

**State:** District of Columbia **Filing Company:** Massachusetts Mutual Life Insurance Company  
**TOI/Sub-TOI:** H111 Individual Health - Disability Income/H111.009 Combined Short Term and Long Term - Related to marketing with employer or association groups  
**Product Name:** 2013 Radius Student Discount  
**Project Name/Number:** 2013 Radius Student Discount/2013 Radius Student Discount

### Filing at a Glance

Company: Massachusetts Mutual Life Insurance Company  
 Product Name: 2013 Radius Student Discount  
 State: District of Columbia  
 TOI: H111 Individual Health - Disability Income  
 Sub-TOI: H111.009 Combined Short Term and Long Term - Related to marketing with employer or association groups  
 Filing Type: Rate  
 Date Submitted: 10/18/2013  
 SERFF Tr Num: MASS-129194940  
 SERFF Status: Assigned  
 State Tr Num:  
 State Status:  
 Co Tr Num: 2013 RADIUS STUDENT DISCOUNT  
 Implementation: On Approval  
 Date Requested:  
 Author(s): Steven Miller, Robin Perez, Jennifer Dube, Nick Sheehan  
 Reviewer(s): Darniece Shirley (primary), Alula Selassie, Donghan Xu  
 Disposition Date:  
 Disposition Status:  
 Implementation Date:  
 State Filing Description:

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## General Information

Project Name: 2013 Radius Student Discount Status of Filing in Domicile: Pending  
Project Number: 2013 Radius Student Discount Date Approved in Domicile:  
Requested Filing Mode: Review & Approval Domicile Status Comments:  
Explanation for Combination/Other: Market Type: Franchise  
Submission Type: New Submission Overall Rate Impact:  
Filing Status Changed: 10/24/2013  
State Status Changed: Deemer Date:  
Created By: Nick Sheehan Submitted By: Nick Sheehan  
Corresponding Filing Tracking Number:

### Filing Description:

Massachusetts Mutual Life Insurance Company  
NAIC#: 435-65935  
FEIN #: 04-1590850

Disability Income Discounted Rate Filing – Franchise  
Discounted rates for Disability Income Policy forms XL-AS-92(DC) & XL-GS-92(DC)

The above-referenced filing is being submitted for your department's review and approval. This filing consists of changes to existing filed and approved franchise policy forms listed above. The purpose of this filing is to expand the availability of premium discounts to include student and residence attending professional training programs or schools.

Multi-life premium discounts: These discounts will be available on Disability Income Policy form XL-GS-92(DC) which was previously approved for use by your department on 4/28/1993. The particular discount to be applied will be a function of the size of the employer/employee group, gender mix of the group, employer-pay versus employee-pay, participation, income replacement percentage and the percentage of the group that is participating in the purchase of insurance. A minimum of 5 issued lives is required in order for a discount to apply.

Student and Residence premium discounts: These discounts will be available on Disability Income Policy form XL-GS-92(DC) which was previously approved for use by your department on 4/28/1993. The particular discount to be applied will be a function of the size of group, gender mix of the group, income replacement percentage and the percentage of the group that is participating in the purchase of insurance. Student and Residence premium discounts will be available for eligible groups at professional training programs and schools. A minimum of 5 issued lives is required in order for a discount to apply.

An association premium discount is available on Disability Income Policy form XL-AS-92(DC) which was previously approved for use by your department on 4/28/1993. This policy is for sale to members of professional associations, which have endorsed the coverage. Association marketing is handled by Advanced Sales/Multi-life underwriting Department in the Home Office and each association must be pre-approved. A minimum of 5 issued lives is required in order for the discount to apply. This discount will be financed by a reduction in commission.

The discounts will only be available for franchise policy forms sold in franchise situations.

## Company and Contact

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**Filing Contact Information**

Nicholas Sheehan, Compliance Assistant nsheehan@massmutual.com  
 100 Bright Meadow Blvd 860-562-3462 [Phone]  
 Enfield, CT 06082 860-562-6109 [FAX]

**Filing Company Information**

Massachusetts Mutual Life Insurance Company	CoCode: 65935	State of Domicile:
1295 State Street	Group Code: 435	Massachusetts
MIP: M381	Group Name:	Company Type:
Springfield, MA 01111	FEIN Number: 04-1590850	State ID Number:
(800) 767-1000 ext. [Phone]		

**Filing Fees**

Fee Required? No  
 Retaliatory? No  
 Fee Explanation:

SERFF Tracking #:

MASS-129194940

State Tracking #:

Company Tracking #:

2013 RADIUS STUDENT DISCOUNT

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### Rate Information

Rate data applies to filing.

