

RADIATION SAFETY

Safety Design 1 - The Pulsar radar system is located according to a site survey performed by Baron's engineers. The radar system has to be located where it has a clear line-of sight to the horizon. Therefore the antenna is always installed on a tower high above ground level to look over any nearby obstructions. This antenna location prevents personnel from being in line with the narrow 1.7 degree pencil beam of the antenna, either intentionally or unintentionally.

Safety Design 2 - The trap door leading up into the antenna radome is equipped with a safety interlock that de-energizes the antenna movement and transmitter radiation when the door is opened to gain access the antenna.

Safety Design 3 - The Pulsar radar system is software controlled which gives it many advantages over conventional systems. For the purpose of Human Safety, the software will de-energize the transmitter when the antenna has not moved within the last 30 seconds. This prevents someone from inadvertently standing directly in the main beam long enough to be harmed.

See the attached plot of the Pulsar – 5 system.

Tx Average Power (dBm) **57** dBm
 Transmission Loss (dB) **0.5** dB
 Power @ Antenna **56.5** dBm

Antenna Gain **40** dBi
 Start Range **1** yards
 Plot Every **1** Yards

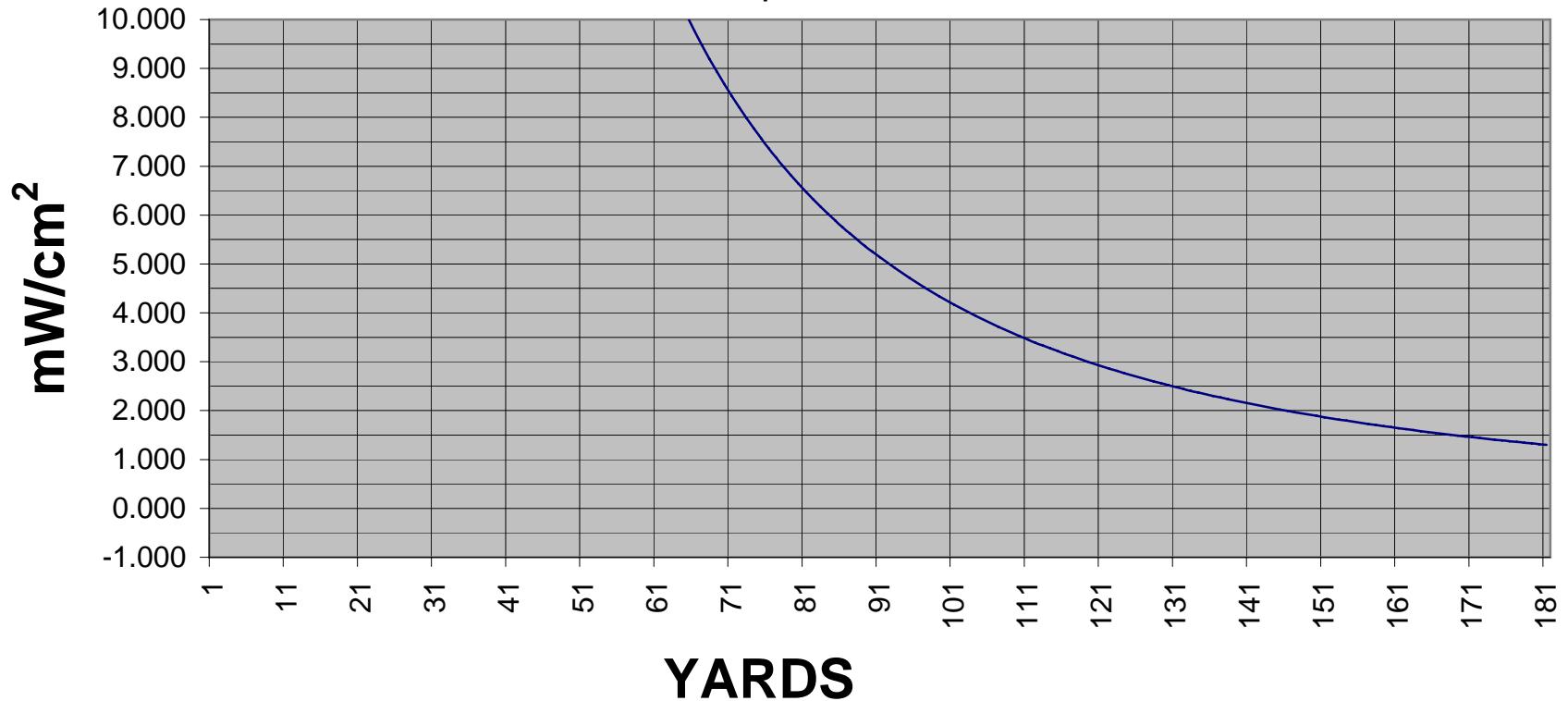
RADAR # **PULSAR-5**
 Peak ERP **4.47** Gigawatts
 Rad Hazard Minimum Distance
 5mW/cm² **276.7** feet
 1mW/cm² **618.8** feet

