

# 0.98M Ka-Band Antenna

## Series 3980

### Technical Specifications

| Electrical                                                                                                               |                      | Ka-Band Circular                                                                     | Ka-Band Circular                                                                     | Ka-Band Linear                                                                       |
|--------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Antenna Size                                                                                                             |                      | 0.98 M                                                                               | 0.98 M                                                                               | 0.98 M                                                                               |
| Operating Frequency (GHz)                                                                                                | Receive              | 20.20 - 21.20 GHz                                                                    | 19.40 - 21.20 GHz                                                                    | 18.70 - 21.20 GHz                                                                    |
|                                                                                                                          | Transmit             | 30.00 - 31.00 GHz                                                                    | 29.20 - 31.00 GHz                                                                    | 27.00 - 31.00 GHz                                                                    |
| Midband Gain (+/- .2 dB)                                                                                                 | Receive              | 44.10 dBi                                                                            | 44.00 dBi                                                                            | 43.90 dBi                                                                            |
|                                                                                                                          | Transmit             | 47.40 dBi                                                                            | 47.20 dBi                                                                            | 47.20 dBi                                                                            |
| VSWR                                                                                                                     |                      | 1.25:1 Max                                                                           | 1.3:1 max                                                                            | Rx: 1.5:1 max Tx: 1.3:1 max                                                          |
| Pattern Beamwidth (in degrees at midband)                                                                                | -3 dB                | Rx: 1.04° Tx: 0.70°                                                                  | Rx: 1.06° Tx: 0.71°                                                                  | Rx: 1.05° Tx: 0.73°                                                                  |
|                                                                                                                          | -15 dB               | Rx: 2.32° Tx: 1.57°                                                                  | Rx: 2.36° Tx: 1.59°                                                                  | Rx: 2.34° Tx: 1.62°                                                                  |
| Sidelobe Envelope,<br>Mainbeam < $\theta$ < 7°<br>7° < $\theta$ < 9.2°<br>9.2° < $\theta$ < 48°<br>48° < $\theta$ < 180° |                      | 29 - 25 Log $\theta$ dBi<br>+8 dBi<br>32 - 25 Log $\theta$ dBi<br>-10 dBi (averaged) | 29 - 25 Log $\theta$ dBi<br>+8 dBi<br>32 - 25 Log $\theta$ dBi<br>-10 dBi (averaged) | 29 - 25 Log $\theta$ dBi<br>+8 dBi<br>32 - 25 Log $\theta$ dBi<br>-10 dBi (averaged) |
| Antenna Noise Temperature                                                                                                |                      |                                                                                      |                                                                                      |                                                                                      |
| 5° Elevation                                                                                                             |                      | 184 K                                                                                | 184 K                                                                                | 187 K                                                                                |
| 10° Elevation                                                                                                            |                      | 140 K                                                                                | 140 K                                                                                | 143 K                                                                                |
| 20° Elevation                                                                                                            |                      | 107 K                                                                                | 107 K                                                                                | 110 K                                                                                |
| 40° Elevation                                                                                                            |                      | 87 K                                                                                 | 87 K                                                                                 | 90 K                                                                                 |
| Power Handling                                                                                                           |                      | 100 W                                                                                | 100 W                                                                                | 100 W                                                                                |
| Cross Polarization Isolation                                                                                             |                      |                                                                                      |                                                                                      |                                                                                      |
| On Axis                                                                                                                  |                      | 24.80 dB                                                                             | Rx: 17.70 dB Tx: 21.30 dB                                                            | Rx: 30.00 dB Tx: 35.00 dB                                                            |
| Within 1.0 dB Beamwidth                                                                                                  |                      | 24.80 dB                                                                             | Rx: 17.70 dB Tx: 21.30 dB                                                            | 26.00 dB                                                                             |
| Output Waveguide Interface Flange                                                                                        |                      | Rx: WR42 Tx: WR28                                                                    | Rx: WR42 Tx: WR28                                                                    | Rx: WR42 Tx: WR28                                                                    |
| <b>Mechanical</b>                                                                                                        |                      |                                                                                      |                                                                                      |                                                                                      |
| Reflector Material                                                                                                       |                      | Glass Fiber Reinforced Polyester SMC, Ka-Band Formulation                            |                                                                                      |                                                                                      |
| Antenna Optics                                                                                                           |                      | 1-piece Offset, Prime Focus                                                          |                                                                                      |                                                                                      |
| Mast Pipe Size                                                                                                           |                      | 2.5" SCH 40 Pipe (2.88" OD) 73.2 mm                                                  |                                                                                      |                                                                                      |
| Elevation Adjustment Range                                                                                               |                      | 5° to 90°, Continuous Fine Adjustment                                                |                                                                                      |                                                                                      |
| Azimuth Adjustment Range                                                                                                 |                      | 360° Continuous Coarse Adjustment, ± 10° Fine Adjustment                             |                                                                                      |                                                                                      |
| Shipping Specifications                                                                                                  |                      | 65 lbs. (30 kg.)                                                                     |                                                                                      |                                                                                      |
| <b>Environmental Performance</b>                                                                                         |                      |                                                                                      |                                                                                      |                                                                                      |
| Wind Loading                                                                                                             | Operational Survival | 50 mph (80 km/h)<br>125 mph (201 km/h)                                               |                                                                                      |                                                                                      |
| Temperature (operational)                                                                                                |                      | - 40° to 140°F (- 40° to 60°C)                                                       |                                                                                      |                                                                                      |
| Rain (operational)                                                                                                       |                      | ½" / hr                                                                              |                                                                                      |                                                                                      |
| Atmospheric Conditions                                                                                                   |                      | Salt, Pollutants and Contaminants as Encountered in Coastal and Industrial Areas     |                                                                                      |                                                                                      |
| Relative Humidity                                                                                                        |                      | 0 to 100% with Condensation                                                          |                                                                                      |                                                                                      |
| Solar Radiation                                                                                                          |                      | 360 BTU/h/ft <sup>2</sup>                                                            |                                                                                      |                                                                                      |

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