

# GPS Repeater Link Budget

June 2017

| Receive Ant Gain | Ant Cable Insertion Loss                | Repeater Amp Gain | Repeater Ant Gain Best Case | Range in Feet       | EIRP @ Range In dBm                    |
|------------------|-----------------------------------------|-------------------|-----------------------------|---------------------|----------------------------------------|
| 19.5             | 0                                       | 0                 | 30                          | 100                 | -146.59                                |
|                  |                                         |                   | Total System Gain           | Range in Miles      | Total Signal Power @ Range in Watts    |
|                  | GPS Carrier Frequency MHz               |                   | 49.5                        | 0.02                | 2.2E-18                                |
|                  | 1575                                    |                   |                             |                     |                                        |
|                  | Avg Receive Power L1 dBm North America  |                   |                             | Range in Meters     | Radiated Power dBm                     |
|                  | -130                                    |                   |                             | 31.17               | -80.5                                  |
|                  |                                         |                   |                             |                     |                                        |
|                  | Free Space loss with Isotropic Antennas |                   |                             | Range in Kilometers | Transmitted Power (W)                  |
|                  | -66.09                                  |                   |                             | 0.03                | 4.5E-12                                |
|                  |                                         |                   |                             |                     | Effective Isotropic Radiated Power (W) |
|                  |                                         |                   |                             |                     | 8.9E-12                                |
|                  |                                         |                   |                             |                     | Effective Radiated Power (dBW)         |
|                  |                                         |                   |                             |                     | -110.5                                 |