# TABLE OF CONTENTS

## SYSTEM MAP

1.1 SCOPE OF WORK  
1.2 METHOD OF SURVEY  
1.3 CONSTRUCTION OF PATH PROFILES  

## SITE DESCRIPTIONS:

- Site Topographic  
- Site Location Map  
- Site Information  
- Site Drawings  
  - Site Plot Plan  
  - Tower Sketch  
- Site Photographs  

## PATH DESCRIPTION:

- Path Description  
- Path Profile Data  
- Path Photographs  

## PATH DESIGN:

- Engineering Notes  
- Path Profile  
- Performance Calculations  

## WARRANTY
TABLE OF CONTENTS

SYSTEM MAP
1.1 SCOPE OF WORK
1.2 METHOD OF SURVEY
1.3 CONSTRUCTION OF PATH PROFILES

SITE DESCRIPTIONS:

1. Arlington
2. Riverside PD

PATH DESCRIPTIONS:

1. Riverside PD to Arlington
### MICROWAVE SYSTEM DATA

<table>
<thead>
<tr>
<th>STATION</th>
<th>FCC NUMBER</th>
<th>LATITUDE (DMS)</th>
<th>LONGITUDE (DMS)</th>
<th>ELEVATION (FEET)</th>
<th>TOWER (FEET)</th>
<th>TO STATION</th>
<th>FREQUENCY (GHZ)</th>
<th>ANTENNA CENTERLINE (FEET)</th>
<th>ESTIMATED WAVEGUIDE (FEET)</th>
<th>FORWARD AZIMUTH (DMS)</th>
<th>DISTANCE (MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARLINGTON</td>
<td>1273807</td>
<td>33 55 07.0 N</td>
<td>117 27 39.1 W</td>
<td>764</td>
<td>EXISTING 100' S/S</td>
<td>RIVERSIDE PD</td>
<td>11.200</td>
<td>** 98</td>
<td>128</td>
<td>199 10 02</td>
<td>0.768</td>
</tr>
<tr>
<td>RIVERSIDE PD</td>
<td>NA</td>
<td>33 54 29.1 N</td>
<td>117 27 54.9 W</td>
<td>730</td>
<td>EXISTING 32' ROOF MOUNT</td>
<td>ARLINGTON</td>
<td>11.200</td>
<td>32</td>
<td>156</td>
<td>19 09 53</td>
<td>0.768</td>
</tr>
</tbody>
</table>

** MOUNT ON NON-NATURAL LEG
1.1 SCOPE OF WORK

This report describes a system path survey that was performed by Alcatel-Lucent in September for Riverside County, CA.

The survey was conducted in order to obtain the data necessary to provide a preliminary transmission design which would meet the criteria for Riverside County, CA.

The data contained in this report reflects the path designs as known at the time of the survey, but may not reflect subsequent or final designs dictated by other factors such as environmental, construction, tower/zoning restrictions, FAA clearance, performance calculations, frequency coordination, anomalous fading conditions, etc.

1.2 METHOD OF SURVEY

Prior to beginning the actual field survey, available topographic maps for the area are obtained. These are supplemented by city, county and aeronautical maps where topographic mapping is unavailable or insufficient. The survey team selects and marks suitable locations in the area desired by the customer, and the site coordinates are accurately determined by hand held GPS and checked by plotting on the topographic maps data obtained from triangulation bearings to nearby trigonometric monuments or other prominent features. The elevations of the sites are determined using differential leveling, vertical angle trigonometric leveling or barometric altimetry techniques. When the vertical angle-trigonometric leveling technique is employed, the vertical angle from a known elevation to an identifiable object or flash is measured with a theodolite and the distance may be obtained using either electronic distance measuring equipment or map scaling. Using this data, the elevation of the object or flash can be calculated by trigonometric methods. The barometric altimetry technique uses precision surveying altimeters for which temperature and pressure corrections are applied.

Site features are noted with a sketch of the site area and then the proposed paths are traversed to determine the elevation and locations of the critical points. Critical point elevations are determined using the same techniques as those used for measuring the elevations of the sites. Terrain features of path areas that might affect propagation, both man-made and naturally occurring, are noted so that the maximum expected future height can be plotted on the path profiles.

