	
MAIN FEED LOSS IN dB/100	Feet	1.2	EW-52	1.2	E-60
MAIN FEEDER LOSS	dB	1.1		1.0	
DIVERSITY CENTERLINE	Feet	20.0		20.0	
DIVERSITY FEEDER LENGTH	Feet	65.0		50.0	
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	73.3		73.4	
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	16.4			
MEAN ANNUAL TEMPERATURE	Deg F	64.7			
ABSOLUTE HUMIDITY	g/m^3	11.0			
CLIMATE FACTOR		2.0			
ROUGHNESS FACTOR	Feet	140.0			
FREE SPACE LOSS	dB	136.7		4-RX SWITCH	
ABSORPTION LOSS	dB	.3			
FIELD MARGIN	dB	1.0			
DISPERSIVE FADE MARGIN	dB	55.0			
TRANSMIT POWER	dBm	35.0		NON-STANDBY	
ATPC POWER REDUCTION	dB	8.0		WITH ATPC	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0			
RECEIVER THRESHOLD	dBm	-72.5		BER= 10-6	
MAIN RECEIVED SIGNAL	dBm	-26.6	MAX POWER	-26.6	MAX POWER
DIV RECEIVED SIGNAL	dBm	-29.2		-28.7	
THERMAL FADE MARGIN	dB	45.9		45.9	
SPACE DIV THERMAL FM	dB	43.3		43.8	
MINIMUM FADE MARGIN	dB	35.0		35.0	
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	45.9		45.9	

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		Box Springs	Mt. David
SITE NAME		NAD83 33 57 44.0 N 117 16 51.0 W	NAD83 33 54 50.4 N 117 00 03.7 W
SPACE DIV IMPROVE FACTOR	THERMAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	THERMAL	0.0	0.0
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	.1	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999997	.1 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		Brookside D	Mt. David
SITE NAME		NAD83 33 57 48.5 N 117 00 21.3 W	NAD83 33 54 50.4 N 117 00 03.7 W
GROUND ELEVATION	Feet	2589.0	2832.0
MAIN ANTENNA SIZE	Feet	2.0 SB2-105B	2.0 SB2-105B
MAIN ANTENNA GAIN	dBi	34.6	34.6
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	25.0	15.0
MAIN FEEDER LENGTH	Feet	55.0	45.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.5	1.3
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	59.1	59.3
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	3.4	
MEAN ANNUAL TEMPERATURE	Deg F	65.4	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	63.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	127.8	
ABSORPTION LOSS	dB	.1	
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	-40.8	-40.8
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: 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		Brookside D	Mt. David
SITE NAME		NAD83 33 57 48.5 N 117 00 21.3 W	NAD83 33 54 50.4 N 117 00 03.7 W
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	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	7.1	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999774	7.1 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		BUENA VISTA C	BEACON HILL
SITE NAME		NAD83 33 52 43.0 N 117 34 48.3 W	NAD83 33 56 03.5 N 117 33 43.2 W
GROUND ELEVATION	Feet	661.0	928.0
MAIN ANTENNA SIZE	Feet	2.0 SB2-105B	3.0 SB3-105A
MAIN ANTENNA GAIN	dBi	34.6	37.6
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	56.0	20.0
MAIN FEEDER LENGTH	Feet	86.0	50.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	2.4	1.4
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	58.2	62.2
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	4.0	
MEAN ANNUAL TEMPERATURE	Deg F	63.2	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	53.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	129.1	
ABSORPTION LOSS	dB	.1	
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	-40.1	-40.1
THERMAL FADE MARGIN	dB	37.4	37.4
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	37.4	37.4

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		BUENA VISTA C	BEACON HILL
SITE NAME		NAD83 33 52 43.0 N 117 34 48.3 W	NAD83 33 56 03.5 N 117 33 43.2 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	5.7	5.7
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	11.5	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999631	11.6 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		CACTUS CITY	CHUCKWALLA
SITE NAME		NAD83 33 39 18.3 N 115 59 10.0 W	NAD83 33 39 18.4 N 115 27 14.1 W
GROUND ELEVATION	Feet	1842.0	3764.0
MAIN ANTENNA SIZE	Feet	8.0 PL8-59	8.0 UA8-59A
MAIN ANTENNA GAIN	dBi	41.5	41.6
MAIN RADOME LOSS	dB	.6 PLASTIC	0.0 COMPLAN
DIVERSITY ANTENNA SIZE	Feet	6.0 PL6-59	8.0 UA8-59A
DIVERSITY ANTENNA GAIN	dBi	38.9	41.6
DIVERSITY RADOME LOSS	dB	.5 PLASTIC	0.0 COMPLAN
MAIN CENTERLINE	Feet	21.0	45.0
MAIN FEEDER LENGTH	Feet	95.0	95.0
MAIN FEED LOSS IN dB/100	Feet	1.2 EW-52	1.2 E-60
MAIN FEEDER LOSS	dB	1.1	1.1
DIVERSITY CENTERLINE	Feet	63.0	15.0
DIVERSITY FEEDER LENGTH	Feet	137.0	65.0
OTHER FEEDER LOSSES	dB	.6	.6
WET RADOME LOSS	dB	2.8	2.8
OTHER TRANSMIT LOSSES	dB	1.3	1.3
OTHER RECEIVE LOSSES	dB	1.6	1.6
CALCULATED EIRP	dBm	72.9	73.6
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	30.7	
MEAN ANNUAL TEMPERATURE	Deg F	69.4	
ABSOLUTE HUMIDITY	g/m^3	12.4	
CLIMATE FACTOR		1.5	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	142.1	
ABSORPTION LOSS	dB	.5	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	35.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-32.5 MAX POWER	-32.5 MAX POWER
DIV RECEIVED SIGNAL	dBm	-35.5	-32.2
THERMAL FADE MARGIN	dB	40.0	40.0
SPACE DIV THERMAL FM	dB	37.0	40.3
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	40.0	40.3

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		CACTUS CITY	CHUCKWALLA
SITE NAME		NAD83 33 39 18.3 N 115 59 10.0 W	NAD83 33 39 18.4 N 115 27 14.1 W
SPACE DIV IMPROVE FACTOR	THERMAL	123.7	126.0
MULTIPATH OUTAGE SECONDS	THERMAL	1.6	1.4
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	3.1	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999902	3.1 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		CHUCKWALLA	CACTUS CITY
SITE NAME		NAD83 33 39 18.4 N 115 27 14.1 W	NAD83 33 39 18.3 N 115 59 10.0 W
GROUND ELEVATION	Feet	3764.0	1842.0
MAIN ANTENNA SIZE	Feet	10.0 DA10-107A	10.0 DA10-107A
MAIN ANTENNA GAIN	dBi	48.4	48.4
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
DIVERSITY ANTENNA SIZE	Feet	8.0 DA8-107A	8.0 DA8-107A
DIVERSITY ANTENNA GAIN	dBi	46.4	46.4
DIVERSITY RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	70.0	53.0
MAIN FEEDER LENGTH	Feet	120.0	115.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	3.4	3.2
DIVERSITY CENTERLINE	Feet	40.0	12.0
DIVERSITY FEEDER LENGTH	Feet	90.0	74.0
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	2.1	2.1
OTHER RECEIVE LOSSES	dB	2.2	2.2
CALCULATED EIRP	dBm	74.5	74.7
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A10-52	
RADIO IDENTIFIER		95MPR11-L128A10-52	
FREQUENCY BAND	MHz	11200	10M0D7W
PATH LENGTH	Miles	30.7	
MEAN ANNUAL TEMPERATURE	Deg F	69.4	
ABSOLUTE HUMIDITY	g/m^3	12.4	
CLIMATE FACTOR		1.5	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		HORIZONTAL	
FREE SPACE LOSS	dB	147.3	
ABSORPTION LOSS	dB	1.1	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-75.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-32.8	-32.8
DIV RECEIVED SIGNAL	dBm	-34.0	-33.7
THERMAL FADE MARGIN	dB	42.7	42.7
SPACE DIV THERMAL FM	dB	41.5	41.8
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	42.7	42.7

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			CHUCKWALLA	CACTUS CITY
SITE NAME			NAD83 33 39 18.4 N 115 27 14.1 W	NAD83 33 39 18.3 N 115 59 10.0 W
SPACE DIV IMPROVE FACTOR		THERMAL	200.0	200.0
MULTIPATH OUTAGE SECONDS		THERMAL	.9	.9
SPACE DIV IMPROVE FACTOR		DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS		DIGITAL	0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	1.9	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	9.3	
PATH AVAILABILITY	2-WAY	percent	99.9999645	11.2 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design			EL CARISO D	REDONDO MESA F
SITE NAME			NAD83 33 39 12.5 N 117 26 44.1 W	NAD83 33 29 47.1 N 117 20 41.2 W
GROUND ELEVATION		Feet	3478.0	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	32.0	20.0
MAIN FEEDER LENGTH		Feet	62.0	50.0
MAIN FEED LOSS IN dB/100		Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS		dB	.8	.7
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	73.3
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	12.3	
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	134.9	
ABSORPTION LOSS		dB	.2	
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	-25.5	-25.5
THERMAL FADE MARGIN		dB	50.5	50.5
MINIMUM FADE MARGIN		dB	35.0	35.0
EXTERNAL INTERFERENCE FM		dB	N/A	N/A
FLAT FADE MARGIN		dB	50.5	50.5
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	1.5	1.5
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	.1	.1
TOTAL MULTIPATH	2-WAY	seconds	3.2	
UPFADE OUTAGE	2-WAY	seconds	0.0	
PATH AVAILABILITY	2-WAY	percent	99.9999899	3.2 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		Glen Avon E	Sunnyslope
SITE NAME		NAD83 34 01 27.6 N 117 30 11.1 W	NAD83 33 59 48.7 N 117 26 42.7 W
GROUND ELEVATION	Feet	1084.0	1094.0
MAIN ANTENNA SIZE	Feet	2.0 SB2-105B	2.0 SB2-105B
MAIN ANTENNA GAIN	dBi	34.6	34.6
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	20.0	20.0
MAIN FEEDER LENGTH	Feet	70.0	50.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	2.0	1.4
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	58.6	59.2
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	3.8	
MEAN ANNUAL TEMPERATURE	Deg F	63.2	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	64.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	128.8	
ABSORPTION LOSS	dB	.1	
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	-42.3	-42.3
THERMAL FADE MARGIN	dB	35.2	35.2
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	35.2	35.2

