PC Disclosure Calculations

Available PC Disclosure Calculations

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

Loan- and pool-level disclosure is available on Freddie Mac's Web site at **www.FreddieMac.com/mbs**.

The following disclosure calculations are divided into two sections:

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

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

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Credit Score	A number, prepared by third parties, summarizing the borrower's creditworthiness, which may be indicative of the likelihood that the borrower will timely repay future obligations.	• *If credit score is < 300 or > 850, the credit score will be disclosed as "Unknown," which will be indicated by a blank space.*
Weighted Average Credit Score	The weighted average, as of the note date, of the borrowers' credit scores for the mortgages in a PC pool. The WA Credit Score consists of known credit scores as of the settlement date of the PC and the first month update after the settlement date may reflect additional known credit scores.	**WA Credit Score =** $\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Credit\ Score) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$ ***OR*** **WA Credit Score =** (Sum ((Credit Score) * (Investor UPB)))/(Sum (Investor UPB)) • *Round to the nearest integer.* • *If credit score is < 300 or > 850, the loan is excluded from the WA Credit Score calculation.*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Updated Credit Score	In the case of a Reinstated Mortgage, the updated credit score is a number prepared by third parties, summarizing the borrower's creditworthiness, which may be indicative of the likelihood that the borrower will timely repay future obligations. For Reinstated Mortgages, a new credit score is collected, as of PC Issuance, consistent with the process used to underwrite the Reinstated Mortgages originally.	• *If credit score is < 300 or > 850, the Updated Credit Score will be disclosed as "Unknown," which will be indicated by a blank space.*
Weighted Average Updated Credit Score	In the case of Reinstated PCs, the weighted average of the borrowers' updated credit scores as of the Reinstated Mortgage PC Pool issue date.	**WA Updated Credit Score =** $\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Updated\ Credit\ Score) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$ ***OR*** **WA Updated Credit Score =** (Sum ((Updated Credit Score) * (Investor UPB)))/(Sum (Investor UPB)) • *Round to the nearest integer.* • *If credit score is < 300 or > 850, the loan is excluded from the WA Updated Credit Score calculation.*
Gross Mortgage Margin	For ARMs, the number of percentage points that is added to the current index value to establish the new note rate at each interest rate adjustment date.	
Weighted Average Mortgage Margin	The weighted average of the margins of the mortgages in an ARM PC pool.	**Weighted Average Mortgage Margin =** $\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Gross\ Mortgage\ Margin) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$ ***OR*** **Weighted Average Mortgage Margin =** (Sum ((Gross Mortgage Margin) * (Investor UPB)))/(Sum (Investor UPB)) • *Round to the one-thousandth decimal place.*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Loan Age	The number of months since the note origination month of the mortgage.	**Loan Age =** ((As of Date (MM/YY) – Loan Origination Date (MM/YY)) – 1) • *Note: To ensure the age measurement commences with the first full month after the note origination month, we subtract 1.* • *Cap = (Product Term * 12) – Remaining Months to Maturity + 2* • *If Loan Origination Date is not valid or is null, set the loan age to Cap value.* • *If loan age > Cap, set the loan age to Cap value.* • *If loan age < 0, set loan age to 0.*
Weighted Average Loan Age	The weighted average of the number of months since the note origination month of the mortgages in a PC pool.	**WA Loan Age =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)}((Loan\ Age)*(Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA Loan Age =** (Sum ((Loan Age) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the nearest integer.*
Maximum Lifetime Rate	For ARMs, the maximum note rate of an ARM over the life of the loan.	
Weighted Average Mortgage Life Ceiling (Gross)	The weighted average of the lifetime ceilings of the mortgages in an ARM PC pool.	**Weighted Average Mortgage Life Ceiling (Gross) =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)}((Maximum\ Lifetime\ Rate)*(Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **Weighted Average Mortgage Life Ceiling (Gross) =** (Sum ((Maximum Lifetime Rate) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the one-thousandth decimal place.*
Months to Adjust	The number of months from PC pool issuance to the next date on which the mortgage note rate adjusts.	**Months to Adjust =** (Loan Next Adjustment Date (MM/YY) - As of Date (MM/YY))

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Weighted Average Months to Adjust	For ARM PCs only, the weighted average of the number of months from pool formation to the next date on which the PC coupon adjusts.	**WA Months to Adjust =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Months\ to\ Adjust + 1) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA Months to Adjust =** (Sum ((Loan Months to Adjust + 1) * (Investor UPB))) / (Sum (Investor UPB)) • *Truncate at the one-hundredth decimal place.*
Months to Amortize	For Initial Interest℠ mortgages only, the number of months from PC pool issuance to the first scheduled Principal & Interest (P&I) payment date of the mortgage.	**Months to Amortize =** (Loan Initial Interest First P&I Payment Date (MM/YY) - As of Date (MM/YY)) • *If calculated Months to Amortize < 0, set Months to Amortize to 0.*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Weighted Average Months to Amortize	For Initial Interest PCs only, the weighted average number of months from pool formation to the First P&I Payment Date of the mortgages in the PC, adjusted by adding one month (for ARM PCs only) to reflect the timing of the corresponding PC First P&I Payment Date.	**WA Months to Amortize =** **Fixed-rate Initial Interest PCs:** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Months\ to\ Amortize) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA Months to Amortize =** (Sum ((Months to Amortize) * (Investor UPB))) / (Sum (Investor UPB)) • *Truncate at the one-hundredth decimal place.* **Adjustable-rate Mortgage (ARM) Initial Interest PCs:** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ Initial\ Interest\ First\ P\&I\ Payment\ Date(MM/YY) - As\ of\ Date(MM/YY) + 1 * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA Months to Amortize = (**Sum ((Loan Initial Interest First P&I Payment Date (MM/YY) – As of Date (MM/YY) + 1) * (Investor UPB))) / (Sum (Investor UPB)) • *Truncate at the one-hundredth decimal place.* • *If (Loan Initial Interest First P I Payment Date (MM/YY) – As of Date (MM/YY) + 1) < 0, set (Loan Initial Interest First P&I Payment Date (MM/YY) – As of Date (MM/YY) + 1) to 0.*
Net Maximum Lifetime Rate	The maximum lifetime rate of a mortgage after the applicable servicing fee and guarantee fee have been subtracted.	**Net Maximum Lifetime Rate =** Maximum Lifetime Rate – all applicable fees