The specific methods that were used to survey the locations and paths for this report have been indicated on the site and path information sheets.
I.3 CONSTRUCTION OF PATH PROFILES

To provide a precise analysis of the clearance available over obstacles, path data was compiled on a Path Data Sheet. This was then transferred to a computer generated profile which was used to plot terrain features, vegetation, and man-made obstructions in the area of the sites as well as underlying the path line. Structures shown with dotted lines are off-path obstructions (listed on the path data sheets in lower case letters as follows: T = trees, W = water, B = building, M = Mast, R = Water Tower. On-path and off-path obstructions are noted under comments as follows: - ON = on-path, - OFF = off-path). In cases where effectively transparent obstructions such as power lines were located on-path, they were shown as off-path obstructions on the path profiles, but noted as on-path in the path data sheets.

**MAIN ANTENNAS:**

The greater of:

100% Fresnel at $K = 1.33$

or

Grazing at $K = 0.50$

**DIVERSITY ANTENNA: (if applicable)**

60%Fresnel at $K = 1.333$

Where applicable, an additional 10' or greater feet are allowed for future tree growth. The amount of future growth is at the discretion of the surveyor.
SITE

DESCRIPTIONS
MICROWAVE SITE INFORMATION

SITE NAME: ARLINGTON

SURVEYOR: BRYAN KAGEL

DATE: SEPTEMBER, 2015

STREET ADDRESS: 10099 COUNTY FARM RD

CITY: RIVERSIDE

STATE: CA

COUNTY: RIVERSIDE

COUNTRY: U.S.A.

IF NOT IN A CITY: DISTANCE: NA

AZIMUTH (TRUE): NA

TO CITY OF: NA

**GEODETIC COORDINATES (NAD 83)

LATITUDE: 33 55 07.0 N

LONGITUDE: 117 27 39.1 W

HOW DETERMINED: POSITION DETERMINED BY GPS STATIC SESSION DERIVED BY NGS-OPUS

CHECKED AGAINST 7.5 MINUTE USGS QUADRANGLE CONTOUR MAP

SITE ELEVATION AMSL: 764'

HOW DETERMINED: ELEVATION DETERMINED BY GPS STATIC SESSION DERIVED BY NGS-OPUS

CHECKED AGAINST 7.5 MINUTE USGS QUADRANGLE CONTOUR MAP

SITE DESCRIPTION: EXISTING COMMUNICATION SITE

SITE ACCESS DESCRIPTION: KEY LOCKED COMPOUND
BUILDING INFORMATION: EXISTING

COMMENTS: SEE SITE PLOT PLAN FOR DETAILS

ELECTRIC POWER: EXISTING

VOLTS: 110

HERTZ: 60

TOWER INFORMATION: EXISTING

HEIGHT: 100’

TYPE: SELF SUPPORT

AREA REQUIRED FOR 80% GUYING: N/A

COMMENTS: FCC NUMBER: 1273807

USE EAST LEG FOR ANTENNA

EQUIPMENT/TOWER DISTANCE (WAVEGUIDE RUN): SEE SYSTEM DATA SHEET

AIRPORT INFORMATION: (ALL AIRPORTS WITHIN 10 MILES)

<table>
<thead>
<tr>
<th>AIRPORT</th>
<th>AZIMUTH TO AIRPORT (TRUE)</th>
<th>DISTANCE TO NEAREST RUNWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXISTING STRUCTURE</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