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		Glen Avon E	Sunnyslope
SITE NAME		NAD83 34 01 27.6 N 117 30 11.1 W	NAD83 33 59 48.7 N 117 26 42.7 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	6.6	6.6
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	13.3	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.2	
PATH AVAILABILITY 2-WAY	percent	99.9999572	13.5 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		HOMELAND	WINCHESTER
SITE NAME		NAD83 33 44 49.2 N 117 07 38.2 W	NAD83 33 44 10.0 N 117 03 48.7 W
GROUND ELEVATION	Feet	1589.0	2031.0
MAIN ANTENNA SIZE	Feet	3.0 SB3-105A	3.0 SB3-105A
MAIN ANTENNA GAIN	dBi	37.6	37.6
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	123.0	110.0
MAIN FEEDER LENGTH	Feet	153.0	140.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	4.3	3.9
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	59.3	59.7
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	3.7	
MEAN ANNUAL TEMPERATURE	Deg F	64.3	
ABSOLUTE HUMIDITY	g/m^3	11.6	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	64.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	128.6	
ABSORPTION LOSS	dB	.1	
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	-41.0	-41.0
THERMAL FADE MARGIN	dB	36.5	36.5
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	36.5	36.5

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		HOMELAND	WINCHESTER
SITE NAME		NAD83 33 44 49.2 N 117 07 38.2 W	NAD83 33 44 10.0 N 117 03 48.7 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	4.7	4.7
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	9.4	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999702	9.4 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		Mt. David	White Water
SITE NAME		NAD83 33 54 50.4 N 117 00 03.7 W	NAD83 33 55 25.6 N 116 37 01.0 W
GROUND ELEVATION	Feet	2832.0	1733.0
MAIN ANTENNA SIZE	Feet	8.0 PAD8-59A	8.0 UA8-59A
MAIN ANTENNA GAIN	dBi	41.3	41.6
MAIN RADOME LOSS	dB	.5 FIBERGLASS	0.0 COMPLAN
DIVERSITY ANTENNA SIZE	Feet	8.0 PAD8-59A	8.0 UA8-59A
DIVERSITY ANTENNA GAIN	dBi	41.3	41.6
DIVERSITY RADOME LOSS	dB	.5 FIBERGLASS	0.0 COMPLAN
MAIN CENTERLINE	Feet	45.0	65.0
MAIN FEEDER LENGTH	Feet	75.0	95.0
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 E-60
MAIN FEEDER LOSS	dB	.9	1.1
DIVERSITY CENTERLINE	Feet	15.0	35.0
DIVERSITY FEEDER LENGTH	Feet	45.0	65.0
OTHER FEEDER LOSSES	dB	.6	.6
WET RADOME LOSS	dB	2.8	2.8
OTHER TRANSMIT LOSSES	dB	1.3	1.3
OTHER RECEIVE LOSSES	dB	1.6	1.6
CALCULATED EIRP	dBm	70.5	71.1
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	22.1	
MEAN ANNUAL TEMPERATURE	Deg F	67.4	
ABSOLUTE HUMIDITY	g/m^3	11.3	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	139.3	
ABSORPTION LOSS	dB	.3	
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	-31.9 MAX POWER	-31.9 MAX POWER
DIV RECEIVED SIGNAL	dBm	-31.5	-31.5
THERMAL FADE MARGIN	dB	40.6	40.6
SPACE DIV THERMAL FM	dB	41.0	41.0
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.0	41.0

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		Mt. David	White Water
SITE NAME		NAD83 33 54 50.4 N 117 00 03.7 W	NAD83 33 55 25.6 N 116 37 01.0 W
SPACE DIV IMPROVE FACTOR	THERMAL	200.0	200.0
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	.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999975	.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

Final Design		Road 177	Corn Springs
SITE NAME		NAD83 33 52 54.6 N 115 15 06.2 W	NAD83 33 40 53.9 N 115 14 55.1 W
GROUND ELEVATION	Feet	602.0	726.0
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	25.0
MAIN FEEDER LENGTH	Feet	50.0	55.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.7	.7
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	73.3
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	13.8	
MEAN ANNUAL TEMPERATURE	Deg F	68.8	
ABSOLUTE HUMIDITY	g/m^3	12.3	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	55.0	
FREE SPACE LOSS	dB	135.9	
ABSORPTION LOSS	dB	.2	
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	-26.4	-26.4
THERMAL FADE MARGIN	dB	49.6	49.6
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	49.6	49.6
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	4.8	4.8
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.3	.3
TOTAL MULTIPATH 2-WAY	seconds	10.2	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999676	10.2 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		Temescal	Estelle
SITE NAME		NAD83 33 46 49.6 N 117 29 26.6 W	NAD83 33 45 34.6 N 117 25 35.2 W
GROUND ELEVATION	Feet	1065.0	2472.2
MAIN ANTENNA SIZE	Feet	2.0 SB2-105B	2.0 SB2-105B
MAIN ANTENNA GAIN	dBi	34.6	34.6
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	22.0	61.0
MAIN FEEDER LENGTH	Feet	50.0	70.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.4	2.0
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	59.2	58.6
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	4.0	
MEAN ANNUAL TEMPERATURE	Deg F	63.1	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	129.1	
ABSORPTION LOSS	dB	.1	
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	-42.7	-42.7
THERMAL FADE MARGIN	dB	34.8	34.8
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	34.8	34.8

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

Final Design		Temescal	Estelle
SITE NAME		NAD83 33 46 49.6 N 117 29 26.6 W	NAD83 33 45 34.6 N 117 25 35.2 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	2.9	2.9
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	5.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.3	
PATH AVAILABILITY 2-WAY	percent	99.9999808	6.1 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		White Water	Edom Hill
SITE NAME		NAD83 33 55 25.6 N 116 37 01.0 W	NAD83 33 52 07.3 N 116 26 00.8 W
GROUND ELEVATION	Feet	1733.0	1575.0
MAIN ANTENNA SIZE	Feet	6.0 SU6-107B	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 SU4-107A	4.0 HP4-107
DIVERSITY ANTENNA GAIN	dBi	40.5	40.4
DIVERSITY RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	50.0	45.0
MAIN FEEDER LENGTH	Feet	80.0	85.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	3.1 EW-90
MAIN FEEDER LOSS	dB	2.2	2.6
DIVERSITY CENTERLINE	Feet	20.0	15.0
DIVERSITY FEEDER LENGTH	Feet	50.0	55.0
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	72.0	71.6
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	11.2	
MEAN ANNUAL TEMPERATURE	Deg F	70.5	
ABSOLUTE HUMIDITY	g/m^3	11.8	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		HORIZONTAL	
FREE SPACE LOSS	dB	138.6	
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	5.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-71.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-29.2 MAX POWER	-29.2 MAX POWER
DIV RECEIVED SIGNAL	dBm	-31.9	-31.9
THERMAL FADE MARGIN	dB	41.8	41.8
SPACE DIV THERMAL FM	dB	39.1	39.1
MINIMUM FADE MARGIN	dB	32.0	32.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.8	41.8

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		White Water	Edom Hill
SITE NAME		NAD83 33 55 25.6 N 116 37 01.0 W	NAD83 33 52 07.3 N 116 26 00.8 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	
CRANE RAIN OUTAGE 2-WAY	seconds	3.9	
PATH AVAILABILITY 2-WAY	percent	99.9999872	4.0 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		ALESSANDRO	BLUE MTN D
SITE NAME		NAD83 33 55 16.1 N 117 20 07.4 W	NAD83 34 01 18.7 N 117 17 43.9 W
GROUND ELEVATION	Feet	1669.0	2410.0
MAIN ANTENNA SIZE	Feet	6.0 SU6-107B	4.0 SU4-107A
MAIN ANTENNA GAIN	dBi	44.0	40.5
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	43.0	125.0
MAIN FEEDER LENGTH	Feet	150.0	155.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	4.2	4.3
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	2.1	2.1
OTHER RECEIVE LOSSES	dB	2.2	2.2
CALCULATED EIRP	dBm	67.3	63.7
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A10-52	
RADIO IDENTIFIER		95MPR11-L128A10-52	
FREQUENCY BAND	MHz	11200	10M0D7W
PATH LENGTH	Miles	7.3	
MEAN ANNUAL TEMPERATURE	Deg F	64.0	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		HORIZONTAL	
FREE SPACE LOSS	dB	134.9	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	30.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-75.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-35.7	-35.7
THERMAL FADE MARGIN	dB	39.8	39.8
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	39.8	39.8