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Weighted Average Mortgage Life Ceiling (Net)	The weighted average of the lifetime ceilings of the mortgages in an ARM PC pool, net of applicable fees.	**Weighted Average Mortgage Life Ceiling (Net) =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Net\ Maximum\ Lifetime\ Rate) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **Weighted Average Mortgage Life Ceiling (Net)** = (Sum ((Net Maximum Lifetime Rate) * (Investor UPB))) / (Sum (Investor UPB)) • *Truncate at the one-thousandth decimal place.*
Net Mortgage Margin	The mortgage margin, after the applicable servicing fee and guarantee fee have been subtracted.	**Net Mortgage Margin =** Gross Mortgage Margin – all applicable fees
PC Margin	The weighted average of the margins of the mortgages in an ARM PC pool, net of applicable fees.	**PC Margin =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Net\ Mortgage\ Margin) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **PC Margin =** (Sum ((Net Mortgage Margin) * (Investor UPB))) / (Sum (Investor UPB)) • *Truncate at the one-thousandth decimal place.*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Combined Loan-to-Value (CLTV)	In the case of a purchase mortgage loan, the ratio is obtained by dividing the mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the lesser of the mortgaged property's appraised value on the note date or its purchase price. In the case of a refinance mortgage loan, the ratio is obtained by dividing the mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the mortgaged property's appraised value on the note date. If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the Combined LTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the Combined LTV calculation. This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts and will not be updated.	• *If any one of the following criteria is met, the CLTV ratio will be disclosed as "Unknown," which will be indicated by a blank space.* - *Mortgage loans backing a High LTV >105% and ≤125% Gold PC: CLTV ratio is <6% or >155%* - *Mortgage loans backing High LTV > 125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: CLTV ratio is <6% or >135%* - *The CLTV ratio is < the loan LTV ratio* - *The LTV ratio is "Unknown"*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Weighted Average Combined Loan-to-Value (CLTV)	The weighted average of the ratios between each mortgage's UPB as of the note date plus any secondary mortgage loan amount disclosed by the Seller and either (1) in the case of a purchase, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date. If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the mortgage Combined LTV ratio used in the PC WA Combined LTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the mortgage Combined LTV calculation and subsequently in the PC WA Combined LTV calculation. This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts.	**WA CLTV =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ CLTV\ Ratio) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA CTLV =** (Sum((Loan CLTV Ratio) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the nearest integer.* • *If any one of the following criteria is met, the loan is excluded from the WA CLTV calculation.* *Mortgage loans backing a High LTV >105% and ≤125% Gold PC: CLTV ratio is <6% or >155%* - *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: CLTV ratio is <6% or >135%* - *The loan CLTV ratio is < the loan LTV ratio.* - *The LTV ratio is "Unknown."*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Debt-to-Income (DTI) Ratio	Disclosure of the debt to income ratio is based on (1) the sum of the borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the borrower is making at the time of the delivery of the mortgage loan to Freddie Mac, divided by (2) the total monthly income used to underwrite the borrower as of the date of the origination of the mortgage loan. The debt to income ratio will not be updated. This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities	• *If any one of the following criteria is met, the DTI Ratio will be disclosed as "Unknown," which will be indicated by a blank space.* - *The loan DTI ratio falls outside the range of > 0% and <= 65%.* - *The loan's reported Monthly Income is <= $100.* - *The loan's reported Monthly Income or reported Monthly Debt is >= $99,999.* - *The loan's reported Monthly Debt is < the loan's Monthly P&I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.*
Weighted Average Debt-to-Income (DTI)	The weighted average of the ratios between each mortgage's (1) sum of the Borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the Borrower is making at the time of the delivery of the mortgage loan to Freddie Mac and (2) the total monthly income used to underwrite the Borrower as of the date of the origination of the mortgage loan. This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities.	**WA DTI =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ DTI\ Ratio) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA DTI =** (Sum ((Loan DTI Ratio) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the nearest integer* • *If any one of the following criteria is met, the loan is excluded from the WA DTI calculation.* - *The loan DTI ratio falls outside the range of > 0% and < = 65%.* - *The loan's Monthly Income is < = $100.* - *The loan's reported Monthly Income or reported Monthly Debt is >= $99,999.* - *The loan's Monthly Debt is < the loan's Monthly P&I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Loan-to-Value (LTV)	In the case of a purchase mortgage loan, the ratio obtained by dividing the mortgage loan amount on the note date by the lesser of the mortgaged property's appraised value on the note date or its purchase price. In the case of a refinance mortgage loan, the ratio obtained by dividing the mortgage loan amount on the note date and the mortgage property's appraised value on the note date. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.	• If any one of the following criteria is met, the LTV ratio will be disclosed as "Unknown," which will be indicated by a blank space. - *FHA/VA loans: LTV ratio is <6% or >110%* - *Mortgage loans backing a High LTV >105% and ≤125% Gold PC: LTV ratio is <6% or >125%* - *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: LTV ratio is <6% or >105%*
Weighted Average Loan-to-Value (LTV)	The weighted average of the ratios between each mortgage's UPB as of the note date and either (1) in the case of a purchase mortgage loan, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.	**WA LTV =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ LTV\ Ratio) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA LTV =** (Sum ((Loan LTV Ratio) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the nearest integer.* • *If any one of the following criteria is met, the loan is excluded from the WA LTV calculation.* - *FHA/VA loans: LTV ratio is <6% or >110%* - *Mortgage loans backing a High LTV >105% and ≤125% Gold PC: LTV ratio is <6% or >125%* - *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: LTV ratio is <6% or >105%*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Estimated Loan-to-Value (LTV)	In the case of Reinstated Mortgages, the ratio obtained by dividing the outstanding balance of the mortgage loan at the time of PC issuance by the value of the property obtained through our proprietary automated valuation model. Although we believe that our automated valuation model yields a reasonable approximation of the property's current value, using a value obtained from: (i) a different automated valuation model, (ii) an appraisal based on a physical inspection of the property or (iii) an arm's length sale of the property could result in a different value for the property.	• *Estimated LTV ratios that are unavailable, below 6% or greater than 300% will be disclosed as "Unknown," which is indicated by a blank space.*
Weighted Average Estimated Loan-to-Value (LTV)	In the case of Reinstated PCs, the weighted average of the borrowers' estimated LTV ratios obtained by dividing the outstanding balance of the mortgage loan at the time of PC issuance by the value of the property obtained through our proprietary automated valuation model.	**WA Estimated LTV=** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ Estimated\ LTV\ Ratio) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA Estimated LTV =** (Sum ((Loan Estimated LTV Ratio) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the nearest integer.* • *If Estimated LTV ratio is <6% or >300%, the loan is excluded from the WA Estimated LTV calculation.*
Mortgage Loan Amount	The UPB of the mortgage on the note date. For seller-owned modified mortgages, modified mortgages, converted mortgages, and construction-to-permanent mortgages, the UPB of the mortgage as of the note modification, conversion, or construction to permanent date of the mortgage.	

