



## PC Disclosure Calculations

### Available PC Disclosure Calculations

Following are the loan- and pool-level disclosure calculations for single-family fixed-rate and adjustable-rate mortgage (ARM) Participation Certificate (PC) securities. Some of these calculations incorporate assumptions as to permitted mortgage characteristics and variables therein. As a result, in some cases the application of these calculations could result in minor differences between the actual characteristics of a given mortgage and the reported characteristics.

Loan- and pool-level disclosure is available on Freddie Mac's Web site at [www.FreddieMac.com/mbs](http://www.FreddieMac.com/mbs).

The following disclosure calculations are divided into two sections:

**PC Inception Disclosure Calculations:** Outlines the disclosure calculations for PCs at inception.

**Monthly PC Disclosure Calculations:** Outlines the calculations for monthly PC disclosures.

### PC Inception Disclosure Calculations

Please note that the darker shaded areas indicate pool-level variables only.

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Credit Score</b>	A number, prepared by third parties, summarizing the borrower's creditworthiness, which may be indicative of the likelihood that the borrower will timely repay future obligations.	<ul style="list-style-type: none"> <li>If credit score is &lt; 300 or &gt; 850, the credit score will be disclosed as "Unknown," which will be indicated by a blank space.</li> </ul>
<b>Weighted Average Original Credit Score (WAOCS)</b>	The weighted average, as of the note date, of the borrowers' credit scores for the mortgages in a PC pool. The original WAOCS consists of known credit scores as of the settlement date of the PC and the first month update after the settlement date may reflect additional known credit scores.	<p><b>WAOCS =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Credit Score}) * (\text{Original Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>WAOCS = (Sum (Credit Score) * (Original Loan UPB))/(Sum (Original Loan UPB))</b></p> <ul style="list-style-type: none"> <li>Round to the nearest integer.</li> <li>If credit score is &lt; 300 or &gt; 850, the loan is excluded from the WAOCS calculation.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Gross Mortgage Margin	For ARMs, the number of percentage points that is added to the current index value to establish the new note rate at each interest rate adjustment date.	
Original Weighted Average Mortgage Margin	The original weighted average of the margins of the mortgages in an ARM PC pool.	<p><b>Original Weighted Average Mortgage Margin =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Gross Mortgage Margin}) * (\text{Original Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>Original Weighted Average Mortgage Margin =</b>                      (Sum ((Gross Mortgage Margin) * (Original Loan UPB)))/(Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>Round to the one-thousandth decimal place.</li> </ul>
Loan Age	The number of months since the note origination month of the mortgage.	<p><b>Loan Age =</b> ((As of Date (MM/YY) – Loan Origination Date (MM/YY)) – 1)</p> <ul style="list-style-type: none"> <li>Note: To ensure the age measurement commences with the first full month after the note origination month, we subtract 1.</li> <li>Cap = (Product Term * 12) – Remaining Months to Maturity + 2</li> <li>If Loan Origination Date is not valid or is null, set the loan age to Cap value.</li> <li>If loan age &gt; Cap, set the loan age to Cap value.</li> <li>If loan age &lt; 0, set loan age to 0.</li> </ul>
Weighted Average Loan Age (WALA)	The weighted average of the number of months since the note origination month of the mortgages in a PC pool.	<p><b>WALA =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Loan Age}) * (\text{Original Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>WALA =</b> (Sum ((Loan Age) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>Round to the nearest integer.</li> </ul>
Maximum Lifetime Rate	For ARMs, the maximum note rate of an ARM over the life of the loan.	
Original Weighted Average Mortgage Life Ceiling (Gross)	The original weighted average of the lifetime ceilings of the mortgages in an ARM PC pool.	<p><b>Original Weighted Average Mortgage Life Ceiling (Gross) =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Maximum Lifetime Rate}) * (\text{Original Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>Original Weighted Average Mortgage Life Ceiling (Gross) =</b>                      (Sum ((Maximum Lifetime Rate) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>Round to the one-thousandth decimal place.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Months to Adjust	The number of months from PC pool issuance to the next date on which the mortgage note rate adjusts.	<b>Months to Adjust</b> = (Loan Next Adjustment Date (MM/YY) - As of Date (MM/YY))
Weighted Average Months to Adjust (WAMTA)	For ARM PCs only, the weighted average of the number of months from pool formation to the next date on which the PC coupon adjusts.	<p><b>WAMTA</b>=</p> $\frac{\sum_{Loan(1)}^{Loan(N)} (\text{Months to Adjust} + 1) * (\text{Original Loan UPB})}{\sum_{Loan(1)}^{Loan(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>WAMTA</b> = (Sum ((Loan Months to Adjust + 1) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>Truncate at the one-hundredth decimal place.</li> </ul>
Months to Amortize	For Initial Interest <sup>SM</sup> mortgages only, the number of months from PC pool issuance to the first scheduled Principal & Interest (P&I) payment date of the mortgage.	<p><b>Months to Amortize</b> = (Loan Initial Interest First P&amp;I Payment Date (MM/YY) - As of Date (MM/YY))</p> <ul style="list-style-type: none"> <li>If calculated Months to Amortize &lt; 0, set Months to Amortize to 0.</li> </ul>
Weighted Average Months to Amortize (WAMTAM)	For Initial Interest PCs only, the weighted average number of months from pool information to the First P&I Payment Date of the mortgages in the PC, adjusted by adding one month (for ARM PCs only) to reflect the timing of the corresponding PC First P&I Payment Date.	<p><b>WAMTAM</b>=</p> <p><b>Fixed-rate Initial Interest PCs:</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (\text{Months to Amortize}) * (\text{Original Loan UPB})}{\sum_{Loan(1)}^{Loan(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>WAMTAM</b> = (Sum ((Months to Amortize) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>Truncate at the one-hundredth decimal place.</li> </ul> <p><b>Adjustable-rate Mortgage (ARM) Initial Interest PCs:</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((\text{Loan Initial Interest First P \& I Payment Date (MM/YY) - As of Date (MM/YY) + 1}) * (\text{Original Loan UPB}))}{\sum_{Loan(1)}^{Loan(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>WAMTAM</b> = Sum (((Loan Initial Interest First P&amp;I Payment Date (MM/YY) - As of Date (MM/YY) + 1) * (Original Loan UPB)) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>Truncate at the one-hundredth decimal place.</li> <li>If (Loan Initial Interest First P &amp; I Payment Date (MM/YY) - As of Date (MM/YY) + 1) &lt; 0, set (Loan Initial Interest First P&amp;I Payment Date (MM/YY) - As of Date (MM/YY) + 1) to 0.</li> </ul>

## PC Inception Disclosure Calculations

Please note that the darker shaded areas indicate pool-level variables only.