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		ALESSANDRO	BLUE MTN D
SITE NAME		NAD83 33 55 16.1 N 117 20 07.4 W	NAD83 34 01 18.7 N 117 17 43.9 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	6.2	6.2
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	12.5	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	4.4	
PATH AVAILABILITY 2-WAY	percent	99.9999464	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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		ARLINGTON F	RIVERSIDE
SITE NAME		NAD83 33 55 07.0 N 117 27 39.2 W	NAD83 33 58 39.5 N 117 22 24.0 W
GROUND ELEVATION	Feet	762.0	844.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	91.0	218.0
MAIN FEEDER LENGTH	Feet	121.0	300.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	1.6	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	69.9	67.6
MAXIMUM EIRP (PART 101)	dBm	76.5	76.5
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	
RADIO IDENTIFIER		95MPR67-L128A10-52	
FREQUENCY BAND	MHz	6700	10M0D7W
PATH LENGTH	Miles	6.5	
MEAN ANNUAL TEMPERATURE	Deg F	63.6	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	32.0	
FREE SPACE LOSS	dB	129.3	
ABSORPTION LOSS	dB	.1	
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	-28.8	-28.8
THERMAL FADE MARGIN	dB	47.2	47.2
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.2	47.2
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	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	6.6	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999791	6.6 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		BLACK EAGLE D	CORN SPRINGS P
SITE NAME		NAD83 33 52 30.7 N 115 31 56.5 W	NAD83 33 40 52.9 N 115 14 55.1 W
GROUND ELEVATION	Feet	2680.0	726.0
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	20.0
MAIN FEEDER LENGTH	Feet	50.0	50.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.7	.7
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	73.3
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	21.1	
MEAN ANNUAL TEMPERATURE	Deg F	68.8	
ABSOLUTE HUMIDITY	g/m^3	12.3	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	139.6	
ABSORPTION LOSS	dB	.4	
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	-30.2	-30.2
THERMAL FADE MARGIN	dB	45.8	45.8
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	45.8	45.8
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	11.9	11.9
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.4	.4
TOTAL MULTIPATH 2-WAY	seconds	24.5	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999222	24.5 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		BUENA VISTA C	BOX SPRINGS N
SITE NAME		NAD83 33 52 43.0 N 117 34 48.3 W	NAD83 33 57 43.9 N 117 16 51.2 W
GROUND ELEVATION	Feet	661.0	3064.5
MAIN ANTENNA SIZE	Feet	10.0 DA10-59A	10.0 UHX10-59
MAIN ANTENNA GAIN	dBi	43.4	43.4
MAIN RADOME LOSS	dB	0.0 COMPLAN	0.0 TEFLON
MAIN CENTERLINE	Feet	34.0	23.0
MAIN FEEDER LENGTH	Feet	64.0	53.0
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 E-60
MAIN FEEDER LOSS	dB	.8	.6
PROTECT CHANNEL LOSS	dB	11.7	11.7
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	1.8	1.8
OTHER RECEIVE LOSSES	dB	2.1	2.1
CALCULATED EIRP	dBm	72.7	72.9
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	18.1	
MEAN ANNUAL TEMPERATURE	Deg F	63.6	
ABSOLUTE HUMIDITY	g/m^3	11.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	137.6	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	.9	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	12.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-26.0 MAX POWER	-26.0 MAX POWER
THERMAL FADE MARGIN	dB	46.5	46.5
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	46.5	46.5
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	10.9	10.9
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	1.6	1.6
TOTAL MULTIPATH 2-WAY	seconds	25.0	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999209	25.0 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		BUENA VISTA C	OLD CORONA
SITE NAME		NAD83 33 52 43.0 N 117 34 48.3 W	NAD83 33 52 40.6 N 117 34 37.1 W
GROUND ELEVATION	Feet	661.0	658.0
MAIN ANTENNA SIZE	Feet	2.0 SB2-107C	2.0 SB2-107C
MAIN ANTENNA GAIN	dBi	35.1	35.1
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	52.0	52.0
MAIN FEEDER LENGTH	Feet	82.0	280.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	2.3	7.8
PROTECT CHANNEL LOSS	dB	11.7	11.7
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	4.0	4.0
OTHER TRANSMIT LOSSES	dB	2.1	2.1
OTHER RECEIVE LOSSES	dB	2.2	2.2
CALCULATED EIRP	dBm	34.8	29.3
MAXIMUM EIRP (PART 101)	dBm	36.0	36.0
RADIO EQUIPMENT TYPE		95MPR11-L128A10-52	
RADIO IDENTIFIER		95MPR11-L128A10-52	
FREQUENCY BAND	MHz	11200	10M0D7W
PATH LENGTH	Miles	.2	
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	102.9	
ABSORPTION LOSS	dB	0.0	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	5.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-75.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-45.0	-45.0
THERMAL FADE MARGIN	dB	30.5	30.5
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	30.5	30.5

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			BUENA VISTA C	OLD CORONA
SITE NAME			NAD83 33 52 43.0 N 117 34 48.3 W	NAD83 33 52 40.6 N 117 34 37.1 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	0.0	0.0
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	0.0	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	0.0	
PATH AVAILABILITY	2-WAY	percent	99.9999999	0.0 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- OUTPUT POWER HAS BEEN REDUCED
- TO LIMIT OUTPUT TO FCC LIMITS

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		CAJALCO B	LAKE MATHEWS E
SITE NAME		NAD83 33 50 12.1 N 117 29 34.3 W	NAD83 33 50 19.2 N 117 22 10.9 W
GROUND ELEVATION	Feet	1228.0	1495.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	171.0	107.0
MAIN FEEDER LENGTH	Feet	201.0	137.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	2.6	1.8
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	68.9	69.7
MAXIMUM EIRP (PART 101)	dBm	78.1	78.1
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	
RADIO IDENTIFIER		95MPR67-L128A10-52	
FREQUENCY BAND	MHz	6700	10M0D7W
PATH LENGTH	Miles	7.1	
MEAN ANNUAL TEMPERATURE	Deg F	63.4	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	102.0	
FREE SPACE LOSS	dB	130.1	
ABSORPTION LOSS	dB	.1	
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	-28.6	-28.6
THERMAL FADE MARGIN	dB	47.4	47.4
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.4	47.4
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	.9	.9
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	1.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999943	1.8 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 67 - SAN DIEGO CALIFORNIA USA

Final Design		INDIO	CACTUS CITY
SITE NAME		NAD83 33 42 49.4 N 116 13 15.6 W	NAD83 33 39 18.3 N 115 59 10.0 W
GROUND ELEVATION	Feet	-10.0	1842.0
MAIN ANTENNA SIZE	Feet	8.0 UHX8-59W	8.0 UHX8-59
MAIN ANTENNA GAIN	dBi	41.3	41.3
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	32.0	42.0
MAIN FEEDER LENGTH	Feet	120.0	87.0
MAIN FEED LOSS IN dB/100	Feet	1.2 E-60	1.2 E-60
MAIN FEEDER LOSS	dB	1.4	1.0
PROTECT CHANNEL LOSS	dB	11.7	11.7
OTHER FEEDER LOSSES	dB	.6	.6
WET RADOME LOSS	dB	1.0	1.0
OTHER TRANSMIT LOSSES	dB	2.7	2.7
OTHER RECEIVE LOSSES	dB	3.3	3.3
CALCULATED EIRP	dBm	71.6	72.0
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	14.1	
MEAN ANNUAL TEMPERATURE	Deg F	71.6	
ABSOLUTE HUMIDITY	g/m^3	12.2	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	135.4	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	.5	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	35.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-28.2 MAX POWER	-28.2 MAX POWER
THERMAL FADE MARGIN	dB	44.3	44.3
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	50.1	0.0
FLAT FADE MARGIN	dB	43.3	44.3

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			INDIO	CACTUS CITY
SITE NAME			NAD83 33 42 49.4 N 116 13 15.6 W	NAD83 33 39 18.3 N 115 59 10.0 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	12.3	9.8
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	.8	.8
TOTAL MULTIPATH	2-WAY	seconds	23.7	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	0.0	
PATH AVAILABILITY	2-WAY	percent	99.9999248	23.7 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		LAKE RIVERSIDE E	SANTA ROSA PEAK
SITE NAME		NAD83 33 29 29.9 N 116 47 17.7 W	NAD83 33 32 43.0 N 116 28 09.7 W
GROUND ELEVATION	Feet	3702.0	7478.0
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	55.0
MAIN FEEDER LENGTH	Feet	50.0	85.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.7	1.1
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	72.9
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	18.8	
MEAN ANNUAL TEMPERATURE	Deg F	64.3	
ABSOLUTE HUMIDITY	g/m^3	12.2	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	138.6	
ABSORPTION LOSS	dB	.3	
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	-28.6	-28.6
THERMAL FADE MARGIN	dB	47.4	47.4
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.4	47.4
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	10.9	10.9
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.5	.5
TOTAL MULTIPATH 2-WAY	seconds	22.7	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999280	22.7 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		MARION RIDGE	SANTA ROSA PEAK
SITE NAME		NAD83 33 45 54.9 N 116 43 53.8 W	NAD83 33 32 43.0 N 116 28 09.7 W
GROUND ELEVATION	Feet	6549.0	7478.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-59B	8.0 UA8-59A
MAIN ANTENNA GAIN	dBi	38.7	41.6
MAIN RADOME LOSS	dB	.4 FIBERGLASS	0.0 COMPLAN
DIVERSITY ANTENNA SIZE	Feet	6.0 PAD6-59B	8.0 UA8-59A
DIVERSITY ANTENNA GAIN	dBi	38.7	41.6
DIVERSITY RADOME LOSS	dB	.4 FIBERGLASS	0.0 COMPLAN
MAIN CENTERLINE	Feet	100.0	72.0
MAIN FEEDER LENGTH	Feet	157.0	102.0
MAIN FEED LOSS IN dB/100	Feet	1.2 EW-52	1.2 E-60
MAIN FEEDER LOSS	dB	1.9	1.2
DIVERSITY CENTERLINE	Feet	70.0	42.0
DIVERSITY FEEDER LENGTH	Feet	127.0	72.0
OTHER FEEDER LOSSES	dB	.6	.6
WET RADOME LOSS	dB	2.8	2.8
OTHER TRANSMIT LOSSES	dB	1.3	1.3
OTHER RECEIVE LOSSES	dB	1.6	1.6
CALCULATED EIRP	dBm	69.5	73.5
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR61-L128A30-161	
RADIO IDENTIFIER		95MPR61-L128A30-161	
FREQUENCY BAND	MHz	6175	30M0D7W
PATH LENGTH	Miles	21.4	
MEAN ANNUAL TEMPERATURE	Deg F	65.8	
ABSOLUTE HUMIDITY	g/m^3	12.2	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	139.0	
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	5.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-72.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-32.7 MAX POWER	-32.7 MAX POWER
DIV RECEIVED SIGNAL	dBm	-32.3	-32.3
THERMAL FADE MARGIN	dB	39.8	39.8
SPACE DIV THERMAL FM	dB	40.2	40.2
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	40.2	40.2