GENERAL COMMENTS: * USE EAST LEG FOR MOUNTING OF ANTENNA TO RIVERSIDE PD
VHF/UHF ANTENNA
96'–120' AGL

VHF/UHF ANTENNAS
76'–96' AGL

TOP TOWER 100' AGL

6' PARABOLIC CL 90' AGL
FACING NORTH EASTERLY

ANGLE POINT 80' AGL

60' AGL SECTION

40' AGL SECTION

20' AGL SECTION

VIEW

GROUND 764' AMSL
GROUND 0' AGL

SOUTH ELEVATION VIEW
LOOKING NORTH

SCALE IN FEET
0 20 20

ALCATEL-LUCENT

RIVERSIDE CO., CA
ARLINGTON
STRUCTURE ELEVATION

AGL denotes Above Ground Level
AMSL denotes Above Mean Sea Level
ARLINGTON

RIVERSIDE COUNTY BADGE

VIEW LOOKING NORTH WESTERLY
ARLINGTON

VIEW LOOKING NORTHERLY

VIEW LOOKING NORTHERLY AT TOP OF TOWER
ARLINGTON

VIEW LOOKING NORTH EASTERLY
MICROWAVE SITE INFORMATION

SITE NAME: RIVERSIDE PD

SURVEYOR: BRYAN KAGEL

DATE: SEPTEMBER, 2015

STREET ADDRESS: 10540 MAGNOLIA AVENUE, #B

CITY: RIVERSIDE

STATE: CA

COUNTY: RIVERSIDE

COUNTRY: U.S.A.

IF NOT IN A CITY: DISTANCE: NA

AZIMUTH (TRUE): NA

TO CITY OF: NA

**GEODETTIC COORDINATES (NAD 83)**

LATITUDE: 33 54 29.1 N

LONGITUDE: 117 27 54.9 W

HOW DETERMINED: POSITION DETERMINED BY GPS STATIC SESSION DERIVED BY NGS-OPUS

CHECKED AGAINST 7.5 MINUTE USGS QUADRANGLE CONTOUR MAP

SITE ELEVATION AMSL: 730

HOW DETERMINED: ELEVATION DETERMINED BY GPS STATIC SESSION DERIVED BY NGS-OPUS

CHECKED AGAINST 7.5 MINUTE USGS QUADRANGLE CONTOUR MAP

SITE DESCRIPTION: EXISTING BUILDING TOP COMMUNICATION SITE

SITE ACCESS DESCRIPTION: POLICE STATION

BRING STATE I.D.
BUILDING INFORMATION: EXISTING

COMMENTS: SEE SITE PLOT PLAN FOR DETAILS

ELECTRIC POWER: EXISTING

VOLTS: 110

HERTZ: 60

TOWER INFORMATION: EXISTING

HEIGHT: 27' MAIN ROOF LEVEL

TYPE: BUILDING TOP

AREA REQUIRED FOR 80% GUYING: N/A

COMMENTS: 27' BUILDING TOP

32' NON-PENETRATING ROOF MOUNT SLED

EQUIPMENT/TOWER DISTANCE (WAVEGUIDE RUN): SEE SYSTEM DATA SHEET

AIRPORT INFORMATION: (ALL AIRPORTS WITHIN 10 MILES)

<table>
<thead>
<tr>
<th>AIRPORT</th>
<th>AZIMUTH TO AIRPORT (TRUE)</th>
<th>DISTANCE TO NEAREST RUNWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXISTING STRUCTURE</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

GENERAL COMMENTS: NON-PENETRATING ROOF TOP SLED
PROPOSED LOCATION FOR ANTENNA TO ARLINGTON. RECOMMEND NON-PENETRATING ROOF MOUNT

W.G. RUN APPROXIMATELY 150' LINEAR FEET

GROUND: 730' AMSL
STRUCTURE: BUILDING MRL: 727' AMSL
MOUNT SLED: 732' AMSL
FCC NOT AVAILABLE

*APPROXIMATE LOCATION OF EQUIPMENT ROOM ON 1ST FLOOR OF BUILDING

AGL denotes Above Ground Level
AMSL denotes Above Mean Sea Level
VIEW LOOKING SOUTH EAST- ARROW POINTS TO PROPOSED LOCATION

VIEW LOOKING NORTH EASTERLY-TRIPOD AT PROPOSED LOCATION
W.G. PENETRATION POINT
RIVERSIDE PD
TO
ARLINGTON
PATH DESCRIPTION

GENERAL DESCRIPTION OF TERRAIN FEATURES:
This path passes from an existing roof top mount at Riverside PD to an existing self-support tower at Arlington. Terrain traverses through urban environment over relatively flat profile with no near field obstructions. Recommend using east leg of Arlington self-support tower to prevent relocation of existing whip antennas.