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Net Maximum Lifetime Rate</b>	The maximum lifetime rate of a mortgage after the applicable servicing fee and guarantee fee have been subtracted.	<b>Net Maximum Lifetime Rate</b> = Maximum Lifetime Rate – all applicable fees
<b>Original Weighted Average Mortgage Life Ceiling (Net)</b>	The weighted average of the lifetime ceilings of the mortgages in an ARM PC pool, net of applicable fees.	<p><b>Original Weighted Average Mortgage Life Ceiling (Net)</b> =</p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Net Maximum Lifetime Rate}) * (\text{Original Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>Original Weighted Average Mortgage Life Ceiling (Net)</b> = (Sum ((Net Maximum Lifetime Rate) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>• Truncate at the one-thousandth decimal place.</li> </ul>
<b>Net Mortgage Margin</b>	The mortgage margin, after the applicable servicing fee and guarantee fee have been subtracted.	<b>Net Mortgage Margin</b> = Gross Mortgage Margin – all applicable fees
<b>PC Margin</b>	The weighted average of the margins of the mortgages in an ARM PC pool, net of applicable fees.	<p><b>PC Margin</b> =</p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Net Mortgage Margin}) * (\text{Original Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>PC Margin</b> = (Sum ((Net Mortgage Margin) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>• Truncate at the one-thousandth decimal place.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Original Combined Loan-to-Value (CLTV)	<p>In the case of a purchase mortgage loan, the ratio is obtained by dividing the original mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the lesser of the mortgaged property's appraised value on the note date or its purchase price.</p> <p>In the case of a refinance mortgage loan, the ratio is obtained by dividing the original mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the mortgaged property's appraised value on the note date.</p> <p>If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the CLTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the CLTV calculation.</p> <p>This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts and will not be updated.</p>	<ul style="list-style-type: none"> <li>• If any one of the following criteria is met, the CLTV ratio will be disclosed as "Unknown," which will be indicated by a blank space.                             <ul style="list-style-type: none"> <li>- Mortgage loans backing a High LTV, &gt;105% and ≤125% Gold PC: CLTV ratio is &lt;6% or &gt;155%</li> <li>- All other loans: CLTV ratio is &lt;6% or &gt;135%</li> <li>- The CLTV ratio is &lt; the loan LTV ratio</li> <li>- The LTV ratio is "Unknown"</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Weighted Average Original Combined Loan-to-Value (WAOCLTV)</b>	<p>The weighted average of the ratios between each mortgage's UPB as of the note date plus any secondary mortgage loan amount disclosed by the Seller and either (1) in the case of a purchase, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date.</p> <p>If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the mortgage CLTV ratio used in the PC WAOCLTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the mortgage CLTV calculation and subsequently in the PC WAOCLTV calculation.</p> <p>This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts.</p>	<p><b>WAOCLTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ CLTV\ Ratio) * (Original\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Original\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WAOCLTV = (Sum (Loan CLTV Ratio) * (Original Loan UPB)) / (Sum (Original Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If any one of the following criteria is met, the loan is excluded from the WAOCLTV calculation.             <ul style="list-style-type: none"> <li>- Mortgage loans backing a High LTV, &gt;105% and ≤125% Gold PC: CLTV ratio is &lt;6% or &gt;155%</li> <li>- All other loans: CLTV ratio is &lt;6% or &gt;135%</li> <li>- The loan CLTV ratio is &lt; the loan LTV ratio.</li> <li>- The LTV ratio is "Unknown."</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Original Debt-to-Income (DTI) Ratio</b></p>	<p>Disclosure of the debt to income ratio is based on (1) the sum of the borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the borrower is making at the time of the delivery of the mortgage loan to Freddie Mac, divided by (2) the total monthly income used to underwrite the borrower as of the date of the origination of the mortgage loan. The debt to income ratio will not be updated. This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities</p>	<ul style="list-style-type: none"> <li>• If any one of the following criteria is met, the DTI ratio will be disclosed as "Unknown," which will be indicated by a blank space.                             <ul style="list-style-type: none"> <li>- The loan DTI ratio falls outside the range of &gt; 0% and &lt;= 65%.</li> <li>- The loan's reported Monthly Income is &lt;= \$100.</li> <li>- The loan's reported Monthly Income or reported Monthly Debt is &gt;= \$99,999.</li> <li>- The loan's reported Monthly Debt is &lt; the loan's Monthly P&amp;I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.</li> </ul> </li> </ul>
<p><b>WAODTI (Weighted Average Original Debt-to-Income)</b></p>	<p>The weighted average of the ratios between each mortgage's (1) sum of the Borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the Borrower is making at the time of the delivery of the mortgage loan to Freddie Mac and (2) the total monthly income used to underwrite the Borrower as of the date of the origination of the mortgage loan.</p> <p>This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities.</p>	<p><b>WAODTI =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ DTI\ Ratio) * (Original\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Original\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WAODTI = (Sum (Loan DTI Ratio) * (Original Loan UPB)) / (Sum (Original Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> <li>• If any one of the following criteria is met, the loan is excluded from the WAODTI calculation.                             <ul style="list-style-type: none"> <li>- The loan DTI ratio falls outside the range of &gt; 0% and &lt;= 65%.</li> <li>- The loan's Monthly Income is &lt;= \$100.</li> <li>- The loan's reported Monthly Income or reported Monthly Debt is &gt;= \$99,999.</li> <li>- The loan's Monthly Debt is &lt; the loan's Monthly P&amp;I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Original Loan-to-Value (LTV)</b></p>	<p>In the case of a purchase mortgage loan, the ratio obtained by dividing the original mortgage loan amount on the note date by the lesser of the mortgaged property's appraised value on the note date or its purchase price.</p> <p>In the case of a refinance mortgage loan, the ratio obtained by dividing the original mortgage loan amount on the note date and the mortgage property's appraised value on the note date.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.</p>	<ul style="list-style-type: none"> <li>If any one of the following criteria is met, the LTV ratio will be disclosed as "Unknown," which will be indicated by a blank space.                             <ul style="list-style-type: none"> <li>FHA/VA loans: LTV ratio is &lt;6% or &gt;110%</li> <li>Mortgage loans backing a High LTV, &gt;105% and ≤125% Gold PC: LTV ratio is &lt;6% or &gt;125%</li> <li>All other loans: LTV ratio is &lt;6% or &gt;105%</li> </ul> </li> </ul>
<p><b>Weighted Average Original Loan-to-Value (WAOLTV)</b></p>	<p>The weighted average of the ratios between each mortgage's UPB as of the note date and either (1) in the case of a purchase mortgage loan, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date. This disclosure field is updated monthly, which means the information is associated with the current remaining balance of the mortgages in the PC pool.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.</p>	<p><b>WAOLTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ LTV\ Ratio) * (Original\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Original\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WAOLTV = (Sum (Loan LTV Ratio) * (Original Loan UPB)) / (Sum (Original Loan UPB))</b></p> <ul style="list-style-type: none"> <li>Round to the nearest integer.</li> <li>If any one of the following criteria is met, the loan is excluded from the WAOLTV calculation.                             <ul style="list-style-type: none"> <li>FHA/VA loans: LTV ratio is &lt;6% or &gt;110%</li> <li>Mortgage loans backing a High LTV, &gt;105% and ≤125% Gold PC: LTV ratio is &lt;6% or &gt;125%</li> <li>All other loans: LTV ratio is &lt;6% or &gt;105%</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Original Loan Amount</b></p>	<p>The UPB of the mortgage on the note date</p> <p>For seller-owned modified mortgages, modified mortgages, converted mortgages, and construction-to-permanent mortgages, the UPB of the mortgage as of the note modification, conversion, or construction to permanent date of the mortgage.</p>	
