

**Microwave Path Data Sheet**

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**COMSEARCH**

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number: 060328COMSDS01

| <b>Administrative Information</b>     |  | <b>PHOENIX AIR AZ</b>                    | <b>PHOENIX RX AZ</b>                     |
|---------------------------------------|--|------------------------------------------|------------------------------------------|
| City/County                           |  | Goodyear/Maricopa                        | Goodyear/Maricopa                        |
| Status / License Basis                |  | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                             |  |                                          |                                          |
| Licensee Code                         |  | S00114                                   | S00114                                   |
| Licensee Name                         |  | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class         |  | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |
| <b>Site Information</b>               |  |                                          |                                          |
| Latitude (NAD 83)                     |  | 33 ° 25' 48.0" N                         | 33 ° 24' 53.3" N                         |
| Longitude (NAD 83)                    |  | 112 ° 21' 49.0" W                        | 112 ° 22' 59.2" W                        |
| Ground Elevation (m/ft-AMSL)          |  | 293.52 / 963.0                           | 287.00 / 941.6                           |
| Antenna Structure Registration #      |  |                                          |                                          |
| Path Azimuth (°)                      |  | 227.108                                  | 47.097                                   |
| Path Length (km / miles)              |  | 2.476 / 1.538                            |                                          |
| <b>Transmit Antenna</b>               |  | A24601                                   |                                          |
| Manufacturer                          |  | ANDREW CORPORATION                       |                                          |
| Model                                 |  | P8F-17C                                  |                                          |
| Gain (dBi) / Beamwidth (°) / Tilt (°) |  | 31.1 / 4.50 / -0.16                      |                                          |
| Centerline (m / ft - AGL)             |  | 6.00 / 19.7                              |                                          |
| <b>Receive Antenna</b>                |  | A24601                                   |                                          |
| Manufacturer                          |  | ANDREW CORPORATION                       |                                          |
| Model                                 |  | P8F-17C                                  |                                          |
| Gain (dBi) / Beamwidth (°)            |  | 31.1 / 4.50                              |                                          |
| Centerline (m / ft - AGL)             |  | 6.00 / 19.7                              |                                          |
| <b>Diversity Receive Antenna</b>      |  |                                          |                                          |
| Manufacturer                          |  |                                          |                                          |
| Model                                 |  |                                          |                                          |
| Gain (dBi) / Beamwidth (°)            |  |                                          |                                          |
| Centerline (m / ft - AGL)             |  |                                          |                                          |
| <b>Radio Information</b>              |  | TEMI95                                   | 999999                                   |
| Manufacturer                          |  | HEWLETT-PACKARD COMPANY                  | RECEIVE                                  |
| Model                                 |  | HP SIGNAL GENERATOR                      | ONLY                                     |
| Model Description                     |  |                                          |                                          |
| Emission Designator / Modulation      |  | 1M00N0N FM                               |                                          |
| Loading                               |  | 1 CH MSG 0.000                           | 1 CH MSG 0.000                           |
| Stability (%)                         |  | 0.001                                    | 0.001                                    |
|                                       |  | Nominal Coordinated Maximum              | Nominal Coordinated Maximum              |
| Power (dBm)                           |  | 30.0                                     |                                          |
| Received Level (dBm)                  |  |                                          | -28.8                                    |
| EIRP (dBm)                            |  | 46.1                                     |                                          |
| Fixed Loss: Tx / Common (dB)          |  | 15.0 / 0.0                               | 0.0 / 0.0                                |
| Free Space Loss (dB)                  |  |                                          | 106.0                                    |
| <b>Transmit Frequencies (MHz)</b>     |  | 1860.0000V(1)                            | 1870.0000V(2)                            |
|                                       |  | 1880.0000V(3)                            | 1890.0000V(4)                            |
|                                       |  | 1900.0000V(5)                            | 1940.0000V(6)                            |
|                                       |  | 1950.0000V(7)                            | 1960.0000V(8)                            |
|                                       |  | 1970.0000V(9)                            | 1980.0000V(10)                           |