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		MARION RIDGE	SANTA ROSA PEAK
SITE NAME		NAD83 33 45 54.9 N 116 43 53.8 W	NAD83 33 32 43.0 N 116 28 09.7 W
SPACE DIV IMPROVE FACTOR	THERMAL	174.1	174.1
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	.9	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999970	.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		REDONDO MESA F	ELSINORE PEAK
SITE NAME		NAD83 33 29 47.1 N 117 20 41.2 W	NAD83 33 36 07.9 N 117 20 36.8 W
GROUND ELEVATION	Feet	2801.0	3548.0
MAIN ANTENNA SIZE	Feet	4.0 SU4-107BC	4.0 SU4-107BC
MAIN ANTENNA GAIN	dBi	40.5	40.5
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	22.0	15.0
MAIN FEEDER LENGTH	Feet	52.0	60.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.5	1.7
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	2.1	2.1
OTHER RECEIVE LOSSES	dB	2.2	2.2
CALCULATED EIRP	dBm	68.5	68.3
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128A10-52	95MPR11-L128A10-52
RADIO IDENTIFIER		11200	10M0D7W
FREQUENCY BAND	MHz	7.3	
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	VERTICAL	
POLARIZATION		134.8	
FREE SPACE LOSS	dB	.3	
ABSORPTION LOSS	dB	1.0	
FIELD MARGIN	dB	60.0	
DISPERSIVE FADE MARGIN	dB	32.5	HOT-STANDBY
TRANSMIT POWER	dBm	0.0	
ATPC POWER REDUCTION	dB	-22.0	
MAXIMUM RECEIVED SIGNAL	dBm	-75.5	BER= 10-6
RECEIVER THRESHOLD	dBm		
MAIN RECEIVED SIGNAL	dBm	-31.8	-31.8
THERMAL FADE MARGIN	dB	43.7	43.7
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	43.7	43.7

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			REDONDO MESA F	ELSINORE PEAK
SITE NAME			NAD83 33 29 47.1 N 117 20 41.2 W	NAD83 33 36 07.9 N 117 20 36.8 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	2.5	2.5
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	.1	.1
TOTAL MULTIPATH	2-WAY	seconds	5.0	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	.2	
PATH AVAILABILITY	2-WAY	percent	99.9999834	5.2 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		SANTA ROSA PEAK	INDIO
SITE NAME		NAD83 33 32 43.0 N 116 28 09.7 W	NAD83 33 42 49.4 N 116 13 15.6 W
GROUND ELEVATION	Feet	7478.0	-10.0
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
DIVERSITY ANTENNA SIZE	Feet	6.0 SU6-107B	6.0 SU6-107B
DIVERSITY ANTENNA GAIN	dBi	44.0	44.0
DIVERSITY RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	98.0	70.0
MAIN FEEDER LENGTH	Feet	128.0	138.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	3.1 EW-90
MAIN FEEDER LOSS	dB	3.6	4.3
DIVERSITY CENTERLINE	Feet	68.0	40.0
DIVERSITY FEEDER LENGTH	Feet	98.0	108.0
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	3.0
CALCULATED EIRP	dBm	71.3	70.6
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	18.4	
MEAN ANNUAL TEMPERATURE	Deg F	69.0	
ABSOLUTE HUMIDITY	g/m^3	12.2	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	142.9	
ABSORPTION LOSS	dB	.7	
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	-35.3 MAX POWER	-35.0 MAX POWER
DIV RECEIVED SIGNAL	dBm	-36.9	-36.5
THERMAL FADE MARGIN	dB	35.7	36.0
SPACE DIV THERMAL FM	dB	34.1	34.5
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	35.7	36.0

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

Final Design		SANTA ROSA PEAK	INDIO
SITE NAME		NAD83 33 32 43.0 N 116 28 09.7 W	NAD83 33 42 49.4 N 116 13 15.6 W
SPACE DIV IMPROVE FACTOR	THERMAL	98.9	108.2
MULTIPATH OUTAGE SECONDS	THERMAL	2.8	2.4
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	5.2	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	5.9	
PATH AVAILABILITY 2-WAY	percent	99.9999650	11.0 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		SANTIAGO PEAK B	MENIFEE E
SITE NAME		NAD83 33 42 41.8 N 117 31 51.9 W	NAD83 33 38 57.9 N 117 12 19.8 W
GROUND ELEVATION	Feet	5612.0	1577.0
MAIN ANTENNA SIZE	Feet	8.0 UXA8-65A	8.0 UXA8-65A
MAIN ANTENNA GAIN	dBi	42.1	42.1
MAIN RADOME LOSS	dB	0.0 COMPLAN	0.0 COMPLAN
MAIN CENTERLINE	Feet	35.0	141.0
MAIN FEEDER LENGTH	Feet	85.0	171.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	1.1	2.2
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	73.5	72.4
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	19.2	
MEAN ANNUAL TEMPERATURE	Deg F	63.4	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	138.8	
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	-78.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-30.1 MAX POWER	-30.1 MAX POWER
THERMAL FADE MARGIN	dB	47.9	47.9
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.9	47.9
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	10.4	10.4
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.5	.5
TOTAL MULTIPATH 2-WAY	seconds	21.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999309	21.8 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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Final Design		SANTIAGO PEAK B	QUAIL VALLEY G
SITE NAME		NAD83 33 42 41.8 N 117 31 51.9 W	NAD83 33 41 23.1 N 117 15 27.3 W
GROUND ELEVATION	Feet	5612.0	1610.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	8.0 PAD8-65A
MAIN ANTENNA GAIN	dBi	39.5	42.0
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	27.0	20.0
MAIN FEEDER LENGTH	Feet	77.0	50.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	1.0	.7
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	70.5	73.3
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	15.8	
MEAN ANNUAL TEMPERATURE	Deg F	63.4	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	137.1	
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	-30.4 MAX POWER	-30.4 MAX POWER
THERMAL FADE MARGIN	dB	45.6	45.6
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	45.6	45.6
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	9.8	9.8
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.3	.3
TOTAL MULTIPATH 2-WAY	seconds	20.2	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999358	20.2 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

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

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
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Final Design		SANTIAGO PEAK B	RIDGE ROAD C
SITE NAME		NAD83 33 42 41.8 N 117 31 51.9 W	NAD83 33 40 04.3 N 117 19 07.4 W
GROUND ELEVATION	Feet	5612.0	1568.0
MAIN ANTENNA SIZE	Feet	6.0 UHX6-65	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.4	39.5
MAIN RADOME LOSS	dB	0.0 TEFLON	.5 FIBERGLASS
MAIN CENTERLINE	Feet	20.0	26.0
MAIN FEEDER LENGTH	Feet	70.0	56.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.9	.7
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	71.0	70.8
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	
RADIO IDENTIFIER		95MPR67-L128A10-52	
FREQUENCY BAND	MHz	6700	10M0D7W
PATH LENGTH	Miles	12.6	
MEAN ANNUAL TEMPERATURE	Deg F	63.4	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	135.1	
ABSORPTION LOSS	dB	.2	
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	-30.5 MAX POWER	-30.5 MAX POWER
THERMAL FADE MARGIN	dB	45.5	45.5
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	45.5	45.5
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	5.0	5.0
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	10.3	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999674	10.3 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		VIDAL JUNCTION B	HIDDEN VALLEY H
SITE NAME		NAD83 34 11 37.4 N 114 29 20.6 W	NAD83 33 58 50.6 N 114 27 46.2 W
GROUND ELEVATION	Feet	940.0	327.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	38.0	48.0
MAIN FEEDER LENGTH	Feet	68.0	78.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.9	1.0
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	70.6	70.5
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	
RADIO IDENTIFIER		95MPR67-L128A10-52	
FREQUENCY BAND	MHz	6700	10M0D7W
PATH LENGTH	Miles	14.8	
MEAN ANNUAL TEMPERATURE	Deg F	66.6	
ABSOLUTE HUMIDITY	g/m^3	12.3	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	136.5	
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	-32.6	-32.6
THERMAL FADE MARGIN	dB	43.4	43.4
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	43.4	43.4
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	6.8	6.8
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	13.9	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999559	13.9 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		LAKE MATHEWS D	MEAD VALLEY
SITE NAME		NAD83 33 50 19.2 N 117 22 10.9 W	NAD83 33 49 56.7 N 117 17 14.3 W
GROUND ELEVATION	Feet	1495.0	1667.0
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	140.0	114.0
MAIN FEEDER LENGTH	Feet	170.0	144.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	4.8	4.0
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	61.1	61.8
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	4.8	
MEAN ANNUAL TEMPERATURE	Deg F	63.7	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	51.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	130.7	
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	-39.2	-39.2
THERMAL FADE MARGIN	dB	38.3	38.3
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	38.3	38.3