<p><b>Average Original Loan Size (AOLS)</b></p>	<p>The simple average of the UPBs as of the note date of the mortgages in a PC pool.</p>	<p><b>AOLS =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (\text{Original Loan Amount rounded to the nearest 1000})}{\text{Total Number of Loans in Pool}}$ <p><b>OR</b></p> <p><b>AOLS =</b> (Sum (Original Loan Amount rounded to the nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the nearest dollar.</li> <li>• If Original Loan Amount is invalid, the loan is excluded from the AOLS calculation.</li> </ul>
<p><b>Weighted Average Original Loan Size (WAOLS)</b></p>	<p>The weighted average of the UPBs, as of the note date, of the mortgages in a PC pool.</p>	<p><b>WAOLS =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((\text{Original Loan Amount rounded to the nearest 1000}) * (\text{Original Loan UPB}))}{\sum_{Loan(1)}^{Loan(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>WAOLS =</b> (Sum ((Original Loan Amount rounded to the nearest 1000) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest dollar.</li> <li>• If Original Loan Amount is invalid, the loan is excluded from the WAOLS calculation.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Original Loan Term (OLT)	<p>For fixed-rate (excluding balloon/reset mortgages), adjustable-rate, and Initial Interest mortgages, the number of scheduled monthly payments of the mortgage, between the first payment date and the maturity date of the mortgage.</p> <p>For balloon/reset mortgages, the number of scheduled monthly payments of the mortgage, based on the note rate, P&amp;I amount, and original loan amount of the mortgage.</p>	<p><b>Fixed-Rate (excluding Balloon/Reset), Adjustable-Rate, and Initial Interest Mortgages:</b></p> <p>OLT=</p> <p>(Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY) + 1)</p> <ul style="list-style-type: none"> <li>• Cap = Product Term * 12</li> <li>• If calculated OLT &lt; 1 or &gt; Cap, set OLT to Cap value</li> <li>• If Loan First Payment Date and Loan Maturity Date are not valid, set OLT to Cap value.</li> </ul> <p><b>Balloon/Reset Mortgages:</b></p> <p>OLT=</p> $- \text{Log} \left( 1 - \frac{\text{Original Loan Amount} * \left( \frac{\text{Note Rate as of PC Issuance}}{1200} \right)}{\text{Monthly P \& I Payment}} \right) \div \text{Log} \left( 1 + \left( \frac{\text{Note Rate as of PC Issuance}}{1200} \right) \right)$ <p><b>OR</b></p> <p>OLT = -(FUNCTION LOG10 (1 – (Original Loan Amount * ((Note Rate as of PC Issuance/1200) / Monthly P&amp;I Payment)))) / FUNCTION LOG10 (1 + (Note Rate as of PC Issuance/1200))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• Cap = Amortization Term * 12</li> <li>• If Original Loan Amount, Note Rate as of PC Issuance, or Monthly P&amp;I Payment are invalid, set OLT to Cap value.</li> </ul>
Weighted Average Original Loan Term (WAOLT)	The weighted average of the number of scheduled monthly payments of the mortgages in a PC pool.	<p>WAOLT=</p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} (\text{Original Loan Term}) * (\text{Original Loan UPB})}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p>WAOLT = (Sum ((Original Loan Term) * (Original Loan UPB))) / (Sum (Original Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>
Original Loan UPB	The UPB of the mortgage contributing to the original UPB of a PC pool.	
Original Pool UPB	The aggregate UPB of the mortgages in a PC pool, as of PC issuance.	<p>Original Pool UPB =</p> $\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}$ <p><b>OR</b></p> <p>Original Pool UPB = (Sum (Loan Original UPB))</p>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Remaining Months to Maturity (RMM)</b></p>	<p>For fixed-rate mortgages, including Initial Interest mortgages that have reached the Initial Interest first P&amp;I payment date, the number of scheduled monthly payments that, after giving effect to partial unscheduled principal payments, remain on the mortgage.</p> <p>For ARMs and Initial Interest mortgages during the initial period, the RMM reflects the number of scheduled monthly payments remaining on the mortgage.</p> <p>For balloon/reset mortgages, the RMM reflects the remaining number of months to the mortgage balloon maturity or reset date.</p>	<p><b>Fixed-rate (non-Initial Interest Mortgages):</b></p> <p>RMM =</p> $- \text{Log} \left( 1 - \frac{\text{Original Loan UPB} * \left( \frac{\text{Note Rate as of PC Issuance}}{1200} \right)}{\text{Monthly P \& I Payment}} \right) \div \text{Log} \left( 1 + \left( \frac{\text{Note Rate as of PC Issuance}}{1200} \right) \right)$ <p><b>OR</b></p> <p>RMM = - (FUNCTION LOG10 (1 - (Original Loan UPB*((Note Rate as of PC Issuance/1200)/Monthly P&amp;I Payment))) / FUNCTION LOG10 (1 + (Note Rate as of PC Issuance/1200)))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• Default RMM = Pool Maturity Date (MM/YY) – As of Date (MM/YY)</li> <li>• If Default RMM &gt; Product Term * 12, use Product Term * 12 as Default RMM.</li> <li>• RMM Cap = Default RMM + 2 months.</li> <li>• If RMM Cap &gt; Product Term * 12, use Product Term * 12 as RMM Cap.</li> <li>• If RMM &gt; RMM Cap, set RMM to Cap value.</li> <li>• If Original Loan UPB, Note Rate as of PC Issuance, or Monthly P&amp;I Payment are invalid, use Default RMM.</li> </ul> <p><b>Adjustable-rate Mortgages (ARMs) and Initial Interest Mortgages:</b></p> <p>RMM =</p> <p>If Loan First Payment Date &gt; As of Date, use the following calculation:              (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1</p> <p>Otherwise, use: (Loan Maturity Date (MM/YY) – As of Date (MM/YY))</p> <ul style="list-style-type: none"> <li>• Default RMM = Pool Maturity Date (MM/YY) – As of Date (MM/YY)</li> <li>• If Default RMM &gt; Product Term * 12, use Product Term * 12 as Default RMM</li> <li>• RMM Cap = Default RMM + 2 months</li> <li>• If RMM Cap &gt; Product Term * 12, use Product Term * 12 as RMM Cap</li> <li>• If RMM &gt; RMM Cap, set RMM to Cap value</li> <li>• For fixed-rate Initial Interest mortgages: If Loan Initial Interest First P&amp;I Payment Date &lt;= As of Date, use the fixed-rate (non-Initial Interest mortgage) calculation above.</li> </ul> <p><b>Balloon Mortgages:</b></p> <p>RMM =</p> <p>If Loan First Payment Date &gt; As of Date, use the following calculation:              (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1</p> <p>Otherwise, use: (Loan Maturity Date (MM/YY) – As of Date (MM/YY))</p> <ul style="list-style-type: none"> <li>• Default RMM = Pool Maturity Date (MM/YY) – As of Date (MM/YY)</li> <li>• If Default RMM &gt; Product Balloon Term * 12, use Product Balloon Term * 12 as Default RMM</li> <li>• RMM Cap = Default RMM</li> <li>• If RMM &gt; RMM Cap, set RMM to cap value.</li> </ul>
<p><b>Weighted Average Remaining Maturity (WARM)</b></p>	<p>For fully-amortizing Gold PCs, the weighted average of the number of scheduled monthly payments that, after giving effect to full and partial unscheduled principal payments, remain on the mortgages in a PC pool.</p> <p>For ARM PCs and Initial Interest PCs during the initial interest period, the weighted average of the current number of scheduled monthly payments which remain on the mortgages in a PC pool.</p> <p>For PC pools backed by balloon/reset mortgages, the WARM reflect the WATB (Weighted Average Term to Balloon), which is the weighted average remaining number of months to the balloon maturity or reset date of the mortgages.</p>	<p><b>WARM =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Loan RMM}) * (\text{Original Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Original Loan UPB}}$ <p><b>OR</b></p> <p><b>WARM = (Sum ((Loan RMM) * (Original Loan UPB))) / (Sum (Original Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>

