

### GPS Source, Inc. Repeater Budget Calculator

Change the values in the yellow boxes to calculate required readings

-140 dBm at 100 feet from the building to meet NTIA regulations

|  |                                 |  |                                      |                            |   |   |
|--|---------------------------------|--|--------------------------------------|----------------------------|---|---|
| <b>Receive Ant Gain</b>                            | <b>Ant Cable Insertion Loss</b> | <b>Repeater Amp Gain</b>                       | <b>Repeater Ant Gain (Best Case)</b> | <b>Range in Feet</b>       | <b>Repeated Signal Power @ Range In dBm</b>     | <b>Total Signal Power @ Range in Watts</b>      |
| 30   | -13                             | 30   | 3                                    | 100                        | -146.10   | 2.5e-18   |
| <b>GPS Carrier Frequency (MHz)</b>                 |                                 | <b>Free Space loss with Isotropic Antennas</b> | <b>Total System Gain</b>             | <b>Range in Miles</b>      | <b>Effective Radiated Power dBm</b>             | <b>Effective Radiated Power (dBW)</b>           |
| 1575.42  |                                 | 66.10  | 47                                   | 0.02                       | -82.15  | -112.15   |
| <b>Avg Receive Power in dBm North America</b>      |                                 | <b>Reference Dipole Gain</b>                   | <b>Transmitted Power (W)</b>         | <b>Range in Kilometers</b> | <b>Effective Isotropic Radiated Power (dBm)</b> | <b>Effective Isotropic Radiated Power (dBW)</b> |
| -130   |                                 | 2.15   | 3.1e-12                              | 0.03                       | -80.00  | -110.00   |
| Typical value @ L1: -130.0 dBm<br>@ L2: -127.5 dBm |                                 |  |                                      | <b>Range in Meters</b>     |   | <b>Effective Radiated Power (W)</b>             |
|  |                                 |  |                                      | 30.4800                    |   | 6.1e-12   |