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

Final Design			LAKE MATHEWS D	MEAD VALLEY
SITE NAME			NAD83 33 50 19.2 N 117 22 10.9 W	NAD83 33 49 56.7 N 117 17 14.3 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	8.4	8.4
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	.1	.1
TOTAL MULTIPATH	2-WAY	seconds	16.9	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN 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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REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		LEONA	MEAD VALLEY
SITE NAME		NAD83 33 48 01.8 N 117 19 04.3 W	NAD83 33 49 56.7 N 117 17 14.3 W
GROUND ELEVATION	Feet	2285.0	1667.0
MAIN ANTENNA SIZE	Feet	3.0 SU3-103A	3.0 SU3-103A
MAIN ANTENNA GAIN	dBi	37.2	37.2
MAIN RADOME LOSS	dB	0.0 COMPLAN	0.0 COMPLAN
MAIN CENTERLINE	Feet	186.0	95.0
MAIN FEEDER LENGTH	Feet	216.0	125.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	6.0	3.5
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.9	.9
WET RADOME LOSS	dB	4.3	4.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	57.1	59.7
MAXIMUM EIRP (PART 101)	dBm	68.3	68.3
RADIO EQUIPMENT TYPE		95MPR10-L128A5-25	
RADIO IDENTIFIER		95MPR10-L128A5-25	
FREQUENCY BAND	MHz	10600	5M00D7W
PATH LENGTH	Miles	2.8	
MEAN ANNUAL TEMPERATURE	Deg F	63.7	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	126.1	
ABSORPTION LOSS	dB	.1	
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	-40.7	-40.7
THERMAL FADE MARGIN	dB	36.8	36.8
MINIMUM FADE MARGIN	dB	22.0	22.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	36.8	36.8

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			LEONA	MEAD VALLEY
SITE NAME			NAD83 33 48 01.8 N 117 19 04.3 W	NAD83 33 49 56.7 N 117 17 14.3 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	.7	.7
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	1.3	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	0.0	
PATH AVAILABILITY	2-WAY	percent	99.9999957	1.4 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		MARSHELL	BOX SPRINGS N
SITE NAME		NAD83 33 47 02.4 N 117 22 43.4 W	NAD83 33 57 43.8 N 117 16 51.1 W
GROUND ELEVATION	Feet	2311.0	3064.5
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	45.0	28.0
MAIN FEEDER LENGTH	Feet	75.0	81.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	1.0	1.1
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	70.5	70.4
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	13.5	
MEAN ANNUAL TEMPERATURE	Deg F	63.6	
ABSOLUTE HUMIDITY	g/m^3	11.3	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	135.7	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	.5	
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	-31.4	-31.4
THERMAL FADE MARGIN	dB	44.6	44.6
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	44.6	44.6
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	7.7	7.7
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.2	.2
TOTAL MULTIPATH 2-WAY	seconds	15.7	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999504	15.7 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		MEAD VALLEY	BOX SPRINGS N
SITE NAME		NAD83 33 49 56.7 N 117 17 14.3 W	NAD83 33 57 43.8 N 117 16 51.1 W
GROUND ELEVATION	Feet	1667.0	3064.5
MAIN ANTENNA SIZE	Feet	6.0 SU6-103B	4.0 SU4-103A
MAIN ANTENNA GAIN	dBi	43.5	39.9
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	45.0	57.0
MAIN FEEDER LENGTH	Feet	75.0	97.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	2.1	2.7
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	67.4	63.1
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	8.9	
MEAN ANNUAL TEMPERATURE	Deg F	63.9	
ABSOLUTE HUMIDITY	g/m^3	11.3	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	118.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	136.1	
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	-37.2	-37.2
THERMAL FADE MARGIN	dB	40.3	40.3
MINIMUM FADE MARGIN	dB	29.0	29.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	40.3	40.3

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		MEAD VALLEY	BOX SPRINGS N
SITE NAME		NAD83 33 49 56.7 N 117 17 14.3 W	NAD83 33 57 43.8 N 117 16 51.1 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	12.0	12.0
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	24.2	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.3	
PATH AVAILABILITY 2-WAY	percent	99.9999223	24.5 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		AVACODO FLATS		VAQUERO	
SITE NAME		NAD83 33 26 57.5 N 117 16 21.3 W		NAD83 33 28 51.7 N 117 11 01.7 W	
GROUND ELEVATION	Feet	1433.0		1958.0	
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	20.0		50.0	
MAIN FEEDER LENGTH	Feet	50.0		80.0	
MAIN FEED LOSS IN dB/100	Feet	2.8	E-105	2.8	E-105
MAIN FEEDER LOSS	dB	1.4		2.2	
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	64.5		63.6	
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	5.6			
MEAN ANNUAL TEMPERATURE	Deg F	62.9			
ABSOLUTE HUMIDITY	g/m^3	12.0			
CLIMATE FACTOR		2.0			
ROUGHNESS FACTOR	Feet	140.0			
POLARIZATION		VERTICAL			
FREE SPACE LOSS	dB	132.1			
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	-35.5		-35.5	
THERMAL FADE MARGIN	dB	42.0		42.0	
MINIMUM FADE MARGIN	dB	26.0		26.0	
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	42.0		42.0	

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		AVACODO FLATS	VAQUERO
SITE NAME		NAD83 33 26 57.5 N 117 16 21.3 W	NAD83 33 28 51.7 N 117 11 01.7 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	1.5	1.5
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	3.1	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999899	3.2 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2
REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Final Design		SANTIAGO PEAK	TEMESCAL
SITE NAME		NAD83 33 42 41.8 N 117 31 51.9 W	NAD83 33 46 49.6 N 117 29 26.6 W
GROUND ELEVATION	Feet	5612.0	1065.0
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	67.0	20.0
MAIN FEEDER LENGTH	Feet	97.0	50.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	2.7	1.4
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	63.1	64.5
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	5.3	
MEAN ANNUAL TEMPERATURE	Deg F	63.1	
ABSOLUTE HUMIDITY	g/m^3	11.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	131.6	
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	-35.4	-35.4
THERMAL FADE MARGIN	dB	42.1	42.1
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	42.1	42.1

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		SANTIAGO PEAK	TEMESCAL
SITE NAME		NAD83 33 42 41.8 N 117 31 51.9 W	NAD83 33 46 49.6 N 117 29 26.6 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	1.3	1.3
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	2.6	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999915	2.7 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		WINCHESTER	HEMET
SITE NAME		NAD83 33 44 10.0 N 117 03 48.7 W	NAD83 33 45 40.8 N 116 58 11.6 W
GROUND ELEVATION	Feet	2031.0	1586.0
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	20.0	85.0
MAIN FEEDER LENGTH	Feet	50.0	125.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.4	3.5
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	64.5	62.4
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	5.7	
MEAN ANNUAL TEMPERATURE	Deg F	64.8	
ABSOLUTE HUMIDITY	g/m^3	11.6	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	45.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	132.2	
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	-36.8	-36.8
THERMAL FADE MARGIN	dB	40.7	40.7
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	40.7	40.7

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		WINCHESTER	HEMET
SITE NAME		NAD83 33 44 10.0 N 117 03 48.7 W	NAD83 33 45 40.8 N 116 58 11.6 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	9.9	9.9
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	20.0	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999366	20.0 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

Final Design		CACTUS CITY	LINE
SITE NAME		NAD83 33 39 18.3 N 115 59 10.0 W	NAD83 33 25 53.5 N 115 50 09.6 W
GROUND ELEVATION	Feet	1842.0	-203.0
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	23.0	23.0
MAIN FEEDER LENGTH	Feet	83.0	53.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	1.1	.7
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	73.3
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	17.7	
MEAN ANNUAL TEMPERATURE	Deg F	69.2	
ABSOLUTE HUMIDITY	g/m^3	12.7	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	138.1	
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	-29.1	-29.1
THERMAL FADE MARGIN	dB	46.9	46.9
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	46.9	46.9
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	11.0	11.0
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	.1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.4	.4
TOTAL MULTIPATH 2-WAY	seconds	22.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999277	22.8 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

