



## PC Disclosure Calculations

### Available PC Disclosure Calculations

Effective Date: August 28, 2017

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 four sections:**

- PC Inception Disclosure Calculations (pg. 1)
- Monthly PC Disclosure Calculations (pg. 10)
- Modified Fixed-Rate PC and Modified Step Rate PC Inception Disclosure Calculations (pg. 18)
- Monthly Modified Fixed-Rate PC and Modified Step Rate PC Disclosure Calculations (pg. 26)

### PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Borrower Credit Score</b>	The standardized credit score used to evaluate the borrower during the loan origination process.	<ul style="list-style-type: none"> <li>• If credit score is &lt; 300 or &gt; 850, the credit score will be disclosed as "Not Available," which will be indicated by 9999.</li> </ul>
<b>Weighted Average Borrower Credit Score</b>	The weighted average standardized credit score used to evaluate the borrower during the loan origination process.	<p><b>WA Borrower Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Borrower\ Credit\ Score) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Borrower Credit Score =</b> (Sum ((Borrower Credit Score) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</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 WA Borrower Credit Score calculation.</li> </ul>
<b>Updated Credit Score</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the most recently available standardized credit score provided at the time of issuance.	<ul style="list-style-type: none"> <li>• If credit score is &lt; 300 or &gt; 850, the Updated Credit Score will be disclosed as "Not Available," which will be indicated by 9999.</li> <li>• Round to the nearest integer.</li> </ul>

## PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Weighted Average Updated Credit Score</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the weighted average most recently available standardized credit score provided at the time of issuance.	<p><b>WA Updated Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Updated\ Credit\ Score) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Updated Credit Score =</b> (Sum ((Updated Credit Score) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</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 WA Updated Credit Score calculation.</li> </ul>
<b>Mortgage Margin</b>	For adjustable-rate loans, the number of percentage points to be added to the index to arrive at the new interest rate.	<ul style="list-style-type: none"> <li>• 77.777 represents "Not Applicable"</li> </ul>
<b>Weighted Average Mortgage Margin</b>	For adjustable-rate loans, the weighted average number of percentage points to be added to the index to arrive at the new interest rate.	<p><b>Weighted Average Mortgage Margin =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Mortgage\ Margin) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Weighted Average Mortgage Margin =</b> (Sum ((Mortgage Margin) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the third decimal place.</li> <li>• Only applicable At Issuance</li> </ul>
<b>Loan Age</b>	The number of scheduled payments from the time the loan was originated or modified up to and including the current reporting period.	<p><b>Loan Age =</b> ((As of Date (MM/YY) – First Payment 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 add 1.</li> <li>• If Loan Age &gt; Loan Term, set to prior month Loan Age + 1</li> </ul>
<b>Weighted Average Loan Age</b>	The weighted average number of scheduled payments from the time the loans were originated or modified up to and including the current reporting period.	<p><b>WA Loan Age =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Age) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Loan Age =</b> (Sum ((Loan Age) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>
<b>Life Ceiling Interest Rate</b>	For adjustable-rate loans, the lifetime maximum interest rate.	<ul style="list-style-type: none"> <li>• 77.777 represents "Not Applicable"</li> </ul>

## PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>WA Life Interest Rate Ceiling</b>	For adjustable-rate loans, the weighted average lifetime maximum interest rate.	<p><b>WA Life Interest Rate Ceiling =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Life\ Ceiling\ Interest\ Rate) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Life Interest Rate Ceiling =</b>            (Sum ((Life Ceiling Interest Rate) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the third decimal place.</li> <li>• If all loan level values = 77.777, set WA Life Interest Rate to 77.777</li> </ul>
<b>Months to Next Interest Rate Adjustment Date</b>	For adjustable-rate loans, the number of months from the current month to the next interest rate change date.	<p><b>Months to Next Interest Rate Adjustment Date =</b> (Next Adjustment Date (MMCCYY) – As of Date (MM/YY))</p>
<b>WA Months to Next Rate Adjustment Date</b>	For adjustable-rate loans, the weighted average number of months from the current month to the next interest rate adjustment date.	<p><b>WA Months to Next Rate Adjustment Date =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Months\ to\ Next\ Rate\ Adjustment\ Date) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Months to Next Rate Adjustment Date =</b> (Sum ((Months to Next Adjustment Date) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> </ul>
<b>Months to Amortization</b>	For interest-only loans, the number of months from the current month to the first scheduled principal and interest payment date.	<p><b>Months to Amortization =</b> (Interest Only 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 Amortization &gt;= Loan Term or RMM, set to RMM</li> <li>• If calculated Months to Amortization &lt; 0, set Months to Amortization to 0.</li> </ul>
<b>WA Months to Amortization</b>	For interest-only loans, the weighted average number of months from the current month to the first scheduled principal and interest payment date.	<p><b>WA Months to Amortization =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Months\ to\ Amortization) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Months to Amortization =</b> (Sum ((Months to Amortization) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> </ul>
<b>Life Ceiling Net Interest Rate</b>	For adjustable-rate loans, the maximum interest rate less servicing fees and guarantor fees.	<p><b>Life Ceiling Net Interest Rate =</b> Life Ceiling Interest Rate – Servicing and Guarantor fee</p> <ul style="list-style-type: none"> <li>• If Life Ceiling Net Interest Rate = NULL, set to 77.777</li> </ul>

## PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>WA Net Life Interest Rate Ceiling</b>	For adjustable-rate loans, the weighted average maximum interest rate less servicing fees and guarantor fees.	<p><b>WA Net Life Interest Rate Ceiling =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Life\ Ceiling\ Net\ Interest\ Rate) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Net Life Interest Rate Ceiling =</b>            (Sum ((Life Ceiling Net Interest Rate) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the third decimal place.</li> <li>• If All Loan Level values = 77.777, set WA Net Life Interest Rate Ceiling to 77.777</li> </ul>
<b>MBS PC Margin</b>	For adjustable-rate loans, the mortgage margin less servicing fees and guarantor fees.	<p><b>MBS PC Margin = Mortgage Margin – Servicing and Guarantor fees</b></p> <ul style="list-style-type: none"> <li>• If MBS PC Margin = NULL, set to 77.777</li> </ul>
<b>WA MBS PC Margin</b>	For adjustable-rate loans, the weighted average mortgage margin less servicing fees and guarantor fees.	<p><b>WA MBS PC Margin =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((MBS\ PC\ Margin) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA MBS PC Margin =</b> (Sum ((PC MBS Margin) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the third decimal place.</li> <li>• If All Loan Level values = 77.777, set WA MBC PC Margin to 77.777</li> </ul>
<b>Combined Loan-to-Value (CLTV)</b>	<p>The ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the property.</p> <p><i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><b>Purchase:</b>            (Mortgage Loan Amount for all primary and all other outstanding mortgage liens) / (Min (Sales Price, Appraised Value)) * 100</p> <p><b>Refinance:</b>            (Mortgage Loan Amount for all primary and all other outstanding mortgage liens) / Appraised Value * 100</p> <ul style="list-style-type: none"> <li>• Truncate at the 2nd decimal and round UP to the higher integer</li> <li>• The CLTV ratio will be disclosed as "Not Available," indicated by 999, if the ratio is &lt;1% or &gt;998%</li> </ul>
<b>WA Combined Loan-To-Value (CLTV)</b>	<p>The weighted average ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the properties.</p> <p><i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><b>WA Combined Loan-To-Value (CLTV) =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((CLTV\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA CLTV =</b> (Sum ((CLTV Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• The CLTV ratio will be disclosed as "Not Available," indicated by 999, if the ratio is &lt;1% or &gt;998%</li> </ul>

## PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Debt-to-Income (DTI) Ratio</b>	The ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated or modified.	<p>(Borrower Total Monthly Liabilities Amount / Borrower Total Monthly Income Amount) * 100</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> <li>• The DTI Ratio will be disclosed as "Not Available," indicated by 999 if the ratio is &lt; 0% or &gt; 65%.</li> </ul>
<b>WA Debt-to-Income (DTI)</b>	The weighted average ratio obtained by dividing the total monthly debt expenses by the total monthly incomes of the borrowers at the time the loans were originated or modified.	<p><b>WA DTI =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((DTI\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA DTI = (Sum ((DTI Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> <li>• The DTI Ratio will be disclosed as "Not Available," indicated by 999 if the ratio is &lt; 0% or &gt; 65%.</li> </ul>
<b>Loan-to-Value (LTV)</b>	<p>The ratio, expressed as a percentage, obtained by dividing the amount of the loan at origination by the value of the property.</p> <p><i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><b>Purchase:</b></p> <p>Mortgage Loan Amount / (Min (Sales Price, Appraised Value)) * 100</p> <p><b>Refinance:</b></p> <p>Mortgage Loan Amount / Appraised Value * 100</p> <ul style="list-style-type: none"> <li>• Truncate at the 2nd decimal and round UP to the higher integer</li> <li>• LTV ratios that are unavailable, below 1% or greater than 998% will be disclosed as "Not Available," indicated by 999.</li> </ul>
<b>WA Loan-to-Value (LTV)</b>	<p>The weighted average ratio, expressed as a percentage obtained by dividing the amount of the loans at origination by the value of the properties.</p> <p><i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><b>WA LTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((LTV\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA LTV = (Sum ((LTV Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• LTV ratios &lt; 1% or &gt; 998% will be excluded from the WA LTV calculation.</li> </ul>
<b>Estimated Loan-to-Value (ELTV)</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<p>Mortgage Modification Amount / Appraised Value * 100</p> <ul style="list-style-type: none"> <li>• Truncate at the 2nd decimal and round UP to the higher integer</li> <li>• Estimated LTV ratios that are unavailable, below 1% or greater than 998%, will be disclosed as "Not Available," indicated by 999.</li> </ul>

## PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>WA Estimated Loan-to-Value (ELTV)</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<p><b>WA Estimated LTV=</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Estimated\ LTV\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Estimated LTV =</b> (Sum ((Estimated LTV Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If Estimated LTV ratio is &lt;1% or &gt;998%, the loan is excluded from the WA Estimated LTV calculation.</li> </ul>
<b>Average Mortgage Loan Amount</b>	The simple average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.	<p><b>Average Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000)}{Total\ Number\ of\ Loans\ in\ Pool}$ <p><b>OR</b></p> <p><b>Average Mortgage Loan Amount =</b> (Sum (Mortgage Loan Amount rounded to nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the second decimal place.</li> <li>• If Mortgage Loan Amount is invalid, the loan is excluded from the Average Mortgage Loan Amount calculation.</li> </ul>
<b>Mortgage Loan Amount</b>	The dollar amount of the loan as stated on the note at the time the loan was originated or modified.	<ul style="list-style-type: none"> <li>• Round to the nearest thousand for the life of the loan</li> <li>• If Mortgage Loan Amount &lt; \$500, set to actual value.</li> </ul>
<b>WA Mortgage Loan Amount</b>	The weighted average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.	<p><b>WA Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Mortgage\ Loan\ Amount) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Loan Size =</b> (Sum ((Mortgage Loan Amount) * (Issuance Investor UPB))) / (Sum (Issuance Investor UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If Mortgage Loan Amount is invalid, the loan is excluded from the WA Loan Size calculation.</li> </ul>
<b>Loan Term</b>	For fixed-rate, 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><b>Fixed-Rate, Adjustable-Rate, and Initial Interest Mortgages:</b></p> <p><b>Loan Term =</b> (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 Loan Term &lt; 1 or &gt; Cap, set Loan Term to Cap value</li> <li>• If Loan First Payment Date and Loan Maturity Date are not valid, set Loan Term to Cap value.</li> </ul>

## PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Weighted Average Loan Term</b>	The weighted average of the number of scheduled monthly payments of the mortgages in a PC pool.	<p><b>WA Loan Term =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Term) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Loan Term = (Sum ((Loan Term) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>Round to the nearest integer.</li> </ul>
<b>Issuance Investor Loan UPB</b>	The unpaid principal balance of the loan as it contributes to the balance of the security at the time the security was issued.	<ul style="list-style-type: none"> <li>If loan age &lt;= 6 months, rounded to the nearest thousand if &gt; \$500</li> </ul>
<b>Issuance Investor Security UPB</b>	The aggregate unpaid principal balance of the loans as they contribute to the balance of the security at the time the security was issued.	<p><b>Issuance Investor Security UPB =</b></p> $\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB$ <p><b>OR</b></p> <p><b>Issuance Investor Security UPB = (Sum (Issuance Investor Loan UPB))</b></p>
<b>Remaining Months to Maturity (RMM)</b>	<p>The number of scheduled monthly payments that will reduce the Current Investor Loan UPB to zero.</p> <p><i>For fixed-rate loans, this value takes into account the impact of any curtailments.</i></p>	<p><b>Fixed-rate (non-Initial Interest Mortgages)</b></p> <p><b>RMM =</b></p> $\frac{-\log\left(1 - \left(\text{Issuance Investor Loan UPB} * \left(\frac{\left(\frac{\text{Issuance Interest Rate}}{1200}\right)}{\text{Loan Principal \& Interest at Origination Payment Amount}}\right)\right)\right)}{\log\left(1 + \left(\frac{\text{Issuance Interest Rate}}{1200}\right)\right)}$ <p><b>OR</b></p> <p><b>RMM = - (FUNCTION LOG10 (1- (Issuance Investor Loan UPB*((Issuance Interest Rate/1200) / Loan Principal &amp; Interest at Origination Payment Amount)))) / FUNCTION LOG10 (1 + (Issuance Interest Rate/1200))</b></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 Investor 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><b>RMM =</b></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)) + 1</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>

## PC Inception Disclosure Calculations

ATTRIBUTE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Weighted Average Issuance Remaining Months to Maturity</b>	<p>The weighted average number of scheduled monthly payments that will reduce the Investor Loan UPB to zero, at the time the security was issued.</p> <p><i>For fixed-rate loans, this value takes into account the impact of any curtailments.</i></p>	<p><b>WA Issuance RMM =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ RMM) * (Issuance\ Investor\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ UPB}$ <p><b>OR</b></p> <p><b>WA Remaining Maturity =</b> (Sum ((Loan RMM) * (Issuance Investor UPB))) / (Sum (Issuance Investor UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>



## Stratification Variables

- Next Interest Rate Adjustment Date
- Loan-To-Value (LTV) Not Available
- CLTV Not Available
- Debt-To-Income (DTI) Not Available
- Borrower Credit Score Not Available
- Days Delinquent
- Property Type
- Channel
- Property State
- Seller Name
- Servicer Name
- Mortgage Insurance Coverage
- Number of Borrowers
- First Time Home Buyer
- Loan Purpose
- Occupancy Status
- Number of Units
- Mortgage Insurance Cancellation
- Non-Standard Loan Type
- Government Insured/Guarantee
- Interest Only First P&I Payment Date
- Not Paying Principal in First Distribution
- Origination Year
- Collateral List

## PC Inception Disclosure Calculations

<b>For each Stratification Variable: Aggregate Loan Count</b>	Number of Stratification Variable Loans OR Count (Stratification Variable Loans)
<b>For each Stratification Variable: Percentage Loan Count</b>	$\frac{\text{Number of Stratification Variable Loans}}{\text{Total Number of Loans in Pool}} \text{ OR } (\text{Count (Stratification Variable Loans)} / (\text{Count Loans in Pool}))$ <p style="text-align: center;">OR (Count (Stratification Variable Loans)) / (Count (Loans in Pool))</p> <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>
<b>For each Stratification Variable: Aggregate Investor Loan UPB</b>	(Sum (Stratification Variable Loan Investor UPB))
<b>For each Stratification Variable: Percentage Investor Loan UPB</b>	$\left( \frac{\sum_{Loan(1)}^{Loan(N)} \text{Stratification Variable Issuance Investor Loan UPB}}{\sum_{Loan(1)}^{Loan(N)} \text{Issuance Investor Loan UPB}} \right) * 100$ <p style="text-align: center;">OR</p> $(\text{Sum (Stratification Variable Loan Issuance Investor UPB)}) / (\text{Sum (Issuance Investor Loan UPB)}) * 100$ <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>

## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Borrower Credit Score</b>	The standardized credit score used to evaluate the borrower during the loan origination process.	<ul style="list-style-type: none"> <li>If credit score is &lt; 300 or &gt; 850, the credit score will be disclosed as "Not Available," which will be indicated by a 9999.</li> </ul>
<b>Current Weighted Average Borrower Credit Score</b>	The weighted average standardized credit score used to evaluate the borrower during the loan origination process.	<p><b>Current WA Borrower Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Borrower\ Credit\ Score) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Borrower Credit Score =</b> (Sum ((Borrower Credit Score) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</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 Current WA Borrower Credit Score calculation.</li> </ul>
<b>Updated Credit Score</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the most recently available standardized credit score provided at the time of issuance.	<ul style="list-style-type: none"> <li>If credit score is &lt; 300 or &gt; 850, the Updated Credit Score will be disclosed as "Not Available," which will be indicated by 9999.</li> </ul>
<b>Current Weighted Average Updated Credit Score</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<p><b>Current WA Updated Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Updated\ Credit\ Score) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Updated Credit Score =</b> (Sum ((Updated Credit Score) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</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 Current WA Updated Credit Score calculation.</li> </ul>

## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION						
<b>Current Investor Loan UPB</b>	The unpaid principal balance of the loan as it contributes to the current balance of the security.	<p><b>Fixed-rate (non-Initial Interest) Mortgages:</b></p> <p>The Current Investor UPB is derived from the mortgage balance as reported by the servicer. The Current Investor 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 Investor UPB reflects the mortgage balance, as reported by the servicer. The Current Investor UPB reflects the actual principal reduction of the mortgage.</p> <ul style="list-style-type: none"> <li><i>Note: A loan's Current Investor UPB may remain constant from one month to the next for several reasons. Possible reasons are outlined in the chart below:</i></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><b>Balance Corrections:</b> Mortgages can experience upward balance corrections. When these corrections occur, the Current Investor UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Investor UPB.</td> </tr> <tr> <td><b>ARM</b></td> <td><b>Delinquencies:</b> When an adjustable-rate mortgage experiences a delinquency, its Current Investor UPB contributing to the Current Pool UPB will remain constant until the mortgage recovers from delinquency.</td> </tr> </tbody> </table>	Mortgage Type	Reason	<b>ARM and Fixed-Rate Mortgages</b>	<b>Balance Corrections:</b> Mortgages can experience upward balance corrections. When these corrections occur, the Current Investor UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Investor UPB.	<b>ARM</b>	<b>Delinquencies:</b> When an adjustable-rate mortgage experiences a delinquency, its Current Investor UPB contributing to the Current Pool UPB will remain constant until the mortgage recovers from delinquency.
Mortgage Type	Reason							
<b>ARM and Fixed-Rate Mortgages</b>	<b>Balance Corrections:</b> Mortgages can experience upward balance corrections. When these corrections occur, the Current Investor UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Investor UPB.							
<b>ARM</b>	<b>Delinquencies:</b> When an adjustable-rate mortgage experiences a delinquency, its Current Investor UPB contributing to the Current Pool UPB will remain constant until the mortgage recovers from delinquency.							
<b>Current Investor Security UPB</b>	The aggregate unpaid principal balance of the loans as they contribute to the current balance of the security.	<p><b>Current Investor Security UPB =</b></p> $\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB$ <p><b>OR</b></p> <p><b>Current Investor Security UPB = (Sum (Current Investor Loan UPB))</b></p>						
<b>Current Loan Age</b>	The number of scheduled payments from the time the loan was originated or modified up to and including the current reporting period.	<p><b>Fixed-Rate Mortgages:</b></p> <p>((Current Factor Date (MM/YY) – First Payment Date (MM/YY)) + 1)</p> <ul style="list-style-type: none"> <li><i>Note: To ensure the age measurement commences with the first full month after the note origination month, we add 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.</i></li> <li><i>If Loan Age &gt; Loan Term, set Loan Age to prior month Loan Age + 1</i></li> </ul> <p><b>Adjustable-Rate Mortgages:</b></p> <p>((Prior Factor Date (MM/YY) – First Payment Date (MM/YY)) + 1)</p> <ul style="list-style-type: none"> <li><i>Note: To ensure the age measurement commences with the first full month after the note origination month, we add 1.</i></li> <li><i>If Loan Age &gt; Loan Term, set Loan Age to prior month Loan Age + 1</i></li> </ul>						
<b>Current Weighted Average Loan Age</b>	The weighted average number of scheduled payments from the time the loans were originated or modified up to and including the current reporting period.	<p><b>Current WA Loan Age =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Age) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Loan Age = (Sum ((Loan Age) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li><i>Round to the nearest integer.</i></li> </ul>						

## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Current Months to Next Interest Rate Adjustment Date</b>	For adjustable-rate loans, the number of months from the current month to the next interest rate change date.	<b>Current Months to Next Interest Rate Adjustment Date =</b> (Next Interest Rate Adjustment Date (MM/YY) – Current Factor Date (MM/YY))
<b>Current Weighted Average Months to Next Rate Adjustment Date</b>	For adjustable-rate loans, the weighted average number of months from the current month to the next interest rate change date.	<b>Current Weighted Average Months to Next Rate Adjustment Date =</b> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Months\ to\ Next\ Interest\ Rate\ Adjustment\ Date) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <b>OR</b> <b>Current Weighted Average Months to Next Rate Adjustment Date =</b> (Sum ((Months to Next Interest Rate Adjustment Date) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB)) <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>
<b>Current Months to Amortization</b>	For interest-only loans, the number of months from the current month to the first scheduled principal and interest payment date.	<b>Current Months to Amortization =</b> (Interest Only First P&I Payment Date (MM/YY) – Current Factor Date (MM/YY)) <ul style="list-style-type: none"> <li>• If calculated Months to Amortization &lt; 0, set Months to Amortization to 0.</li> <li>• If calculated Months to Amortization &gt;= Loan Term or RMM, set to RMM.</li> </ul>
<b>Current Weighted Average Months to Amortization</b>	For interest-only loans, the weighted average number of months from the current month to the first scheduled principal and interest payment date.	<b>Current WA Months to Amortization =</b> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Months\ to\ Amortization) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <b>OR</b> <b>Current WA Months to Amortization =</b> (Sum ((Months to Amortization) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB)) <ul style="list-style-type: none"> <li>• Round to nearest integer</li> </ul>
<b>Life Ceiling Net Interest Rate</b>	For adjustable-rate loans, the maximum interest rate less servicing fees and guarantor fees.	<b>Life Ceiling Net Interest Rate =</b> Life Interest Rate Ceiling – all applicable fees
<b>Current Weighted Average Net Life Interest Rate Ceiling</b>	The weighted average of the lifetime ceilings of the mortgages in an ARM PC pool, net of applicable fees.	<b>Current WA Net Life Interest Rate Ceiling =</b> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Life\ Ceiling\ Net\ Interest\ Rate) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <b>OR</b> (Sum ((Life Ceiling Net Interest Rate) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB)) <ul style="list-style-type: none"> <li>• Round to third decimal place.</li> <li>• If WA Net Life Interest Rate Ceiling = NULL, set to 77.777</li> <li>• If any loan level values = 77.777, then set to 77.777; else exclude from weighted average calculation</li> </ul>
<b>MBS PC Margin</b>	For adjustable-rate loans, the mortgage margin less servicing fees and guarantor fees.	<b>MBS PC Margin =</b> Mortgage Margin – all applicable fees <ul style="list-style-type: none"> <li>• Truncate at the one-thousandth decimal place.</li> </ul>

## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Current Weighted Average MBS PC Margin</b>	The weighted average of the margins of the mortgages in an ARM PC pool, net of applicable fees.	<p><b>Current Weighted Average MBS PC Margin =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((MBS\ PC\ Margin) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current Weighted Average MBS PC Margin =</b> (Sum ((MBS PC Margin) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the one-thousandth decimal place.</li> <li>• Current Weighted Average MBS PC Margin = NULL, set to 77.777</li> <li>• If all loan level values = 77.777, then set to 77.777; else exclude from weighted average calculation</li> </ul>
<b>Combined Loan-to-Value (CLTV)</b>	The weighted average ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the properties.  <i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i>	<p><b>Purchase:</b> (Mortgage Loan Amount for all primary and all other outstanding mortgage liens) / (Min (Sales Price, Appraised Value)) * 100</p> <p><b>Refinance:</b> (Mortgage Loan Amount for all primary and all other outstanding mortgage liens) / Appraised Value * 100</p> <ul style="list-style-type: none"> <li>• Truncate at the 2nd decimal and round UP to the higher integer</li> <li>• If any of the following criteria is met, the CLTV ratio will be disclosed as "Not Available," indicated by 999. <ul style="list-style-type: none"> <li>- The CLTV ratio is &lt;1% or &gt;998%</li> <li>- The CLTV ratio is &lt; the LTV ratio</li> <li>- The LTV ratio is "Not Available"</li> </ul> </li> </ul>
<b>Current Weighted Average Combined Loan-to-Value (CLTV)</b>	The ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the property.  <i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i>	<p><b>Current WA CLTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ CLTV) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA CLTV =</b> (Sum ((Loan CLTV Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Truncate at the 2nd decimal and round UP to the higher integer</li> <li>• The CLTV ratio will be disclosed as "Not Available," indicated by 999, if the ratio is &lt;1% or &gt;998%</li> </ul>
<b>Debt-to-Income (DTI) Ratio</b>	The ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated or modified.	<p><b>DTI =</b> (Borrower Total Monthly Liabilities Amount / Borrower Total Monthly Income Amount) * 100</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> <li>• The DTI Ratio will be disclosed as "Not Available," indicated by 999 if the ratio is &lt; 0% or &gt; 65%.</li> </ul>

## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Current Weighted Average Debt-to-Income (DTI)</b>	The weighted average ratio obtained by dividing the total monthly debt expenses by the total monthly incomes of the borrowers at the time the loans were originated or modified.	<p><b>Current WA DTI =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ DTI\ Ratio) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA DTI =</b> (Sum ((Loan DTI Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> <li>• If the loan DTI is &lt; 0% or &gt; 65%, the loan is excluded from the WA DTI calculation.</li> </ul>
<b>Loan-to-Value (LTV)</b>	The ratio, expressed as a percentage, obtained by dividing the amount of the loan at origination by the value of the property.  <i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i>	<p><b>Purchase:</b></p> <p>Mortgage Loan Amount / (Min (Sales Price, Appraised Value)) * 100</p> <p><b>Refinance:</b></p> <p>Mortgage Loan Amount / Appraised Value * 100</p> <ul style="list-style-type: none"> <li>• Truncate at the 2nd decimal and round UP to the higher integer</li> <li>• LTV ratios that are unavailable, below 1% or greater than 99% will be disclosed as "Not Available," indicated by 999.</li> </ul>
<b>Current Weighted Average Loan-to-Value (LTV)</b>	The weighted average ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the properties.  <i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i>	<p><b>Current WA LTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ LTV\ Ratio) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA LTV =</b> (Sum ((Loan LTV Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> </ul>
<b>Current Weighted Average Estimated Loan-to-Value (ELTV)</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<p><b>Current WA Estimated LTV=</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Estimated\ LTV\ Ratio) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Estimated LTV =</b> (Sum ((Loan Estimated LTV Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If Estimated LTV ratio is &lt;6% or &gt;300%, the loan is excluded from the Current WA Estimated LTV calculation.</li> </ul>
<b>Mortgage Loan Amount</b>	The dollar amount of the loan as stated on the note at the time the loan was originated or modified.	<ul style="list-style-type: none"> <li>• Round to the nearest thousand for the life of the loan</li> <li>• If Mortgage Loan Amount &lt; \$500, set to actual value.</li> </ul>

## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Current Average Mortgage Loan Amount</b>	The simple average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.	<p><b>Current Average Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000)}{\text{Total Number of Loans in Pool}}$ <p><b>OR</b></p> <p><b>Current Average Mortgage Loan Amount =</b> (Sum (Mortgage Loan Amount rounded to nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the second decimal.</li> <li>• If Mortgage Loan Amount is invalid, the loan is excluded from the Current Average Loan Size calculation.</li> </ul>
<b>Current Weighted Average Mortgage Loan Amount</b>	The weighted average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.	<p><b>Current WA Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Mortgage Loan Amount =</b> (Sum ((Mortgage Loan Amount rounded to nearest 1000) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand</li> <li>• If Mortgage Loan Amount is invalid, the loan is excluded from the Current WA Loan Size calculation.</li> </ul>
<b>Loan Term</b>	For fixed-rate, 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><b>Loan Term=</b> (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 Loan Term &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 Loan Term to Cap value</li> </ul>
<b>Current Weighted Average Loan Term</b>	The weighted average number of months in which regularly scheduled borrower payments are due.	<p><b>Current WA Loan Term =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Term) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Loan Term =</b> (Sum ((Loan Term) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>

## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Current Remaining Months to Maturity (RMM)</b>	<p>The number of scheduled monthly payments that will reduce the Current Investor Loan UPB to zero.</p> <p><i>For fixed-rate loans, this value accounts for the impact of any curtailments.</i></p>	<p><b>Fixed-rate (non-Initial Interest Mortgages)</b></p> <p><b>Current RMM =</b></p> $\frac{-\log\left(1 - \left(\text{Current Investor UPB} * \left(\frac{\text{Current Interest Rate}}{1200} \div \text{Monthly P\&I Payment}\right)\right)\right)}{\log\left(1 + \left(\frac{\text{Current Interest Rate}}{1200}\right)\right)}$ <p><b>OR</b></p> <p><b>Current RMM =</b> - (FUNCTION LOG10 (1 - (Current Investor Loan UPB*((Current Interest Rate/1200) / Loan Principal &amp; Interest at Origination Payment Amount))) / FUNCTION LOG10 (1 + (Current Interest Rate / 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 Investor 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) including Initial Interest ARMs:</b></p> <p><b>Current RMM =</b></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) – Current Factor Date (MM/YY)) + 1</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>Fixed-rate Initial Interest Mortgages:</b></p> <p><b>Current RMM =</b></p> <p>If Loan First Payment Date &gt; Current Factor 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) – 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>



## Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
<b>Current Weighted Average Remaining Maturity</b>	The weighted average number of scheduled monthly payments that will reduce the Investor Loan UPB to zero, at the time the security was issued.  <i>For fixed-rate loans, this value accounts for the impact of any curtailments.</i>	<p><b>Current WA Remaining Maturity =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ RMM) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Remaining Maturity =</b> (Sum ((Loan RMM) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>

## Breakout Variables

- Next Interest Rate Adjustment Date
- Loan-To-Value (LTV) Not Available
- CLTV Not Available
- Debt-To-Income (DTI) Not Available
- Borrower Credit Score Not Available
- Days Delinquent
- Property Type
- Channel
- Property State
- Seller Name
- Servicer Name
- Mortgage Insurance Coverage
- Number of Borrowers
- First Time Home Buyer
- Loan Purpose
- Occupancy Status
- Number of Units
- Mortgage Insurance Cancellation
- Non-Standard Loan Type
- Government Insured/Guarantee
- Interest Only First P&I Payment Date
- Not Paying Principal in First Distribution
- Origination Year
- Collateral List

## Monthly PC Disclosure Calculations

<b>For each applicable Stratified Variable: Aggregate Loan Count</b>	Number of Breakout Variable Loans <b>OR</b> Count (Breakout Variable Loans)
<b>For each applicable Breakout Variable: Percentage Loan Count</b>	$\frac{\text{Number of Breakout Variable Loans}}{\text{Total Number of Loans in Pool}}$ <b>OR</b> (Count (Breakout Variable Loans)) / (Count Loans in Pool)  <b>OR</b> (Count (Breakout Variable Loans)) / (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% due to rounding.</li> </ul>
<b>For each applicable Breakout Variable: Aggregate Investor Loan UPB</b>	(Sum (Stratification Variable Loan Investor UPB))
<b>For each applicable Breakout Variable: Percentage Investor Loan UPB</b>	$\left( \frac{\sum_{Loan(1)}^{Loan(N)} \text{Breakout Variable Current Investor Loan UPB}}{\sum_{Loan(1)}^{Loan(N)} \text{Current Investor Loan UPB}} \right) * 100$ <b>OR</b> (Sum (Breakout Variable Loan Current Investor Loan UPB)) / (Sum (Current Investor 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% due to rounding.</li> </ul>

## Available Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Following are the loan-level and pool-level disclosure calculations for single-family Modified Fixed Rate Participation Certificate (PC) securities and Modified Step Rate 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-level and pool-level disclosure is available on Freddie Mac's Web site at [www.FreddieMac.com/mbs](http://www.FreddieMac.com/mbs).

### Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Origination Credit Score</b>	For reperforming, modified fixed-rate and modified step-rate loans, the standardized credit score used to evaluate the borrower during the loan origination process.	<i>If origination credit score is &lt; 300 or &gt; 850, the credit score will be disclosed as "Not Available," which will be indicated by 9999.</i>
<b>Weighted Average Origination Credit Score</b>	For reperforming, modified fixed-rate and modified step-rate loans, the weighted average standardized credit score used to evaluate the borrower during the loan origination process.	<p><b>WA Origination Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ Credit\ Score) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Investor\ UPB}$ <p><b>OR</b></p> <p><b>WA Origination Credit Score =</b> (Sum ((Origination Credit Score) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</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 WA Origination Credit Score calculation.</li> </ul>
<b>Updated Credit Score</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the most recently available standardized credit score provided at the time of issuance.	<i>If Updated Credit Score is &lt; 300 or &gt; 850, the Updated Credit Score will be disclosed as "Not Available," which will be indicated by 9999.</i>
<b>Weighted Average Updated Credit Score</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the weighted average most recently available standardized credit score provided at the time of issuance.	<p><b>WA Updated Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Updated\ Credit\ Score) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Updated Credit Score =</b> (Sum ((Updated Credit Score) * (Issuance Investor Loan UPB))) / (Sum (Investor UPB))</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 WA Updated Credit Score calculation.</li> </ul>
<b>Loan Age</b>	The number of scheduled payments from the time the loan was originated or modified up to and including the current reporting period.	<p><b>Loan Age =</b> ((As of Date (MM/YY) – First Payment 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 add 1.</li> <li>• If Loan Age &gt; Loan Term, set to prior month Loan Age + 1</li> </ul>

## Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Weighted Average Loan Age</b>	The weighted average number of scheduled payments from the time the loans were originated or modified up to and including the current reporting period.	<p><b>WA Loan Age =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Age) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Loan Age =</b> (Sum ((Loan Age) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>
<b>Loan Age as of Modification Date</b>	For reperforming, modified fixed-rate and modified step-rate loans, the number of scheduled payments from the time the loan was originated up to and including the current reporting period.	<p><b>Loan Age as of Modification Date =</b> (Modification Date (MM/YY) – First Payment Date (MM/YY)) + 1</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>
<b>Months to Next Step Rate Adjustment Date</b>	For reperforming, modified step-rate loans, the number of months from the current month to the next date on which the mortgage interest rate increases.	<p><b>Months to Next Step Rate Adjustment Date =</b> (Next Step Rate Adjustment Date (MM/YY) – As of Date (MM/YY))</p>
<b>Weighted Average Months to Next Step Rate Adjustment Date</b>	For reperforming, modified step-rate loans, the weighted average number of months from the current month to the next date on which the mortgage interest rate increases.	<p><b>WA Months to Next Step Rate Adjustment Date =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Months\ to\ Next\ Step\ Rate\ Adjustment\ Date) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Months to Next Step Rate Adjustment Date =</b> (Sum ((Loan Months to Next Step Rate Adjustment Date) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> </ul>
<b>Origination Combined Loan-to-Value (CLTV)</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the property.</p> <p><i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><i>The Origination CLTV ratio will be disclosed as "Not Available," which will be indicated by a 999, if the ratio is &lt; 1% or &gt; 998%.</i></p>

## Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Weighted Average Origination Combined Loan-to-Value (CLTV)</b>	<p>For repricing, modified fixed-rate and modified step-rate loans, the weighted average ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the property.</p> <p><i>Property values reflect either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><b>WA Origination CLTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ CLTV) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Origination CLTV = (Sum ((Origination CLTV Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• The loan Origination CLTV Ratio is excluded from the WA Origination CLTV calculation if the ratio is &lt;1% or &gt;998%</li> </ul>
<b>Debt-to-Income (DTI) Ratio</b>	<p>The ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated or modified.</p>	<p>(Borrower Total Monthly Liabilities Amount / Borrower Total Monthly Income Amount) * 100</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> <li>• The DTI Ratio will be disclosed as "Not Available," indicated by 999, if the ratio is &lt; 0% or &gt; 65%.</li> </ul>
<b>Weighted Average Debt-to-Income (DTI) Ratio</b>	<p>The weighted average ratio obtained by dividing the total monthly debt expenses by the total monthly incomes of the borrowers at the time the loans were originated or modified.</p>	<p><b>WA DTI =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((DTI\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA DTI = (Sum ((DTI Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> <li>• The loan DTI Ratio is excluded from the WA DTI calculation if the ratio is &lt; 0% or &gt; 65%.</li> </ul>
<b>Origination Debt-to-Income (DTI) Ratio</b>	<p>For repricing, modified fixed-rate and modified step-rate loans, the ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated.</p>	<p>(Borrower Total Monthly Liabilities Amount / Borrower Total Monthly Income Amount) * 100</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> <li>• The Origination DTI Ratio will be disclosed as "Not Available," indicated by 999, if the ratio is &lt; 0% or &gt; 65%.</li> </ul>
<b>Weighted Average Origination Debt-to-Income (DTI)</b>	<p>For repricing, modified fixed-rate and modified step-rate loans, the weighted average ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated.</p>	<p><b>WA Origination DTI Ratio =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ DTI\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Origination DTI Ratio = (Sum ((Origination DTI Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> <li>• The loan DTI Ratio is excluded from the WA DTI calculation if the ratio is &lt; 0% or &gt; 65%.</li> </ul>

## Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Estimated Loan-to-Value (LTV)</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<i>Estimated LTV ratios that are unavailable, below 6% or greater than 300% will be disclosed as "Not Available," which is indicated by 999.</i>
<b>Weighted Average Estimated Loan-to-Value (LTV)</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<p><b>WA Estimated LTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Estimated\ LTV\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Estimated LTV = (Sum ((Loan Estimated LTV Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If Estimated LTV ratio is &lt;6% or &gt;300%, the loan is excluded from the WA Estimated LTV calculation.</li> </ul>
<b>Origination Loan-to-Value (LTV)</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the ratio, expressed as a percentage, obtained by dividing the amount of the loan at origination by the value of the property.</p> <p><i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p>Purchase:</p> <p>Mortgage Loan Amount / (Min (Sales Price, Appraised Value)) * 100</p> <p>Refinance:</p> <p>Mortgage Loan Amount / Appraised Value * 100</p> <ul style="list-style-type: none"> <li>• Truncate at the 2nd decimal and round UP to the higher integer</li> <li>• LTV ratios that are unavailable, below 1% or greater than 998% will be disclosed as "Not Available," indicated by 999.</li> </ul>
<b>Weighted Average Origination Loan-to-Value (LTV)</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio, expressed as a percentage, obtained by dividing the amount of the loans at origination by the values of the properties.</p> <p><i>Property values reflect either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><b>WA Origination LTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ LTV\ Ratio) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Origination LTV = (Sum ((Loan LTV Ratio) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• If the Origination LTV ratio is &lt;1% or &gt;998%, the loan is excluded from the WA Origination LTV calculation.</li> </ul>

## Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Average Mortgage Loan Amount</b>	<p>The simple average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.</p> <p><i>For reperforming, modified fixed-rate and modified step-rate loans, this value represents both the interest bearing and non-interest bearing amount.</i></p>	<p><b>Average Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000)}{\text{Total Number of Loans in the Pool}}$ <p><b>OR</b></p> <p><b>Average Mortgage Loan Amount =</b> (Sum (Mortgage Loan Amount rounded to nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the nearest dollar.</li> <li>• If the Mortgage Loan Amount is invalid, the loan is excluded from the Average Loan Size calculation.</li> </ul>
<b>Mortgage Loan Amount</b>	<p>The dollar amount of the loan as stated on the note at the time the loan was originated or modified.</p>	<ul style="list-style-type: none"> <li>• Round to the nearest thousand for the life of the loan</li> <li>• If Mortgage Loan Amount &lt; \$500, set to actual value.</li> </ul>
<b>Weighted Average Mortgage Loan Amount</b>	<p>The weighted average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.</p> <p><i>For reperforming, modified fixed-rate and modified step-rate loans, this value represents both the interest bearing and non-interest bearing amount.</i></p>	<p><b>WA Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Mortgage Loan Amount =</b> (Sum ((Mortgage Loan Amount rounded to the nearest 1000) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If the Mortgage Loan Amount is invalid, the loan is excluded from the WA Loan Size calculation.</li> </ul>
<b>Average Origination Mortgage Loan Amount</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the simple average dollar amount of the loans in the security as stated on the notes at the time the loans were originated.</p> <p><i>This value represents both the interest bearing and non-interest bearing amount.</i></p>	<p><b>Average Origination Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (Origination\ Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000)}{\text{Total Number of Loans in the Pool}}$ <p><b>OR</b></p> <p><b>Average Origination Mortgage Loan Amount =</b> (Sum (Origination Mortgage Loan Amount rounded to nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If the Origination Mortgage Loan Amount is invalid, the loan is excluded from the Origination Average Loan Size calculation.</li> </ul>
<b>Weighted Average Origination Mortgage Loan Amount</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the weighted average dollar amount of the loans in the security as stated on the notes at the time the loans were originated.</p>	<p><b>WA Origination Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Origination Mortgage Loan Amount =</b> (Sum ((Origination Mortgage Loan Amount rounded to the nearest 1000) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If the Origination Mortgage Loan Amount is invalid, the loan is excluded from the WA Origination Loan Size calculation.</li> </ul>

## Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Loan Term</b>	For fixed-rate, 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><b>Loan Term =</b></p> <p>(Modified Mortgage Maturity Date (MM/YY) – Modified Mortgage First Payment Date (MM/YY) + 1)</p> <ul style="list-style-type: none"> <li>• <i>Cap = Product Term * 12</i></li> <li>• <i>If calculated Loan Term &lt; 1 or &gt; Cap, set Loan Term to Cap value</i></li> <li>• <i>If Modified Mortgage First Payment Date and Modified Mortgage Maturity Date are not valid, set Loan Term to Cap value.</i></li> </ul>
<b>Weighted Average Loan Term</b>	The weighted average number of months in which regularly scheduled borrower payments are due.	<p><b>WA Loan Term =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Term) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Loan Term =</b> (Sum ((Loan Term) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• <i>Round to the nearest integer.</i></li> </ul>
<b>Origination Loan Term</b>	For reprforming, modified fixed-rate and modified step-rate loans, the number of months in which regularly scheduled borrower payments are due as stated on the note at the time the loan was originated.	<p><b>Loan Term =</b> (Origination Maturity Date (MM/YY) – Origination First Payment Date (MM/YY) + 1)</p> <ul style="list-style-type: none"> <li>• <i>Cap = Modified PC Product Term * 12</i></li> <li>• <i>If calculated Origination Loan Term &lt; 1 set Origination Loan Term to Cap value.</i></li> <li>• <i>If Origination First Payment Date and Origination Maturity Date are not valid, set Origination Loan Term to Cap value.</i></li> </ul>
<b>Weighted Average Origination Loan Term</b>	For reprforming, modified fixed-rate and modified step-rate loans, the weighted average number of months in which regularly scheduled borrower payments are due as stated on the note at the time the loans were originated.	<p><b>WA Origination Loan Term =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ Loan\ Term) * (Issuance\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Origination Loan Term =</b> (Sum ((Origination Loan Term) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• <i>Round to the nearest integer.</i></li> </ul>
<b>Issuance Investor Security UPB</b>	The aggregate unpaid principal balance of the loans as they contribute to the balance of the security at the time the security was issued.	<p><b>Issuance Investor Security UPB =</b></p> $\sum_{Loan(1)}^{Loan(N)} Issuance\ Investor\ Loan\ UPB$ <p><b>OR</b></p> <p><b>Issuance Investor Security UPB =</b> (Sum (Issuance Investor Loan UPB))</p>
<b>Interest Bearing Mortgage Loan Amount</b>	For modified fixed-rate and modified step-rate loans, the interest bearing unpaid principal balance at the time of modification.	<p><b>Interest Bearing Mortgage Loan Amount =</b></p> $\sum_{Loan(1)}^{Loan(N)} Interest\ Bearing\ UPB$ <p><b>OR</b></p> <p><b>Interest Bearing Mortgage Loan Amount=</b> (Sum (Interest Bearing Mortgage Loan Amount))</p>

## Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Remaining Months to Maturity (RMM)</b>	<p>The number of scheduled monthly payments that will reduce the Current Investor Loan UPB to zero.</p> <p><i>For fixed-rate loans, this value takes into account the impact of any curtailments.</i></p>	<p><b>RMM =</b></p> $\frac{-\text{Log}\left(1 - \left(\text{Issuance Investor Loan UPB} * \left(\frac{\left(\frac{\text{Issuance Interest Rate}}{1200}\right)}{\text{Loan Principal \& Interest at Origination Payment Amount}}\right)\right)\right)}{\text{Log}\left(1 + \left(\frac{\text{Issuance Interest Rate}}{1200}\right)\right)}$ <p><b>OR</b></p> <p><b>RMM = - (FUNCTION LOG10 (1- (Issuance Investor Loan UPB*((Issuance Interest Rate/1200) / Loan Principal &amp; Interest at Origination Payment Amount)))) / FUNCTION LOG10 (1 + (Issuance Interest Rate/1200))</b></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 Investor UPB, Note Rate as of PC Issuance, or Monthly P&amp;I Payment are invalid, use Default RMM.</li> </ul>
<b>WA Issuance Remaining Months to Maturity</b>	<p>The weighted average number of scheduled monthly payments that will reduce the Investor Loan UPB to zero, at the time the security was issued.</p> <p><i>For fixed-rate loans, this value takes into account the impact of any curtailments.</i></p>	<p><b>WA Remaining Maturity =</b></p> $\frac{\sum_{\text{Loan (1)}}^{\text{Loan (N)}} ((\text{Loan RMM}) * (\text{Issuance Investor Loan UPB}))}{\sum_{\text{Loan (1)}}^{\text{Loan (N)}} \text{Issuance Investor Loan UPB}}$ <p><b>OR</b></p> <p><b>WA Remaining Maturity = (Sum ((Loan RMM) * (Issuance Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>



## Stratification Variables

- Loan-To-Value (LTV) Not Available
- CLTV Not Available
- Debt-To-Income (DTI) Not Available
- Days Delinquent
- Number of Borrowers
- First Time Home Buyer
- Loan Purpose
- Number of Units
- Property Type
- Not Paying Principal in First Distribution
- Property State
- Seller Name
- Servicer Name
- Mortgage Insurance Coverage
- Mortgage Insurance Cancellation
- Government Insured/Guarantee
- Origination Year
- Origination Channel
- Modification Program
- Modification Type
- Modification Information
- Number of Modifications
- Deferred Unpaid Principal Balance
- Estimated LTV Not Available
- Updated Credit Score Not Available
- Number of Remaining Steps
- Number of Steps - At Modification
- Next Step Rate Adjustment Date
- Origination LTV Not Available
- Origination CLTV Not Available
- Origination DTI Not Available
- Origination Credit Score Not Available
- Origination Loan Purpose
- Origination Occupancy Status
- Collateral List

## Modified Fixed Rate PC and Modified Step Rate PC Inception Disclosure Calculations

<b>For each Stratification Variable: Aggregate Loan Count</b>	Number of Stratification Variable Loans OR Count (Stratification Variable Loans)
<b>For each Stratification Variable: Percentage Loan Count</b>	$\frac{\text{Number of Stratification Variable Loans}}{\text{Total Number of Loans in Pool}} \text{ OR } (\text{Count (Stratification Variable Loans)} / (\text{Count Loans in Pool}))$ <p><b>OR</b> <math>(\text{Count (Stratification Variable Loans)} / (\text{Count (Loans in Pool)}))</math></p> <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>
<b>For each Stratification Variable: Aggregate Investor Loan UPB</b>	(Sum (Stratification Variable Loan Investor UPB))
<b>For each Stratification Variable: Percentage Investor Loan UPB</b>	$\left( \frac{\sum_{Loan(1)}^{Loan(N)} \text{Stratification Variable Issuance Investor Loan UPB}}{\sum_{Loan(1)}^{Loan(N)} \text{Issuance Investor Loan UPB}} \right) * 100$ <p><b>OR</b> <math>(\text{Sum (Stratification Variable Loan Issuance Investor UPB)} / (\text{Sum (Issuance Investor Loan UPB)}) * 100</math></p> <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>

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Variable Name	Description	Disclosure Calculation				
<b>Origination Credit Score</b>	For repricing, modified fixed-rate and modified step-rate loans, the standardized credit score used to evaluate the borrower during the loan origination process.	<i>If Origination Credit Score is &lt; 300 or &gt; 850, the credit score will be disclosed as "Not Available," which will be indicated by 9999.</i>				
<b>Current Weighted Average Origination Credit Score</b>	For repricing, modified fixed-rate and modified step-rate loans, the weighted average standardized credit score used to evaluate the borrower during the loan origination process.	<p><b>WA Origination Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ Credit\ Score) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Origination Credit Score =</b> (Sum ((Origination Credit Score) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</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 WA Origination Credit Score calculation.</li> </ul>				
<b>Updated Credit Score</b>	For reinstated, repricing, modified fixed-rate and modified step-rate loans, the most recently available standardized credit score provided at the time of issuance.	<i>If Updated Credit Score is &lt; 300 or &gt; 850, the Updated Credit Score will be disclosed as "Not Available," which will be indicated by 9999.</i>				
<b>Current Weighted Average Updated Credit Score</b>	For reinstated, repricing, modified fixed-rate and modified step-rate loans, the weighted average most recently available standardized credit score provided at the time of issuance.	<p><b>Current WA Updated Credit Score =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Updated\ Credit\ Score) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Updated Credit Score =</b> (Sum ((Updated Credit Score) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</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 WA Updated Credit Score calculation.</li> </ul>				
<b>Current Investor Security UPB</b>	The aggregate unpaid principal balance of the loans as they contribute to the current balance of the security.	<p>The Current Investor Security UPB is derived from the mortgage balance as reported by the servicer. The Current Investor Security UPB reflects any scheduled and unscheduled principal reductions applied to the mortgage.</p> <p><i>Note: A loan's Current Investor Security UPB may remain constant from one month to the next for several reasons. Possible reasons are outlined in the chart below:</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Mortgage Type</th> <th style="text-align: left;">Reason</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;"><b>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 Investor UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Investor UPB.</p> </td> </tr> </tbody> </table>	Mortgage Type	Reason	<b>Fixed-Rate Mortgages</b>	<p><b>Balance Corrections:</b></p> <p>Mortgages can experience upward balance corrections. When these corrections occur, the Current Investor UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Investor UPB.</p>
Mortgage Type	Reason					
<b>Fixed-Rate Mortgages</b>	<p><b>Balance Corrections:</b></p> <p>Mortgages can experience upward balance corrections. When these corrections occur, the Current Investor UPB contributing to the Current Pool UPB will remain constant until the collected borrower's mortgage balance is lower than the Current Investor UPB.</p>					