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Average Loan Size	The simple average of the UPBs as of the note date of the mortgages in a PC pool.	**Average Loan Size =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} (Mortgage\ Loan\ Amount\ rounded\ to\ the\ nearest\ 1000)}{\text{Total Number of Loans in Pool}}$$ ***OR*** **Average Loan Size =** (Sum (Mortgage Loan Amount rounded to the nearest 1000)) / (Count (Loans in Pool)) • *Round to the nearest dollar.* • *If Mortgage Loan Amount is invalid, the loan is excluded from the Average Loan Size calculation.*
Weighted Average Loan Size	The weighted average of the UPBs, as of the note date, of the mortgages in a PC pool.	**WA Loan Size =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Mortgage\ Loan\ Amount\ rounded\ to\ the\ nearest\ 1000) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA Loan Size =** (Sum ((Mortgage Loan Amount rounded to the nearest 1000) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the nearest dollar.* • *If Mortgage Loan Amount is invalid, the loan is excluded from the WA Loan Size calculation.*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Loan Term	For fixed-rate (excluding balloon/reset mortgages), adjustable-rate, and Initial Interest mortgages, the number of scheduled monthly payments of the mortgage, between the first payment date and the maturity date of the mortgage. For balloon/reset mortgages, the number of scheduled monthly payments of the mortgage, based on the note rate, P&I amount, and Mortgage Loan amount of the mortgage.	**Fixed-Rate (excluding Balloon/Reset), Adjustable-Rate, and Initial Interest Mortgages:** **Loan Term=** (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY) + 1) • *Cap = Product Term * 12* • *If calculated Loan Term < 1 or > Cap, set Loan Term to Cap value* • *If Loan First Payment Date and Loan Maturity Date are not valid, set Loan Term to Cap value.* **Balloon/Reset Mortgages:** **Loan Term=** $$\frac{-\operatorname{Log}\left(1-\left(\text{Investor UPB}*\left(\frac{\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)}{\text{Monthly P\&I Payment}}\right)\right)\right)}{\operatorname{Log}\left(1+\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)\right)}$$ ***OR*** **Loan Term =** -(FUNCTION LOG10 (1 – (Mortgage Loan Amount * ((Note Rate as of PC Issuance/1200) / Monthly P&I Payment)))) / FUNCTION LOG10 (1 + (Note Rate as of PC Issuance/1200)) • *Round to the nearest integer.* • *Cap = Amortization Term * 12* • *If Mortgage Loan Amount, Note Rate as of PC Issuance, or Monthly P&I Payment are invalid, set Loan Term to Cap value.*
Weighted Average Loan Term	The weighted average of the number of scheduled monthly payments of the mortgages in a PC pool.	**WA Loan Term =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)}((Loan\ Term)*(Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)}Investor\ UPB}$$ **OR** **WA Loan Term =** (Sum ((Loan Term) * (Investor UPB))) / (Sum (Investor UPB)) • *Round to the nearest integer.*
Investor UPB	The UPB of the mortgage contributing to the issuance UPB of a PC pool.	
Issuance Pool UPB	The aggregate UPB of the mortgages in a PC pool, as of PC issuance.	**Issuance Pool UPB =** $$\sum_{Loan\,(1)}^{Loan\,(N)}Investor\ UPB$$ ***OR*** **Issuance Pool UPB =** (Sum (Investor UPB))

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Remaining Months to Maturity (RMM)	For fixed-rate mortgages, including Initial Interest mortgages that have reached the Initial Interest first P&I payment date, the number of scheduled monthly payments that, after giving effect to partial unscheduled principal payments, remain on the mortgage.	**Fixed-rate (non-Initial Interest Mortgages)** **RMM =** $$\frac{-\operatorname{Log}\left(1-\left(\text{Investor UPB}*\left(\frac{\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)}{\text{Monthly P\&I Payment}}\right)\right)\right)}{\operatorname{Log}\left(1+\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)\right)}$$ ***OR*** **RMM =** - (FUNCTION LOG10 (1- (Investor UPB*((Note Rate as of PC Issuance/1200)/Monthly P&I Payment))) / FUNCTION LOG10 (1 + (Note Rate as of PC Issuance/1200)) • *Round to the nearest integer.* • *Default RMM = Pool Maturity Date (MM/YY) – As of Date (MM/YY)* • *If Default RMM > Product Term * 12, use Product Term * 12 as Default RMM.* • *RMM Cap = Default RMM + 2 months.* • *If RMM Cap > Product Term * 12, use Product Term * 12 as RMM Cap.* • *If RMM > RMM Cap, set RMM to Cap value.* • *If Investor UPB, Note Rate as of PC Issuance, or Monthly P&I Payment are invalid, use Default RMM.*
	For ARMs and Initial Interest mortgages during the initial period, the RMM reflects the number of scheduled monthly payments remaining on the mortgage.	**Adjustable-rate Mortgages (ARMs) and Initial Interest Mortgages:** **RMM =** If Loan First Payment Date > As of Date, use the following calculation: (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1 Otherwise, use: (Loan Maturity Date (MM/YY) – As of Date (MM/YY)) • *Default RMM = Pool Maturity Date (MM/YY) – As of Date (MM/YY)* • *If Default RMM > Product Term * 12, use Product Term * 12 as Default RMM* • *RMM Cap = Default RMM + 2 months* • *If RMM Cap > Product Term * 12, use Product Term * 12 as RMM Cap* • *If RMM > RMM Cap, set RMM to Cap value* • *For fixed-rate Initial Interest mortgages: If Loan Initial Interest First P&I Payment Date <= As of Date, use the fixed-rate (non-Initial Interest mortgage) calculation above.*
	For balloon/reset mortgages, the RMM reflects the remaining number of months to the mortgage balloon maturity or reset date.	**Balloon Mortgages:** **RMM =** If Loan First Payment Date > As of Date, use the following calculation: (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1 Otherwise, use: (Loan Maturity Date (MM/YY) – As of Date (MM/YY)) • *Default RMM = Pool Maturity Date (MM/YY) – As of Date (MM/YY)* • *If Default RMM > Product Balloon Term * 12, use Product Balloon Term * 12 as Default RMM* • *RMM Cap = Default RMM* • *If RMM > RMM Cap, set RMM to cap value.*