## Breakout Variables

- Asset Documentation
- Employment Documentation
- First-time Homebuyer
- First Payment Distribution
- Income Documentation
- Initial Interest First P&I Payment
- Loan Origination Year
- Loan Purpose
- Mortgage Insurance
- Number of Borrowers
- Number of Units
- Occupancy Status
- Original Credit Score
- Original CLTV
- Original DTI
- Original LTV
- Property State
- Seller
- Servicer
- Third Party Origination

### PC Inception Disclosure Calculations

Please note that the darker shaded areas indicate pool-level variables only.

For each Breakout Variable: # of Loans	Number of Breakout Variable Loans <b>OR</b> Count (Breakout Variable Loans)
For each Breakout Variable: % of Loans	$\frac{\text{Number of Breakout Variable Loans}}{\text{Total Number of Loans in Pool}} \quad \text{OR} \quad (\text{Count (Breakout Variable Loans)} / (\text{Count (Loans in Pool)}))$ <ul style="list-style-type: none"> <li>• Round to the one-hundredth decimal place.</li> <li>• Note: The sum of the % of loans for the mortgages within a PC may not add up to 100.00% due to rounding.</li> </ul>
For each Breakout Variable: % of UPB	$\left( \frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} (\text{Breakout Variable Loan Current Loan UPB})}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Current Loan UPB}} \right) * 100$ <p><b>OR</b></p> $(\text{Sum (Breakout Variable Loan Original Loan UPB)}) / (\text{Sum (Original Loan UPB)}) * 100$ <ul style="list-style-type: none"> <li>• Round to the one-hundredth decimal place.</li> <li>• Note: The sum of the % of UPB for the mortgages within a PC may not add up to 100.00% due to rounding.</li> </ul>
CLTV Unknown	Loan CLTV considered "Unknown" if: <ul style="list-style-type: none"> <li>• Mortgage Loans backing a High LTV, &gt; 105% and ≤ 125% Gold PC: CLTV is &lt; 6% or &gt; 155%</li> <li>• All other loans: CLTV is &lt; 6% or &gt; 135%</li> <li>• CLTV is &lt; LTV</li> <li>• LTV is "Unknown"</li> </ul>
Credit Score Unknown	Credit Score considered "Unknown" if: <ul style="list-style-type: none"> <li>• Credit score is unavailable or</li> <li>• Credit Score value is &lt; 300 or &gt; 850</li> </ul>
DTI Unknown	Loan DTI considered "Unknown" if: <ul style="list-style-type: none"> <li>• DTI falls outside the range of &gt; 0% and &lt;= 65%</li> <li>• Monthly Income is &lt;= \$100</li> <li>• The loan's reported Monthly Income or reported Monthly Debt is &gt;= \$99,999</li> <li>• Monthly Debt is &lt; Monthly P&amp;I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.</li> </ul>
First Payment Distribution	Loan is "Not Paying" in First Distribution if: <ul style="list-style-type: none"> <li>• Loan First Payment Date &gt; (As of Date + 1 month)</li> <li>• If Loan First Payment Date is not valid or is null, use the Note Origination Date (MM/YY) + 2</li> <li>• If Loan First Payment Date (MM/YY) – Note Origination Date (MM/YY) &gt;, use the Note Origination Date (MM/YY) + 2</li> </ul>
Initial Interest First P&I Payment	For Initial Interest Fixed Rate PCs: <ul style="list-style-type: none"> <li>• The PC Initial Interest First P&amp;I Payment Date = Loan Initial Interest First P&amp;I Payment Date</li> </ul> For Initial Interest ARM PCs: <ul style="list-style-type: none"> <li>• The PC Initial Interest First P&amp;I Payment Date = Loan Initial Interest First P&amp;I Payment Date + 1 month</li> </ul>
LTV Unknown	Loan LTV considered "Unknown" if: <ul style="list-style-type: none"> <li>• FHA/VA loans: LTV is &lt; 6% or &gt; 110%</li> <li>• Mortgage loans backing a High LTV, &gt; 105% and ≤ 125% Gold PC: LTV is &lt; 6% or &gt; 125%</li> <li>• All other loans: LTV is &lt; 6% or &gt; 105%</li> </ul>
Mortgage Insurance (MI) Unknown	Loan MI considered "Unknown" if: <ul style="list-style-type: none"> <li>• MI percentage is &gt; 55%</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION						
<b>Credit Score</b>	A number, prepared by third parties, summarizing the borrower's creditworthiness, which may be indicative of the likelihood that the borrower will timely repay future obligations. All known credit scores are disclosed at PC issuance. Mortgages reported with unknown credit scores at the time of PC issuance may have credit scores disclosed in the month following PC issuance.	<ul style="list-style-type: none"> <li>If credit score is &lt; 300 or &gt; 850, the credit score will be disclosed as "Unknown," which will be indicated by a blank space.</li> </ul>						
<b>Weighted Average Original Credit Score (WAOCS)</b>	The weighted average, as of the note date, of the borrowers' credit scores for the mortgages in a PC pool. The original WAOCS consists of known credit scores as of the settlement date of the PC and the first month update after the settlement date may reflect additional known credit scores.	<p><b>WAOCS =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((\text{Credit Score}) * (\text{Current Loan UPB}))}{\sum_{Loan(1)}^{Loan(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p><b>WAOCS = (Sum (Credit Score) * (Current Loan UPB)) / (Sum (Current Loan UPB))</b></p> <ul style="list-style-type: none"> <li>Round to the nearest integer.</li> <li>If credit score is &lt; 300 or &gt; 850, the loan is excluded from the WAOCS calculation.</li> </ul>						
<b>Current Loan UPB</b>	The UPB of the mortgage contributing to the current UPB of a PC pool.	<p><b>Fixed-rate (non-Initial Interest) Mortgages:</b></p> <p>The Current Loan UPB is derived from the mortgage balance as reported by the servicer. The Current Loan UPB reflects any scheduled and unscheduled principal reductions applied to the mortgage.</p> <p><b>Adjustable-rate Mortgages (ARMs) and Initial Interest Mortgages:</b></p> <p>The Current Loan UPB reflects the mortgage balance, as reported by the servicer. The Current Loan UPB reflects the actual principal reduction of the mortgage.</p> <ul style="list-style-type: none"> <li>Note: A loan's Current UPB may remain constant from one month to the next for several reasons. Possible reasons are outlined in the chart below:</li> </ul> <table border="1"> <thead> <tr> <th>Mortgage Type</th> <th>Reason</th> </tr> </thead> <tbody> <tr> <td><b>ARM and Fixed-rate Mortgages</b></td> <td> <p><b>Balance Corrections:</b></p> <p>Mortgages can experience upward balance corrections. When these corrections occur, the Current Loan UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Loan UPB.</p> <p><b>Paid-in-advance:</b></p> <p>Mortgages that are paid-in-advance may have a constant Current Loan UPB until the current date is later than the due date of the mortgage's last paid installment.</p> </td> </tr> <tr> <td><b>ARM</b></td> <td> <p><b>Delinquencies:</b></p> <p>When an adjustable-rate mortgage experiences a delinquency, its Current Loan UPB contributing to the Current Pool UPB will remain constant until the mortgage recovers from delinquency.</p> </td> </tr> </tbody> </table>	Mortgage Type	Reason	<b>ARM and Fixed-rate Mortgages</b>	<p><b>Balance Corrections:</b></p> <p>Mortgages can experience upward balance corrections. When these corrections occur, the Current Loan UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Loan UPB.</p> <p><b>Paid-in-advance:</b></p> <p>Mortgages that are paid-in-advance may have a constant Current Loan UPB until the current date is later than the due date of the mortgage's last paid installment.</p>	<b>ARM</b>	<p><b>Delinquencies:</b></p> <p>When an adjustable-rate mortgage experiences a delinquency, its Current Loan UPB contributing to the Current Pool UPB will remain constant until the mortgage recovers from delinquency.</p>
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<b>Current Pool UPB</b>	The aggregate UPB of the mortgages in a PC pool.	<p><b>Current Pool UPB =</b></p> $\sum_{Loan(1)}^{Loan(N)} \text{Current Loan UPB}$ <p><b>OR</b></p> <p><b>Current Pool UPB = (Sum (Loan Current UPB))</b></p>						

