

| RADIATION CALCULATIONS FOR      |                                  |                             | 0.30 meter TERRESTRIAL STATION                               |
|---------------------------------|----------------------------------|-----------------------------|--------------------------------------------------------------|
| Nomenclature                    | Formula                          | Value                       | Unit                                                         |
| INPUT PARAMETERS                |                                  |                             |                                                              |
| M = Antenna Aperture Major Axis |                                  | 0.30                        | meters                                                       |
| m = Antenna Aperture Minor Axis |                                  | 0.30                        | meters                                                       |
| d = Diameter of Feed Mouth      |                                  | 0.029                       | meters                                                       |
| P = Max Power into Antenna      |                                  | 0.1                         | Watts                                                        |
| n = Apperture Efficiency        |                                  | 70%                         |                                                              |
| k = Wavelength @ 28.0 GHz       |                                  | 0.0107                      | meters                                                       |
| CALCULATED VALUES               |                                  |                             |                                                              |
| A = Area of Reflector           | $\pi \times M \times m / 4$      | 0.071                       | meters <sup>2</sup>                                          |
| l = Length of Near Field        | $M^2 / 4k$                       | 2                           | meters                                                       |
| L = Beginning of Far Field      | $0.6M^2 / k$                     | 5                           | meters                                                       |
| G = Antenna Gain @ 28 GHz       | $n(4 \times \pi \times A) / k^2$ | 5,416                       | (37.3) dBi                                                   |
| a = Area of Feed Mouth          | $\pi \times d^2 / 4$             | 0.0007                      | meters <sup>2</sup>                                          |
| POWER DENSITY CALCULATIONS      |                                  |                             |                                                              |
| Region                          | Maximum Power Density in Region  |                             | Hazard Assessment<br>(FCC MPE Limit = 5 mW/cm <sup>2</sup> ) |
|                                 | Formula                          | Value (mW/cm <sup>2</sup> ) |                                                              |
| 1 Near Field                    | $4nP/A$                          | 0.40                        | < FCC MPE Limit                                              |
| 2 Far Field                     | $GP / (4(\pi)L^2)$               | 0.17                        | < FCC MPE Limit                                              |
| 3 Transition                    | <= Nr Fld Region                 | 0.40                        | < FCC MPE Limit                                              |
| 4 Near Reflector Surface        | $4P/A$                           | 0.57                        | < FCC MPE Limit                                              |
| 5 Between Reflector & Ground    | $P/A$                            | 0.14                        | < FCC MPE Limit                                              |
| 6 Between Reflector and Feed    | $4P/a$                           | 60.6                        | > FCC MPE Limit (See Attachment 1)                           |