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**COMSEARCH**

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| <b>Administrative Information</b>     |  | <b>MARANA AIR</b>                        | <b>AZ</b>   | <b>MARANA RX</b>                         | <b>AZ</b> |
|---------------------------------------|--|------------------------------------------|-------------|------------------------------------------|-----------|
| City/County                           |  | /Pinal                                   |             | /Pinal                                   |           |
| Status / License Basis                |  | Engineering Proposal / PRIMARY OPERATION |             | Engineering Proposal / PRIMARY OPERATION |           |
| Call Sign                             |  |                                          |             |                                          |           |
| Licensee Code                         |  | S00114                                   |             | S00114                                   |           |
| Licensee Name                         |  | Boeing Company                           |             | Boeing Company                           |           |
| Radio Service / Station Class         |  | MG -- Microwave Industrial/Business Pool |             | MO -- Mobile                             |           |
| <b>Site Information</b>               |  |                                          |             |                                          |           |
| Latitude (NAD 83)                     |  | 32 ° 30' 42.0" N                         |             | 32 ° 30' 58.1" N                         |           |
| Longitude (NAD 83)                    |  | 111 ° 19' 11.0" W                        |             | 111 ° 19' 59.1" W                        |           |
| Ground Elevation (m/ft-AMSL)          |  | 607.16 / 1992.0                          |             | 569.00 / 1866.8                          |           |
| Antenna Structure Registration #      |  |                                          |             |                                          |           |
| Path Azimuth (°)                      |  | 291.559                                  |             | 111.551                                  |           |
| Path Length (km / miles)              |  | 1.350 / 0.839                            |             |                                          |           |
| <b>Transmit Antenna</b>               |  | A24601                                   |             |                                          |           |
| Manufacturer                          |  | ANDREW CORPORATION                       |             |                                          |           |
| Model                                 |  | P8F-17C                                  |             |                                          |           |
| Gain (dBi) / Beamwidth (°) / Tilt (°) |  | 31.1 / 4.50 / -1.62                      |             |                                          |           |
| Centerline (m / ft - AGL)             |  | 6.00 / 19.7                              |             |                                          |           |
| <b>Receive Antenna</b>                |  |                                          |             | A24601                                   |           |
| Manufacturer                          |  |                                          |             | ANDREW CORPORATION                       |           |
| Model                                 |  |                                          |             | P8F-17C                                  |           |
| Gain (dBi) / Beamwidth (°)            |  |                                          |             | 31.1 / 4.50                              |           |
| Centerline (m / ft - AGL)             |  |                                          |             | 6.00 / 19.7                              |           |
| <b>Diversity Receive Antenna</b>      |  |                                          |             |                                          |           |
| Manufacturer                          |  |                                          |             |                                          |           |
| Model                                 |  |                                          |             |                                          |           |
| Gain (dBi) / Beamwidth (°)            |  |                                          |             |                                          |           |
| Centerline (m / ft - AGL)             |  |                                          |             |                                          |           |
| <b>Radio Information</b>              |  | TEM195                                   |             | 999999                                   |           |
| Manufacturer                          |  | HEWLETT-PACKARD COMPANY                  |             | RECEIVE                                  |           |
| Model                                 |  | HP SIGNAL GENERATOR                      |             | ONLY                                     |           |
| Model Description                     |  |                                          |             |                                          |           |
| Emission Designator / Modulation      |  | 1M00N0N FM                               |             |                                          |           |
| Loading                               |  | 1 CH MSG 0.000                           |             | 1 CH MSG 0.000                           |           |
| Stability (%)                         |  | 0.001                                    |             | 0.001                                    |           |
|                                       |  | Nominal                                  | Coordinated | Maximum                                  |           |
| Power (dBm)                           |  | 30.0                                     |             |                                          |           |
| Received Level (dBm)                  |  |                                          |             | -38.5                                    |           |
| EIRP (dBm)                            |  | 31.1                                     |             |                                          |           |
| Fixed Loss: Tx / Common (dB)          |  | 30.0 / 0.0                               |             | 0.0 / 0.0                                |           |
| Free Space Loss (dB)                  |  |                                          |             | 100.7                                    |           |
| <b>Transmit Frequencies (MHz)</b>     |  | 1860.0000V(1)                            |             | 1870.0000V(2)                            |           |
|                                       |  | 1880.0000V(3)                            |             | 1890.0000V(4)                            |           |
|                                       |  | 1900.0000V(5)                            |             | 1940.0000V(6)                            |           |
|                                       |  | 1950.0000V(7)                            |             | 1960.0000V(8)                            |           |
|                                       |  | 1970.0000V(9)                            |             | 1980.0000V(10)                           |           |