PC Inception Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Weighted Average Remaining Maturity	For fully-amortizing Gold PCs, the weighted average of the number of scheduled monthly payments that, after giving effect to full and partial unscheduled principal payments, remain on the mortgages in a PC pool. For ARM PCs and Initial Interest PCs during the initial interest period, the weighted average of the current number of scheduled monthly payments which remain on the mortgages in a PC pool. For PC pools backed by balloon/reset mortgages, the WA Remaining Maturity reflect the Weighted Average Term to Balloon, which is the weighted average remaining number of months to the balloon maturity or reset date of the mortgages.	**WA Remaining Maturity =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ RMM) * (Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Investor\ UPB}$$ ***OR*** **WA Remaining Maturity =** (Sum ((Loan RMM) * (Investor UPB)))/ (Sum (Investor UPB)) • *Round to the nearest integer.*

Breakout Variables

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

PC Inception Disclosure Calculations

For each Breakout Variable: # of Loans	Number of Breakout Variable Loans *OR* Count (Breakout Variable Loans)
For each Breakout Variable: % of Loans	Number of Breakout Variable Loans / Total Number of Loans in Pool *OR* (Count (Breakout Variable Loans))/ (Count Loans in Pool) *OR* (Count (Breakout Variable Loans)) / (Count (Loans in Pool)) • *Round to the one-hundredth decimal place.* • *Note: The sum of the % of loans for the mortgages within a PC may not add up to 100.00% due to rounding.*
For each Breakout Variable: % of UPB	$$\left(\frac{\sum_{Loan\,(1)}^{Loan\,(N)} \text{Breakout Variable Investor UPB}}{\sum_{Loan\,(1)}^{Loan\,(N)} \text{Investor UPB}}\right) * 100$$ *OR* (Sum (Breakout Variable Loan Investor UPB)) / (Sum (Investor UPB)) * 100 • *Round to the one-hundredth decimal place.* • *Note: The sum of the % of UPB for the mortgages within a PC may not add up to 100.00% due to rounding.*

PC Inception Disclosure Calculations

Borrower Payment History Prior to PC Issue Date	For Reinstated Mortgage PCs, Borrower Payment History may not add up to 100% of the Issuance Pool UPB for a given month as a result of the varying Loan Ages of the underlying mortgages. A seasoned loan will be included in the table as of the time of purchase of the loan by Freddie Mac.
CLTV Unknown	Loan CLTV considered "Unknown" if: • *Mortgage Loans backing a High LTV > 105% and ≤ 125% Gold PC: CLTV is < 6% or > 155%* • *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* • *All other loans:* CLTV is < 6% or > 135% • *CLTV is < LTV* • *LTV is "Unknown"*
Credit Score Unknown	Credit Score considered "Unknown" if: • *Credit score is unavailable or* • *Credit Score value is < 300 or > 850*
Updated Credit Score Unknown	For Reinstated Mortgage PCs: Updated Credit Score considered "Unknown" if: • *Updated Credit Score is unavailable or* • *Updated Credit Score < 300 or > 850*
DTI Unknown	Loan DTI considered "Unknown" if: • *DTI falls outside the range of > 0% and < = 65%* • *Monthly Income is < = $100* • *The loan's reported Monthly Income or reported Monthly Debt is >= $99,999* • *Monthly Debt is < Monthly P&I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.*
Estimated LTV Unknown	For Reinstated Mortgage PCs: Estimated LTV considered "Unknown" if: • Estimated LTV is unavailable or • Estimated LTV < 6% or > 300%
First Payment Distribution	Loan is "Not Paying" in First Distribution if: • *Loan First Payment Date > (As of Date + 1 month)* • *If Loan First Payment Date is not valid or is null, use the Note Origination Date (MM/YY) + 2* • *If Loan First Payment Date (MM/YY) – Note Origination Date (MM/YY) >, use the Note Origination Date (MM/YY) + 2*
Initial Interest First P&I Payment	For Initial Interest Fixed Rate PCs: • *The PC Initial Interest First P&I Payment Date = Loan Initial Interest First P&I Payment Date* For Initial Interest ARM PCs: • *The PC Initial Interest First P&I Payment Date = Loan Initial Interest First P&I Payment Date + 1 month*
LTV Unknown	Loan LTV considered "Unknown" if: • *FHA/VA loans: LTV is < 6% or > 110%* • *Mortgage loans backing a High LTV > 105% and ≤ 125% Gold PC: LTV is < 6% or > 125%* • *Mortgage loans backing High LTV > 125% Gold PC: CLTV ratio is < 6% or > 999%* • *All other loans: LTV is < 6% or > 105%*
Mortgage Insurance (MI) Unknown	Loan MI considered "Unknown" if: • *MI percentage is > 55%*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Credit Score	A number, prepared by third parties, summarizing the borrower's creditworthiness, which may be indicative of the likelihood that the borrower will timely repay future obligations. All known credit scores are disclosed at PC issuance. Mortgages reported with unknown credit scores at the time of PC issuance may have credit scores disclosed in the month following PC issuance.	• *If credit score is < 300 or > 850, the credit score will be disclosed as "Unknown," which will be indicated by a blank space.*
Current Weighted Average Credit Score	The weighted average, as of the note date, of the borrowers' credit scores for the mortgages in a PC pool. The WA Credit Score consists of known credit scores as of the settlement date of the PC and the first month update after the settlement date may reflect additional known credit scores.	**Current WA Credit Score =** $$\frac{\sum_{Loan\ (1)}^{Loan\ (N)} ((Credit\ Score) * (Current\ Investor\ UPB))}{\sum_{Loan\ (1)}^{Loan\ (N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Credit Score =** (Sum ((Credit Score) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Round to the nearest integer.* • *If credit score is < 300 or > 850, the loan is excluded from the Current WA Credit Score calculation.*
Updated Credit Score	In the case of a Reinstated Mortgage, the updated credit score is a number prepared by third parties, summarizing the borrower's creditworthiness, which may be indicative of the likelihood that the borrower will timely repay future obligations. For Reinstated Mortgages, a new credit score is collected, as of PC issuance, consistent with the process used to underwrite the Reinstated Mortgages originally.	• *If credit score is < 300 or > 850, the Updated Credit Score will be disclosed as "Unknown," which will be indicated by a blank space.*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Weighted Average Updated Credit Score	In the case of Reinstated PCs, the weighted average of the borrowers' updated credit scores as of the Reinstated Mortgage PC Pool issue date.	**Current WA Updated Credit Score =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Updated\ Credit\ Score) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Updated Credit Score =** (Sum ((Updated Credit Score) * (Current Investor UPB)))/(Sum (Current Investor UPB)) • *Round to the nearest integer.* • *If credit score is < 300 or > 850, the loan is excluded from the Current WA Updated Credit calculation.*
Current Investor UPB	The UPB of the mortgage contributing to the current UPB of a PC pool.	**Fixed-rate (non-Initial Interest) Mortgages:** 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. **Adjustable-rate Mortgages (ARMs) and Initial Interest Mortgages:** 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. • *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:*
Current Pool UPB	The aggregate UPB of the mortgages in a PC pool.	**Current Pool UPB =** $$\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB$$ ***OR*** **Current Pool UPB =** (Sum (Current Investor UPB))