DETAILED DESCRIPTION OF TERRAIN FEATURES AND CRITICAL POINTS:

PATH RIVERSIDE PD TO ARLINGTON

<table>
<thead>
<tr>
<th>MILEAGE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>Existing building top at Riverside PD.</td>
</tr>
<tr>
<td>0.00-0.768</td>
<td>Relatively flat profile over urban terrain.</td>
</tr>
<tr>
<td>.005</td>
<td>Building parapet.</td>
</tr>
<tr>
<td>.063</td>
<td>58’ agl Palm tree. Palm is 19’ west of path azimuth.</td>
</tr>
<tr>
<td>.187</td>
<td>Deciduous tree which is 39’ + 10’ future growth. Tree is controlling feature of path.</td>
</tr>
<tr>
<td>.494</td>
<td>45’ agl Wood utility pole. Pole is 3’ west of path azimuth.</td>
</tr>
<tr>
<td>.708</td>
<td>Deciduous tree at 36’ + 10’ future growth.</td>
</tr>
<tr>
<td>.768</td>
<td>Existing self-support tower at Arlington.</td>
</tr>
</tbody>
</table>

*Recommend using east leg at Arlington tower to avoid relocation of whip antennas on west leg.*
<table>
<thead>
<tr>
<th>Distance (mi)</th>
<th>Elevation (ft)</th>
<th>Ground Type</th>
<th>Structure (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>730.00</td>
<td>AG</td>
<td>30.0 ft Building - BLD PARAPET</td>
</tr>
<tr>
<td>0.005</td>
<td>730.00</td>
<td>AG</td>
<td>58.0 ft Tree - Off Path Structure</td>
</tr>
<tr>
<td>0.050</td>
<td>729.00</td>
<td>AG</td>
<td>49.0 ft Tree - 39+10FG/DECIDUOUS</td>
</tr>
<tr>
<td>0.063</td>
<td>729.00</td>
<td>AG</td>
<td>66.0 ft Tree - Off Path Structure</td>
</tr>
<tr>
<td>0.080</td>
<td>729.00</td>
<td>AG</td>
<td></td>
</tr>
<tr>
<td>0.099</td>
<td>730.00</td>
<td>AG</td>
<td>15.0 ft Building - COMMERCIAL BLD</td>
</tr>
<tr>
<td>0.187</td>
<td>729.00</td>
<td>AG</td>
<td>45.0 ft Building - WOOD UT POLE-3' WEST</td>
</tr>
<tr>
<td>0.194</td>
<td>729.00</td>
<td>AG</td>
<td>20.0 ft Building - COMMERCIAL BLD</td>
</tr>
<tr>
<td>0.440</td>
<td>745.00</td>
<td>AG</td>
<td>25.0 ft Tree</td>
</tr>
<tr>
<td>0.494</td>
<td>746.00</td>
<td>AG</td>
<td>45.0 ft Building - 36+10FG/DECIDUOUS</td>
</tr>
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<td>0.580</td>
<td>750.00</td>
<td>AG</td>
<td>20.0 ft Building - WAREHOUSE BLD</td>
</tr>
<tr>
<td>0.634</td>
<td>751.00</td>
<td>AG</td>
<td>10.0 ft Building - ROCK OUT CROP/MONOLITH</td>
</tr>
<tr>
<td>0.740</td>
<td>763.00</td>
<td>AG</td>
<td>10.0 ft Building - ROCK OUT CROP/MONOLITH</td>
</tr>
<tr>
<td>0.768</td>
<td>764.00</td>
<td>AG</td>
<td></td>
</tr>
</tbody>
</table>

Ground Elevations - AMSL, Structure & Antenna Heights - AGL

Ground Type
PG - Poor, AG - Average, GG - Good, FW - Fresh Water, SW - Salt Water

Off Path Tree at 0.063 mi - PALM/19' W.PATH
Distance Off Path (ft) 19.0
Ground Elevation (ft) 729.0
Structure Height (ft) 58.0