# Microwave Path Data Sheet

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| Administrative Information            |  | MOJAVE AIR CA                            | MOJAVEX CA                               |
|---------------------------------------|--|------------------------------------------|------------------------------------------|
| City/County                           |  | Mojave/Kern                              | Mojave/Kern                              |
| Status / License Basis                |  | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                             |  |                                          |                                          |
| Licensee Code                         |  | S00114                                   | S00114                                   |
| Licensee Name                         |  | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class         |  | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |
| Site Information                      |  |                                          |                                          |
| Latitude (NAD 83)                     |  | 35 ° 3' 24.0" N                          | 35 ° 2' 56.5" N                          |
| Longitude (NAD 83)                    |  | 118 ° 9' 26.0" W                         | 118 ° 8' 12.8" W                         |
| Ground Elevation (m/ft-AMSL)          |  | 840.33 / 2757.0                          | 821.00 / 2693.6                          |
| Antenna Structure Registration #      |  |                                          |                                          |
| Path Azimuth (°)                      |  | 114.547                                  | 294.558                                  |
| Path Length (km / miles)              |  | 2.039 / 1.267                            |                                          |
| Transmit Antenna                      |  | A24601                                   |                                          |
| Manufacturer                          |  | ANDREW CORPORATION                       |                                          |
| Model                                 |  | P8F-17C                                  |                                          |
| Gain (dBi) / Beamwidth (°) / Tilt (°) |  | 31.1 / 4.50 / -0.55                      |                                          |
| Centerline (m / ft - AGL)             |  | 6.00 / 19.7                              |                                          |
| Receive Antenna                       |  | A24601                                   |                                          |
| Manufacturer                          |  | ANDREW CORPORATION                       |                                          |
| Model                                 |  | P8F-17C                                  |                                          |
| Gain (dBi) / Beamwidth (°)            |  | 31.1 / 4.50                              |                                          |
| Centerline (m / ft - AGL)             |  | 6.00 / 19.7                              |                                          |
| Diversity Receive Antenna             |  |                                          |                                          |
| Manufacturer                          |  |                                          |                                          |
| Model                                 |  |                                          |                                          |
| Gain (dBi) / Beamwidth (°)            |  |                                          |                                          |
| Centerline (m / ft - AGL)             |  |                                          |                                          |
| Radio Information                     |  | TEM95                                    | 999999                                   |
| Manufacturer                          |  | HEWLETT-PACKARD COMPANY                  | RECEIVE                                  |
| Model                                 |  | HP SIGNAL GENERATOR                      | ONLY                                     |
| Model Description                     |  |                                          |                                          |
| Emission Designator / Modulation      |  | 1M00N0N FM                               |                                          |
| Loading                               |  | 1 CH MSG 0.000                           | 1 CH MSG 0.000                           |
| Stability (%)                         |  | 0.001                                    | 0.001                                    |
|                                       |  | Nominal Coordinated Maximum              | Nominal Coordinated Maximum              |
| Power (dBm)                           |  | 30.0                                     |                                          |
| Received Level (dBm)                  |  |                                          | -35.1                                    |
| EIRP (dBm)                            |  | 38.1                                     |                                          |
| Fixed Loss: Tx / Common (dB)          |  | 23.0 / 0.0                               | 0.0 / 0.0                                |
| Free Space Loss (dB)                  |  |                                          | 104.3                                    |
| Transmit Frequencies (MHz)            |  | 1860.0000V(1)                            | 1870.0000V(2)                            |
|                                       |  | 1880.0000V(3)                            | 1890.0000V(4)                            |
|                                       |  | 1900.0000V(5)                            | 1940.0000V(6)                            |
|                                       |  | 1950.0000V(7)                            | 1960.0000V(8)                            |
|                                       |  | 1970.0000V(9)                            | 1980.0000V(10)                           |

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**COMSEARCH**

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| Administrative Information    | GEORGE AFB CA                            | GEORGE RX CA                             |
|-------------------------------|------------------------------------------|------------------------------------------|
| City/County                   | Victorville/San Bernardino               | Victorville/San Bernardino               |
| Status / License Basis        | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                     |                                          |                                          |
| Licensee Code                 | S00114                                   | S00114                                   |
| Licensee Name                 | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |

**Site Information**

|                                  |                   |                   |
|----------------------------------|-------------------|-------------------|
| Latitude (NAD 83)                | 34 ° 35' 16.0" N  | 34 ° 36' 27.9" N  |
| Longitude (NAD 83)               | 117 ° 22' 31.0" W | 117 ° 23' 11.1" W |
| Ground Elevation (m/ft-AMSL)     | 827.53 / 2715.0   | 861.00 / 2824.8   |
| Antenna Structure Registration # |                   |                   |
| Path Azimuth (°)                 | 335.243           | 155.237           |
| Path Length (km / miles)         | 2.440 / 1.516     |                   |

**Transmit Antenna**

|                                       |                    |
|---------------------------------------|--------------------|
| Manufacturer                          | A24601             |
| Model                                 | ANDREW CORPORATION |
| Gain (dBi) / Beamwidth (°) / Tilt (°) | P8F-17C            |
| Centerline (m / ft - AGL)             | 31.1 / 4.50 / 0.78 |
|                                       | 6.00 / 19.7        |

**Receive Antenna**

|                            |                    |
|----------------------------|--------------------|
| Manufacturer               | A24601             |
| Model                      | ANDREW CORPORATION |
| Gain (dBi) / Beamwidth (°) | P8F-17C            |
| Centerline (m / ft - AGL)  | 31.1 / 4.50        |
|                            | 6.00 / 19.7        |

**Diversity Receive Antenna**

|                            |
|----------------------------|
| Manufacturer               |
| Model                      |
| Gain (dBi) / Beamwidth (°) |
| Centerline (m / ft - AGL)  |

**Radio Information**

|                                  |                             |                             |
|----------------------------------|-----------------------------|-----------------------------|
| Manufacturer                     | TEMI95                      | 999999                      |
| Model                            | HEWLETT-PACKARD COMPANY     | RECEIVE                     |
| Model Description                | HP SIGNAL GENERATOR         | ONLY                        |
| Emission Designator / Modulation | 1M00N0N FM                  |                             |
| Loading                          | 1 CH MSG 0.000              | 1 CH MSG 0.000              |
| Stability (%)                    | 0.001                       | 0.001                       |
| Power (dBm)                      | Nominal Coordinated Maximum | Nominal Coordinated Maximum |
| Received Level (dBm)             | 30.0                        | -33.7                       |
| EIRP (dBm)                       | 41.1                        |                             |
| Fixed Loss: Tx / Common (dB)     | 20.0 / 0.0                  | 0.0 / 0.0                   |
| Free Space Loss (dB)             |                             | 105.9                       |

|                            |               |                |
|----------------------------|---------------|----------------|
| Transmit Frequencies (MHz) | 1860.0000V(1) | 1870.0000V(2)  |
|                            | 1880.0000V(3) | 1890.0000V(4)  |
|                            | 1900.0000V(5) | 1940.0000V(6)  |
|                            | 1950.0000V(7) | 1960.0000V(8)  |
|                            | 1970.0000V(9) | 1980.0000V(10) |

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## COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| Administrative Information    | BOEING FIELD WA                          | BOEING RX WA                             |
|-------------------------------|------------------------------------------|------------------------------------------|
| City/County                   | Seattle/King                             | Seattle/King                             |
| Status / License Basis        | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                     |                                          |                                          |
| Licensee Code                 | S00114                                   | S00114                                   |
| Licensee Name                 | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |

### Site Information

|                                  |                   |                  |
|----------------------------------|-------------------|------------------|
| Latitude (NAD 83)                | 47 ° 32' 20.0" N  | 47 ° 31' 48.0" N |
| Longitude (NAD 83)               | 122 ° 18' 46.0" W | 122 ° 18' 3.0" W |
| Ground Elevation (m/ft-AMSL)     | 4.57 / 15.0       | 3.00 / 9.8       |
| Antenna Structure Registration # |                   |                  |
| Path Azimuth (°)                 | 137.692           | 317.701          |
| Path Length (km / miles)         |                   | 1.336 / 0.830    |