Final Design		CLINTON KEITH	MARGARITA
SITE NAME		NAD83 33 36 41.6 N 117 10 31.9 W	NAD83 33 27 57.9 N 117 08 31.4 W
GROUND ELEVATION	Feet	1968.0	1585.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	22.0	18.0
MAIN FEEDER LENGTH	Feet	57.0	79.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.7	1.0
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	70.8	70.5
MAXIMUM EIRP (PART 101)	dBm	84.4	84.4
RADIO EQUIPMENT TYPE		95MPR67-L128A10-52	
RADIO IDENTIFIER		95MPR67-L128A10-52	
FREQUENCY BAND	MHz	6700	10M0D7W
PATH LENGTH	Miles	10.2	
MEAN ANNUAL TEMPERATURE	Deg F	62.9	
ABSOLUTE HUMIDITY	g/m^3	12.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	133.3	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	.5	
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	-28.7	-28.7
THERMAL FADE MARGIN	dB	47.3	47.3
MINIMUM FADE MARGIN	dB	32.0	32.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.3	47.3
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	1.7	1.7
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	3.6	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999885	3.6 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-3
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		CLINTON KEITH	VAQUERO
SITE NAME		NAD83 33 36 41.6 N 117 10 31.9 W	NAD83 33 28 51.7 N 117 11 01.7 W
GROUND ELEVATION	Feet	1968.0	1958.0
MAIN ANTENNA SIZE	Feet	4.0 SU4-103B	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	17.0	52.0
MAIN FEEDER LENGTH	Feet	58.0	92.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E-105	2.8 E-105
MAIN FEEDER LOSS	dB	1.6	2.6
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	64.2	63.3
MAXIMUM EIRP (PART 101)	dBm	70.0	70.0
RADIO TYPE and FCC ID		95MPR10-L64F5-22	
FREQUENCY BAND	MHz	10600	
PATH LENGTH	Miles	9.0	
MEAN ANNUAL TEMPERATURE	Deg F	62.9	
ABSOLUTE HUMIDITY	g/m^3	12.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	136.2	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	.5	
DISPERSIVE FADE MARGIN	dB	72.0	
TRANSMIT POWER	dBm	30.0	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-83.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-39.8	-39.8
THERMAL FADE MARGIN	dB	43.2	43.2
MINIMUM FADE MARGIN	dB	29.0	29.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	43.2	43.2
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	4.9	4.9
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	9.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999685	9.9 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

Final Design		CORN SPRINGS	WILEYS WELL
SITE NAME		NAD83 33 40 53.9 N 115 14 55.1 W	NAD83 33 36 18.3 N 114 54 09.3 W
GROUND ELEVATION	Feet	726.0	392.0
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
DIVERSITY ANTENNA SIZE	Feet	8.0 PAD8-65A	8.0 PAD8-65A
DIVERSITY ANTENNA GAIN	dBi	42.0	42.0
DIVERSITY RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	75.0	125.0
MAIN FEEDER LENGTH	Feet	105.0	155.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	1.4	2.0
DIVERSITY CENTERLINE	Feet	32.0	32.0
DIVERSITY FEEDER LENGTH	Feet	62.0	62.0
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	70.1	69.5
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	20.6	
MEAN ANNUAL TEMPERATURE	Deg F	69.4	
ABSOLUTE HUMIDITY	g/m^3	12.8	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	108.0	
FREE SPACE LOSS	dB	139.4	
ABSORPTION LOSS	dB	.4	
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	-78.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-37.1	-37.1
DIV RECEIVED SIGNAL	dBm	-34.0	-33.4
THERMAL FADE MARGIN	dB	40.9	40.9
SPACE DIV THERMAL FM	dB	44.0	44.6
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	44.0	44.6

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		CORN SPRINGS	WILEYS WELL
SITE NAME		NAD83 33 40 53.9 N 115 14 55.1 W	NAD83 33 36 18.3 N 114 54 09.3 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	99.9999993	.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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		IRON MOUNTAIN	RICE
SITE NAME		NAD83 34 09 04.0 N 115 08 25.9 W	NAD83 34 04 45.1 N 114 47 07.2 W
GROUND ELEVATION	Feet	2048.0	917.0
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	44.0
MAIN FEEDER LENGTH	Feet	50.0	84.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E-65	1.3 E-65
MAIN FEEDER LOSS	dB	.7	1.1
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	72.9
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	21.0	
MEAN ANNUAL TEMPERATURE	Deg F	67.9	
ABSOLUTE HUMIDITY	g/m^3	12.3	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	137.0	
FREE SPACE LOSS	dB	139.5	
ABSORPTION LOSS	dB	.4	
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	-78.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-30.6	-30.6
THERMAL FADE MARGIN	dB	47.4	47.4
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	47.4	47.4
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	8.2	8.2
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.4	.4
TOTAL MULTIPATH 2-WAY	seconds	17.1	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999459	17.1 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

Final Design		RICE		VIDAL JUNCTION	
SITE NAME		NAD83 34 04 45.1 N 114 47 07.2 W		NAD83 34 11 37.4 N 114 29 20.6 W	
GROUND ELEVATION	Feet	917.0		940.0	
MAIN ANTENNA SIZE	Feet	6.0	PAD6-65B	6.0	PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5		39.5	
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	190.0		110.0	
MAIN FEEDER LENGTH	Feet	220.0		140.0	
MAIN FEED LOSS IN dB/100	Feet	1.3	E-65	1.3	E-65
MAIN FEEDER LOSS	dB	2.9		1.8	
DIVERSITY CENTERLINE	Feet	165.0		80.0	
DIVERSITY FEEDER LENGTH	Feet	195.0		110.0	
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	68.6		69.7	
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	18.7			
MEAN ANNUAL TEMPERATURE	Deg F	67.0			
ABSOLUTE HUMIDITY	g/m^3	12.3			
CLIMATE FACTOR		1.0			
ROUGHNESS FACTOR	Feet	48.0			
FREE SPACE LOSS	dB	138.6			
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	-78.0		BER= 10-6	
MAIN RECEIVED SIGNAL	dBm	-37.5		-37.5	
DIV RECEIVED SIGNAL	dBm	-37.2		-37.1	
THERMAL FADE MARGIN	dB	40.5		40.5	
SPACE DIV THERMAL FM	dB	40.8		40.9	
MINIMUM FADE MARGIN	dB	33.0		33.0	
EXTERNAL INTERFERENCE FM	dB	N/A		N/A	
FLAT FADE MARGIN	dB	40.8		40.9	

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-2

Final Design		RICE	VIDAL JUNCTION
SITE NAME		NAD83 34 04 45.1 N 114 47 07.2 W	NAD83 34 11 37.4 N 114 29 20.6 W
SPACE DIV IMPROVE FACTOR	THERMAL	176.4	200.0
MULTIPATH OUTAGE SECONDS	THERMAL	.6	.5
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

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-3

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
GROUND ELEVATION	Feet	3764.0	788.0
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	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
OTHER FEEDER LOSSES	dB	.6	.6
OTHER TRANSMIT LOSSES	dB	2.7	2.7
OTHER RECEIVE LOSSES	dB	3.3	3.3
CALCULATED EIRP	dBm	74.1	73.7
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	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	144.4	
ABSORPTION LOSS	dB	.7	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	55.0	
TRANSMIT POWER	dBm	37.0	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	-35.8 MAX POWER	-35.8 MAX POWER
DIV RECEIVED SIGNAL	dBm	-35.4	-35.4
THERMAL FADE MARGIN	dB	36.7	36.7
SPACE DIV THERMAL FM	dB	37.1	37.1
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	37.1	37.1

SYSTEM: RIVERSIDE COUNTY CA
ROUTE: 9500 UPGRADE
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-3

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	46.1	46.1
MULTIPATH OUTAGE SECONDS	THERMAL	11.9	11.9
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	23.8	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999244	23.8 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
FILE: Y:\CUSTOMER\FINAL\RIVRSIDE.CA\9500UPGD\RECORD-3
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Final Design		INDIO HILL	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-L128A10-52	
RADIO IDENTIFIER		95MPR11-L128A10-52	
FREQUENCY BAND	MHz	11200	10M0D7W
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	60.0	
TRANSMIT POWER	dBm	32.5	NON-STANDBY
ATPC POWER REDUCTION	dB	10.0	WITH ATPC
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-75.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-31.8 MAX POWER	-31.8 MAX POWER
THERMAL FADE MARGIN	dB	43.7	43.7
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	43.7	43.7
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	1.5	1.5
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	3.0	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999901	3.1 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 64 - LOS ANGELES CALIFORNIA USA

Nokia Final Design		PLEASANTS PEAK	CORONA
TROYER		NAD83 33 47 43.0 N 117 36 32.0 W	NAD83 33 52 40.6 N 117 34 37.1 W
GROUND ELEVATION	Feet	3969.5	660.3
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	60.0	60.0
MAIN FEEDER LENGTH	Feet	90.0	90.0
MAIN FEED LOSS IN dB/100	Feet	3.1 EW90	3.1 EW90
MAIN FEEDER LOSS	dB	2.8	2.8
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	2.1	2.1
OTHER RECEIVE LOSSES	dB	2.2	2.2
CALCULATED EIRP	dBm	65.1	65.1
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO EQUIPMENT TYPE		95MPR11-L128F5-25	
RADIO IDENTIFIER		95MPR11-L128F5-25	
FREQUENCY BAND	MHz	11200	5M00D7W
PATH LENGTH	Miles	6.0	
MEAN ANNUAL TEMPERATURE	Deg F	63.2	
ABSOLUTE HUMIDITY	g/m^3	11.3	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	133.1	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	30.5	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	-34.7	-34.7
THERMAL FADE MARGIN	dB	45.8	45.8
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	45.8	45.8