Filing Method: SERFF

Rate Change Type: Decrease

Overall Percentage of Last Rate Revision: %

Effective Date of Last Rate Revision: 11/19/2012

Filing Method of Last Filing: SERFF

### Company Rate Information

Company Name:	Overall % Indicated Change:	Overall % Rate Impact:	Written Premium Change for this Program:	# of Policy Holders Affected for this Program:	Written Premium for this Program:	Maximum % Change (where req'd):	Minimum % Change (where req'd):
Massachusetts Mutual Life Insurance Company	0.000%	0.000%	\$0	0	\$0	0.000%	0.000%

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## Supporting Document Schedules

<b>Satisfied - Item:</b>	Cover Letter All Filings
<b>Comments:</b>	
<b>Attachment(s):</b>	Letter.pdf
<b>Item Status:</b>	
<b>Status Date:</b>	

<b>Bypassed - Item:</b>	Certificate of Authority to File
<b>Bypass Reason:</b>	N/A
<b>Attachment(s):</b>	
<b>Item Status:</b>	
<b>Status Date:</b>	

<b>Satisfied - Item:</b>	Actuarial Memorandum
<b>Comments:</b>	
<b>Attachment(s):</b>	Radius ML'13_Student Discount_Act Memo.pdf
<b>Item Status:</b>	
<b>Status Date:</b>	

<b>Bypassed - Item:</b>	Actuarial Justification
<b>Bypass Reason:</b>	N/A
<b>Attachment(s):</b>	
<b>Item Status:</b>	
<b>Status Date:</b>	

<b>Bypassed - Item:</b>	District of Columbia and Countrywide Loss Ratio Analysis (P&C)
<b>Bypass Reason:</b>	N/A
<b>Attachment(s):</b>	
<b>Item Status:</b>	
<b>Status Date:</b>	

<b>Bypassed - Item:</b>	District of Columbia and Countrywide Experience for the Last 5 Years (P&C)
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MASS-129194940

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<b>Bypass Reason:</b>	N/A
<b>Attachment(s):</b>	
<b>Item Status:</b>	
<b>Status Date:</b>	

<b>Bypassed - Item:</b>	Actuarial Memorandum and Certifications
<b>Bypass Reason:</b>	N/A
<b>Attachment(s):</b>	
<b>Item Status:</b>	
<b>Status Date:</b>	

<b>Bypassed - Item:</b>	Unified Rate Review Template
<b>Bypass Reason:</b>	N/A
<b>Attachment(s):</b>	
<b>Item Status:</b>	
<b>Status Date:</b>	



October 18, 2013

Department of Insurance, Securities and Banking  
Insurance Products Division  
Forms & Policy Analysis Branch  
810 1<sup>st</sup> Street, N.E. Suite 701  
Washington, D.C. 20002

RE: Massachusetts Mutual Life Insurance Company  
NAIC#: 435-65935  
FEIN #: 04-1590850

Disability Income Discounted Rate Filing – Franchise  
Discounted rates for Disability Income Policy forms XL-AS-92(DC) & XL-GS-92(DC)

Dear Sir/Madam:

The above-referenced filing is being submitted for your department's review and approval. This filing consists of changes to existing filed and approved franchise policy forms listed above. The purpose of this filing is to expand the availability of premium discounts to include student and residence attending professional training programs or schools.

**Multi-life premium discounts:** These discounts will be available on Disability Income Policy form XL-GS-92(DC) which was previously approved for use by your department on 4/28/1993. The particular discount to be applied will be a function of the size of the employer/employee group, gender mix of the group, employer-pay versus employee-pay, participation, income replacement percentage and the percentage of the group that is participating in the purchase of insurance. A minimum of 5 issued lives is required in order for a discount to apply.

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**An association premium discount** is available on Disability Income Policy form XL-AS-92(DC) which was previously approved for use by your department on 4/28/1993. This policy is for sale to members of professional associations, which have endorsed the coverage. Association marketing is handled by Advanced Sales/Multi-life underwriting Department in the Home Office and each association must be pre-approved. A minimum of 5 issued lives is required in order for the discount to apply. This discount will be financed by a reduction in commission.

The discounts will only be available for franchise policy forms sold in franchise situations.

Sincerely,

*Nicholas Sheehan*

Nicholas Sheehan  
Product Filing Specialist  
(413)744-7890  
nsheehan@massmutual.com

# ACTUARIAL MEMORANDUM

## Disability Income Policy Series

September 2013

<b><u>Policy, Rider, or Endorsement</u></b>	<b><u>Form Number</u></b>
Disability Income Policy (Association Franchise Form)	XL-AS-92
Disability Income Policy (Group Franchise Form)	XL-GS-92
Extended Partial Disability Benefits Rider	EPS-G-2012
Group Supplement Rider	ES-92
Partial Disability Benefits Rider	PS-92
Short Term Disability Benefits Rider	CS-92
Automatic Additional Benefit Rider	QS-98
Cost of Living Adjustment Rider	KS-04
Future Insurability Option Rider	FS-G-2011
Social Insurance Rider	SI-98
Own Occupation Rider	OO-R-07
RetireGuard Rider	RG-01
Maximum Benefit Period Endorsement	EDI-1
Catastrophic Rider	CAT-04
Human Immunodeficiency Virus Rider	HIVDR-92

### **General**

This filing consists of changes to an existing filed and approved product. This filing does not alter the premiums paid for any existing Massachusetts Mutual policyholders' inforce coverage.

The purpose of this filing to expand the availability of premium discounts to include student and residence attending professional training programs or schools. See the Discounts Section below for details.

This memorandum is intended to certify that the new premium rates are in compliance with the requirements of this state and should not be used for any other purposes.

