Determining DX Quality by Formula for the AM-BCB

Log[500,000 / Power] ^1.48808932 * Distance

Using the formula for scoring above, a Contact Scoring method is obtained that is useful to determine the DX Quality of the station received. Sensitivity is accounted as well as distance. Power is measured in Watts, and Distance is measured im km (kilometers). When Power is 10 Watts, the factor is exactly 10 * Distance. At 50000 Watts of Power the factor is 1, and the formula solves as a measure of distance. Note that at 100 Watts the factor is very close to 7.

The maximum power used for scoring is 117851.5 Watts: this causes (Log[500000 / P])^1.48808932 to equal 0.5. International reception of very high powered stations (usually 150 kW or more) is preserved with some degree of power penalty.

Using Basic Stats to Find the Best DX Receptions

Borrowing from statistics, its known that the "significant" portion of a population includes 1 sigma of that population. This is about 68.26% of that population that resides in the middle, or closest to the average. Therefore, two out-lying areas exist, one on the lower side of average: the other to the high side. To determine the high quality of the reception and/or conditions, one looks towards the high-side of average. By formula this high-side population is (1 - 0.6826)/2 or 0.1587. For ease of use, 16% is acceptable.

This allows one to "draw the line" as to a definition of a "High Quality DX reception". The top 16% of scoring is therefore classified as "High Quality DX" for the design, location, and conditions. By the reverse application to the lowest scores, one can define "the local contour". As the population of reception increases, the population of both out-lying areas increases, but such population is always a constant fraction of total receptions. Thus the abilities and limitations of a design can be accounted across periods of time and variance of conditions.

The use of any scoring method does not address the overall question concerning, "What is DX?". It does give indication of such for the receiver design over a period of time at a particular location subjected to numerous weather and or propagation conditions. The distance and local contours are gradually discovered, and can be compared to other designs.

AM-3 Power Factor 1 Watt to 50 kW

Pwr	Factor	Pwr	Factor	Pwr	Factor	Pwr	Factor	Pwr	Factor
1	13.3258	10	10.0000	100	7.0041	1000	4.3819	10000	2.2006
2	12.2919	20	9.0618	200	6.1730	2000	3.6748	15000	1.8699
3	11.7000	30	8.5271	300	5.7030	3000	3.2805	20000	1.6463
4	11.2859	40	8.1544	400	5.3771	4000	3.0098	25000	1.4793
5	10.9681	50	7.8690	500	5.1286	5000	2.8052	30000	1.3474
6	10.7106	60	7.6383	600	4.9285	6000	2.6415	35000	1.2390
7	10.4945	70	7.4450	700	4.7613	7000	2.5057	40000	1.1476
8	10.3084	80	7.2789	800	4.6181	8000	2.3899	45000	1.0688
9	10.1453	90	7.1335	900	4.4929	9000	2.2894	50000	1.0000

PLS 1/8/10