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Current Loan Age</b>	The number of scheduled payments from the time the loan was originated or modified up to and including the current reporting period.	<p><b>Current Loan Age =</b> ((Current Security Factor Date (MM/YY) – First Payment Date (MM/YY)) + 1)</p> <ul style="list-style-type: none"> <li>• <i>Note: To ensure the age measurement commences with the first full month after the note origination month, we add 1.</i></li> <li>• <i>If Loan Age &gt; Loan Term, set to prior month Loan Age + 1</i></li> </ul>
<b>Current Weighted Average Loan Age</b>	The weighted average number of scheduled payments from the time the loans were originated or modified up to and including the current reporting period.	<p><b>Current WA Loan Age =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Age) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Loan Age =</b> (Sum ((Loan Age) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• <i>Round to the nearest integer.</i></li> </ul>
<b>Current Months to Next Step Rate Adjustment Date</b>	For repricing, modified step-rate loans, the number of months from the current month to the next date on which the mortgage interest rate increases.	<p><b>Current Months to Adjust =</b></p> <p>(Loan Next Step Rate Adjustment Date (MM/YY) – Current Security Factor Date (MM/YY))</p> <ul style="list-style-type: none"> <li>• <i>Round to the nearest integer.</i></li> </ul>
<b>Current Weighted Average Months to Next Step Rate Adjustment Date</b>	For repricing, modified step-rate loans, the weighted average number of months from the current month to the next date on which the mortgage interest rate increases.	<p><b>Current WA Months to Next Step Rate Adjustment Date =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Months\ to\ Next\ Step\ Rate\ Adjustment\ Date) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Months to Next Step Rate Adjustment Date =</b> (Sum ((Loan Months to Next Step Rate Adjustment Date) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• <i>Round to the nearest integer.</i></li> </ul>
<b>Origination Combined Loan-to-Value (CLTV)</b>	<p>For repricing, modified fixed-rate and modified step-rate loans, the ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the property.</p> <p><i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><i>The Origination CLTV ratio will be disclosed as “Not Available,” which will be indicated by a 999, if the ratio is &lt;1% or &gt;998%.</i></p>

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Current Weighted Average Origination Combined Loan-to-Value (CLTV)</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio, expressed as a percentage, obtained by dividing the amount of all known outstanding loans at origination by the value of the property.</p> <p><i>Property values reflect either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i></p>	<p><b>Current WA Origination CLTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ CLTV) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Origination CLTV =</b> (Sum ((Origination CLTV Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> <li>• The loan Origination CLTV Ratio is excluded from the WA Origination CLTV calculation if ratio is &lt;1% or &gt;998%</li> </ul>
<b>Debt-to-Income (DTI) Ratio</b>	<p>The ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated or modified.</p>	<p>(Borrower Total Monthly Liabilities Amount / Borrower Total Monthly Income Amount) * 100</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> <li>• The DTI Ratio will be disclosed as "Not Available," indicated by 999, if the ratio is &lt; 0% or &gt; 65%.</li> </ul>
<b>Current Weighted Average Debt-to-Income (DTI) Ratio</b>	<p>The weighted average ratio obtained by dividing the total monthly debt expenses by the total monthly incomes of the borrowers at the time the loans were originated or modified.</p>	<p><b>Current WA DTI =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((DTI\ Ratio) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA DTI =</b> (Sum ((DTI Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> <li>• The loan DTI Ratio is excluded from the WA DTI calculation if &gt; 0% and &lt; 65%.</li> </ul>
<b>Origination Debt-to-Income (DTI) Ratio</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated.</p>	<p>(Borrower Total Monthly Liabilities Amount / Borrower Total Monthly Income Amount) * 100</p> <ul style="list-style-type: none"> <li>• Round to nearest integer</li> <li>• The Origination DTI Ratio will be disclosed as "Not Available," indicated by 999, if the ratio is &lt; 0% or &gt; 65%.</li> </ul>
<b>Current Weighted Average Origination Debt-to-Income (DTI)</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated.</p>	<p><b>Current WA Origination DTI Ratio =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ DTI\ Ratio) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Origination DTI Ratio =</b> (Sum ((Origination DTI Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer</li> <li>• The loan Origination DTI is excluded from the WA DTI calculation if the ratio is &lt; 0% or &gt; 65%.</li> </ul>

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Estimated Loan-to-Value (LTV)</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<p><i>Estimated LTV ratios that are unavailable, below 6% or greater than 300% will be disclosed as "Not Available," which is indicated by 999.</i></p> <ul style="list-style-type: none"> <li>• <i>Truncate at the 2nd decimal and round UP to the higher integer</i></li> </ul>
<b>Current Weighted Average Estimated Loan-to-Value (LTV)</b>	For reinstated, reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio obtained by dividing the outstanding balance of the mortgage loan by the estimated current value of the property obtained by the issuer, at the time of issuance.	<p><b>Current WA Estimated LTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Estimated\ LTV\ Ratio) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Estimated LTV = (Sum ((Loan Estimated LTV Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• <i>Round to the nearest integer.</i></li> <li>• <i>If Estimated LTV ratio is &lt;6% or &gt;300%, the loan is excluded from the WA Estimated LTV calculation.</i></li> </ul>
<b>Origination Loan-to-Value (LTV)</b>	For reperforming, modified fixed-rate and modified step-rate loans, the ratio, expressed as a percentage, obtained by dividing the amount of the loan at origination by the value of the property.  <i>Property value reflects either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i>	<p><b>Purchase:</b></p> <p>Mortgage Loan Amount / (Min (Sales Price, Appraised Value)) * 100</p> <p><b>Refinance:</b></p> <p>Mortgage Loan Amount / Appraised Value * 100</p> <ul style="list-style-type: none"> <li>• <i>Truncate at the 2nd decimal and round UP to the higher integer</i></li> <li>• <i>LTV ratios that are unavailable, below 1% or greater than 998% will be disclosed as "Not Available," indicated by 999.</i></li> </ul>
<b>Current Weighted Average Origination Loan-to-Value (LTV)</b>	For reperforming, modified fixed-rate and modified step-rate loans, the weighted average ratio, expressed as a percentage, obtained by dividing the amount of the loans at origination by the values of the properties.  <i>Property values reflect either the lesser of the sales price or the appraised property value for a purchase, or the appraised property value for a refinance.</i>	<p><b>Current WA Origination LTV =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ LTV\ Ratio) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Origination LTV = (Sum ((Loan LTV Ratio) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• <i>Round to the nearest integer.</i></li> <li>• <i>If the Origination LTV ratio is &lt;1% or &gt;998%, the loan is excluded from the WA Origination LTV calculation.</i></li> </ul>