### **Description of Benefits**

These forms are noncancellable and guaranteed continuable to age 65. They are issued to males and females at issue ages 18 through 64 and are available to occupation classes 5A, 5P, 4A, 4P, 3A, 3P, 3S, 3D, 2A, 2P, and A. Endorsement H-2268 is automatically attached to Policy Form XL-GS-92 whenever the number of lives triggers the applicability of your state's fair employment practices act. Endorsement H-274a will be automatically attached to any of the policy forms when ES-92 is attached. Endorsement H-4867 will normally be attached to any of the policy forms when 10-25% of the Insured's occupational duties are manual. The forms are marketed by licensed agents and brokers.

1. Disability Income Policy- Policy Form XL-AS-92

This policy provides monthly indemnity benefits for total disability following the waiting period. Other benefits included are waiver of premium, rehabilitation, and presumptive total disability benefits. The policy form is intended for sale to members of professional associations.

2. Disability Income Policy-Policy Form XL-GS-92

This policy form contains the same benefit provisions as policy form XL-AS-92, except that normal pregnancy may be covered by Endorsement H2268. The policy form is intended for sale to employer/employee groups.

3. Extended Partial Disability Benefits Rider-Policy Form EPS-G-2012

This rider provides monthly indemnity benefits based on loss of income following the waiting period if the insured is partially disabled. It also includes a recovery benefit. The benefit may be adjusted by a Cost of Living Rider (Form KS-04) or Short Term Rider (Form CS-92).

4. Group Supplement Rider-Policy Form ES-92

This rider is used to program around benefits normally found in Group LTD contracts. It provides the following benefits:

Coverage A: A loss-of-income benefit if the Insured is partially disabled.

Coverage B: A loss-of-income benefit if the Insured is working in another occupation and is partially disabled.

The coverages are available independently or Coverage A may be purchased in combination with Coverage B. Coverage A or B may be elected only if the Extended Partial rider (From EPS-G-2012) is part of the policy. This rider also includes a future insurability options benefit and a 5% cost of living benefit. Both A and B can be purchased with a conversion option that permits the insured to purchase individual coverage that will replace group coverage lost due to a job change or a group plan termination.

5. Partial Disability Benefits Rider-Policy Form PS-92

This rider provides 50% of the base benefit for up to 6 months if the insured is partially disabled. To be eligible for a benefit under the rider, the insured must be totally disabled for at least 30 days during the waiting period and remain disabled throughout the waiting period.

6. Short Term Disability Benefits Rider-Policy Form CS-92

This rider provides total disability benefits for a short period of time. The rider is used to program around State Disability Plans, Group Disability plans and other forms of existing Disability Income plans. The benefit may be adjusted by the Extended Partial rider (Form EPS-G-2012), in which case the rider provides both total and partial disability benefits.

7. Automatic Additional Benefit Increase Rider-Form QS-98

This rider allows the insured to elect annual increases of 3% of the initial monthly benefit for the base policy, cost of living rider, group supplement rider, and short term rider to be automatically added to the policy each year for 5 years. These benefits will be added without financial evidence or evidence of good health, except proof that the insured is not disabled. The rider is renewable for successive 5-year period

subject to financial evidence.

8. Cost of Living Adjustment Rider-Form KS-04

This rider provides annual increases in monthly benefits after 12 months of disability. The increases are compounded annually at 3% interest. The increases will continue as long as the insured is eligible for a benefit under the policy. Upon recovery, the insured will be able to purchase a new base policy benefit equal to the increase in benefits payable just before recovery.

9. Future Insurability Option Rider-Policy Form FS-G-2011

This rider allows the insured to purchase additional benefits annually on a specified date without evidence of good health other than proof that the insured is not disabled, but financial underwriting is required. The options are available to age 60. Individual options can be exercised in any amount up to the original base amount subject to the company's issue limits.

10. Social Insurance Rider-Policy Form SI-98

This rider provides monthly income benefits during disability without duplicating benefits that may be provided by Workman's Compensation, State Cash Sickness and Social Insurance Benefits. No monthly benefit will be paid under this rider for any month the Insured is receiving Social Security retirement income benefits. In a month where the Insured is not receiving Social Security retirement income benefits but is receiving payments from Other Benefit Programs, the monthly benefit for this rider will be reduced by the total amount of benefits payable by all Other Benefit Programs for that month.

11. Own Occupation Rider – Policy Form OO-R-07

This rider changes the definition of disability by removing the “not working at any occupation” requirement to collect total disability benefits. The benefit may be adjusted by a Cost of Living Rider (Form KS-04).

12. Maximum Benefit Period Endorsement - Policy Form EDI-1

This endorsement removes the 24 month mental nervous limitation wording contained under the basic policy, thus allowing benefits for mental/nervous claims to be paid as for any other cause of disability. It is available for attachment only to Policy Form XL-GS-92.