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Loan Age	The number of months since the note origination month of the mortgage.	<p><b>Loan Age =</b></p> <p><b>Fixed-rate Mortgages:</b>  <math>((\text{Current Factor Date (MM/YY)} - \text{Loan Origination Date (MM/YY)}) - 1)</math></p> <ul style="list-style-type: none"> <li>Note: To ensure the age measurement commences with the first full month after the note origination month, we subtract 1. To ensure the age measurement accounts for the current month's scheduled amortization, the current factor is used for loans backing fixed-rate Gold PCs.</li> <li>Cap = <math>(\text{Product Term} * 12) - \text{Remaining Months to Maturity} + 2</math></li> <li>Loan Origination Date (LOD) must be valid. If LOD is not valid or is null, set the loan age to Cap value.</li> <li>If loan age &gt; Cap, set the loan age to Cap value.</li> <li>If loan age &lt; 0, set loan age to 0.</li> </ul> <p><b>Adjustable-rate Mortgages (ARMs):</b>  <math>((\text{Prior Factor Date (MM/YY)} - \text{Loan Origination Date (MM/YY)}) - 1)</math></p> <ul style="list-style-type: none"> <li>Note: To ensure the age measurement commences with the first full month after the note origination month, we subtract 1.</li> <li>Cap = <math>(\text{Product Term} * 12) - \text{Remaining Months to Maturity} + 2</math></li> <li>If Loan Origination Date is not valid or is null, set the loan age to Cap value.</li> <li>If loan age &gt; Cap, set the loan age to Cap value.</li> <li>If loan age &lt; 0, set loan age to 0.</li> </ul>
WALA (Weighted Average Loan Age)	The weighted average of the number of months since the note origination month of the mortgages in a PC pool.	<p><b>WALA =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Loan Age}) * (\text{Current Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p><b>WALA =</b> <math>(\text{Sum} ((\text{Loan Age}) * (\text{Current Loan UPB}))) / (\text{Sum} (\text{Current Loan UPB}))</math></p> <ul style="list-style-type: none"> <li>Round to the nearest integer.</li> </ul>
Months to Adjust	For ARMs, the number of months from the first day of the current month to the next date on which the mortgage note rate adjusts.	<p><b>Months to Adjust =</b>  <math>(\text{Loan Next Adjustment Date (MM/YY)} - \text{Current Factor Date (MM/YY)})</math></p>
Weighted Average Months to Adjust (WAMTA)	For ARM PCs only, the weighted average of the number of months from the first day of the current month until the next date on which the PC coupon adjusts.	<p><b>WAMTA =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} (\text{Months to Adjust} + 1) * (\text{Current Loan UPB})}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p><b>WAMTA =</b> <math>(\text{Sum} ((\text{Loan Months to Adjust} + 1) * (\text{Current Loan UPB}))) / (\text{Sum} (\text{Current Loan UPB}))</math></p> <ul style="list-style-type: none"> <li>Truncate at the one-hundredth decimal place.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Months to Amortize	For Initial Interest <sup>ISM</sup> mortgages only, the number of months from the first day of the current month to the first scheduled Principal & Interest (P&I) date of the mortgage.	<p><b>Months to Amortize =</b>                      (Loan Initial Interest First P&amp;I Payment Date (MM/YY) – Current Factor Date (MM/YY))</p> <ul style="list-style-type: none"> <li>If calculated Months to Amortize &lt; 0, set Months to Amortize to 0.</li> </ul>
Weighted Average Months to Amortize (WAMTAM)	For Initial Interest PCs only, the weighted average number of months from the first day of the current month to First P&I Payment Date of the mortgages in the PC, adjusted by adding one month (for ARM PCs only) to reflect the timing of the corresponding PC First P&I Payment Date.	<p><b>WAMTAM =</b></p> <p><b>Fixed-rate Initial Interest PCs:</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (\text{Months to Amortize}) * (\text{Current Loan UPB})}{\sum_{Loan(1)}^{Loan(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p><b>WAMTAM =</b> (Sum ((Months to Amortize) * (Current Loan UPB))) / (Sum (Current Loan UPB))</p> <ul style="list-style-type: none"> <li>Truncate at the one-hundredth decimal place.</li> </ul> <p><b>Adjustable-rate Mortgage (ARM) Initial Interest PCs:</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((\text{Loan Initial Interest First P \& I Payment Date (MM/YY) - Current Factor Date (MM/YY) + 1}) * (\text{Current Loan UPB}))}{\sum_{Loan(1)}^{Loan(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p><b>WAMTAM =</b> Sum (((Loan Initial Interest First P&amp;I Payment Date (MM/YY) – Current Factor Date (MM/YY) + 1) * (Current Loan UPB)) / (Sum (Current Loan UPB)))</p> <ul style="list-style-type: none"> <li>Truncate at the one-hundredth decimal place.</li> <li>If (Loan Initial Interest First P&amp;I Payment Date (MM/YY) – Current Factor Date (MM/YY) + 1) &lt; 0, set (Loan Initial Interest First P&amp;I Payment Date (MM/YY) – Current Factor (MM/YY) + 1) to 0.</li> </ul>
Net Maximum Lifetime Rate	For ARMs, the maximum lifetime rate of a mortgage after the applicable servicing fee and guarantee fee have been subtracted.	<p><b>Net Maximum Lifetime Rate =</b>                      Maximum Lifetime Rate – all applicable fees</p>
Original Weighted Average Mortgage Life Ceiling (Net)	The weighted average of the lifetime ceilings of the mortgages in an ARM PC pool, net of applicable fees.	<p><b>Original Weighted Average Mortgage Life Ceiling (Net) =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((\text{Net Maximum Lifetime Rate}) * (\text{Current Loan UPB}))}{\sum_{Loan(1)}^{Loan(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p><b>Original Weighted Average Mortgage Life Ceiling (Net) =</b>                      (Sum ((Net Maximum Lifetime Rate) * (Current Loan UPB))) / (Sum (Current Loan UPB))</p> <ul style="list-style-type: none"> <li>Truncate at the one-thousandth decimal place.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Net Mortgage Margin	The mortgage margin, after the applicable servicing fee and guarantee fee have been subtracted.	<p><b>Net Mortgage Margin =</b></p> <p>Gross Mortgage Margin – all applicable fees</p>
PC Margin	The weighted average of the margins of the mortgages in an ARM PC pool, net of applicable fees.	<p><b>PC Margin =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Net\ Mortgage\ Margin) * (Current\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Original PC Margin =</b> (Sum ((Net Mortgage Margin) * (Current Loan UPB)))/ (Sum (Current Loan UPB))</p> <ul style="list-style-type: none"> <li>Truncate at the one-thousandth decimal place.</li> </ul>