### Transmit Antenna

|                                       |                     |
|---------------------------------------|---------------------|
| Manufacturer                          | A24601              |
| Model                                 | ANDREW CORPORATION  |
| Gain (dBi) / Beamwidth (°) / Tilt (°) | P8F-17C             |
| Centerline (m / ft - AGL)             | 31.1 / 4.50 / -0.07 |
|                                       | 6.00 / 19.7         |

### Receive Antenna

|                            |                    |
|----------------------------|--------------------|
| Manufacturer               | A24601             |
| Model                      | ANDREW CORPORATION |
| Gain (dBi) / Beamwidth (°) | P8F-17C            |
| Centerline (m / ft - AGL)  | 31.1 / 4.50        |
|                            | 6.00 / 19.7        |

### Diversity Receive Antenna

|                            |  |
|----------------------------|--|
| Manufacturer               |  |
| Model                      |  |
| Gain (dBi) / Beamwidth (°) |  |
| Centerline (m / ft - AGL)  |  |

### Radio Information

|                                  |                             |                             |
|----------------------------------|-----------------------------|-----------------------------|
| Manufacturer                     | TEMI95                      | 999999                      |
| Model                            | HEWLETT-PACKARD COMPANY     | RECEIVE                     |
| Model Description                | HP SIGNAL GENERATOR         | ONLY                        |
| Emission Designator / Modulation | 1M00N0N FM                  |                             |
| Loading                          | 1 CH MSG 0.000              | 1 CH MSG 0.000              |
| Stability (%)                    | 0.001                       | 0.001                       |
| Power (dBm)                      | Nominal Coordinated Maximum | Nominal Coordinated Maximum |
| Received Level (dBm)             | 30.0                        | -38.5                       |
| EIRP (dBm)                       | 31.1                        |                             |
| Fixed Loss: Tx / Common (dB)     | 30.0 / 0.0                  | 0.0 / 0.0                   |
| Free Space Loss (dB)             |                             | 100.7                       |

| Transmit Frequencies (MHz) | 1860.0000V(1) | 1870.0000V(2)  |
|----------------------------|---------------|----------------|
|                            | 1880.0000V(3) | 1890.0000V(4)  |
|                            | 1900.0000V(5) | 1940.0000V(6)  |
|                            | 1950.0000V(7) | 1960.0000V(8)  |
|                            | 1970.0000V(9) | 1980.0000V(10) |