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			PLEASANTS PEAK	CORONA
SITE NAME			NAD83 33 47 43.0 N 117 36 32.0 W	NAD83 33 52 40.6 N 117 34 37.1 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	2.7	2.7
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	5.4	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	.5	
PATH AVAILABILITY	2-WAY	percent	99.9999815	5.8 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1
REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Alcatel-Lucent Feasibility TROYER		Box Springs NAD83 33 57 43.9 N 117 16 51.2 W	Ben Clark NAD83 33 52 37.2 N 117 18 11.5 W
GROUND ELEVATION	Feet	3048.3	1718.5
MAIN ANTENNA SIZE	Feet	3.0 SC3-W100AC	3.0 SC3-W100AC
MAIN ANTENNA GAIN	dBi	38.1	38.1
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	30.0	20.0
MAIN FEEDER LENGTH	Feet	60.0	50.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E105	2.8 E105
MAIN FEEDER LOSS	dB	1.7	1.4
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.6	.6
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	62.7	63.0
MAXIMUM EIRP (PART 101)	dBm	70.0	70.0
RADIO TYPE and FCC ID		95MPR10-L128F5-25	
FREQUENCY BAND	MHz	10600	
PATH LENGTH	Miles	6.0	
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	132.7	
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	-80.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-38.4	-38.4
THERMAL FADE MARGIN	dB	42.1	42.1
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	42.1	42.1

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1
REF: RAIN CURVE 64 - LOS ANGELES CALIFORNIA USA

Alcatel-Lucent TROYER	Feasibility		Box Springs NAD83 33 57 43.9 N 117 16 51.2 W	Ben Clark NAD83 33 52 37.2 N 117 18 11.5 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	1.9	1.9
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	3.9	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	.2	
PATH AVAILABILITY	2-WAY	percent	99.9999868	4.2 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility TROYER		Redondo Mesa NAD83 33 29 47.1 N 117 20 41.2 W	Billy Goat NAD83 33 27 58.0 N 116 51 26.0 W
GROUND ELEVATION	Feet	2783.8	2473.9
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
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	55.0	55.0
MAIN FEEDER LENGTH	Feet	85.0	85.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.1	1.1
DIVERSITY CENTERLINE	Feet	25.0	25.0
DIVERSITY FEEDER LENGTH	Feet	55.0	55.0
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	68.5	68.5
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L128F5-25	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	28.2	
MEAN ANNUAL TEMPERATURE	Deg F	63.4	
ABSOLUTE HUMIDITY	g/m^3	12.0	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	142.1	
ABSORPTION LOSS	dB	.5	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-39.5	-39.5
DIV RECEIVED SIGNAL	dBm	-39.1	-39.1
THERMAL FADE MARGIN	dB	41.5	41.5
SPACE DIV THERMAL FM	dB	41.9	41.9
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.9	41.9

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent TROYER	Feasibility		Redondo Mesa NAD83 33 29 47.1 N 117 20 41.2 W	Billy Goat NAD83 33 27 58.0 N 116 51 26.0 W
SPACE DIV IMPROVE FACTOR	THERMAL		200.0	200.0
MULTIPATH OUTAGE SECONDS	THERMAL		.6	.6
SPACE DIV IMPROVE FACTOR	DIGITAL		200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL		0.0	0.0
TOTAL MULTIPATH	2-WAY	seconds	1.3	
UPFADE OUTAGE	2-WAY	seconds	0.0	
PATH AVAILABILITY	2-WAY	percent	99.9999959	1.3 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
- PATH IN GEOSTATIONARY SATELLITE ORBIT

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility TROYER		Ranger Peak NAD83 33 50 36.6 N 116 49 30.6 W	Snow Peak NAD83 34 02 15.5 N 116 48 48.1 W
GROUND ELEVATION	Feet	5067.9	7901.4
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	55.0	55.0
MAIN FEEDER LENGTH	Feet	85.0	85.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.1	1.1
PROTECT CHANNEL LOSS	dB	11.7	11.7
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	67.9	67.9
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L128F5-25	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	13.4	
MEAN ANNUAL TEMPERATURE	Deg F	67.0	
ABSOLUTE HUMIDITY	g/m^3	11.7	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	135.7	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-34.5	-34.5
THERMAL FADE MARGIN	dB	46.5	46.5
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	46.5	46.5
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	.2	.2
TOTAL MULTIPATH 2-WAY	seconds	10.6	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999663	10.6 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Nokia Feasibility		Ranger Peak	Morongo
TROYER		NAD83 33 50 36.6 N 116 49 30.6 W	NAD83 33 55 37.3 N 116 45 13.5 W
GROUND ELEVATION	Feet	5067.9	1726.9
MAIN ANTENNA SIZE	Feet	4.0 SU4-103B	4.0 SU4-103B
MAIN ANTENNA GAIN	dBi	39.9	39.9
MAIN RADOME LOSS	dB	0.0 TEFLON	0.0 TEFLON
MAIN CENTERLINE	Feet	52.0	20.0
MAIN FEEDER LENGTH	Feet	82.0	50.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E105	2.8 E105
MAIN FEEDER LOSS	dB	2.3	1.4
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	63.6	64.5
MAXIMUM EIRP (PART 101)	dBm	70.0	70.0
RADIO EQUIPMENT TYPE		95MPR10-L128F5-25	
RADIO IDENTIFIER		95MPR10-L128F5-25	
FREQUENCY BAND	MHz	10600	5M00D7W
PATH LENGTH	Miles	7.1	
MEAN ANNUAL TEMPERATURE	Deg F	67.0	
ABSOLUTE HUMIDITY	g/m^3	11.7	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	134.1	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	61.0	
TRANSMIT POWER	dBm	30.0	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	-37.6	-37.6
THERMAL FADE MARGIN	dB	42.9	42.9
MINIMUM FADE MARGIN	dB	26.0	26.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	42.9	42.9

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Nokia Feasibility		Ranger Peak	Morongo
TROYER		NAD83 33 50 36.6 N 116 49 30.6 W	NAD83 33 55 37.3 N 116 45 13.5 W
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	2.7	2.7
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	5.5	
UPFADE OUTAGE 2-WAY	seconds	0.0	
CRANE RAIN OUTAGE 2-WAY	seconds	.1	
PATH AVAILABILITY 2-WAY	percent	99.9999823	5.6 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility TROYER		Toro Peak NAD83 33 31 24.7 N 116 25 30.9 W	Box Canyon NAD83 33 36 49.8 N 115 54 46.5 W
GROUND ELEVATION	Feet	8628.5	1284.6
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
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	55.0	55.0
MAIN FEEDER LENGTH	Feet	85.0	85.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.1	1.1
DIVERSITY CENTERLINE	Feet	25.0	25.0
DIVERSITY FEEDER LENGTH	Feet	55.0	55.0
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	68.5	68.5
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L128F5-25	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	30.2	
MEAN ANNUAL TEMPERATURE	Deg F	66.3	
ABSOLUTE HUMIDITY	g/m^3	12.5	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	142.7	
ABSORPTION LOSS	dB	.5	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-40.1	-40.1
DIV RECEIVED SIGNAL	dBm	-39.7	-39.7
THERMAL FADE MARGIN	dB	40.9	40.9
SPACE DIV THERMAL FM	dB	41.3	41.3
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.3	41.3

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility		Toro Peak	Box Canyon
TROYER		NAD83 33 31 24.7 N	NAD83 33 36 49.8 N
		116 25 30.9 W	115 54 46.5 W
SPACE DIV IMPROVE FACTOR	THERMAL	172.4	172.4
MULTIPATH OUTAGE SECONDS	THERMAL	1.1	1.1
SPACE DIV IMPROVE FACTOR	DIGITAL	200.0	200.0
MULTIPATH OUTAGE SECONDS	DIGITAL	0.0	0.0
TOTAL MULTIPATH 2-WAY	seconds	2.2	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999929	2.2 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility TROYER		Indio NAD83 33 42 24.7 N 116 13 20.5 W	Mecca Land Fill NAD83 33 34 19.2 N 116 00 01.2 W
GROUND ELEVATION	Feet	-8.8	42.5
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
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	85.0	115.0
MAIN FEEDER LENGTH	Feet	115.0	145.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.5	1.9
DIVERSITY CENTERLINE	Feet	55.0	85.0
DIVERSITY FEEDER LENGTH	Feet	85.0	115.0
PROTECT CHANNEL LOSS	dB	11.7	11.7
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	67.5	67.1
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L128F5-25	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	15.8	
MEAN ANNUAL TEMPERATURE	Deg F	70.5	
ABSOLUTE HUMIDITY	g/m^3	12.4	
CLIMATE FACTOR		2.0	
ROUGHNESS FACTOR	Feet	49.0	
FREE SPACE LOSS	dB	137.1	
ABSORPTION LOSS	dB	.3	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-37.2	-37.2
DIV RECEIVED SIGNAL	dBm	-36.8	-36.8
THERMAL FADE MARGIN	dB	43.8	43.8
SPACE DIV THERMAL FM	dB	44.2	44.2
MINIMUM FADE MARGIN	dB	35.0	35.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	44.2	44.2

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility		Indio	Mecca Land Fill
TROYER		NAD83 33 42 24.7 N 116 13 20.5 W	NAD83 33 34 19.2 N 116 00 01.2 W
SPACE DIV IMPROVE FACTOR	THERMAL	200.0	200.0
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	
PATH AVAILABILITY 2-WAY	percent	99.9999981	.6 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility TROYER		Black Eagle NAD83 33 52 30.7 N 115 31 56.5 W	Belle Mt. NAD83 34 00 07.9 N 115 59 54.5 W
GROUND ELEVATION	Feet	2647.8	4447.1
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
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	55.0	55.0
MAIN FEEDER LENGTH	Feet	85.0	85.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.1	1.1
DIVERSITY CENTERLINE	Feet	25.0	25.0
DIVERSITY FEEDER LENGTH	Feet	55.0	55.0
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	68.5	68.5
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L128F5-25	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	28.2	
MEAN ANNUAL TEMPERATURE	Deg F	69.0	
ABSOLUTE HUMIDITY	g/m^3	12.0	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	142.1	
ABSORPTION LOSS	dB	.5	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-39.4	-39.4
DIV RECEIVED SIGNAL	dBm	-39.0	-39.0
THERMAL FADE MARGIN	dB	41.6	41.6
SPACE DIV THERMAL FM	dB	42.0	42.0
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	42.0	42.0

