APPENDIX A TO PART 707—ANNUAL
PERCENTAGE YIELD CALCULATION

The annual percentage yield (APY) measures the total amount of dividends a credit union pays on an account based on the dividend rate and the frequency of compounding. The annual percentage yield is expressed as an annualized rate, based on a 365-day year. (Credit unions may calculate the annual percentage yield based on a 365-day or a 366-day year in a leap year.) Part I of this appendix discusses the annual percentage yield calculations for account disclosures and advertisements, while Part II discusses annual percentage yield earned calculations for statements. The annual percentage yield reflects only dividends and does not include the value of any bonus, as that term is defined in part 707, that may be provided to the member to open, maintain, increase or renew an account. Dividends, interest or other earnings are not to be included in the annual percentage yield if such amounts are determined by circumstances that may or may not occur in the future. These formulas apply to both dividend-bearing and interest-bearing accounts held by credit unions.

PART I. ANNUAL PERCENTAGE YIELD FOR ACCOUNT DISCLOSURES AND ADVERTISING PURPOSES

In general, the annual percentage yield for accounts disclosure under §707.4 and 707.5 and for advertisements under §707.8 is an annualized rate that reflects the relationship between the amount of dividends that would be earned by the member for the term of the account and the amount of principal used to calculate those dividends. The amount of dividends that would be earned may be projected based on the most recent past declared rate or an anticipated future rate, whichever the credit union judges to most reasonably approximate the dividends to be earned. Special rules apply to accounts with tiered and stepped dividend rates, and to certain term share accounts with a stated maturity greater than 1 year.

A. General Rules

Except as provided in Part I. E. of this appendix, the annual percentage yield shall be calculated by the formula shown below. Credit unions may calculate the annual percentage yield using projected dividends based on either the rate at the last dividend declaration date or the rate anticipated at a future date. The credit union must disclose whichever option it uses to members. Credit unions shall calculate the annual percentage yield based on the actual number of days for the term of the account. For accounts without a stated maturity date (such as a typical share or share draft account), the calculation shall be based on an assumed term of 365 days. In determining the total dividends figure to be used in the formula, credit unions shall assume that all principal and dividends remain on deposit for the entire term, and that no other transactions (deposits or withdrawals) occur during the term. (This assumption shall not be used if a credit union requires, as a condition of the account, that members withdraw dividends during the term. In such a case, the dividends (and annual percentage yield calculation) shall reflect that requirement.) For term share accounts that are offered in multiples of months, credit unions may base the number of days on either the actual number of days during the applicable period, or the number of days that would occur for any actual sequence of that many calendar months. If credit unions choose to use this permissive rule, they must use the same number of days to calculate the dollar amount of dividends that will be earned on the account in the annual percentage yield formula (where “Dividends” are divided by “Principal”).
The annual percentage yield is to be calculated by use of the following general formula ("APY") is used for convenience in the formulas):

\[
\text{APY} = 100 \left(1 + \frac{\text{Dividends}}{\text{Principal}}\right)^{\frac{365}{\text{Days in term}}} - 1
\]

"Principal" is the amount of funds assumed to have been deposited at the beginning of the account.

"Dividends" is the total dollar amount of dividends earned on the Principal for the term of the account.

"Days in term" is the actual number of days in the term of the account.

When the "days in term" is 365 (that is, where the stated maturity is 365 days or where the account does not have a stated maturity), the APY can be calculated by use of the following simple formula:

\[
\text{APY} = \frac{\text{Dividends}}{\text{Principal}}
\]

Examples:

(1) If a credit union paid $61.68 in dividends for a 365-day year on a $1,000 deposited into a share draft account, the APY is 6.17%:

\[
\text{APY} = 100 \left(1 + \frac{61.68}{1,000}\right)^{\frac{365}{365}} - 1
\]

Or, using the simple formula above (since the term is deemed to be 365 days):

\[
\text{APY} = \frac{61.68}{1,000}
\]

(2) If a credit union pays $30.37 in dividends on a $1,000 six-month term share certificate account (where the six-month period used by the credit union contains 182 days), using the general formula above, the APY is 6.18%:

\[
\text{APY} = 100 \left(1 + \frac{30.37}{1,000}\right)^{\frac{365}{182}} - 1
\]

The APY is affected by the frequency of compounding, i.e., the amount of dividends will be greater the more frequently dividends are compounded for a given nominal rate. When two credit unions are offering the same dividend rate on, for example, a share account, the APY disclosed may be different if the credit unions use a different frequency of compounding.

