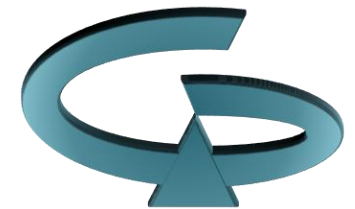


# Transmission Distance

Gpacers Poseidon Tracking Rescue System



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# LoS Transmission

- The theoretical distance of GPT in free path transmission reaches 900 km.
- However, in a real environment, there are various sources of interference.
- The measured results show that in a Line of Sight transmission, distances can often exceed 200 km.
- References

(1) <https://www.pasternack.com/t-calculator-fspl.aspx>

(2) [https://en.wikipedia.org/wiki/Line-of-sight\\_propagation](https://en.wikipedia.org/wiki/Line-of-sight_propagation)

# Obstacles of The Transmission Distance

- In land applications, the transmission distance is mainly limited by obstacles of the terrain, the more or bigger the obstacles, the smaller the transmission distance.
- And at sea, many factors affect the effective transmission distance of the system, such as weather conditions, humidity, wind and waves;
- in addition, the way the GPT is used, whether hand held or freely floating on the water, the sea level altitude of the receiver, and the antenna gain etc. also affect the transmission range.

# Marine Applications

- In marine applications, the curvature of the earth is the major constraint to the transmission distance.
- The higher the altitude at which the receiver and transmitter are placed, the farther the transmission distance is.
- In absence of obstacles between the transmitter and the receiver, the maximum transmission distance ( km ) of the GPT system  $d = 4.2 * (\sqrt{H_t} + \sqrt{H_r})$ , is shown in the table. While the effective stable transmission distance is about 70% of the maximum transmission distance.

Ht \ Hr	1	3	5	10	20	40	100	300	500	1000
0	4	7	9	13	18	26	41	71	92	130
1	8	11	13	17	23	30	45	75	96	134
3	11	14	16	20	26	33	48	78	99	137
5	13	16	18	22	28	35	50	81	101	139
10	17	20	22	26	31	39	54	84	105	143
20	23	26	28	31	37	44	60	90	111	149
40	30	33	35	39	44	52	67	97	118	156
100	45	48	50	54	60	67	82	113	133	171
300	75	78	81	84	90	97	113	143	163	202
500	96	99	101	105	111	118	133	163	184	222
1000	134	137	139	143	149	156	171	202	222	261

Ht / Hr is the sea level altitude in meters of transmitter / receiver

# Marine Applications

*maximum transmission distance:  $d = 4.2 * (\sqrt{H_t} + \sqrt{H_r})$*   
 *$d$  in km ;  $H_t, H_r$  in meters*

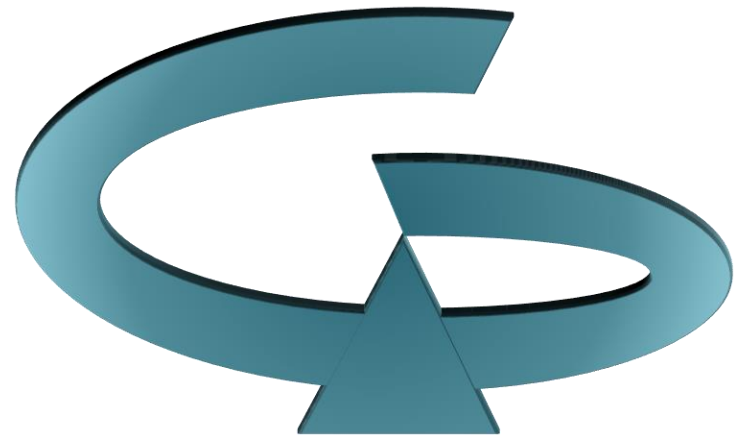
*While the effective stable transmission distance is about 70% of the maximum transmission distance.*

# For more information, please refer to :

- [An Intro to\\_Gpacers Poseidon Tracking Rescue System](#)
- [Design Basis\\_Gpacers Poseidon Tracking Rescue System](#)
- [System Implementation\\_Gpacers Poseidon Tracking Rescue System](#)
- [How It Protects\\_Gpacers Poseidon Tracking Rescue System](#)
- [How to Use\\_Gpacers Poseidon Tracking Rescue System](#)

## Download

- [GPT App User's Manual](#)
- [Gpacers Poseidon Tracker User's Manual](#)



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