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent TROYER	Feasibility		Black Eagle NAD83 33 52 30.7 N 115 31 56.5 W	Belle Mt. NAD83 34 00 07.9 N 115 59 54.5 W
SPACE DIV IMPROVE FACTOR		THERMAL	200.0	200.0
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	.7	
UPFADE OUTAGE	2-WAY	seconds	0.0	
PATH AVAILABILITY	2-WAY	percent	99.9999978	.7 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility TROYER		Road 177 NAD83 33 52 54.6 N 115 15 06.2 W	Road 62 NAD83 34 02 47.5 N 115 13 16.5 W
GROUND ELEVATION	Feet	596.7	1415.7
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
MAIN RADOME LOSS	dB	.5 FIBERGLASS	.5 FIBERGLASS
MAIN CENTERLINE	Feet	55.0	233.0
MAIN FEEDER LENGTH	Feet	85.0	263.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.1	3.4
PROTECT CHANNEL LOSS	dB	11.7	11.7
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	67.9	65.6
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L128F5-25	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	11.5	
MEAN ANNUAL TEMPERATURE	Deg F	68.5	
ABSOLUTE HUMIDITY	g/m^3	12.0	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	134.3	
ABSORPTION LOSS	dB	.2	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-35.5	-35.5
THERMAL FADE MARGIN	dB	45.5	45.5
MINIMUM FADE MARGIN	dB	30.0	30.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	45.5	45.5
SPACE DIV IMPROVE FACTOR	THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	THERMAL	2.0	2.0
SPACE DIV IMPROVE FACTOR	DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS	DIGITAL	.1	.1
TOTAL MULTIPATH 2-WAY	seconds	4.2	
UPFADE OUTAGE 2-WAY	seconds	0.0	
PATH AVAILABILITY 2-WAY	percent	99.9999866	4.2 sec
OUTAGE OBJECTIVE YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1
REF: RAIN CURVE 57 - PRESCOTT ARIZONA USA

Alcatel-Lucent Feasibility TROYER		Black Jack NAD83 33 49 34.7 N 114 51 39.6 W	Midland NAD83 33 50 26.0 N 114 57 19.9 W
GROUND ELEVATION	Feet	983.2	844.6
MAIN ANTENNA SIZE	Feet	3.0 SC3-W100AC	3.0 SC3-W100AC
MAIN ANTENNA GAIN	dBi	38.1	38.1
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	55.0	55.0
MAIN FEEDER LENGTH	Feet	85.0	85.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E105	2.8 E105
MAIN FEEDER LOSS	dB	2.4	2.4
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.6	.6
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	62.0	62.0
MAXIMUM EIRP (PART 101)	dBm	70.0	70.0
RADIO TYPE and FCC ID		95MPR10-L128F5-25	
FREQUENCY BAND	MHz	10600	
PATH LENGTH	Miles	5.5	
MEAN ANNUAL TEMPERATURE	Deg F	69.0	
ABSOLUTE HUMIDITY	g/m^3	12.9	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	43.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	132.0	
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	-80.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-39.4	-39.4
THERMAL FADE MARGIN	dB	41.1	41.1
MINIMUM FADE MARGIN	dB	24.0	24.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	41.1	41.1

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1
REF: RAIN CURVE 57 - PRESCOTT ARIZONA USA

Alcatel-Lucent Feasibility TROYER			Black Jack NAD83 33 49 34.7 N 114 51 39.6 W	Midland NAD83 33 50 26.0 N 114 57 19.9 W
SPACE DIV IMPROVE FACTOR		THERMAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		THERMAL	4.7	4.7
SPACE DIV IMPROVE FACTOR		DIGITAL	1.0	1.0
MULTIPATH OUTAGE SECONDS		DIGITAL	.1	.1
TOTAL MULTIPATH	2-WAY	seconds	9.4	
UPFADE OUTAGE	2-WAY	seconds	0.0	
CRANE RAIN OUTAGE	2-WAY	seconds	3.2	
PATH AVAILABILITY	2-WAY	percent	99.9999599	12.6 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent Feasibility TROYER		Wileys Well NAD83 33 36 18.9 N 114 54 09.5 W	Spring Hill NAD83 33 29 45.0 N 115 16 30.5 W
GROUND ELEVATION	Feet	392.7	2762.7
MAIN ANTENNA SIZE	Feet	6.0 PAD6-65B	6.0 PAD6-65B
MAIN ANTENNA GAIN	dBi	39.5	39.5
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	50.0	50.0
MAIN FEEDER LENGTH	Feet	80.0	80.0
MAIN FEED LOSS IN dB/100	Feet	1.3 E65	1.3 E65
MAIN FEEDER LOSS	dB	1.0	1.0
DIVERSITY CENTERLINE	Feet	20.0	20.0
DIVERSITY FEEDER LENGTH	Feet	50.0	50.0
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	68.6	68.6
MAXIMUM EIRP (PART 101)	dBm	85.0	85.0
RADIO TYPE and FCC ID		95MPR67-L128F5-25	
FREQUENCY BAND	MHz	6700	
PATH LENGTH	Miles	22.8	
MEAN ANNUAL TEMPERATURE	Deg F	69.6	
ABSOLUTE HUMIDITY	g/m^3	13.0	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	140.0	
FREE SPACE LOSS	dB	140.3	
ABSORPTION LOSS	dB	.4	
FIELD MARGIN	dB	1.0	
DISPERSIVE FADE MARGIN	dB	60.0	
TRANSMIT POWER	dBm	32.5	HOT-STANDBY
ATPC POWER REDUCTION	dB	0.0	
MAXIMUM RECEIVED SIGNAL	dBm	-22.0	
RECEIVER THRESHOLD	dBm	-81.0	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-37.4	-37.4
DIV RECEIVED SIGNAL	dBm	-37.0	-37.0
THERMAL FADE MARGIN	dB	43.6	43.6
SPACE DIV THERMAL FM	dB	44.0	44.0
MINIMUM FADE MARGIN	dB	33.0	33.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	44.0	44.0

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1

Alcatel-Lucent TROYER	Feasibility		Wileys Well NAD83 33 36 18.9 N 114 54 09.5 W	Spring Hill NAD83 33 29 45.0 N 115 16 30.5 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	6.9	
PATH AVAILABILITY	2-WAY	percent	99.9999772	7.2 sec
OUTAGE OBJECTIVE	YEAR	percent	99.9999000	31.5 sec

- PRELIMINARY PATH DESIGN BASED ON TERRAIN DATA BASE
- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE

SYSTEM: Riverside County CA
ROUTE: Motorola Radio Replacement
FILE: Y:\CUSTOMER\FEASIBLE\RIVERCO.CA\MOTOREPL.CA\RECORD-1
REF: RAIN CURVE 67 - SAN DIEGO CALIFORNIA USA

Alcatel-Lucent Feasibility TROYER		Midland NAD83 33 50 26.0 N 114 57 19.9 W	Palen McCoy NAD83 33 55 16.8 N 115 01 26.0 W
GROUND ELEVATION	Feet	844.6	1318.9
MAIN ANTENNA SIZE	Feet	3.0 SC3-W100AC	3.0 SC3-W100AC
MAIN ANTENNA GAIN	dBi	38.1	38.1
MAIN RADOME LOSS	dB	0.0 PLASTIC	0.0 PLASTIC
MAIN CENTERLINE	Feet	55.0	142.0
MAIN FEEDER LENGTH	Feet	85.0	172.0
MAIN FEED LOSS IN dB/100	Feet	2.8 E105	2.8 E105
MAIN FEEDER LOSS	dB	2.4	4.8
PROTECT CHANNEL LOSS	dB	12.9	12.9
OTHER FEEDER LOSSES	dB	.6	.6
WET RADOME LOSS	dB	2.3	2.3
OTHER TRANSMIT LOSSES	dB	3.1	3.1
OTHER RECEIVE LOSSES	dB	3.4	3.4
CALCULATED EIRP	dBm	62.0	59.6
MAXIMUM EIRP (PART 101)	dBm	70.0	70.0
RADIO TYPE and FCC ID		95MPR10-L128F5-25	
FREQUENCY BAND	MHz	10600	
PATH LENGTH	Miles	6.8	
MEAN ANNUAL TEMPERATURE	Deg F	68.7	
ABSOLUTE HUMIDITY	g/m^3	12.5	
CLIMATE FACTOR		1.0	
ROUGHNESS FACTOR	Feet	140.0	
POLARIZATION		VERTICAL	
FREE SPACE LOSS	dB	133.8	
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	-80.5	BER= 10-6
MAIN RECEIVED SIGNAL	dBm	-43.7	-43.7
THERMAL FADE MARGIN	dB	36.8	36.8
MINIMUM FADE MARGIN	dB	24.0	24.0
EXTERNAL INTERFERENCE FM	dB	N/A	N/A
FLAT FADE MARGIN	dB	36.8	36.8