ATF FORMULA for RANKING POP SINGLES based on BILLBOARD CHARTS

BACKGROUND. For many years, Billboard has used a 'traditional' formula for ranking the top hits of the year by which a record earns 100 points for each week at #1, 99 pts for ea wk at #2, and so on down to one pt for ea wk at #100. In addition, a #1 song gets 100 pts for each week it occupies the #1 position. This is the formula that ATF used from 1970 to approximately 1979. By that time, we could no longer ignore the inequities of that formula which increase with the length of the survey period.

NEED FOR AN ATF FORMULA. There are at least two essential variables that come into play when a span of more than two or three years is taken as the survey period:
  1) Blbd's chart methodology varies; and
  2) Record-buying and radio airplay vary.
The result of using any formula that does not take these factors into account is to rank some records lower than they should be and others higher than they should be. A third factor that has nothing to do with the length of the survey period is that some records gain fast, uniform popularity throughout the country, peak quickly, and fall off the chart quickly, while other records hit their popularity peaks at different times in different regions of the country and ride the chart for many more weeks than they would if their popularity were simultaneous. And it's logical to postulate that they probably would have peaked higher if they had hit simultaneously in the different regions rather than serially. How much higher is conjecture.

One more consideration is Billboard's approach to creating the Hot 100 each week. Billboard's responsibility is not to the public, but to the music industry. Record manufacturers look to the charts as a sales and promotional tool. Radio programmers use it as a programming tool. Recording artists see it as one avenue of feedback on what they create. Therefore, promotional campaigns by the record companies and radio airplay are useful information even before any sales results are in. And Billboard allows the lower 50 of the Hot 100 to reflect such factors. The public, on the other hand, is interested in record popularity which must be measured mainly through sales. In Billboard's weekly surveys, in the working of the rankings, the higher the position, the greater the influence of sales upon its determination.

So, after long consideration, ATF made the decision to use in its formula only the 50 top positions of the Hot 100 as our raw data (without losing sight of the fact that, statistically speaking, it is not truly 'raw data').

GOALS SOUGHT IN ARRIVING AT ATF FORMULA: Fair comparison of popularity of records which hit in widely separated years; reduction of significance of record promotion reports and radio airplay; reduction of illogical disparity of points between #1 records and #2 records; fairer comparison between 'hot' records which peak in the Top 10 but have shorter chart lives than not-so-'hot' records which peak much lower but may stay on the chart many weeks longer.

THE ATF FORMULA: Uses Top 50 only of the Hot 100. 50 points for each week at #1, 49 points for each week at #2, and so on down to one point for each week at #50. PLUS a Top 10 bonus: 10 points for each week at #1, one point for each week at #10. PLUS a #1 bonus: 1 wk @ #1 gets 20 points, 2 wks = 50 pts, 3 wks = 90 pts, 4 wks = 140 pts, 5 wks = 200 pts, 6 wks = 270 pts, 7 wks = 350 pts, 8 wks = 440 pts, 9 wks = 540 pts, 10 wks = 650 pts.

SEE NEXT PAGE FOR CALCULATION METHOD.

The ATF FORMULA for ranking records

based on the Billboard chart positions.


SINGLES CHART


Only the 50 top positions are considered.

For each week on, the song at #1 gets 50 points, the song
at #2 gets 49 points, and so on down to the song at #50
which gets one point.

In addition, the Top Ten bonus works as follows:  the song
at #1 gets an additional ten points, the song at #2 gets
9 points, and so on down to the song at #10 which gets one
point.

To Calculate: 1) Multiply the number of weeks in the Top 50
by 51.  The result is the Top 50 subtotal.
(if any)
2) Multiply the number of weeks/in the Top 10
by 11.  The result is the Top 10 subtotal.

3) For songs that have hit #1, use this table to
find the #1 bonus points:

| WKS @ #1 | POINTS |
|---|---|
| 1 | 20 |
| 2 | 50 |
| 3 | 90 |
| 4 | 140 |
| 5 | 200 |
| 6 | 270 |
| 7 | 350 |
| 8 | 440 |
| 9 | 540 |
| 10 | 650 |

4) Add the T50 subtotal, the T10 subtotal, and the #1 bonus points.

5) From this grand total, subtract the song's numerical ranking, week
by week, for each week it spent in the Top 50.

6) Then subtract the song's numberical ranking, week by week, for each
week (if any) that the song spent in the Top 10.


The final result is that particular recording's ATF Points

Once a record's ATF Points have been calculated, that record's popularity may be compared with that of any other record of the <u>same calendar year</u>.

To compare (rank) records of different years, Index numbers must first be calculated by the following formula:

$$\text{Index} = \frac{\text{Individual Record's ATF Pts}}{\text{Average ATF Pts of 20 Top Records of Year}}$$

(EXPRESS IN DECIMALS ROUNDED OFF TO 3 PLACES)

Indexes enable records to be compared, equitably, across the years and within the same year.  Once a record's Index has been determined, it should, theoretically, be of permanent use in making comparisons and taking any kind of survey throughout chart history and on into the future.