Original Combined Loan-to-Value (CLTV)	<p>In the case of a purchase mortgage loan, the ratio is obtained by dividing the original mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the lesser of the mortgaged property's appraised value on the note date or its purchase price.</p> <p>In the case of a refinance mortgage loan, the ratio is obtained by dividing the original mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the mortgaged property's appraised value on the note date.</p> <p>If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the CLTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the CLTV calculation.</p> <p>This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts and will not be updated.</p>	<ul style="list-style-type: none"> <li>If any one of the following criteria is met, the CLTV ratio will be disclosed as "Unknown," which will be indicated by a blank space. <ul style="list-style-type: none"> <li>Mortgage loans backing a High LTV, &gt; 105% and ≤ 125% Gold PC: CLTV ratio is &lt; 6% or &gt; 155%</li> <li>All other loans: CLTV ratio is &lt; 6% or &gt; 135%</li> <li>The CLTV ratio is &lt; the loan LTV ratio</li> <li>The LTV ratio is "Unknown"</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Weighted Average Original Combined Loan-to-Value (WAOCLTV)</b></p>	<p>The weighted average of the ratios between each mortgage's UPB as of the note date plus any secondary mortgage loan amount disclosed by the Seller and either (1) in the case of a purchase, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date.</p> <p>If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the mortgage CLTV ratio used in the PC WAOCLTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the mortgage CLTV calculation and subsequently in the PC WAOCLTV calculation.</p> <p>This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts.</p>	<p><b>WAOCLTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ CLTV\ Ratio) * (Current\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WAOCLTV = (Sum (Loan CLTV Ratio) * (Current Loan UPB)) / (Sum (Current Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If any one of the following criteria is met, the loan is excluded from the WAOCLTV calculation.             <ul style="list-style-type: none"> <li>- Mortgage loans backing a High LTV, &gt; 105% and ≤ 125% Gold PC: CLTV ratio is &lt; 6% or &gt; 155%</li> <li>- All other loans: CLTV ratio is &lt; 6% or &gt; 135%</li> <li>- The loan CLTV ratio is &lt; the loan LTV ratio.</li> <li>- The LTV ratio is "Unknown".</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Original Debt-to-Income (DTI) Ratio	<p>Disclosure of the debt to income ratio is based on (1) the sum of the borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the borrower is making at the time of the delivery of the mortgage loan to Freddie Mac, divided by (2) the total monthly income used to underwrite the borrower as of the date of the origination of the mortgage loan. The debt to income ratio will not be updated. This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities</p>	<ul style="list-style-type: none"> <li>• If any one of the following criteria is met, the DTI ratio will be disclosed as "Unknown," which will be indicated by a blank space.                             <ul style="list-style-type: none"> <li>- The loan DTI ratio falls outside the range of &gt; 0% and &lt;= 65%.</li> <li>- The loan's reported Monthly Income is &lt;= \$100.</li> <li>- The loan's reported Monthly Income or reported Monthly Debt is &gt;= \$99,999.</li> <li>- The loan's reported Monthly Debt is &lt; the loan's Monthly P&amp;I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.</li> </ul> </li> </ul>
WAODTI (Weighted Average Original Debt-to-Income)	<p>The weighted average of the ratios between each mortgage's (1) sum of the Borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the Borrower is making at the time of the delivery of the mortgage loan to Freddie Mac and (2) the total monthly income used to underwrite the Borrower as of the date of the origination of the mortgage loan.</p> <p>This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities.</p>	<p><b>WAODTI =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ DTI\ Ratio) * (Current\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WAODTI = (Sum (Loan DTI Ratio) * (Current Loan UPB)) / (Sum (Current Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If any one of the following criteria is met, the loan is excluded from the WAODTI calculation.                             <ul style="list-style-type: none"> <li>- The loan DTI ratio falls outside the range of &gt; 0% and &lt;= 65%.</li> <li>- The loan's Monthly Income is &lt;= \$100.</li> <li>- The loan's reported Monthly Income or reported Monthly Debt is &gt;= \$99,999.</li> <li>- The loan's Monthly Debt is &lt; the loan's Monthly P&amp;I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Original Loan-to-Value (LTV)</b></p>	<p>In the case of a purchase mortgage loan, the ratio obtained by dividing the original mortgage loan amount on the note date by the lesser of the mortgaged property's appraised value on the note date or its purchase price.</p> <p>In the case of a refinance mortgage loan, the ratio obtained by dividing the original mortgage loan amount on the note date and the mortgage property's appraised value on the note date.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.</p>	<ul style="list-style-type: none"> <li>• If any one of the following criteria is met, the LTV ratio will be disclosed as "Unknown," which will be indicated by a blank space.                             <ul style="list-style-type: none"> <li>- FHA/VA loans: LTV ratio is &lt; 6% or &gt; 110%</li> <li>- Mortgage loans backing a High LTV, &gt; 105% and ≤ 125% Gold PC: LTV ratio is &lt; 6% or &gt; 125%</li> <li>- All other loans: LTV ratio is &lt; 6% or &gt; 105%</li> </ul> </li> </ul>
<p><b>Weighted Average Original Loan-to-Value (WAOLTV)</b></p>	<p>The weighted average of the ratios between each mortgage's UPB as of the note date and either (1) in the case of a purchase mortgage loan, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date.</p> <p>In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.</p>	<p><b>WAOLTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ LTV\ Ratio) * (Current\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WAOLTV = (Sum (Loan LTV Ratio) * (Current Loan UPB))/(Sum (Current Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If any one of the following criteria is met, the loan is excluded from the WAOLTV calculation.                             <ul style="list-style-type: none"> <li>- FHA/VA loans: LTV ratio is &lt; 6% or &gt; 110%</li> <li>- Mortgage loans backing a High LTV, &gt; 105% and ≤ 125% Gold PC: LTV ratio is &lt; 6% or &gt; 125%</li> <li>- All other loans: LTV ratio is &lt; 6% or &gt; 105%</li> </ul> </li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Original Loan Amount	The UPB of the mortgage on the note date  For seller-owned modified mortgages, modified mortgages, converted mortgages, and construction-to-permanent mortgages, the UPB of the mortgage as of the note modification, conversion, or construction to permanent date of the mortgage.	