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Current Average Loan Size</b>	<p>The simple average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.</p> <p><i>For reprerforming, modified fixed-rate and modified step-rate loans, this value represents both the interest bearing and non-interest bearing amount.</i></p>	<p><b>Current Average Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000)}{\text{Total Number of Loans in the Pool}}$ <p><b>OR</b></p> <p><b>Current Average Mortgage Loan Amount =</b> (Sum (Mortgage Loan Amount rounded to nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If the Mortgage Loan Amount is invalid, the loan is excluded from the Average Loan Size calculation.</li> </ul>
<b>Current Weighted Average Loan Size</b>	<p>The weighted average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.</p> <p><i>For reprerforming, modified fixed-rate and modified step-rate loans, this value represents both the interest bearing and non-interest bearing amount.</i></p>	<p><b>Current WA Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Mortgage Loan Amount =</b> (Sum ((Mortgage Loan Amount rounded to the nearest 1000) * (Current Investor Loan UPB))) / (Sum (Issuance Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If the Mortgage Loan Amount is invalid, the loan is excluded from the WA Loan Size calculation.</li> </ul>
<b>Current Average Origination Mortgage Loan Amount</b>	<p>For reprerforming, modified fixed-rate and modified step-rate loans, the simple average dollar amount of the loans in the security as stated on the notes at the time the loans were originated.</p> <p><i>This value represents both the interest bearing and non-interest bearing amount.</i></p>	<p><b>Current Average Origination Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} (Origination\ Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000)}{\text{Total Number of Loans in the Pool}}$ <p><b>OR</b></p> <p><b>Current Average Origination Mortgage Loan Amount =</b> (Sum (Origination Mortgage Loan Amount rounded to nearest 1000)) / (Count (Loans in Pool))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If the Origination Mortgage Loan Amount is invalid, the loan is excluded from the Origination Average Loan Size calculation.</li> </ul>
<b>Current Weighted Average Origination Mortgage Loan Amount</b>	<p>For reprerforming, modified fixed-rate and modified step-rate loans, the weighted average dollar amount of the loans in the security as stated on the notes at the time the loans were originated.</p>	<p><b>Current WA Origination Mortgage Loan Amount =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ Mortgage\ Loan\ Amount\ rounded\ to\ nearest\ 1000) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Origination Mortgage Loan Amount =</b> (Sum ((Origination Mortgage Loan Amount rounded to the nearest 1000) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest thousand.</li> <li>• If the Origination Mortgage Loan Amount is invalid, the loan is excluded from the WA Origination Loan Size calculation.</li> </ul>

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Mortgage Loan Amount</b>	<p>The dollar amount of the loan as stated on the note at the time the loan was originated or modified.</p> <p><i>For reperforming, modified fixed-rate and modified step-rate loans, this value represents both the interest bearing and non-interest bearing amount.</i></p>	<ul style="list-style-type: none"> <li>• Round to the nearest thousand for the life of the loan</li> <li>• If Mortgage Loan Amount &lt; \$500, set to actual value.</li> </ul>
<b>Origination Mortgage Loan Amount</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the dollar amount of the loan in the security as stated on the note at the time the loans were originated or modified.</p>	<ul style="list-style-type: none"> <li>• Round to the nearest thousand for the life of the loan</li> <li>• If Mortgage Loan Amount &lt; \$500, set to actual value.</li> </ul>
<b>Loan Term</b>	<p>The number of months in which regularly scheduled borrower payments are due.</p>	<p><b>Loan Term =</b></p> <p>(Modified Mortgage Maturity Date (MM/YY) – Modified Mortgage First Payment Date (MM/YY) + 1)</p> <ul style="list-style-type: none"> <li>• Cap = Product Term * 12</li> <li>• If calculated Loan Term &lt; 1 or &gt; Cap, set Loan Term to Cap value</li> <li>• If Modified Mortgage First Payment Date and Modified Mortgage Maturity Date are not valid, set Loan Term to Cap value.</li> </ul>
<b>Current Weighted Average Loan Term</b>	<p>The weighted average number of months in which regularly scheduled borrower payments are due.</p>	<p><b>Current WA Loan Term =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Loan\ Term) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>WA Loan Term =</b> (Sum ((Loan Term) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>
<b>Origination Loan Term</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the number of months in which regularly scheduled borrower payments are due as stated on the note at the time the loan was originated.</p>	<p><b>Origination Loan Term=</b> (Origination Maturity Date (MM/YY) – Origination First Payment Date (MM/YY) + 1)</p> <ul style="list-style-type: none"> <li>• Cap = Modified PC Product Term * 12</li> <li>• If calculated Origination Loan Term &lt; 1 set Origination Loan Term to Cap value.</li> <li>• If Origination First Payment Date and Origination Maturity Date are not valid, set Origination Loan Term to Cap value.</li> </ul>
<b>Current Weighted Average Origination Loan Term</b>	<p>For reperforming, modified fixed-rate and modified step-rate loans, the weighted average number of months in which regularly scheduled borrower payments are due as stated on the note at the time the loans were originated.</p>	<p><b>WA Origination Loan Term =</b></p> $\frac{\sum_{Loan(1)}^{Loan(N)} ((Origination\ Loan\ Term) * (Current\ Investor\ Loan\ UPB))}{\sum_{Loan(1)}^{Loan(N)} Current\ Investor\ Loan\ UPB}$ <p><b>OR</b></p> <p><b>Current WA Origination Loan Term =</b> (Sum ((Origination Loan Term) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

Variable Name	Description	Disclosure Calculation
<b>Current Remaining Months to Maturity (RMM)</b>	<p>The number of scheduled monthly payments that will reduce the Current Investor Loan UPB to zero.</p> <p><i>For fixed-rate loans, this value takes into account the impact of any curtailments.</i></p>	<p><b>Current RMM =</b></p> $\frac{-\text{Log}\left(1 - \left(\text{Current Investor Loan UPB} * \left(\frac{\left(\frac{\text{Current Interest Rate}}{1200}\right)}{\text{Loan Principal \& Interest at Origination Payment Amount}}\right)\right)\right)}{\text{Log}\left(1 + \left(\frac{\text{Current Interest Rate}}{1200}\right)\right)}$ <p><b>OR</b></p> <p><b>RMM = - (FUNCTION LOG10 (1- (Current Investor Loan UPB*((Current Interest Rate/1200) / Loan Principal &amp; Interest at Origination Payment Amount))) / FUNCTION LOG10 (1 + (Current Interest Rate/1200)))</b></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 Investor UPB, Note Rate as of PC Issuance, or Monthly P&amp;I Payment are invalid, use Default RMM.</li> </ul>
<b>Current Weighted Average Issuance Remaining Months to Maturity</b>	<p>The weighted average number of scheduled monthly payments that will reduce the Investor Loan UPB to zero, at the time the security was issued.</p> <p><i>For fixed-rate loans, this value takes into account the impact of any curtailments.</i></p>	<p><b>Current WA Remaining Maturity =</b></p> $\frac{\sum_{\text{Loan (1)}}^{\text{Loan (N)}} ((\text{Loan RMM}) * (\text{Current Investor Loan UPB}))}{\sum_{\text{Loan (1)}}^{\text{Loan (N)}} \text{Current Investor Loan UPB}}$ <p><b>OR</b></p> <p><b>Current WA Remaining Maturity = (Sum ((Loan RMM) * (Current Investor Loan UPB))) / (Sum (Current Investor Loan UPB))</b></p> <ul style="list-style-type: none"> <li>• Round to the nearest integer.</li> </ul>



## Stratification Variables

- Loan-To-Value (LTV) Not Available
- CLTV Not Available
- Debt-To-Income (DTI) Not Available
- Days Delinquent
- Number of Borrowers
- First Time Home Buyer
- Loan Purpose
- Number of Units
- Property Type
- Not Paying Principal in First Distribution
- Property State
- Seller Name
- Servicer Name
- Mortgage Insurance Coverage
- Mortgage Insurance Cancellation
- Government Insured/Guarantee
- Origination Year
- Origination Channel
- Modification Program
- Modification Type
- Modification Information
- Number of Modifications
- Deferred Unpaid Principal Balance
- Estimated LTV Not Available
- Updated Credit Score Not Available
- Number of Remaining Steps
- Number of Steps - At Modification
- Next Step Rate Adjustment Date
- Origination LTV Not Available
- Origination CLTV Not Available
- Origination DTI Not Available
- Origination Credit Score Not Available
- Origination Loan Purpose
- Origination Occupancy Status
- Collateral List

## Monthly Modified Fixed Rate PC and Modified Step Rate PC Disclosure Calculations

<b>For each Stratification Variable: Aggregate Loan Count</b>	Number of Stratification Variable Loans OR Count (Stratification Variable Loans)
<b>For each Stratification Variable: Percentage Loan Count</b>	$\frac{\text{Number of Stratification Variable Loans}}{\text{Total Number of Loans in Pool}} \text{ OR } (\text{Count (Stratification Variable Loans)} / (\text{Count Loans in Pool}))$ <p><b>OR</b> (Count (Stratification Variable Loans) / (Count (Loans in Pool)))</p> <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>
<b>For each Stratification Variable: Aggregate Investor Loan UPB</b>	(Sum (Stratification Variable Current Investor Loan UPB))
<b>For each Stratification Variable: Percentage Investor Loan UPB</b>	$\left( \frac{\sum_{Loan(1)}^{Loan(N)} \text{Stratification Variable Current Investor Loan UPB}}{\sum_{Loan(1)}^{Loan(N)} \text{Current Investor Loan UPB}} \right) * 100$ <p><b>OR</b> (Sum (Stratification Variable Loan Current Investor UPB)) / (Sum (Current Investor Loan UPB)) * 100</p> <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>

**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).**

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