13. RetireGuard Rider - Policy Form RG-01

This rider provides benefits for a permanent and total disability to make up for lost retirement savings. The benefits are paid into a trust. The benefits may be adjusted by an optional cost of living benefit. The optional cost of living benefit provides annual increases in monthly benefits after 12 months of disability. The increases are compounded annually at 3% interest. The increases will continue as long as the insured is eligible for a benefit under the policy. Upon recovery, the insured will be able to purchase a new base policy benefit equal to the increase in benefits payable just before recovery. This rider also has an optional Future Insurability Option benefit. This optional benefit allows the insured to purchase additional benefits annually on a specified date without evidence of good health other than proof that the insured is not disabled, but financial underwriting is required. Individual options can be exercised in any amount up to the original base amount subject to the company's issue limits.

14. Disability Income Policy - Policy Form CAT-04

This rider provides additional benefits to the policyholder if they suffer a catastrophic disability. This would be defined as a loss of 2 Activities of Daily Living or a presumptive disability or severe cognitive impairment. Benefit levels could be as high as 100% of pre-disability income.

15. Human Immunodeficiency Virus Rider-Policy Form HIVDR-92

This rider is designed to provide a transitional benefit while a health care worker makes career decisions. The HIV rider provides monthly benefits should the insured test positive for HIV. Benefits will be paid whether or not the insured is working, whether or not he/she is symptomatic, and regardless of how the virus was contracted.

**Gross Premium**

The gross premiums under the policy forms and riders are available on level premium basis for issue ages 18-64 and on a graded premium basis for issue ages 18-35.

Annual premium rates for \$100 monthly benefit vary by form, gender, occupational class, benefit period, elimination period and issue age filing. The rates for XL-GS-92 are on a unisex basis and XL-AS-92 rates are sex-distinct.

The premium rate for each \$100 of Future Insurability Option benefit (policy form FS-G-2011) is 6% for issue ages 18-45 and 10% for issue ages 46-55 of the corresponding XL-AS-92 or XL-GS-92 plus KS-04, EPS-G-2012, PS-92, OO-R-07 and CS-92 (if applicable) rates as described above. When additional benefits are purchased under the rider, the rider's total available benefits and premium will be reduced proportionately. No rider premiums are due if the rider terminates while the policy is still In Force.

For RetireGuard rider (RG-01), the premium rate per \$100 Optional Future Insurability Option benefit is 6% for issues age 18-45 and 10% for issue age 46-55 of corresponding policy forms RG-01 plus KS-04 (if applicable) rates. When additional benefits are purchased under this benefit, the rider's Optional Future Insurability Option benefit premium and available benefit will be reduced proportionately.

The premium rate for each \$100 of Maximum Benefit Period Endorsement (EDI-1) is 10% of the corresponding XL-GS-92 plus KS-04, EPS-G-2012, ES-92, OO-R-07 and SI-98 (if applicable) rates as described above. This endorsement removes the 24 month mental nervous limitation wording contained under the base policy, thus allowing benefits for mental/nervous claims to be paid as for any other cause of disability. It is available for attachment only to Policy Form XL-GS-92. The benefit period must be greater than 2 years.

There is no additional premium charged for QS-98.

**Gross Premium Assumptions**

Premium rates were calculated to attain a specified return on investment. The calculation of future expected profits was based on the following assumptions:

1. Morbidity: 1985 Commissioner's Individual Disability Table A (85 CIDA) modified by company experience.

2. Mortality rates: Included in the lapse rates.
3. Lapse rates: MassMutual experience. See attached.
4. Valuation basis for statutory and tax reserves:
  - 85 CIDA with modifications for CIDC, 3.5% statutory, 3.5% tax.
  - Active Life reserves calculated on a 2-year preliminary term basis.
5. Expenses: Commissions adjusted for agent persistency. See attached.
  - Premium taxes: 2.6% per year
  - Sales expense: 210.4% of first year commission plus 22.1% of first year premium
  - Underwriting: \$304.30/issue
  - Guaranteed Standard Issue Underwriting: \$132.42/GSI issue
  - Maintenance: \$9.06/policy plus 3.8% of premium
  - Claim Settlement: 5.6% of benefit payments
6. Investment Earnings Rate: 4.0%
7. Federal and State Income Tax Rate: 36.0%
8. Capitalization rate for DAC tax: 7.7%

**Discounts**

Multi-life premium discounts: The following discounts will be available on policy form XL-GS-92, 5%, 10%, 15%, 20%, 25%, 30%, and 35%. The particular discount to be applied will be a function of the size of the employer/employee group, gender mix of the group, employer-pay versus employee-pay, participation, income replacement percentage and the percentage of the group that is participating in the purchase of insurance.

Student and Residence premium discounts: The following discounts will be available on policy form XL-GS-92, 5%, 10%, 15%, 20%, 25%, 30%, and 35%. The particular discount to be applied will be a function of the size of group, gender mix of the group, income replacement percentage and the percentage of the group that is participating in the purchase of insurance. Student and Residence premium discounts will be available for eligible groups at professional training programs and schools.

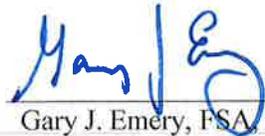
A 10% discount will be available on policy form XL-AS-92. This discount will be financed by a reduction in commission.

**Loss Ratio Certification**

The anticipated lifetime loss ratio for all products described in this actuarial memorandum is expected to be in excess of 50%.