Average Original Loan Size (AOLS)	The simple average of the UPBs as of the note date of the mortgages in a PC pool.	<p><b>AOLS =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} (\text{Original Loan Amount rounded to the nearest 1000})}{\text{Total Number of Loans in Pool}}$ <p><b>OR</b></p> <p><b>AOLS =</b> (Sum (Original Loan Amount rounded to the nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the nearest dollar.</li> <li>• If Original Loan Amount is invalid, the loan is excluded from the AOLS calculation.</li> </ul>
Weighted Average Original Loan Size (WAOLS)	The weighted average of the UPBs, as of the note date, of the mortgages in a PC pool.	<p><b>WAOLS =</b></p> $\frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} ((\text{Original Loan Amount rounded to the nearest 1000}) * (\text{Current Loan UPB}))}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p><b>WAOLS =</b> (Sum ((Original Loan Amount rounded to the nearest 1000) * (Current Loan UPB)))/(Sum (Current Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest dollar.</li> <li>• If Original Loan Amount is invalid, the loan is excluded from the WAOLS calculation.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p>Original Loan Term (OLT)</p>	<p>For fixed-rate (excluding balloon/reset mortgages), adjustable-rate, and Initial Interest mortgages, the number of scheduled monthly payments of the mortgage, between the first payment date and the maturity date of the mortgage.</p> <p>For balloon/reset mortgages, the number of scheduled monthly payments of the mortgage, based on the note rate, P&amp;I amount, and original UPB of the mortgage.</p>	<p><b>Fixed-Rate (excluding Balloon/Reset), Adjustable-Rate, and Initial Interest Mortgages:</b></p> <p>OLT = (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY) + 1)</p> <ul style="list-style-type: none"> <li>• <math>Cap = Product\ Term * 12</math></li> <li>• If calculated OLT &lt; 1 or &gt; Cap, set OLT to Cap value.</li> <li>• If Loan First Payment Date and Loan Maturity Date are not valid, set OLT to Cap value.</li> </ul> <p><b>Fixed-rate, Balloon Mortgages:</b></p> <p>OLT=</p> $-Log \left( \frac{1 - \left( \text{Original Loan Amount} * \frac{\left( \frac{\text{Note Rate}}{1200} \right)}{\text{Monthly P \& I Payment}} \right)}{\text{Log} \left( 1 + \left( \frac{\text{Note Rate}}{1200} \right) \right)} \right)$ <p><b>OR</b></p> <p>OLT = -(FUNCTION LOG10 (1 – (Original Loan Amount * ((Note Rate/1200) / Monthly P&amp;I Payment))) / FUNCTION LOG10 (1 + (Note Rate / 1200)))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• <math>Cap = Amortization\ Term * 12</math></li> <li>• If Original Loan Amount, Note Rate, or Monthly P&amp;I Payment are invalid, set OLT to Cap value.</li> </ul>
<p>Weighted Average Original Loan Term (WAOLT)</p>	<p>The weighted average of the number of scheduled monthly payments of the mortgages in a PC pool.</p>	<p>WAOLT =</p> $\frac{\sum_{Loan(1)}^{Loan(N)} (\text{Original Loan Term}) * (\text{Current Loan UPB})}{\sum_{Loan(1)}^{Loan(N)} \text{Current Loan UPB}}$ <p><b>OR</b></p> <p>WAOLT = (Sum ((Original Loan Term) * (Current Loan UPB)))/(Sum (Current Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Remaining Months to Maturity (RMM)</b></p>	<p>For fixed-rate mortgages, including Initial Interest mortgages that have reached the Initial Interest First P&amp;I Payment Date, the number of scheduled monthly payments that, after giving effect to partial unscheduled principal payments, remain on the mortgage.</p> <p>For ARMs and Initial Interest mortgages during the initial interest period, the RMM reflects the number of scheduled monthly payments remaining on the mortgage.</p> <p>For balloon/reset mortgages, the RMM reflects the remaining number of months to the mortgage balloon maturity or reset date.</p>	<p><b>Fixed-rate (non-Initial Interest Mortgages):</b></p> <p>RMM =</p> $- \text{Log} \left( 1 - \left( \text{Current Loan UPB} * \frac{\left( \frac{\text{Note Rate}}{1200} \right)}{\text{Monthly P \& I Payment}} \right) \right) \div \text{Log} \left( 1 + \left( \frac{\text{Note Rate}}{1200} \right) \right)$ <p><b>OR</b></p> <p>RMM = - (FUNCTION LOG10 (1- (Current Loan UPB*((Note Rate/1200)/Monthly P&amp;I Payment)))/ FUNCTION LOG10 (1 + (Note Rate/1200))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)</li> <li>• If Default RMM &gt; Product Term * 12, use Product Term * 12 as Default RMM.</li> <li>• RMM Cap = Default RMM + 2 months</li> <li>• If RMM Cap &gt; Product Term * 12, use Product Term * 12 as RMM Cap.</li> <li>• If RMM &gt; RMM Cap, set RMM to Cap value.</li> <li>• If Current Loan UPB, Note Rate, or Monthly P&amp;I Payment are invalid, use Default RMM.</li> </ul> <p><b>Adjustable-rate Mortgages (ARMs), including Initial Interest ARMs:</b></p> <p>RMM =</p> <p>If Loan First Payment Date &gt; Current Factor Date, use the following calculation:</p> <p>(Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1</p> <p>Otherwise, use:</p> <p>(Loan Maturity Date (MM/YY) – Current Factor Date (MM/YY)) + 1</p> <ul style="list-style-type: none"> <li>• Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)</li> <li>• If Default RMM &gt; Product Term * 12, use Product Term * 12 as Default RMM.</li> <li>• RMM Cap = Default RMM + 2 months</li> <li>• If RMM Cap &gt; Product Term * 12, use Product Term * 12 as RMM Cap.</li> <li>• If RMM &gt; RMM Cap, set RMM to Cap value.</li> </ul> <p><b>Fixed-rate Initial Interest Mortgages:</b></p> <p>RMM =</p> <p>If Loan First Payment Date &gt; Current Factor Date, use the following calculation:</p> <p>(Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1</p> <p>Otherwise, use:</p> <p>(Loan Maturity Date (MM/YY) – Current Factor Date (MM/YY))</p> <ul style="list-style-type: none"> <li>• Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)</li> <li>• If Default RMM &gt; Product Term * 12, use Product Term * 12 as Default RMM.</li> <li>• RMM Cap = Default RMM + 2 months</li> <li>• If RMM Cap &gt; Product Term * 12, use Product Term * 12 as RMM Cap.</li> <li>• If RMM &gt; RMM Cap, set RMM to Cap value.</li> <li>• If Loan Initial Interest First P&amp;I Payment Date &lt;= Current Factor Date, use the Fixed-rate (non-initial Interest Mortgage) calculation above.</li> </ul> <p><b>Balloon Mortgages:</b></p> <p>RMM =</p> <p>If Loan First Payment Date &gt; Current Factor Date, use the following calculation:</p> <p>(Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1</p> <p>Otherwise, use:</p> <p>(Loan Maturity Date (MM/YY) – Current Factor Date (MM/YY))</p> <ul style="list-style-type: none"> <li>• Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)</li> <li>• If Default RMM &gt; Product Balloon Term * 12, use Product Balloon Term * 12 as Default RMM.</li> <li>• RMM Cap = Default RMM</li> <li>• If RMM &gt; RMM Cap, set RMM to cap value.</li> </ul>