Examples:

(1) If a credit union pays $1,268.25 in dividends for a 365-day year on $10,000 deposited into a regular share account earning 12%, and the dividends are compounded monthly, the APY will be 12.55%:

\[
\text{APY} = 100 \left(1 + \frac{1,268.25}{10,000}\right)^{\frac{365}{365}} - 1
\]

(2) However, if a credit union is compounding dividends on a quarterly basis on an account which otherwise has the same terms, the dividends will be $1,255.09 and the APY will be 12.55%:

\[
\text{APY} = 100 \left(1 + \frac{1,255.09}{10,000}\right)^{\frac{365}{90}} - 1
\]

For accounts with two or more dividend rates applied in succeeding periods (where the rates are known at the time the account is opened), a credit union shall assume each dividend rate is in effect for the length of time provided for in any share agreement. Examples:

(1) If a credit union offers a $1,000 6-month term share (certificate) account on which it pays a 5% dividend rate, compounded daily, for the first three months (which contain 91 days), and a 5.5% dividend rate, compounded daily, for the next three months (which contain 92 days), the total dividends for six months is $26.68, and, using the general formula above, the APY is 5.39%:

\[
\text{APY} = 100 \left(1 + \frac{26.68}{1,000}\right)^{\frac{365}{183}} - 1
\]

(2) If a credit union offers a $1,000 2-year share certificate on which it pays a 6% dividend rate, compounded daily, for the first year, and a 6.5% dividend rate, compounded daily, for the next year, the total dividends for two years is $133.13, and, using the general formula above, the APY is 6.45%:

\[
\text{APY} = 100 \left(1 + \frac{133.13}{1,000}\right)^{\frac{365}{730}} - 1
\]

C. Variable-Rate Accounts

For variable-rate accounts without an introductory premium or discounted rate, a credit union must base the calculation only on the initial dividend rate in effect when the account is opened (or advertised), and assume that this rate will not change during the year.

Variable-rate accounts with an introductory premium or discount rate must be treated like stepped-rate accounts. Thus, a credit union shall assume that: (1) The introductory simple dividend rate is in effect for the length of time provided for in the account contract; and (2) the variable dividend rate that would have been in effect when the account is opened or advertised (but for the introductory rate) is in effect for the remainder of the year. If the variable rate is tied to an index, the index-based rate in effect at the time of disclosure must be used for the remainder of the year. If the rate is not tied to an index, the rate in effect for existing members holding the same account (who are not receiving the introductory dividend rate) must be used for the remainder of the year.

For example, if a credit union offers an account on which it pays a 7% dividend rate, compounded daily, for the first three months (which, for example, contains 91 days), while the variable dividend rate that would have been in effect when the account was opened was 5%, the total dividends for a 365-day year for a $1,000 account balance is $56.52, (based on 91 days at 7%, followed by 274 days at 5%). Using the simple formula, the APY is 5.65%:
D. Accounts With Tiered Rates (Different Rates Apply to Specified Balance Level)

For accounts in which two or more dividend rates paid on the account are applicable to specified balance levels, the credit union must calculate the annual percentage yield in accordance with the method described below that it uses to calculate dividends. In all cases, an annual percentage yield (or a range of annual percentage yields, if appropriate) must be disclosed for each balance tier.

For purposes of the examples discussed below, assume the following:

<table>
<thead>
<tr>
<th>Simple dividend rate (Per- cent)</th>
<th>Share balance required to earn rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.25</td>
<td>Up to but not exceeding $2,500.</td>
</tr>
<tr>
<td>5.50</td>
<td>Above $2,500, but not exceeding $15,000.</td>
</tr>
<tr>
<td>5.75</td>
<td>Above $15,000.</td>
</tr>
</tbody>
</table>

**Tiering Method A**

Under this method, a credit union pays on the full balance in the account the stated dividend rate that corresponds to the applicable share balance tier. For example, if a member deposits $8,000, the credit union pays the 5.50% dividend rate on the entire $8,000.

This is also known as a “hybrid” or “plateau” tiered rate account.

When this method is used to determine dividends, only one annual percentage yield will apply to each tier. Within each tier, the annual percentage yield will not vary with the amount of principal assumed to have been deposited.

For the dividend rates and account balances assumed above, the credit union will state three annual percentage yields—one corresponding to each balance tier. Calculation of each annual percentage yield is similar for this type of account as for accounts with a single fixed dividend rate. Thus, the calculation is based on the total amount of dividends that would be received by the member for each tier of the account for a year and the principal assumed to have been deposited to earn that amount of dividends.

**First tier.** Assuming daily compounding, the credit union will pay $53.90 in dividends on a $1,000 account balance. Using the general formula for the first tier, the APY is 5.39%:

APY=100 [(1+.0539/1,000)^(365/365)] - 1
APY=5.39%

Using the simple formula:

APY=100 (53.90/1,000)
APY=5.39%

**Second tier.** The credit union will pay $452.29 in dividends on an $8,000 deposit. Thus, using the simple formula, the annual percentage yield for the second tier is 5.65%:

APY=100 (452.29/8,000)
APY=5.65%

**Third tier.** The credit union will pay $1,183.61 in dividends on a $20,000 account balance. Thus, using the simple formula, the annual percentage yield for the third tier is 5.92%:

APY=100 (1,183.61/20,000)
APY=5.92%

**Tiering Method B**

Under this method, a credit union pays the stated dividend rate only on that portion of the balance within the specified tier. For example, if a member deposits $8,000, the credit union pays 5.25% on only $2,500 and 5.50% on $5,500 (the difference between $8,000 and the first tier cutoff of $2,500). This is also known as a “pure” tiered rate account.