Mortgage Type	Reason
ARM and Fixed-Rate Mortgages	**Balance Corrections:** 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. **Paid-in-advance:** Mortgages that are paid-in-advance may have a constant Current Investor UPB until the current date is later than the due date of the mortgage's last paid installment.
ARM	**Delinquencies:** 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.

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Loan Age	The number of months since the note origination month of the mortgage.	**Current Loan Age =** **Fixed-rate Mortgages:** ((Current Factor Date (MM/YY) – Loan Origination Date (MM/YY)) – 1) • *Note: To ensure the age measurement commences with the first full month after the note origination month, we subtract 1. To ensure the age measurement accounts for the current month's scheduled amortization, the current factor is used for loans backing fixed-rate Gold PCs.* • *Cap = (Product Term *12) – Remaining Months to Maturity + 2* • *Loan Origination Date (LOD) must be valid. If LOD is not valid or is null, set the loan age to Cap value.* • *If loan age > Cap, set the loan age to Cap value.* • *If loan age < 0, set loan age to 0.* **Adjustable-rate Mortgages (ARMs):** ((Prior Factor Date (MM/YY) – Loan Origination Date (MM/YY)) – 1) • *Note: To ensure the age measurement commences with the first full month after the note origination month, we subtract 1.* • *Cap = (Product Term *12) – Remaining Months to Maturity + 2* • *If Loan Origination Date is not valid or is null, set the loan age to Cap value.* • *If loan age > Cap, set the loan age to Cap value.* • *If loan age < 0, set loan age to 0.*
Current Weighted Average Loan Age	The weighted average of the number of months since the note origination month of the mortgages in a PC pool.	**Current WA Loan Age =** $$\frac{\sum_{Loan\ (1)}^{Loan\ (N)} ((Loan\ Age) * (Current\ Investor\ UPB))}{\sum_{Loan\ (1)}^{Loan\ (N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Loan Age =** (Sum ((Loan Age) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Round to the nearest integer.*
Current Months to Adjust	For ARMs, the number of months from the first day of the current month to the next date on which the mortgage note rate adjusts.	**Current Months to Adjust =** (Loan Next Adjustment Date (MM/YY) – Current Factor Date (MM/YY))
Current Weighted Average Months to Adjust	For ARM PCs only, the weighted average of the number of months from the first day of the current month until the next date on which the PC coupon adjusts.	**Current WA Months to Adjust =** $$\frac{\sum_{Loan\ (1)}^{Loan\ (N)} ((Months\ to\ Adjust + 1) * (Current\ Investor\ UPB))}{\sum_{Loan\ (1)}^{Loan\ (N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Months to Adjust** = (Sum ((Loan Months to Adjust + 1) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Truncate at the one-hundredth decimal place.*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Months to Amortize	For Initial Interest[SM] mortgages only, the number of months from the first day of the current month to the first scheduled Principal & Interest (P&I) date of the mortgage.	**Current Months to Amortize =** (Loan Initial Interest First P&I Payment Date (MM/YY) – Current Factor Date (MM/YY)) • *If calculated Months to Amortize < 0, set Months to Amortize to 0.*
Current Weighted Average Months to Amortize	For Initial Interest PCs only, the weighted average number of months from the first day of the current month to First P&I Payment Date of the mortgages in the PC, adjusted by adding one month (for ARM PCs only) to reflect the timing of the corresponding PC First P&I Payment Date.	**Current WA Months to Amortize =** **Fixed-rate Initial Interest PCs:** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Months\ to\ Amortize + 1) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Months to Amortize =** (Sum ((Months to Amortize) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Truncate at the one-hundredth decimal place.* **Adjustable-rate Mortgage (ARM) Initial Interest PCs:** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ Initial\ Interest\ First\ P\&I\ Payment\ Date(MM/YY) - Current\ Factor\ Date(MM/YY) + 1) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Months to Amortize =** (Sum (Loan Initial Interest First P&I Payment Date (MM/YY) – Current Factor Date (MM/YY) + 1) * (Current Investor UPB)) / (Sum (Current Investor UPB)) • *Truncate at the one-hundredth decimal place.* • *If (Loan Initial Interest First P&I Payment Date (MM/YY) – Current Factor Date (MM/YY) + 1) < 0, set (Loan Initial Interest First P&I Payment Date (MM/YY) – Current Factor (MM/YY) + 1) to 0.*
Net Maximum Lifetime Rate	For ARMs, the maximum lifetime rate of a mortgage after the applicable servicing fee and guarantee fee have been subtracted.	**Net Maximum Lifetime Rate =** Maximum Lifetime Rate – all applicable fees