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<p><b>Weighted Average Remaining Maturity (WARM)</b></p>	<p>For fully-amortizing Gold PCs, the weighted average of the number of scheduled monthly payments that, after giving effect to full and partial unscheduled principal payments, remain on the mortgages in a PC pool.</p> <p>For ARM PCs and Initial Interest PCs during the initial interest period, the weighted average of the current number of scheduled monthly payments which remain on the mortgages in a PC pool.</p> <p>For PC pools backed by balloon/reset mortgages, the WARM reflect the WATB (Weighted Average Term to Balloon), which is the weighted average remaining number of months to the balloon maturity or reset date of the mortgages.</p>	<p><b>WARM =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ RMM) * (Current\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WARM =</b> (Sum ((Loan RMM) * (Current Loan UPB)) / (Sum (Current Loan UPB)))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>

## Breakout Variables

- Asset Documentation
- Days Delinquent
- Delinquent Loans Purchased
- Employment Documentation
- First-time Homebuyer
- Income Documentation
- Initial Interest First P&I Payment
- Loan Origination Year
- Loan Purpose
- Mortgage Insurance
- Number of Borrowers
- Number of Units
- Occupancy Status
- Original Credit Score
- Original CLTV
- Original DTI
- Original LTV
- Property State
- Seller
- Servicer
- Third Party Origination

### Monthly PC Disclosure Calculations

Please note that the darker shaded areas indicate pool-level variables only.

For each applicable Breakout Variable: # of Loans	Number of Breakout Variable Loans <b>OR</b> Count (Breakout Variable Loans)
For each applicable Breakout Variable: % of Loans	$\frac{\text{Number of Breakout Variable Loans}}{\text{Total Number of Loans in Pool}} \quad \text{OR} \quad (\text{Count (Breakout Variable Loans)} / (\text{Count (Loans in Pool)}))$ <ul style="list-style-type: none"> <li>• Round to the one-hundredth decimal place.</li> <li>• Note: The sum of the % of loans for the mortgages within a PC may not add up to 100.00% due to rounding.</li> </ul>
For each applicable Breakout Variable: % of UPB	$\left( \frac{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} (\text{Breakout Variable Loan Current Loan UPB})}{\sum_{\text{Loan}(1)}^{\text{Loan}(N)} \text{Current Loan UPB}} \right) * 100$ <p><b>OR</b></p> $(\text{Sum (Breakout Variable Loan Current Loan UPB)} / (\text{Sum (Current Loan UPB)}) * 100$ <ul style="list-style-type: none"> <li>• Round to the one-hundredth decimal place.</li> <li>• Note: The sum of the % of UPB for the mortgages within a PC may not add up to 100.00% due to rounding.</li> </ul>
CLTV Unknown	Loan CLTV considered "Unknown" if: <ul style="list-style-type: none"> <li>• Mortgage loans backing a High LTV, &gt; 105% and &lt; / = 125% Gold PC: CLTV is &lt; 6% or &gt; 155%</li> <li>• All other loans: CLTV is &lt; 6% or &gt; 135%</li> <li>• CLTV is &lt; LTV</li> <li>• LTV is "Unknown"</li> </ul>
Credit Score Unknown	Credit Score considered "Unknown" if: <ul style="list-style-type: none"> <li>• Credit score is unavailable or</li> <li>• Credit Score value is &lt; 300 or &gt; 850</li> </ul>
DTI Unknown	Loan DTI considered "Unknown" if: <ul style="list-style-type: none"> <li>• DTI falls outside the range of &gt; 0% and &lt; = 65%</li> <li>• Monthly Income is &lt; = \$100</li> <li>• The loan's reported Monthly Income or reported Monthly Debt is &gt; = \$99,999.</li> <li>• Monthly Debt is &lt; Monthly P&amp;I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property</li> </ul>
Initial Interest First P&I Payment	For Initial Interest Fixed Rate PCs: <ul style="list-style-type: none"> <li>• The PC Initial Interest First P&amp;I Payment Date = Loan Initial Interest First P&amp;I Payment Date</li> </ul> For Initial Interest ARM PCs: <ul style="list-style-type: none"> <li>• The PC Initial Interest First P&amp;I Payment Date = Loan Initial Interest First P&amp;I Payment Date + 1 month</li> </ul>
LTV Unknown	Loan LTV considered "Unknown" if: <ul style="list-style-type: none"> <li>• FHA/VA loans: LTV is &lt; 6% or &gt; 110%</li> <li>• Mortgage loans backing a High LTV, &gt; 105% and ≤ 125% Gold PC: LTV is &lt; 6% or &gt; 125%</li> <li>• All other loans: LTV is &lt; 6% or &gt; 105%</li> </ul>
Mortgage Insurance (MI) Unknown	Loan MI considered "Unknown" if: <ul style="list-style-type: none"> <li>• MI percentage is &gt; 55%</li> </ul>

**For additional information on these data variables, contact Investor Inquiry at (800) 336-3672 or visit [www.FreddieMac.com/mbs](http://www.FreddieMac.com/mbs).**