Determining DX Quality by Formula for the AM-BCB

Log [500,000 / Power] ^2 * 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. It has been designed for the AM-BCB of 520 kHz to 1710 kHz. Sensitivity is accounted as well as distance. Power is measured in Watts, and Distance is measured im km (kilometers). When Power is 344.106 Watts, the factor is 10 * Distance. At 50000 Watts FCC maximum the factor is 1, and the formula solves as distance. International reception of very high powered stations of 100 kW or more is preserved by using a factor of 0.500000. A power of 98143.88 Watts solves as 0.500. Note that 50kW, 5kW, 500W, 50W, and 5W solve as whole numbers and are the successive squares of 1, 2, 3, 4, and 5 respectively.

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 68.27% of that population that resides in the middle, or closest to the average. Therefore, two outside areas exist, one on the lower side of average: the other to the high side. To determine the high quality of the reception, one looks towards the high-side of average. By formula this high-side population is (1 - 0.6827)/2 or 0.15865. For ease of use, the "Rule of 19" is acceptable. The fraction 13/19 is very close (68.42% vs. 68.27%) to the definition of 1 sigma. There are 6 outsiders, three high, and three low. By taking total receptions times 3/19, the number of DX-qualified receptions can be accurately obtained. The top 3/19 scoring receptions are therefore classified as "High Quality DX" for the design, location, and conditions. By the application to the lowest scores, one can define "the local contour" as the 3/19 lowest scores. As the population of reception increases, the population of both outsiders increases, but such outside population is always a constant fraction of total receptions. Thus the abilities and limitations of the receiver design over a period of time at a particular location subjected to numerous weather, noise, and propagation conditions can be accounted.

AM-3 Power Factor 1 Watt to 100 kW

Pwr	Factor	Pwr	Factor	Pwr	Factor	Pwr	Factor	Pwr	Factor
1	32.478259	10	22.080319	100	13.682379	1000	7.284439	10000	2.886499
2	29.137756	15	20.456432	150	12.410675	1500	6.364917	15000	2.319160
3	27.267704	20	19.341876	200	11.545996	2000	5.750116	20000	1.954236
4	25.978492	25	18.498859	250	10.896799	2500	5.294739	25000	1.692679
5	25.000000	30	17.824007	300	10.380309	3000	4.936612	30000	1.492914
6	24.214457	40	16.784672	400	9.590852	4000	4.397032	40000	1.203212
7	23.560073	50	16.000000	500	9.000000	5000	4.000000	50000	1.000000
8	23.000465	60	15.372820	600	8.531182	6000	3.689545	75000	0.678826
9	22.512439	80	14.408705	800	7.816945	8000	3.225185	100000	0.500000

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