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Weighted Average Mortgage Life Ceiling (Net)	The weighted average of the lifetime ceilings of the mortgages in an ARM PC pool, net of applicable fees.	**Current WA Mortgage Life Ceiling (Net) =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)}((Net\ Maximum\ Lifetime\ Rate) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Mortgage Life Ceiling (Net) =** (Sum ((Net Maximum Lifetime Rate) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Truncate at the one-thousandth decimal place.*
Net Mortgage Margin	The mortgage margin, after the applicable servicing fee and guarantee fee have been subtracted.	**Net Mortgage Margin =** Gross Mortgage Margin – all applicable fees
Current PC Margin	The weighted average of the margins of the mortgages in an ARM PC pool, net of applicable fees.	**Current PC Margin =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)}((Net\ Mortgage\ Margin) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current PC Margin =** (Sum ((Net Mortgage Margin) * (Current Investor UPB)))/ (Sum (Current Investor UPB)) • *Truncate at the one-thousandth decimal place.*

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Combined Loan-to-Value (CLTV)	In the case of a purchase mortgage loan, the ratio is obtained by dividing the mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the lesser of the mortgaged property's appraised value on the note date or its purchase price. In the case of a refinance mortgage loan, the ratio is obtained by dividing the mortgage loan amount on the note date plus any secondary mortgage loan amount disclosed by the Seller by the mortgaged property's appraised value on the note date. If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the Combined LTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the Combined LTV calculation. This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts and will not be updated.	• *If any one of the following criteria is met, the CLTV ratio will be disclosed as "Unknown," which will be indicated by a blank space.* - *Mortgage loans backing a High LTV > 105% and ≤ 125% Gold PC: CLTV ratio is < 6% or > 155%* - *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: CLTV ratio is < 6% or > 135%* - *The CLTV ratio is < the loan LTV ratio.* - *The LTV ratio is "Unknown".*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Weighted Average Combined Loan-to-Value (CLTV)	The weighted average of the ratios between each mortgage's UPB as of the note date plus any secondary mortgage loan amount disclosed by the Seller and either (1) in the case of a purchase, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date. If the secondary financing amount disclosed by the Seller includes a home equity line of credit, then the mortgage Combined LTV ratio used in the PC WA Combined LTV calculation reflects the disbursed amount at closing of the first lien mortgage loan, not the maximum loan amount available under the home equity line of credit. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the mortgage Combined LTV calculation and subsequently in the PC WA Combined LTV calculation. This disclosure is subject to the widely varying standards originators use to verify Borrowers' secondary mortgage loan amounts.	**Current WA CLTV =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ CLTV) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA CTLV =** (Sum ((Loan CLTV Ratio) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Round to the nearest integer.* • *If any one of the following criteria is met, the loan is excluded from the Current WA CLTV calculation.* - *Mortgage loans backing a High LTV > 105% and ≤ 125% Gold PC: CLTV ratio is < 6% or > 155%* - *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: CLTV ratio is < 6% or > 135%* - *The loan CLTV ratio is < the loan LTV ratio.* - *The LTV ratio is "Unknown".*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Debt-to-Income (DTI) Ratio	Disclosure of the debt to income ratio is based on (1) the sum of the borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the borrower is making at the time of the delivery of the mortgage loan to Freddie Mac, divided by (2) the total monthly income used to underwrite the borrower as of the date of the origination of the mortgage loan. The debt to income ratio will not be updated. This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities	• *If any one of the following criteria is met, the DTI Ratio will be disclosed as "Unknown," which will be indicated by a blank space.* - *The loan DTI ratio falls outside the range of > 0% and <= 65%.* - *The loan's reported Monthly Income is <= $100.* - *The loan's reported Monthly Income or reported Monthly Debt is >= $99,999.* - *The loan's reported Monthly Debt is < the loan's Monthly P&I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.*
Current Weighted Average Debt-to-Income (DTI))	The weighted average of the ratios between each mortgage's (1) sum of the Borrower's monthly debt payments, including monthly housing expenses that incorporate the mortgage payment the Borrower is making at the time of the delivery of the mortgage loan to Freddie Mac and (2) the total monthly income used to underwrite the Borrower as of the date of the origination of the mortgage loan. This disclosure is subject to the widely varying standards originators use to verify Borrowers' assets and liabilities.	**Current WA DTI =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ DTI\ Ratio) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA DTI =** (Sum ((Loan DTI Ratio) * (Current Loan UPB))) / (Sum (Current Investor UPB)) • *Round to the nearest integer.* • *If any one of the following criteria is met, the loan is excluded from the Current WA DTI calculation.* - *The loan DTI ratio falls outside the range of > 0% and < = 65%.* - *The loan's Monthly Income is < = $100.* - *The loan's reported Monthly Income or reported Monthly Debt is >= $99,999.* - *The loan's Monthly Debt is < the loan's Monthly P&I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property.*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Loan-to-Value (LTV)	In the case of a purchase mortgage loan, the ratio obtained by dividing the mortgage loan amount on the note date by the lesser of the mortgaged property's appraised value on the note date or its purchase price. In the case of a refinance mortgage loan, the ratio obtained by dividing the mortgage loan amount on the note date and the mortgage property's appraised value on the note date. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.	• *If any one of the following criteria is met, the LTV ratio will be disclosed as "Unknown," which will be indicated by a blank space.* - *FHA/VA loans: LTV ratio is < 6% or > 110%* - *Mortgage loans backing a High LTV > 105% and ≤ 125% Gold PC: LTV ratio is < 6% or > 125%* - *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: LTV ratio is < 6% or > 105%*
Current Weighted Average Loan-to-Value (LTV)	The weighted average of the ratios between each mortgage's UPB as of the note date and either (1) in the case of a purchase mortgage loan, the lesser of the mortgaged property's appraised value on the note date or its purchase price or (2) in the case of a refinance mortgage loan, the mortgaged property's appraised value on the note date. In the case of a seasoned mortgage loan, if the Seller cannot warrant that the value of the mortgaged property has not declined since the note date, Freddie Mac requires that the Seller must provide a new appraisal value, which is used in the LTV calculation.	**Current WA LTV =** $$\frac{\sum_{Loan\ (1)}^{Loan\ (N)} ((Loan\ LTV\ Ratio) * (Current\ Investor\ UPB))}{\sum_{Loan\ (1)}^{Loan\ (N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA LTV =** (Sum ((Loan LTV Ratio) * (Current Investor UPB)))/(Sum (Current Investor UPB)) • *Round to the nearest integer.* • *If any one of the following criteria is met, the loan is excluded from the Current WA LTV calculation.* - *FHA/VA loans: LTV ratio is < 6% or > 110%* - *Mortgage loans backing a High LTV > 105% and ≤ 125% Gold PC: LTV ratio is < 6% or > 125%* - *Mortgage loans backing High LTV >125% Gold PC: CLTV ratio is <6% or >999%* - *All other loans: LTV ratio is < 6% or > 105%*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Weighted Average Estimated Loan-to-Value (LTV)	In the case of Reinstated PCs, the weighted average of the borrowers' estimated LTV ratios obtained by dividing the outstanding balance of the mortgage loan at the time of PC issuance by the value of the property obtained through our proprietary automated valuation model.	**Current WA Estimated LTV=** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ Estimated\ LTV\ Ratio) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Estimated LTV =** (Sum ((Loan Estimated LTV Ratio) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Round to the nearest integer.* • *If Estimated LTV ratio is <6% or >300%, the loan is excluded from the Current WA Estimated LTV calculation.*
Mortgage Loan Amount	The UPB of the mortgage on the note date. For seller-owned modified mortgages, modified mortgages, converted mortgages, and construction-to-permanent mortgages, the UPB of the mortgage as of the note modification, conversion, or construction to permanent date of the mortgage.	
Current Average Loan Size	The simple average of the UPBs as of the note date of the mortgages in a PC pool.	**Current Average Loan Size =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} (Mortgage\ Loan\ Amount\ rounded\ to\ the\ nearest\ 1000)}{\text{Total Number of Loans in Pool}}$$ ***OR*** **Current Average Loan Size =** (Sum (Mortgage Loan Amount rounded to the nearest 1000)) / (Count (Loans in Pool)) • *Round to the nearest dollar.* • *If Mortgage Loan Amount is invalid, the loan is excluded from the Current Average Loan Size calculation.*
Current Weighted Average Loan Size	The weighted average of the UPBs, as of the note date, of the mortgages in a PC pool.	**Current WA Loan Size =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Mortgage\ Loan\ Amount\ rounded\ to\ the\ nearest\ 1000) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Currrent\ Investor\ UPB}$$ ***OR*** **Current WA Loan Size =** (Sum ((Mortgage Loan Amount rounded to the nearest 1000) * (Current Investor UPB)))/(Sum (Current Investor UPB)) • *Round to the nearest dollar.* • *If Mortgage Loan Amount is invalid, the loan is excluded from the Current WA Loan Size calculation.*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Loan Term	For fixed-rate (excluding balloon/reset mortgages), adjustable-rate, and Initial Interest mortgages, the number of scheduled monthly payments of the mortgage, between the first payment date and the maturity date of the mortgage. For balloon/reset mortgages, the number of scheduled monthly payments of the mortgage based on the note rate, P&I amount, and Mortgage Loan Amount of the mortgage.	**Fixed-Rate (excluding Balloon/Reset), Adjustable-Rate, and Initial Interest Mortgages:** **Loan Term=** (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY) + 1) • *Cap = Product Term * 12* • *If calculated Loan Term < 1 or > Cap, set OLT to Cap value.* • *If Loan First Payment Date and Loan Maturity Date are not valid, set Loan Term to Cap value.* **Balloon/Reset Mortgages:** **Loan Term=** $$\frac{-\text{Log}\left(1-\left(\text{Investor UPB}*\left(\frac{\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)}{\text{Monthly P\&I Payment}}\right)\right)\right)}{\text{Log}\left(1+\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)\right)}$$ ***OR*** **Loan Term =** -(FUNCTION LOG10 (1 – (Mortgage Loan Amount * ((Note Rate as of PC Issuance/1200) / Monthly P&I Payment)))) / FUNCTION LOG10 (1 + (Note Rate as of PC Issuance/1200)) • *Round to the nearest integer.* • *Cap = Amortization Term * 12* • *If Mortgage Loan Amount, Note Rate as of PC Issuance, or Monthly P&I Payment are invalid, set Loan Term to Cap value.*
Current Weighted Average Loan Term	The weighted average of the number of scheduled monthly payments of the mortgages in a PC pool.	**Current WA Loan Term =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)}((Loan\ Term)*(Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)}Current\ Investor\ UPB}$$ **OR** **Current WA Loan Term =** (Sum ((Loan Term) * (Current Investor UPB))) / (Sum (Current Investor UPB)) • *Round to the nearest integer.*