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## COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| Administrative Information            |  | GLASGOW MT                               | GLASGOW RX MT                            |
|---------------------------------------|--|------------------------------------------|------------------------------------------|
| City/County                           |  | /Valley                                  | /Valley                                  |
| Status / License Basis                |  | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                             |  |                                          |                                          |
| Licensee Code                         |  | S00114                                   | S00114                                   |
| Licensee Name                         |  | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class         |  | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |
| Site Information                      |  |                                          |                                          |
| Latitude (NAD 83)                     |  | 48 ° 12' 58.0" N                         | 48 ° 12' 31.3" N                         |
| Longitude (NAD 83)                    |  | 106 ° 37' 6.0" W                         | 106 ° 37' 44.7" W                        |
| Ground Elevation (m/ft-AMSL)          |  | 697.00 / 2286.7                          | 691.00 / 2267.1                          |
| Antenna Structure Registration #      |  |                                          |                                          |
| Path Azimuth (°)                      |  | 224.096                                  | 44.088                                   |
| Path Length (km / miles)              |  | 1.148 / 0.713                            |                                          |
| Transmit Antenna                      |  | A24601                                   |                                          |
| Manufacturer                          |  | ANDREW CORPORATION                       |                                          |
| Model                                 |  | P8F-17C                                  |                                          |
| Gain (dBi) / Beamwidth (°) / Tilt (°) |  | 31.1 / 4.50 / -0.30                      |                                          |
| Centerline (m / ft - AGL)             |  | 6.00 / 19.7                              |                                          |
| Receive Antenna                       |  | A24601                                   |                                          |
| Manufacturer                          |  | ANDREW CORPORATION                       |                                          |
| Model                                 |  | P8F-17C                                  |                                          |
| Gain (dBi) / Beamwidth (°)            |  | 31.1 / 4.50                              |                                          |
| Centerline (m / ft - AGL)             |  | 6.00 / 19.7                              |                                          |
| Diversity Receive Antenna             |  |                                          |                                          |
| Manufacturer                          |  |                                          |                                          |
| Model                                 |  |                                          |                                          |
| Gain (dBi) / Beamwidth (°)            |  |                                          |                                          |
| Centerline (m / ft - AGL)             |  |                                          |                                          |
| Radio Information                     |  | TEMI95                                   | 999999                                   |
| Manufacturer                          |  | HEWLETT-PACKARD COMPANY                  | RECEIVE                                  |
| Model                                 |  | HP SIGNAL GENERATOR                      | ONLY                                     |
| Model Description                     |  |                                          |                                          |
| Emission Designator / Modulation      |  | 1M00N0N FM                               |                                          |
| Loading                               |  | 1 CH MSG 0.000                           | 1 CH MSG 0.000                           |
| Stability (%)                         |  | 0.001                                    | 0.001                                    |
|                                       |  | Nominal Coordinated Maximum              | Nominal Coordinated Maximum              |
| Power (dBm)                           |  | 30.0                                     |                                          |
| Received Level (dBm)                  |  |                                          | -27.1                                    |
| EIRP (dBm)                            |  | 41.1                                     |                                          |
| Fixed Loss: Tx / Common (dB)          |  | 20.0 / 0.0                               | 0.0 / 0.0                                |
| Free Space Loss (dB)                  |  |                                          | 99.3                                     |
| Transmit Frequencies (MHz)            |  | 1860.0000V(1)                            | 1870.0000V(2)                            |
|                                       |  | 1880.0000V(3)                            | 1890.0000V(4)                            |
|                                       |  | 1900.0000V(5)                            | 1940.0000V(6)                            |
|                                       |  | 1950.0000V(7)                            | 1960.0000V(8)                            |
|                                       |  | 1970.0000V(9)                            | 1980.0000V(10)                           |

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19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| Administrative Information    | MOSES LAKE WA                            | MOSES RX WA                              |
|-------------------------------|------------------------------------------|------------------------------------------|
| City/County                   | Moses Lake/Grant                         | Moses Lake/Grant                         |
| Status / License Basis        | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                     |                                          |                                          |
| Licensee Code                 | S00114                                   | S00114                                   |
| Licensee Name                 | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |

### Site Information

|                                  |                   |                   |
|----------------------------------|-------------------|-------------------|
| Latitude (NAD 83)                | 47 ° 8' 32.0" N   | 47 ° 7' 56.4" N   |
| Longitude (NAD 83)               | 119 ° 14' 31.0" W | 119 ° 16' 42.9" W |
| Ground Elevation (m/ft-AMSL)     | 331.00 / 1086.0   | 321.00 / 1053.1   |
| Antenna Structure Registration # |                   |                   |
| Path Azimuth (°)                 | 248.433           | 68.407            |
| Path Length (km / miles)         |                   | 2.989 / 1.857     |

### Transmit Antenna

|                                       |                     |
|---------------------------------------|---------------------|
| Manufacturer                          | A24601              |
| Model                                 | ANDREW CORPORATION  |
| Gain (dBi) / Beamwidth (°) / Tilt (°) | P8F-17C             |
| Centerline (m / ft - AGL)             | 31.1 / 4.50 / -0.20 |
|                                       | 6.00 / 19.7         |

### Receive Antenna

|                            |                    |
|----------------------------|--------------------|
| Manufacturer               | A24601             |
| Model                      | ANDREW CORPORATION |
| Gain (dBi) / Beamwidth (°) | P8F-17C            |
| Centerline (m / ft - AGL)  | 31.1 / 4.50        |
|                            | 6.00 / 19.7        |

### Diversity Receive Antenna

|                            |  |
|----------------------------|--|
| Manufacturer               |  |
| Model                      |  |
| Gain (dBi) / Beamwidth (°) |  |
| Centerline (m / ft - AGL)  |  |