Off Path Tree at 0.194 mi - OAK TREE/20' EAST PATH
Distance Off Path (ft) 20.0
Ground Elevation (ft) 732.0
Structure Height (ft) 66.0
VIEW LOOKING TO ARLINGTON STANDING ON MAIN ROOF LEVEL AT PROPOSED LOCATION
PATH RIVERSIDE PD TO ARLINGTON
PATH MILE 0.00 (RIVERSIDE PD – BUILDING TOP)

VIEW LOOKING TO ARLINGTON STANDING ON MAIN ROOF LEVEL AT PROPOSED LOCATION
PATH RIVERSIDE PD TO ARLINGTON
PATH MILE 0.768 (ARLINGTON S.S. TOWER-E.LEG)

VIEW LOOKING TO RIVERSIDE PD STANDING AT 47’ AGL NEAR E. LEG
PATH
DESIGN
<table>
<thead>
<tr>
<th>Alcatel-Lucent Final Design</th>
<th>RIVERSIDE PD</th>
<th>ARLINGTON</th>
</tr>
</thead>
<tbody>
<tr>
<td>TROYER</td>
<td>NAD83 33 54 29.1 N</td>
<td>NAD83 33 55 07.0 N</td>
</tr>
<tr>
<td></td>
<td>117 27 54.9 W</td>
<td>117 27 39.1 W</td>
</tr>
</tbody>
</table>

| GROUND ELEVATION | Feet | 730.0 | 764.0 |
| MAIN ANTENNA SIZE | Feet | 2.0 SC2-W100BC | 2.0 SC2-W100BC |
| MAIN ANTENNA GAIN | dBi | 34.3 | 34.3 |
| MAIN RADOME LOSS | dB | 0.0 PLASTIC | 0.0 PLASTIC |
| MAIN CENTERLINE | Feet | 32.0 | 98.0 |
| MAIN FEEDER LENGTH | Feet | 156.0 | 128.0 |
| MAIN FEEDER LOSS IN dB/100 | Feet | 2.8 E105 | 2.8 E105 |
| MAIN FEEDER LOSS | dB | 4.4 | 3.6 |
| PROTECT CHANNEL LOSS | dB | 10.0 | 10.0 |
| OTHER FEEDER LOSSES | dB | 0.0 | 0.0 |
| OTHER TRANSMIT LOSSES | dB | 1.0 | 1.0 |
| OTHER RECEIVE LOSSES | dB | 1.0 | 1.0 |
| CALCULATED EIRP | dBm | 43.5 | 44.3 |
| MAXIMUM EIRP (PART 101) | dBm | 45.7 | 45.7 |

| RADIO TYPE and FCC ID | MDR-8710-8 |
| FREQUENCY BAND | MHz | 10600 | 2M50D7W |
| PATH LENGTH | Miles | .8 |
| MEAN ANNUAL TEMPERATURE | Deg F | 63.2 |
| ABSOLUTE HUMIDITY | g/m³ | 11.0 |
| CLIMATE FACTOR | | 2.0 |
| ROUGHNESS FACTOR | Feet | 20.0 |
| POLARIZATION | | VERTICAL |
| FREE SPACE LOSS | dB | 114.8 |
| ABSORPTION LOSS | dB | 0.0 |
| DISPERSIVE FADE MARGIN | dB | 70.0 |
| TRANSMIT POWER | dBm | 15.0 | HOT-STANDBY |
| ATPC POWER REDUCTION | dB | 0.0 |
| MAXIMUM RECEIVED SIGNAL | dBm | -17.0 |
| RECEIVER THRESHOLD | dBm | -78.0 | BER= 10-6 |
| MAIN RECEIVED SIGNAL | dBm | -43.0 | -43.0 |
| THERMAL FADE MARGIN | dB | 35.0 | 35.0 |
| MINIMUM FADE MARGIN | dB | 22.0 | 22.0 |
| EXTERNAL INTERFERENCE FM | dB | N/A | N/A |
| FLAT FADE MARGIN | dB | 35.0 | 35.0 |

| SPACE DIV IMPROVE FACTOR | THERMAL | 1.0 | 1.0 |
| MULTIPATH OUTAGE SECONDS | THERMAL | 0.3 | 0.3 |
| SPACE DIV IMPROVE FACTOR | DIGITAL | 1.0 | 1.0 |
| MULTIPATH OUTAGE SECONDS | DIGITAL | 0.0 | 0.0 |

| TOTAL MULTIPATH 2-WAY | seconds | .5 |
| UPPAUSE OUTAGE 2-WAY | seconds | 0.0 |
| CRANE RAIN OUTAGE 2-WAY | seconds | 0.0 |
| PATH AVAILABILITY 2-WAY | percent | 99.9999984 | .5 sec |
| OUTAGE OBJECTIVE YEAR | percent | 99.9999000 | 31.5 sec |