**Actuarial Certification**

In my opinion, the rates for the products described in the actuarial memorandum have been developed using reasonable and actuarially sound assumptions and methods. I therefore believe the rates to be reasonable in relation to the benefits under the standards described above. To the best of my knowledge and judgment, these rates are in compliance with the applicable laws and regulations of this state.

A handwritten signature in blue ink, appearing to read "Gary J. Emery", is written over a horizontal line.

Gary J. Emery, FSA, MAAA

Date: September 20, 2013

**Massachusetts Mutual Life Insurance Company**  
**Commission Rates Adjusted for Agent Persistency**

<u>Policy Year</u>	<b>XL - AS - 92</b>		<u>Policy Year</u>	<b>XL - GS - 92</b>	
	<u>Issue Ages &lt;46</u>	<u>Issue Ages &gt;45</u>		<u>Issue Ages &lt;46</u>	<u>Issue Ages &gt;45</u>
1	45.8%	45.8%	1	54.8%	54.8%
2	18.9%	14.1%	2	21.6%	16.9%
3	19.0%	17.1%	3	15.7%	13.8%
4	16.2%	16.7%	4	13.1%	13.5%
5	15.9%	16.4%	5	12.8%	13.3%
6	15.0%	15.5%	6	11.2%	11.7%
7	14.6%	15.1%	7	11.0%	11.5%
8	11.2%	11.7%	8	9.2%	9.6%
9	11.0%	11.5%	9	9.0%	9.5%
10	10.8%	11.2%	10	8.8%	9.3%
11	6.2%	8.6%	11	4.5%	6.9%
12	5.9%	8.3%	12	4.3%	6.7%
13	5.8%	8.1%	13	4.2%	6.6%
14	5.6%	8.0%	14	4.1%	6.5%
15	5.5%	7.9%	15	4.0%	6.4%
16	5.3%	5.3%	16	3.9%	3.9%
17	5.2%	5.2%	17	3.8%	3.8%
18	5.0%	5.0%	18	3.7%	3.7%
19	4.9%	4.9%	19	3.7%	3.7%
20	4.8%	4.8%	20	3.6%	3.6%
21	4.6%	4.6%	21	3.5%	3.5%
22	4.5%	4.5%	22	3.4%	3.4%
23	4.3%	4.3%	23	3.3%	3.3%
24	4.2%	4.2%	24	3.2%	3.2%
25	4.1%	4.1%	25	3.1%	3.1%
26	3.9%	3.9%	26	3.0%	3.0%
27	3.8%	3.8%	27	2.9%	2.9%
28	3.6%	3.6%	28	2.8%	2.8%
29	3.5%	3.5%	29	2.7%	2.7%
30	3.4%	3.4%	30	2.6%	2.6%
31	3.2%	3.2%	31	2.5%	2.5%
32	3.0%	3.0%	32	2.4%	2.4%
33	2.9%	2.9%	33	2.3%	2.3%
34	2.8%	2.8%	34	2.2%	2.2%
35	2.7%	2.7%	35	2.2%	2.2%
36	2.6%	2.6%	36	2.1%	2.1%
37	2.4%	2.4%	37	2.0%	2.0%
38	2.3%	2.3%	38	1.9%	1.9%
39	2.2%	2.2%	39	1.9%	1.9%