### Radio Information

|                                  |                             |                             |
|----------------------------------|-----------------------------|-----------------------------|
| Manufacturer                     | TEMI95                      | 999999                      |
| Model                            | HEWLETT-PACKARD COMPANY     | RECEIVE                     |
| Model Description                | HP SIGNAL GENERATOR         | ONLY                        |
| Emission Designator / Modulation | 1M00N0N FM                  |                             |
| Loading                          | 1 CH MSG 0.000              | 1 CH MSG 0.000              |
| Stability (%)                    | 0.001                       | 0.001                       |
| Power (dBm)                      | Nominal Coordinated Maximum | Nominal Coordinated Maximum |
| Received Level (dBm)             |                             | -74.4                       |
| EIRP (dBm)                       | 2.1                         |                             |
| Fixed Loss: Tx / Common (dB)     | 59.0 / 0.0                  | 0.0 / 0.0                   |
| Free Space Loss (dB)             |                             | 107.6                       |

| Transmit Frequencies (MHz) | 1860.0000V(1) | 1870.0000V(2)  |
|----------------------------|---------------|----------------|
|                            | 1880.0000V(3) | 1890.0000V(4)  |
|                            | 1900.0000V(5) | 1940.0000V(6)  |
|                            | 1950.0000V(7) | 1960.0000V(8)  |
|                            | 1970.0000V(9) | 1980.0000V(10) |

## Microwave Path Data Sheet

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## COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| Administrative Information    | PAINE FIELD WA                           | PAINE RX WA                              |
|-------------------------------|------------------------------------------|------------------------------------------|
| City/County                   | Everett/Snohomish                        | Paine Field-Lake Stickney/Snohomish      |
| Status / License Basis        | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                     |                                          |                                          |
| Licensee Code                 | S00114                                   | S00114                                   |
| Licensee Name                 | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |

## Site Information

|                                  |                   |                  |
|----------------------------------|-------------------|------------------|
| Latitude (NAD 83)                | 47 ° 54' 43.0" N  | 47 ° 53' 48.1" N |
| Longitude (NAD 83)               | 122 ° 16' 20.0" W | 122 ° 17' 6.6" W |
| Ground Elevation (m/ft-AMSL)     | 177.70 / 583.0    | 164.00 / 538.1   |
| Antenna Structure Registration # |                   |                  |
| Path Azimuth (°)                 | 209.721           | 29.711           |
| Path Length (km / miles)         |                   | 1.952 / 1.213    |

## Transmit Antenna

|                                       |                     |
|---------------------------------------|---------------------|
| Manufacturer                          | A24601              |
| Model                                 | ANDREW CORPORATION  |
| Gain (dBi) / Beamwidth (°) / Tilt (°) | P8F-17C             |
| Centerline (m / ft - AGL)             | 31.1 / 4.50 / -0.41 |
|                                       | 6.00 / 19.7         |

## Receive Antenna

|                            |                    |
|----------------------------|--------------------|
| Manufacturer               | A24601             |
| Model                      | ANDREW CORPORATION |
| Gain (dBi) / Beamwidth (°) | P8F-17C            |
| Centerline (m / ft - AGL)  | 31.1 / 4.50        |
|                            | 6.00 / 19.7        |

## Diversity Receive Antenna

|                            |  |
|----------------------------|--|
| Manufacturer               |  |
| Model                      |  |
| Gain (dBi) / Beamwidth (°) |  |
| Centerline (m / ft - AGL)  |  |

## Radio Information

|                                  |                             |                             |
|----------------------------------|-----------------------------|-----------------------------|
| Manufacturer                     | TEMI95                      | 999999                      |
| Model                            | HEWLETT-PACKARD COMPANY     | RECEIVE                     |
| Model Description                | HP SIGNAL GENERATOR         | ONLY                        |
| Emission Designator / Modulation | 1M00N0N FM                  |                             |
| Loading                          | 1 CH MSG 0.000              | 1 CH MSG 0.000              |
| Stability (%)                    | 0.001                       | 0.001                       |
| Power (dBm)                      | Nominal Coordinated Maximum | Nominal Coordinated Maximum |
| Received Level (dBm)             | 30.0                        | -35.7                       |
| EIRP (dBm)                       | 37.1                        |                             |
| Fixed Loss: Tx / Common (dB)     | 24.0 / 0.0                  | 0.0 / 0.0                   |
| Free Space Loss (dB)             |                             | 103.9                       |

|                            |               |                |
|----------------------------|---------------|----------------|
| Transmit Frequencies (MHz) | 1860.0000V(1) | 1870.0000V(2)  |
|                            | 1880.0000V(3) | 1890.0000V(4)  |
|                            | 1900.0000V(5) | 1940.0000V(6)  |
|                            | 1950.0000V(7) | 1960.0000V(8)  |
|                            | 1970.0000V(9) | 1980.0000V(10) |