OET 65, Supplement B (Edition 97-01)
 Pulsed Radar Calculations

Controlled Access - 6 minute average exposure
 Uncontrolled Access - 30 minute average exposure

PULSAR - 5 RF Power Density

$$\frac{P_t G_t}{4\pi R^2}$$



446683.6 10000		EIRP (mW) 4pi		4466835922		1	
meters	yards	ft	cm	mW/cm ²	1mW/cm ²	5mW/cm ²	
0.9146	1	3	91	42546.361	4466835922	4466835922	
1.9146	2	6	183	10636.590	12.5564	62.782	
2.9146	3	9	274	4727.373	355741766.9	71148353.37	
3.9146	4	12	366	2659.148	18861.11786	8434.948333	
4.9146	5	15	457	1701.854	7425.636952	3320.8458	
5.9146	6	18	549	1181.843	618.8030793	276.73715	
6.9146	7	21	640	868.293			
7.9146	8	24	732	664.787	EIRP Watts		
8.9146	9	27	823	525.264	56.5	Tx dBw	
9.9146	10	30	914	425.464	40	Ant. dBi	
10.9146	11	33	1006	351.623	96.5	ERP dBw	
11.9146	12	36	1097	295.461	4466835922	EIRP Watts	
12.9146	13	39	1189	251.754			
13.9146	14	42	1280	217.073			
14.9146	15	45	1372	189.095			
15.9146	16	48	1463	166.197			
16.9146	17	51	1554	147.219			
17.9146	18	54	1646	131.316			
18.9146	19	57	1737	117.857			
19.9146	20	60	1829	106.366			
20.9146	21	63	1920	96.477			
21.9146	22	66	2012	87.906			
22.9146	23	69	2103	80.428			
23.9146	24	72	2195	73.865			
24.9146	25	75	2286	68.074			
25.9146	26	78	2377	62.938			
26.9146	27	81	2469	58.363			
27.9146	28	84	2560	54.268			
28.9146	29	87	2652	50.590			
29.9146	30	90	2743	47.274			
30.9146	31	93	2835	44.273			
31.9146	32	96	2926	41.549			
32.9146	33	99	3018	39.069			
33.9146	34	102	3109	36.805			
34.9146	35	105	3200	34.732			
35.9146	36	108	3292	32.829			
36.9146	37	111	3383	31.078			
37.9146	38	114	3475	29.464			
38.9146	39	117	3566	27.973			
39.9146	40	120	3658	26.591			
40.9146	41	123	3749	25.310			
41.9146	42	126	3840	24.119			
42.9146	43	129	3932	23.010			
43.9146	44	132	4023	21.976			
44.9146	45	135	4115	21.011			
45.9146	46	138	4206	20.107			
46.9146	47	141	4298	19.260			
47.9146	48	144	4389	18.466			
48.9146	49	147	4481	17.720			

49.9146	50	150	4572	17.019
50.9146	51	153	4663	16.358
51.9146	52	156	4755	15.735
52.9146	53	159	4846	15.146
53.9146	54	162	4938	14.591
54.9146	55	165	5029	14.065
55.9146	56	168	5121	13.567
56.9146	57	171	5212	13.095
57.9146	58	174	5304	12.648
58.9146	59	177	5395	12.222
59.9146	60	180	5486	11.818
60.9146	61	183	5578	11.434
61.9146	62	186	5669	11.068
62.9146	63	189	5761	10.720
63.9146	64	192	5852	10.387
64.9146	65	195	5944	10.070
65.9146	66	198	6035	9.767
66.9146	67	201	6126	9.478
67.9146	68	204	6218	9.201
68.9146	69	207	6309	8.936
69.9146	70	210	6401	8.683
70.9146	71	213	6492	8.440
71.9146	72	216	6584	8.207
72.9146	73	219	6675	7.984
73.9146	74	222	6767	7.770
74.9146	75	225	6858	7.564
75.9146	76	228	6949	7.366
76.9146	77	231	7041	7.176
77.9146	78	234	7132	6.993
78.9146	79	237	7224	6.817
79.9146	80	240	7315	6.648
80.9146	81	243	7407	6.485
81.9146	82	246	7498	6.328
82.9146	83	249	7590	6.176
83.9146	84	252	7681	6.030
84.9146	85	255	7772	5.889
85.9146	86	258	7864	5.753
86.9146	87	261	7955	5.621
87.9146	88	264	8047	5.494
88.9146	89	267	8138	5.371
89.9146	90	270	8230	5.253
90.9146	91	273	8321	5.138
91.9146	92	276	8412	5.027
92.9146	93	279	8504	4.919
93.9146	94	282	8595	4.815
94.9146	95	285	8687	4.714
95.9146	96	288	8778	4.617
96.9146	97	291	8870	4.522
97.9146	98	294	8961	4.430
98.9146	99	297	9053	4.341
99.9146	100	300	9144	4.255
100.9146	101	303	9235	4.171