## Radius Group - MALE

### Lapse Rates - Level Premium

Policy Year	Class 5A - Male						Class 5P/4A/4P - Male						Class 3P/3D - Male							
	25	30	35	40	45	50	25	30	35	40	45	50	25	30	35	40	45	50	55	60
1	6.5%	3.9%	3.2%	3.0%	3.0%	3.4%	8.4%	5.1%	4.2%	3.9%	3.9%	4.4%	4.5%	2.7%	2.2%	2.1%	2.1%	2.3%	2.7%	3.2%
2	9.5%	5.7%	4.8%	4.8%	4.9%	5.6%	13.1%	7.8%	6.6%	6.6%	6.8%	7.6%	8.6%	5.2%	4.3%	4.3%	4.5%	5.0%	6.1%	8.1%
3	9.1%	5.3%	4.7%	4.9%	5.3%	6.1%	12.3%	7.2%	6.3%	6.7%	7.2%	8.3%	7.7%	4.5%	3.9%	4.2%	4.5%	5.2%	6.9%	9.9%
4	7.0%	4.1%	3.9%	4.2%	4.7%	5.7%	9.7%	5.7%	5.3%	5.8%	6.5%	7.9%	6.0%	3.5%	3.3%	3.6%	4.0%	4.9%	7.4%	11.1%
5	6.6%	4.0%	3.8%	4.4%	5.0%	6.6%	7.5%	4.5%	4.3%	4.9%	5.7%	7.5%	4.1%	2.4%	2.4%	2.7%	3.1%	4.1%	6.8%	10.9%
6	5.8%	3.6%	3.7%	4.3%	4.9%	7.2%	6.0%	3.7%	3.9%	4.5%	5.1%	7.5%	2.9%	1.8%	1.9%	2.2%	2.5%	3.7%	6.7%	6.7%
7	4.6%	3.1%	3.2%	3.8%	4.5%	7.3%	5.0%	3.3%	3.5%	4.1%	4.8%	7.8%	2.3%	1.5%	1.6%	1.9%	2.2%	3.5%	6.6%	6.6%
8	3.8%	2.8%	2.8%	3.3%	4.2%	7.3%	4.2%	3.0%	3.0%	3.7%	4.6%	8.0%	1.8%	1.3%	1.3%	1.6%	2.0%	3.5%	7.1%	7.1%
9	3.1%	2.6%	2.7%	3.0%	4.0%	7.6%	3.5%	2.9%	3.0%	3.4%	4.5%	8.6%	1.5%	1.3%	1.3%	1.5%	2.0%	3.7%	8.8%	8.8%
10	2.4%	2.1%	2.3%	2.6%	3.6%	7.5%	2.8%	2.5%	2.7%	3.1%	4.3%	8.9%	1.2%	1.1%	1.2%	1.4%	1.9%	4.0%	9.8%	9.8%
11	2.3%	2.2%	2.4%	2.8%	4.1%	9.4%	2.7%	2.6%	2.8%	3.3%	4.8%	11.1%	1.2%	1.2%	1.2%	1.5%	2.2%	5.0%	10.9%	10.9%
12	2.1%	2.1%	2.4%	3.0%	4.6%	10.0%	2.5%	2.5%	2.8%	3.5%	5.4%	11.7%	1.1%	1.1%	1.2%	1.6%	2.5%	5.3%	11.1%	11.1%
13	2.0%	2.0%	2.4%	3.1%	6.0%	10.7%	2.3%	2.3%	2.8%	3.6%	7.0%	12.6%	1.1%	1.1%	1.2%	1.6%	3.2%	5.7%	11.1%	11.1%
14	2.1%	2.2%	2.4%	3.3%	6.1%	13.9%	2.5%	2.6%	2.9%	3.8%	7.2%	16.3%	1.1%	1.2%	1.3%	1.7%	3.2%	7.4%	11.1%	11.1%
15	1.7%	1.8%	2.1%	2.9%	5.1%	14.7%	1.8%	2.0%	2.3%	3.2%	5.6%	16.2%	1.1%	1.2%	1.4%	1.9%	3.4%	9.7%	11.1%	11.1%
16	1.7%	1.9%	2.3%	3.3%	5.5%		1.9%	2.1%	2.5%	3.6%	6.1%		1.1%	1.2%	1.5%	2.2%	3.6%			
17	1.7%	1.9%	2.4%	3.7%	6.8%		1.8%	2.1%	2.6%	4.1%	7.5%		1.1%	1.2%	1.6%	2.4%	4.5%			
18	1.6%	1.9%	2.5%	4.8%	8.6%		1.8%	2.1%	2.7%	5.3%	9.4%		1.1%	1.2%	1.6%	2.4%	4.5%			
19	1.7%	2.0%	2.6%	4.9%	11.1%		1.9%	2.2%	2.9%	5.4%	12.2%		1.1%	1.3%	1.7%	3.2%	7.3%			
20	1.7%	1.9%	2.6%	4.6%	13.3%		1.8%	2.1%	2.9%	5.0%	14.5%		1.4%	1.6%	2.2%	3.9%	11.1%			

Policy Year	Class 3A - Male						Class 2A Male							
	25	30	35	40	45	50	25	30	35	40	45	50	55	60
1	13.7%	8.3%	6.9%	6.3%	6.3%	7.1%	18.5%	11.2%	9.3%	8.5%	8.5%	9.6%	11.4%	13.3%
2	17.2%	10.3%	8.6%	8.6%	8.9%	10.0%	19.7%	11.8%	9.8%	9.8%	10.2%	11.4%	13.9%	18.4%
3	15.9%	9.3%	8.2%	8.7%	9.3%	10.8%	18.3%	10.7%	9.4%	10.0%	10.7%	12.4%	16.4%	23.6%
4	12.1%	7.1%	6.7%	7.3%	8.1%	9.9%	14.5%	8.6%	8.0%	8.7%	9.7%	11.9%	18.0%	27.2%
5	9.3%	5.6%	5.4%	6.2%	7.1%	9.3%	11.9%	7.1%	6.9%	7.9%	9.0%	11.9%	19.9%	31.8%
6	7.3%	4.5%	4.7%	5.4%	6.1%	9.1%	9.5%	5.9%	6.1%	7.0%	8.0%	11.8%	21.5%	
7	5.7%	3.9%	4.0%	4.7%	5.6%	9.0%	7.2%	4.9%	5.1%	6.0%	7.1%	11.4%	21.2%	
8	4.7%	3.4%	3.4%	4.1%	5.1%	9.0%	5.8%	4.2%	4.2%	5.1%	6.3%	11.0%	22.4%	
9	3.9%	3.2%	3.3%	3.8%	5.0%	9.4%	4.7%	3.8%	4.0%	4.5%	6.0%	11.4%	26.7%	
10	3.1%	2.8%	3.0%	3.5%	4.8%	10.0%	3.8%	3.3%	3.6%	4.2%	5.8%	12.0%	29.3%	
11	3.0%	2.9%	3.1%	3.7%	5.4%	12.5%	3.6%	3.5%	3.8%	4.5%	6.5%	15.0%		
12	2.8%	2.8%	3.1%	4.0%	6.1%	13.2%	3.3%	3.3%	3.8%	4.8%	7.4%	15.9%		
13	2.6%	2.6%	3.1%	4.1%	7.9%	14.2%	3.2%	3.8%	3.8%	4.9%	9.5%	17.0%		
14	2.8%	2.9%	3.2%	4.3%	8.1%	18.4%	3.3%	3.5%	3.9%	5.2%	9.7%	22.1%		
15	2.2%	2.4%	2.8%	3.9%	6.8%	19.5%	2.7%	3.0%	3.5%	4.8%	8.3%	24.0%		
16	2.3%	2.5%	3.0%	4.3%	7.3%		2.9%	3.1%	3.7%	5.4%	9.0%			
17	2.2%	2.5%	3.2%	4.9%	9.1%		2.7%	3.1%	3.9%	6.1%	11.2%			
18	2.1%	2.5%	3.3%	6.4%	11.4%		2.6%	3.1%	4.0%	7.9%	14.0%			
19	2.3%	2.6%	3.5%	6.5%	14.8%		2.9%	3.2%	4.3%	8.0%	18.2%			
20	2.1%	2.4%	3.3%	5.8%	16.8%		2.5%	3.0%	4.1%	7.1%	20.6%			