# Microwave Path Data Sheet

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## COMSEARCH

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(703)726-5653 [www.comsearch.com](http://www.comsearch.com)

PCN Date: 09/20/2006

Job Number 060328COMSDS01

| Administrative Information    | ROSEBUD MT                               | ROSEBUD RX MT                            |
|-------------------------------|------------------------------------------|------------------------------------------|
| City/County                   | /Rosebud                                 | /Rosebud                                 |
| Status / License Basis        | Engineering Proposal / PRIMARY OPERATION | Engineering Proposal / PRIMARY OPERATION |
| Call Sign                     |                                          |                                          |
| Licensee Code                 | S00114                                   | S00114                                   |
| Licensee Name                 | Boeing Company                           | Boeing Company                           |
| Radio Service / Station Class | MG -- Microwave Industrial/Business Pool | MO -- Mobile                             |

### Site Information

|                                  |                   |                   |
|----------------------------------|-------------------|-------------------|
| Latitude (NAD 83)                | 46 ° 16' 28.0" N  | 46 ° 16' 6.1" N   |
| Longitude (NAD 83)               | 106 ° 20' 46.0" W | 106 ° 27' 46.9" W |
| Ground Elevation (m/ft-AMSL)     | 757.00 / 2483.6   | 785.00 / 2575.5   |
| Antenna Structure Registration # |                   |                   |
| Path Azimuth (°)                 | 265.752           | 85.667            |
| Path Length (km / miles)         | 9.038 / 5.616     |                   |

### Transmit Antenna

|                                       |                    |
|---------------------------------------|--------------------|
| Manufacturer                          | A24601             |
| Model                                 | ANDREW CORPORATION |
| Gain (dBi) / Beamwidth (°) / Tilt (°) | P8F-17C            |
| Centerline (m / ft - AGL)             | 31.1 / 4.50 / 0.15 |
|                                       | 6.00 / 19.7        |

### Receive Antenna

|                            |                    |
|----------------------------|--------------------|
| Manufacturer               | A24601             |
| Model                      | ANDREW CORPORATION |
| Gain (dBi) / Beamwidth (°) | P8F-17C            |
| Centerline (m / ft - AGL)  | 31.1 / 4.50        |
|                            | 6.00 / 19.7        |

### Diversity Receive Antenna

|                            |  |
|----------------------------|--|
| Manufacturer               |  |
| Model                      |  |
| Gain (dBi) / Beamwidth (°) |  |
| Centerline (m / ft - AGL)  |  |

### Radio Information

|                                  |                             |                             |
|----------------------------------|-----------------------------|-----------------------------|
| Manufacturer                     | TEMI95                      | 999999                      |
| Model                            | HEWLETT-PACKARD COMPANY     | RECEIVE                     |
| Model Description                | HP SIGNAL GENERATOR         | ONLY                        |
| Emission Designator / Modulation | 1M00N0N FM                  |                             |
| Loading                          | 1 CH MSG 0.000              | 1 CH MSG 0.000              |
| Stability (%)                    | 0.001                       | 0.001                       |
| Power (dBm)                      | Nominal Coordinated Maximum | Nominal Coordinated Maximum |
| Received Level (dBm)             | 30.0                        | -90.1                       |
| EIRP (dBm)                       | -3.9                        |                             |
| Fixed Loss: Tx / Common (dB)     | 65.0 / 0.0                  | 0.0 / 0.0                   |
| Free Space Loss (dB)             |                             | 117.3                       |

|                            |               |                |
|----------------------------|---------------|----------------|
| Transmit Frequencies (MHz) | 1860.0000V(1) | 1870.0000V(2)  |
|                            | 1880.0000V(3) | 1890.0000V(4)  |
|                            | 1900.0000V(5) | 1940.0000V(6)  |
|                            | 1950.0000V(7) | 1960.0000V(8)  |
|                            | 1970.0000V(9) | 1980.0000V(10) |

**Microwave Path Data Sheet**  
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