- CALCULATIONS VALID ONLY IF PATH HAS ADEQUATE CLEARANCE
WARRANTY
OF
WORK
MICROWAVE PATH ENGINEERING WARRANTY

FEASIBILITY STUDIES

Alcatel-Lucent provides feasibility studies of microwave radio paths in support of bidding efforts or when purchased by the Customer. Feasibility studies are performed using information provided by or on behalf of the Customer. Results of the feasibility study are provided to the Customer and may include (i) a system map, (ii) a path profile, (iii) path performance calculations, and (iv) a technical report.

Feasibility studies are preliminary in nature and are not intended to represent a final design. Therefore no representations, warranty or guarantee is implied or provided. Customer agrees to assume all risks associated with installing any equipment based on spiderweb maps, preliminary network and system maps, preliminary path profiles (including antenna size and location), path calculations (estimated performance), Google Earth, and topology studies normally presented with a feasibility study.

PATH SURVEYS (DETAILED SURVEY WITH REPORT)

Alcatel-Lucent offers detailed path surveying services to determine or verify site coordinates, site access, location, ground elevation, on-path obstruction location and height, tower information, proposed antenna centerline information, and other parameters required to engineer and implement a microwave radio link. The present and anticipated future effect of observable on-path obstructions, such as vegetation and buildings, are also evaluated and incorporated into the path design where applicable. Where appropriate, rooftop access may be utilized in the survey effort. Existing towers are not climbed as a part of this activity.

The results of the path survey are documented and presented in a formal survey report or technical report, as required, to the Customer. Some items performed and included in a formal survey report may include: site location map, site topographic map, access information, site plot plans, existing tower elevation profile, site photographs, site and path observations, path terrain feature descriptions, critical point data, engineering notes, path profiles, and proposed performance calculations.

For detailed Path Surveys, Alcatel-Lucent warrants that geodetic coordinates are accurate to within +/- 1-second of latitude, +/- 1-second of longitude, ground elevations are accurate to within +/- 1 meter, and that heights of identified on-path obstructions at critical points are accurate to within 5-feet. Alcatel-Lucent warrants only the actual paths surveyed.

LINE OF SIGHT SURVEYS (LOS - CLEARANCE VERIFICATION)

Alcatel-Lucent offers a simplified microwave path survey service (from that described above) to determine “line of sight” (LOS) and adequate clearance conditions exist for a planned microwave link. This survey approach is best suited for urban and suburban environments. It can include driving the path as done in a traditional path survey, flashing the path, mirrors, or binoculars methodology. The line of sight survey may also ascertain site coordinates, site access and location, ground elevation, on-path obstruction location and height, tower information, proposed antenna centerline information, and other basic parameters required to evaluate and design a microwave radio link. The present and anticipated future effect of observable on-path obstructions, such as existing vegetation and existing buildings, are evaluated and incorporated into the path design where applicable and appropriate. Where appropriate,
roof top access may be utilized in the survey effort. Existing towers are not climbed as a part of this activity.

For line of sight (LOS) surveys, Alcatel-Lucent warrants that geodetic coordinates are accurate to within +/- 1-second of latitude, +/- 1-second of longitude, and ground elevations are accurate to within +/- 1 meter. Alcatel-Lucent warrants only the actual paths surveyed.

PATH DESIGN

Alcatel-Lucent offers path design services. Path design services are based on formal field survey data gathered by Alcatel-Lucent path surveyors and is warranted. Path designs include profiling a path to determine antenna centerline requirements, and path calculations to determine the antenna and radio types necessary to meet the Customer’s microwave link performance and availability objectives. Recommended antenna centerlines are determined for a range of K-factors expected to occur during an average year and by the Fresnel zone clearance criteria stipulated by Bell Laboratories. For areas where poor propagation conditions are known to exist, paths are assessed for susceptibility to obstruction fading outages using the Bell Laboratories Obstruction Fading (OBSFAD) model. Additionally, paths are analyzed for ground-based reflections.