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Remaining Months to Maturity (RMM)	For fixed-rate mortgages, including Initial Interest mortgages that have reached the Initial Interest First P&I Payment Date, the number of scheduled monthly payments that, after giving effect to partial unscheduled principal payments, remain on the mortgage.	**Fixed-rate (non-Initial Interest Mortgages)** **Current RMM =** $$\frac{-\operatorname{Log}\left(1-\left(\text{Current Investor UPB}*\left(\frac{\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)}{\text{Monthly P\&I Payment}}\right)\right)\right)}{\operatorname{Log}\left(1+\left(\frac{\text{Note Rate as of PC Issuance}}{1200}\right)\right)}$$ **OR** **Current RMM =** - (FUNCTION LOG10 (1- (Current Investor UPB*((Note Rate as of PC Issuance/1200)/Monthly P&I Payment)))) / FUNCTION LOG10 (1 + (Note Rate as of PC Issuance/1200)) • *Round to the nearest integer.* • *Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)* • *If Default RMM > Product Term * 12, use Product Term * 12 as Default RMM.* • *RMM Cap = Default RMM + 2 months.* • *If RMM Cap > Product Term * 12, use Product Term * 12 as RMM Cap.* • *If RMM > RMM Cap, set RMM to Cap value.* • *If Current Investor UPB, Note Rate as of PC Issuance, or Monthly P&I Payment are invalid, use Default RMM.*
	For ARMs and Initial Interest mortgages during the initial interest period, the RMM reflects the number of scheduled monthly payments remaining on the mortgage.	**Adjustable-rate Mortgages (ARMs) including Initial Interest ARMs:** **Current RMM =** If Loan First Payment Date > Current Factor Date, use the following calculation: (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1 Otherwise, use: (Loan Maturity Date (MM/YY) – Current Factor Date (MM/YY)) • *Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)* • *If Default RMM > Product Term * 12, use Product Term * 12 as Default RMM.* • *RMM Cap = Default RMM + 2 months.* • *If RMM Cap > Product Term * 12, use Product Term * 12 as RMM Cap.* • *If RMM > RMM Cap, set RMM to Cap value.* **Fixed-rate Initial Interest Mortgages:** **Current RMM =** If Loan First Payment Date > Current Factor Date, use the following calculation: (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1 Otherwise, use: (Loan Maturity Date (MM/YY) – Current Factor Date (MM/YY)) • *Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)* • *If Default RMM > Product Term * 12, use Product Term * 12 as Default RMM.* • *RMM Cap = Default RMM + 2 months* • *If RMM Cap > Product Term * 12, use Product Term * 12 as RMM Cap.* • *If RMM > RMM Cap, set RMM to Cap value.* • *If Loan Initial Interest First P&I Payment Date <= Current Factor Date, use the Fixed-rate (non-initial Interest Mortgage) calculation above.*
	For balloon/reset mortgages, the RMM reflects the remaining number of months to the mortgage balloon maturity or reset date.	**Balloon Mortgages:** **Current RMM =** If Loan First Payment Date > Current Factor Date, use the following calculation: (Loan Maturity Date (MM/YY) – Loan First Payment Date (MM/YY)) + 1 Otherwise, use: (Loan Maturity Date (MM/YY) – Current Factor Date (MM/YY)) • *Default RMM = Pool Maturity Date (MM/YY) – Current Factor Date (MM/YY)* • *If Default RMM > Product Balloon Term * 12, use Product Balloon Term * 12 as Default RMM.* • *RMM Cap = Default RMM* • *If RMM > RMM Cap, set RMM to cap value.*