101.9146	102	306	9327	4.089
102.9146	103	309	9418	4.010
103.9146	104	312	9510	3.934
104.9146	105	315	9601	3.859
105.9146	106	318	9693	3.787
106.9146	107	321	9784	3.716
107.9146	108	324	9876	3.648
108.9146	109	327	9967	3.581
109.9146	110	330	10058	3.516
110.9146	111	333	10150	3.453
111.9146	112	336	10241	3.392
112.9146	113	339	10333	3.332
113.9146	114	342	10424	3.274
114.9146	115	345	10516	3.217
115.9146	116	348	10607	3.162
116.9146	117	351	10698	3.108
117.9146	118	354	10790	3.056
118.9146	119	357	10881	3.004
119.9146	120	360	10973	2.955
120.9146	121	363	11064	2.906
121.9146	122	366	11156	2.859
122.9146	123	369	11247	2.812
123.9146	124	372	11339	2.767
124.9146	125	375	11430	2.723
125.9146	126	378	11521	2.680
126.9146	127	381	11613	2.638
127.9146	128	384	11704	2.597
128.9146	129	387	11796	2.557
129.9146	130	390	11887	2.518
130.9146	131	393	11979	2.479
131.9146	132	396	12070	2.442
132.9146	133	399	12162	2.405
133.9146	134	402	12253	2.369
134.9146	135	405	12344	2.335
135.9146	136	408	12436	2.300
136.9146	137	411	12527	2.267
137.9146	138	414	12619	2.234
138.9146	139	417	12710	2.202
139.9146	140	420	12802	2.171
140.9146	141	423	12893	2.140
141.9146	142	426	12984	2.110
142.9146	143	429	13076	2.081
143.9146	144	432	13167	2.052
144.9146	145	435	13259	2.024
145.9146	146	438	13350	1.996
146.9146	147	441	13442	1.969
147.9146	148	444	13533	1.942
148.9146	149	447	13625	1.916
149.9146	150	450	13716	1.891
150.9146	151	453	13807	1.866
151.9146	152	456	13899	1.842
152.9146	153	459	13990	1.818

153.9146	154	462	14082	1.794
154.9146	155	465	14173	1.771
155.9146	156	468	14265	1.748
156.9146	157	471	14356	1.726
157.9146	158	474	14448	1.704
158.9146	159	477	14539	1.683
159.9146	160	480	14630	1.662
160.9146	161	483	14722	1.641
161.9146	162	486	14813	1.621
162.9146	163	489	14905	1.601
163.9146	164	492	14996	1.582
164.9146	165	495	15088	1.563
165.9146	166	498	15179	1.544
166.9146	167	501	15270	1.526
167.9146	168	504	15362	1.507
168.9146	169	507	15453	1.490
169.9146	170	510	15545	1.472
170.9146	171	513	15636	1.455
171.9146	172	516	15728	1.438
172.9146	173	519	15819	1.422
173.9146	174	522	15911	1.405
174.9146	175	525	16002	1.389
175.9146	176	528	16093	1.374
176.9146	177	531	16185	1.358
177.9146	178	534	16276	1.343
178.9146	179	537	16368	1.328
179.9146	180	540	16459	1.313
180.9146	181	543	16551	1.299
181.9146	182	546	16642	1.284
182.9146	183	549	16734	1.270
183.9146	184	552	16825	1.257
184.9146	185	555	16916	1.243
185.9146	186	558	17008	1.230
186.9146	187	561	17099	1.217
187.9146	188	564	17191	1.204
188.9146	189	567	17282	1.191
189.9146	190	570	17374	1.179
190.9146	191	573	17465	1.166
191.9146	192	576	17556	1.154
192.9146	193	579	17648	1.142
193.9146	194	582	17739	1.130
194.9146	195	585	17831	1.119
195.9146	196	588	17922	1.108
196.9146	197	591	18014	1.096
197.9146	198	594	18105	1.085
198.9146	199	597	18197	1.074
199.9146	200	600	18288	1.064
200.9146	201	603	18379	1.053
201.9146	202	606	18471	1.043
202.9146	203	609	18562	1.032
203.9146	204	612	18654	1.022
204.9146	205	615	18745	1.012

205.9146	206	618	18837	1.003
206.9146	207	621	18928	0.993
207.9146	208	624	19020	0.983
208.9146	209	627	19111	0.974
209.9146	210	630	19202	0.965
210.9146	211	633	19294	0.956
211.9146	212	636	19385	0.947
212.9146	213	639	19477	0.938
213.9146	214	642	19568	0.929
214.9146	215	645	19660	0.920
215.9146	216	648	19751	0.912
216.9146	217	651	19842	0.904