Microwave link availability (path availability) is evaluated using current North American industry accepted models for predicting outage times and diversity improvement factors associated with normal atmospheric multipath fading (flat and dispersive), rain fading, and obstruction fading. Every effort is made by Alcatel-Lucent to anticipate the probable occurrence of abnormal propagation conditions based on historical documentation, experience, geographical location, and field survey data.

The final path design documentation will include one or more of the following, depending on the services purchased by the Customer: (i) a system map, (ii) a final path profile, (iii) final path performance calculations, and (iv) a technical report.

If a radio path using Alcatel-Lucent equipment is installed based on Alcatel-Lucent’s recommended path design, then Alcatel-Lucent warrants the radio path calculations shall conform to the Customer’s availability objective for normal atmospheric multipath fading. Alcatel-Lucent will not be held responsible for excessive outages or degraded performance due to abnormal fading conditions. Abnormal fading conditions include, but are not limited to:

- Formation of extreme radio refractivity gradients associated with:
  - Exceptionally large temperature inversions
  - Abnormal temperature/humidity layers
  - Fog formation
  - Signal trapping caused by surface or atmospheric ducting

- Reflections from unusual or unidentifiable on-path or off-path terrain features, physical structures, or atmospheric layers.

- Rain fading due to rainfall rates that are in excess of the published rates or charts used to predict rain induced outages.

If Alcatel-Lucent suspects that abnormal propagation conditions are the cause of degraded system performance, Alcatel-Lucent will assist the Customer in verifying the conditions leading to the degraded system performance. After the problem has been identified, Alcatel-Lucent will support the Customer in identifying possible solutions to the problem and assess the incremental improvement expected from corrective actions. Any implementation of corrective action to remedy this type of problem shall be the sole responsibility of the Customer.
FREQUENCY PLANNING
Alcatel-Lucent offers frequency planning services including frequency selection, prior coordination process, interference case resolution, and FCC license application documentation preparation and submittal. Alcatel-Lucent warrants that the interference studies will be conducted using industry-accepted North American methods, hardware, software and algorithms; and that the frequency database will be maintained as accurately as possible at the time of the study. Alcatel-Lucent will not be held responsible for interference cases that arise due to errors or omissions in the database. Upon completion of the frequency planning services, some or all of the following documentation is provided to the Customer:

- Prior Coordination Notice
- Frequency Coordination Data Sheet
- Supplemental Showing pursuant to FCC Rules Part 101.103(d)
- Completed FCC Form 601 License Application and Preparation

In the event harmful frequency interference is detected during the implementation of a microwave line in which Alcatel-Lucent provided the frequency planning services, Alcatel-Lucent’s total liability is limited to selection of an alternate frequency or frequencies. Should harmful interference occur after the microwave link is deemed operational and accepted, corrective action is the sole responsibility of the Customer.

WARRANTY
Alcatel-Lucent warrants its path surveys and path designs to be substantially free of engineering defects and errors for a period of 12 months from the date of delivery of the study to the Customer. Alcatel-Lucent warrants its line of sight surveys to be substantially free of engineering defects and errors for a period of 6 months from the date of delivery of the study to the Customer. Alcatel-Lucent warrants its frequency planning and Form 601 License Application preparation to be substantially free of engineering defects and errors for a period of 6 months from the date the path was prior coordinated. Except as further limited above, in the event of a proven breach of warranty, the Customer's sole remedy under this warranty shall be that Alcatel-Lucent will provide the incremental labor and material beyond what would have been required during initial installation to correct for the particular error in the path survey or path design. In no case shall Alcatel-Lucent be held liable for any indirect damages including but not limited to incidental, consequential or loss of capital, data, revenue or profit. In the event that such error is not solely and directly related to Alcatel-Lucent’s path engineering efforts, expenses for such labor and material shall be borne by the Customer.