Monthly PC Disclosure Calculations

VARIABLE NAME	DESCRIPTION	DISCLOSURE CALCULATION
Current Weighted Average Remaining Maturity	For fully-amortizing Gold PCs, the weighted average of the number of scheduled monthly payments that, after giving effect to full and partial unscheduled principal payments, remain on the mortgages in a PC pool. For ARM PCs and Initial Interest PCs during the initial interest period, the weighted average of the current number of scheduled monthly payments which remain on the mortgages in a PC pool. For PC pools backed by balloon/reset mortgages, the WA Remaining Maturity reflect the Weighted Average Term to Balloon, which is the weighted average remaining number of months to the balloon maturity or reset date of the mortgages.	**Current WA Remaining Maturity =** $$\frac{\sum_{Loan\,(1)}^{Loan\,(N)} ((Loan\ RMM) * (Current\ Investor\ UPB))}{\sum_{Loan\,(1)}^{Loan\,(N)} Current\ Investor\ UPB}$$ ***OR*** **Current WA Remaining Maturity** = (Sum ((Loan RMM) * (Current Investor UPB)))/ (Sum (Current Investor UPB)) • *Round to the nearest integer.*

Breakout Variables

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

Monthly PC Disclosure Calculations

For each applicable Breakout Variable: # of Loans	Number of Breakout Variable Loans *OR* Count (Breakout Variable Loans)
For each applicable Breakout Variable: % of Loans	Number of Breakout Variable Loans / Total Number of Loans in Pool **OR** (Count (Breakout Variable Loans))/ (Count Loans in Pool) ***OR*** (Count (Breakout Variable Loans)) / (Count (Loans in Pool)) • *Round to the one-hundredth decimal place.* • *Note: The sum of the % of loans for the mortgages within a PC may not add up to 100% due to rounding.*
For each applicable Breakout Variable: % of UPB	$\left(\frac{\sum_{Loan\ (1)}^{Loan\ (N)} \text{Breakout Variable Current Investor UPB}}{\sum_{Loan\ (1)}^{Loan\ (N)} Current\ Investor\ UPB}\right) * 100$ ***OR*** (Sum (Breakout Variable Loan Current Investor UPB)) / (Sum (Current Investor UPB)) * 100 • *Round to the one-hundredth decimal place.* • *Note: The sum of the % of UPB for the mortgages within a PC may not add up to 100% due to rounding.*
CLTV Unknown	Loan CLTV considered "Unknown" if: • *Mortgage loans backing a High LTV > 105% and < = 125% Gold PC: CLTV is < 6% or > 155%* • *Mortgage loans backing High LTV > 125% Gold PC: CLTV ratio is < 6% or > 999%* • *All other loans: CLTV is < 6% or > 135%* • *CLTV is < LTV* • *LTV is "Unknown"*
Credit Score Unknown	Credit Score considered "Unknown" if: • *Credit score is unavailable or* • *Credit Score value is < 300 or > 850*
Updated Credit Score Unknown	Updated Credit Score considered "Unknown" if: • *Updated Credit Score is unavailable or* • Updated Credit Score < 300 or > 850
DTI Unknown	Loan DTI considered "Unknown" if: • *DTI falls outside the range of > 0% and < = 65%* • *Monthly Income is < = $100* • *The loan's reported Monthly Income or reported Monthly Debt is > = $99,999.* • *Monthly Debt is < Monthly P&I Payment (at the time of delivery to Freddie Mac) and the loan is not an Investment Property*
Estimated LTV Unknown	*Estimated LTV considered "Unknown" if:* • Estimated LTV is unavailable or • Estimated LTV < 6% or > 300%
Initial Interest First P&I Payment	For Initial Interest Fixed Rate PCs: • *The PC Initial Interest First P&I Payment Date = Loan Initial Interest First P&I Payment Date* For Initial Interest ARM PCs: • *The PC Initial Interest First P&I Payment Date = Loan Initial Interest First P&I Payment Date + 1 month*
LTV Unknown	Loan LTV considered "Unknown" if: • *FHA/VA loans: LTV is < 6% or > 110%* • *Mortgage loans backing a High LTV > 105% and ≤ 125% Gold PC: LTV is < 6% or > 125%* • *Mortgage loans backing High LTV > 125% Gold PC: CLTV ratio is < 6% or > 999%* • *All other loans: LTV is < 6% or > 105%*
Mortgage Insurance (MI) Unknown	Loan MI considered "Unknown" if: • *MI percentage is > 55%*

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