The credit union that computes dividends in this manner must provide a range that shows the lowest and the highest annual percentage yields for each tier (other than for the first tier, which, like the tiers in Method A, has the same annual percentage yield throughout). The low figure for an annual percentage yield is calculated based on the total amount of dividends earned for a year assuming the minimum principal required to earn the dividend rate for that tier. The high figure for an annual percentage yield is based on the amount of dividends the credit union would pay on the highest principal that could be deposited to earn that same dividend rate. If the account does not have a limit on the amount that can be deposited, the credit union may assume any amount.

For the tiering structure assumed above, the credit union would state a total of five annual percentage yields—one figure for the first tier and two figures stated as a range for the other two tiers.

**First tier.** Assuming daily compounding, the credit union could pay $53.90 in dividends on a $1,000 account balance. For this first tier, using the simple formula, the annual percentage yield is 5.39%:

APY=100 (53.90/1,000)
APY=5.39%

**Second tier.** For the second tier the credit union would pay between $134.75 and $491.45 in dividends, based on assumed balances of $2,500.01 and $15,000, respectively. For $2,500.01, dividends would be figured on $2,500 at 5.25% dividend rate plus dividends on $.01 at 5.50%. For the low end of the second tier, therefore, the annual percentage yield is 5.39%. Using the simple formula:

APY=100 (134.75/2,500)
APY=5.39%

For $15,000, dividends are figured on $2,500 at 5.25% dividend rate plus dividends on $12,500 at 5.50% dividend rate. For the high end of the second tier, the annual percentage yield, using the simple formula, is 5.61%:

APY=100 (841.45/15,000)

APY=5.61%.
Thus, the annual percentage yield range that would be stated for the second tier is 5.39% to 5.61%.

Third tier. For the third tier, the credit union would pay $841.45 and $5,871.78 in dividends on the low end of the third tier (a balance of $15,000.01). For $15,000.01, dividends would be figured on $2,500 at 5.25% dividend rate, plus dividends on $12,500 at 5.50% dividend rate, plus dividends on $1,000 at 5.75% dividend rate. For the low end of the third tier, therefore, the annual percentage yield, using the simple formula, is 5.61%:

APY=100(841.45/15,000)
APY=5.61%.
Assuming the credit union does not limit the account balance, it may assume any maximum amount for the purposes of computing the annual percentage yield for the high end of the third tier. For an assumed maximum balance amount of $1,000,000, dividends would be figured on $2,500 at 5.25% dividend rate, plus dividends on $12,500 at 5.50% dividend rate, plus dividends on $85,000 at 5.75% dividend rate. For the high end of the third tier, therefore, the annual percentage yield, using the simple formula, is 5.87%:

APY=100(5,871.78/1,000,000)
APY=5.87%.
Thus, the annual percentage yield that would be stated for the third tier is 5.61% to 5.87%. If the assumed maximum balance amount of $100,000, dividends would be figured on $2,500 at 5.25% dividend rate, plus dividends on $12,500 at 5.50% dividend rate, plus dividends on $85,000 at 5.75% dividend rate. For the high end of the third tier, therefore, the annual percentage yield, using the simple formula, is 5.91%:

APY=100(59,134.22/1,000,000)
APY=5.91%.
Thus, the annual percentage yield range that would be stated for the third tier is 5.61% to 5.91%.

E. Term Share Accounts with a Stated Maturity Greater than One Year that Pay Dividends At Least Annually

1. For term share accounts with a stated maturity greater than one year, that do not compound dividends on an annual or more frequent basis, and that require the member to withdraw dividends at least annually, the annual percentage yield may be disclosed as equal to the dividend rate.

Example:
If a credit union offers a $1,000 two-year term share account that does not compound and that pays out dividends semi-annually by check or transfer at a 6.00% dividend rate, the annual percentage yield may be disclosed as 6.00%.

2. For term share accounts covered by this paragraph that are also stepped-rate accounts, the annual percentage yield may be disclosed as equal to the composite dividend rate.

Example:
(1) If a credit union offers a $1,000 three-year term share account that does not compound and that pays out dividends annually by check or transfer at a 5.50% dividend rate, plus dividends on $12,500 at 5.75% dividend rate, plus dividends on $85,000 at 5.91% dividend rate, therefore, the annual percentage yield, using the composite dividend rate and APY as follows:

(a) Multiply each dividend rate by the number of days it will be in effect;
(b) Add these figures together; and
(c) Divide by the total number of days in the term.