## Radius Group - FEMALE Lapse Rates - Level Premium

Policy Year	Class 5A - Female						Class 5P/4A/4P - Female						Class 3P/3S/3D - Female												
	25	30	35	40	45	50	55	60	25	30	35	40	45	50	55	60	25	30	35	40	45	50	55	60	
1	8.3%	5.4%	4.3%	3.7%	3.7%	4.1%	4.5%	5.9%	10.7%	6.9%	5.5%	4.8%	4.8%	5.3%	5.9%	7.6%	5.7%	3.7%	2.9%	2.6%	2.6%	2.6%	2.8%	3.1%	4.1%
2	12.3%	7.7%	6.3%	5.7%	6.0%	7.0%	7.9%	11.3%	16.9%	10.6%	8.7%	7.8%	8.3%	9.6%	10.9%	15.5%	11.1%	7.0%	5.7%	5.2%	5.2%	5.5%	6.3%	7.2%	10.2%
3	11.5%	7.1%	6.0%	5.7%	6.1%	7.5%	9.0%	14.3%	15.7%	9.7%	8.1%	7.7%	8.3%	10.2%	12.2%	19.4%	9.8%	6.0%	5.0%	4.8%	4.8%	5.2%	6.4%	7.6%	12.1%
4	9.1%	5.5%	4.7%	4.7%	5.4%	6.9%	9.2%	15.0%	12.5%	7.6%	6.5%	6.5%	7.4%	9.6%	12.8%	20.7%	7.7%	4.7%	4.0%	4.0%	4.6%	4.6%	5.9%	7.9%	12.7%
5	8.5%	5.1%	4.5%	4.6%	5.7%	7.8%	11.6%	18.3%	9.6%	5.8%	5.1%	5.2%	6.4%	8.8%	13.1%	20.6%	5.2%	3.1%	2.7%	2.8%	3.5%	3.5%	4.8%	7.1%	11.2%
6	7.4%	4.4%	4.1%	4.3%	5.6%	8.1%	15.3%		7.7%	4.6%	4.2%	4.5%	5.8%	8.5%	15.9%		3.8%	2.2%	2.1%	2.2%	2.8%	4.1%	7.8%		
7	6.0%	3.7%	3.5%	3.8%	5.3%	8.2%	14.4%		6.4%	4.0%	3.7%	4.1%	5.7%	8.8%	15.5%		2.9%	1.8%	1.7%	1.9%	2.6%	4.0%	7.0%		
8	4.8%	3.2%	3.2%	3.7%	5.2%	8.7%	14.8%		5.3%	3.5%	3.5%	4.0%	5.7%	9.5%	16.2%		2.3%	1.5%	1.5%	1.8%	2.5%	4.1%	7.1%		
9	4.1%	3.0%	3.1%	3.6%	5.2%	8.6%	17.9%		4.7%	3.4%	3.5%	4.0%	5.8%	9.7%	20.1%		2.0%	1.5%	1.5%	1.8%	2.5%	4.2%	8.8%		
10	2.8%	2.4%	2.6%	3.2%	4.5%	7.2%	18.4%		3.3%	2.9%	3.1%	3.7%	5.3%	8.4%	21.7%		1.5%	1.3%	1.4%	1.7%	2.4%	3.8%	9.8%		
11	2.6%	2.5%	2.7%	3.4%	5.1%	8.3%			3.1%	3.0%	3.2%	4.1%	6.0%	9.8%			1.4%	1.3%	1.4%	1.8%	2.7%	4.4%			
12	2.5%	2.6%	2.7%	3.7%	5.9%	9.8%			3.0%	3.1%	3.2%	4.4%	6.9%	11.5%			1.3%	1.4%	1.4%	2.0%	3.1%	5.2%			
13	2.5%	2.6%	2.8%	4.0%	6.0%	11.6%			3.0%	3.1%	3.3%	4.7%	7.0%	13.7%			1.3%	1.4%	1.5%	2.1%	3.2%	6.1%			
14	2.4%	2.5%	2.9%	4.2%	6.1%	14.5%			2.9%	3.0%	3.4%	4.9%	7.2%	17.1%			1.3%	1.3%	1.5%	2.2%	3.2%	7.7%			
15	2.0%	2.1%	2.5%	3.6%	5.7%	14.8%			2.2%	2.3%	2.8%	4.0%	6.3%	16.2%			1.3%	1.4%	1.7%	2.4%	3.8%	9.7%			
16	2.0%	2.2%	2.8%	4.1%	6.7%				2.2%	2.4%	3.0%	4.5%	7.4%				1.3%	1.4%	1.8%	2.7%	4.4%				
17	2.1%	2.2%	3.0%	4.7%	7.9%				2.3%	2.4%	3.3%	5.2%	8.6%				1.4%	1.4%	2.0%	3.1%	5.2%				
18	2.1%	2.3%	3.2%	4.8%	9.3%				2.3%	2.5%	3.5%	5.3%	10.2%				1.4%	1.5%	2.1%	3.2%	6.1%				
19	2.0%	2.3%	3.3%	4.9%	11.6%				2.2%	2.6%	3.7%	5.4%	12.8%				1.3%	1.5%	2.2%	3.2%	7.7%				
20	1.9%	2.3%	3.3%	5.2%	13.4%				2.1%	2.5%	3.6%	5.7%	14.6%				1.6%	1.9%	2.8%	4.3%	11.2%				