(2) Applied to the example, the products of the dividend rates and days the rates are in effect are (5.00%×365 days) 1825, (6.00%×365 days) 2190, and (7.00%×365 days) 2555, respectively. The sum of these products, 6570, is divided by 1095, the total number of days in the term. The composite dividend rate and APY are both 6.00%.

PART II. ANNUAL PERCENTAGE YIELD EARNED FOR STATEMENTS
The annual percentage yield earned for statements under §707.6 is an annualized rate that reflects the relationship between the amount of dividends actually earned (accrued or paid and credited) to the member’s account during the period and the average daily balance in the account for the period over which the dividends were earned.
Pursuant to §707.6(a), when dividends are paid less frequently than statements are sent, the APY Earned may reflect the number of days over which dividends were earned rather than the number of days in the statement period, e.g., if a credit union uses the average daily balance method and calculates dividends for a period other than the statement period, the annual percentage yield earned shall reflect the relationship between the amount of dividends earned and the average daily balance in the account for the other period, such as a crediting or dividend period.

The annual percentage yield shall be calculated by using the following formulas ("APY Earned" is used for convenience in the formulas):

A. General Formula

APY Earned = 100[(1 + Dividends earned/Balance)365/Days in period - 1],

"Balance" is the average daily balance in the account for the period.
"Dividends earned" is the actual amount of dividends accrued or paid and credited to the account for the period.
"Days in period" is the actual number of days over which the dividends disclosed on the statement were earned.

Examples:
(1) If a credit union calculates dividends for the statement period (and uses either the daily balance or the average daily balance method), and the account had a balance of $1,500 for 15 days and a balance of $500 for the remaining 15 days of a 30-day statement period, the average daily balance for the period is $1,000. Assume that $5.25 in dividends was earned during the period. The annual percentage yield earned (using the formula above) is 6.58%:

\[
\text{APY Earned} = 100 \left( 1 + \frac{5.25}{1,000} \right)^{\frac{365}{30}} - 1
\]

\[\text{APY Earned}=6.58\%\].

(2) Assume a credit union calculates dividends on the average daily balance for the calendar month and provides periodic statements that cover the period from the 16th of one month to the 15th of the next month. The account has a balance of $2,000 September 1 through September 15 and a balance of $1,000 for the remaining 15 days of September. The average daily balance for the month of September is $1,500, which results in $6.50 in dividends earned for the month. The annual percentage yield earned for the month of September would be shown on the periodic statement covering September 16 through October 15. The annual percentage yield earned (using the formula above) is 5.40%:

\[
\text{APY Earned} = 100 \left( 1 + \frac{6.50}{1,500} \right)^{\frac{365}{30}} - 1
\]

\[\text{APY Earned}=5.40\%\].

(3) Assume a credit union calculates dividends on the average daily balance for a quarter (for example, the calendar months of September through November), and provides monthly periodic statements covering calendar months. The account has a balance of $1,000 throughout the 30 days of September, a balance of $2,000 throughout the 31 days of October, and a balance of $3,000 throughout the 30 days of November. The average daily balance for the quarter is $2,000, which results in $21 in dividends earned for the quarter. The annual percentage yield earned would be shown on the periodic statement for November. The annual percentage yield earned (using the formula above) is 4.28%:

\[
\text{APY Earned} = 100 \left( 1 + \frac{21}{2,000} \right)^{\frac{365}{91}} - 1
\]

\[\text{APY Earned}=4.28\%\].

B. SPECIAL FORMULA FOR USE WHERE PERIODIC STATEMENT IS SENT MORE OFTEN THAN THE PERIOD FOR WHICH DIVIDENDS ARE COMPOUNDED.

Credit unions that use the daily balance method to accrue dividends and that issue periodic statements more often than the period for which dividends are compounded shall use the following special formula:

\[
\text{APY Earned} = 100 \left( 1 + \frac{\text{Dividends earned}}{\text{Balance}} \right)^{\frac{(365/\text{Compounding})}{\text{Days in period (Compounding)}}} - 1
\]

The following definition applies for use in this formula (all other terms are defined under Part II):

"Compounding" is the number of days in each compounding period.

Assume a credit union calculates dividends for the statement period using the daily balance method, pays a 5.00% dividend rate, compounded annually, and provides periodic statements for each monthly cycle. The account has a daily balance of $1000.00 for a 30-day statement period. The dividend earned of $4.11 for the period, and the annual percentage yield earned (using the special formula above) is 5.00%:

\[
\text{APY Earned} = 100 \left( 1 + \frac{4.11}{1,000} \right)^{\frac{365}{365}} - 1
\]

\[\text{APY Earned}=5.00\%\].