Policy Year	Class 3A - Female						Class 2A - Female									
	25	30	35	40	45	50	55	60	25	30	35	40	45	50	55	60
1	17.5%	11.3%	9.0%	7.9%	7.9%	8.7%	9.6%	12.5%	23.7%	15.3%	12.2%	10.6%	10.6%	11.7%	13.0%	16.9%
2	22.2%	14.0%	11.4%	10.3%	10.9%	12.6%	14.3%	20.3%	25.3%	16.0%	13.1%	11.8%	12.4%	14.4%	16.3%	23.2%
3	20.2%	12.5%	10.4%	10.0%	10.8%	13.2%	15.7%	25.0%	23.2%	14.4%	12.0%	11.4%	12.4%	15.1%	18.1%	28.8%
4	15.7%	9.5%	8.1%	8.1%	9.3%	12.0%	16.0%	25.9%	18.8%	11.4%	9.7%	9.7%	11.2%	14.3%	19.2%	31.1%
5	12.0%	7.2%	6.3%	6.5%	8.0%	11.0%	16.4%	25.7%	15.3%	9.2%	8.0%	8.2%	10.1%	14.0%	20.9%	32.7%
6	9.3%	5.6%	5.1%	5.4%	7.0%	10.2%	19.3%		12.2%	7.2%	6.7%	7.0%	9.1%	13.3%	25.1%	
7	7.4%	4.6%	4.3%	4.7%	6.6%	10.1%	17.8%		9.4%	5.8%	5.4%	6.0%	8.3%	12.9%	22.7%	
8	6.0%	4.0%	4.0%	4.6%	6.4%	10.7%	18.2%		7.4%	4.9%	4.9%	5.6%	7.9%	13.2%	22.4%	
9	5.1%	3.8%	3.9%	4.4%	6.4%	10.7%	22.2%		6.2%	4.5%	4.7%	5.3%	7.7%	12.9%	26.7%	
10	3.7%	3.2%	3.5%	4.2%	6.0%	9.5%	24.4%		4.5%	3.9%	4.2%	5.1%	7.2%	11.4%	29.3%	
11	3.5%	3.4%	3.6%	4.6%	6.7%	11.1%			4.2%	4.0%	4.3%	5.5%	8.1%	13.3%		
12	3.4%	3.5%	3.6%	4.9%	7.8%	13.0%			4.0%	4.2%	4.3%	5.9%	9.4%	15.6%		
13	3.4%	3.5%	3.7%	5.3%	7.9%	15.4%			4.0%	4.2%	4.5%	6.4%	9.5%	18.5%		
14	3.2%	3.4%	3.8%	5.5%	8.1%	19.2%			3.9%	4.0%	4.6%	6.6%	9.7%	23.1%		
15	2.6%	2.8%	3.4%	4.8%	7.6%	19.6%			3.2%	3.5%	4.2%	6.0%	9.4%	24.2%		
16	2.7%	2.9%	3.7%	5.4%	8.9%				3.3%	3.6%	4.5%	6.7%	11.0%			
17	2.8%	2.9%	4.0%	6.3%	10.4%				3.5%	3.6%	4.9%	7.7%	12.9%			
18	2.8%	3.0%	4.3%	6.4%	12.4%				3.5%	3.7%	5.2%	7.9%	15.2%			
19	2.7%	3.1%	4.4%	6.5%	15.5%				3.3%	3.8%	5.5%	8.0%	19.0%			
20	2.4%	2.9%	4.2%	6.6%	16.9%				3.0%	3.6%	5.1%	8.1%	20.7%			