



ADDENDUM TO MOSES SOUTH STABILITY LIMITS ANALYSIS FOR ALL LINES I/S AND OUTAGE CONDITIONS (MS-24) APPENDICES

A Report by the
New York Independent System Operator

July 2024

Appendices Table of Contents

TRANSFER CASES.....	4
APPENDIX A: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & (L33 OR L34) O/S.....	5
APPENDIX B: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & (MAP1 OR MAP2) O/S.....	9
APPENDIX C: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & (L33 OR L34) & (MAP1 OR MAP2) O/S.....	13
APPENDIX D: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & MAP1 & MAP2 O/S.....	17
APPENDIX E: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & MAP1 & MAP2 & (L33 OR L34) O/S.....	21
APPENDIX F: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & R8105 O/S.....	25
APPENDIX G: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & R8105 & (MAP1 OR MAP 2) O/S.....	29
APPENDIX H: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & R8105 & (L33 OR L34) O/S.....	33
APPENDIX I: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & R8105 & DS 5 115 KV O/S.....	37
APPENDIX J: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & R8105 & NS 4 115 KV O/S.....	41
APPENDIX K: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & DS 5 115 KV O/S.....	45
APPENDIX L: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MSU1&7040&HVDC & NS 4 115 KV O/S	49
APPENDIX M: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH L33 & L34 & (MAP1 OR MAP2) O/S.....	53

APPENDIX N: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH L33 & L34 & (MAP1 OR MAP2) & (MMS1 OR MMS2) O/S.....	57
APPENDIX O: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH L33 & L34 & MAP1 & MAP2 O/S.....	61
APPENDIX P: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MAP1&MAP2 O/S.....	65
APPENDIX Q: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MAP1&MAP2 & (L33 OR L34) O/S.....	69
APPENDIX R: TRANSFER CASE INTERFACE FLOW REPORT/ANGLE FREQUENCY AND VOLTAGE RESPONSES WITH MAP1&MAP2 & (L33 OR L34) & (MMS1 OR MMS2) O/S.....	73

Transfer Cases

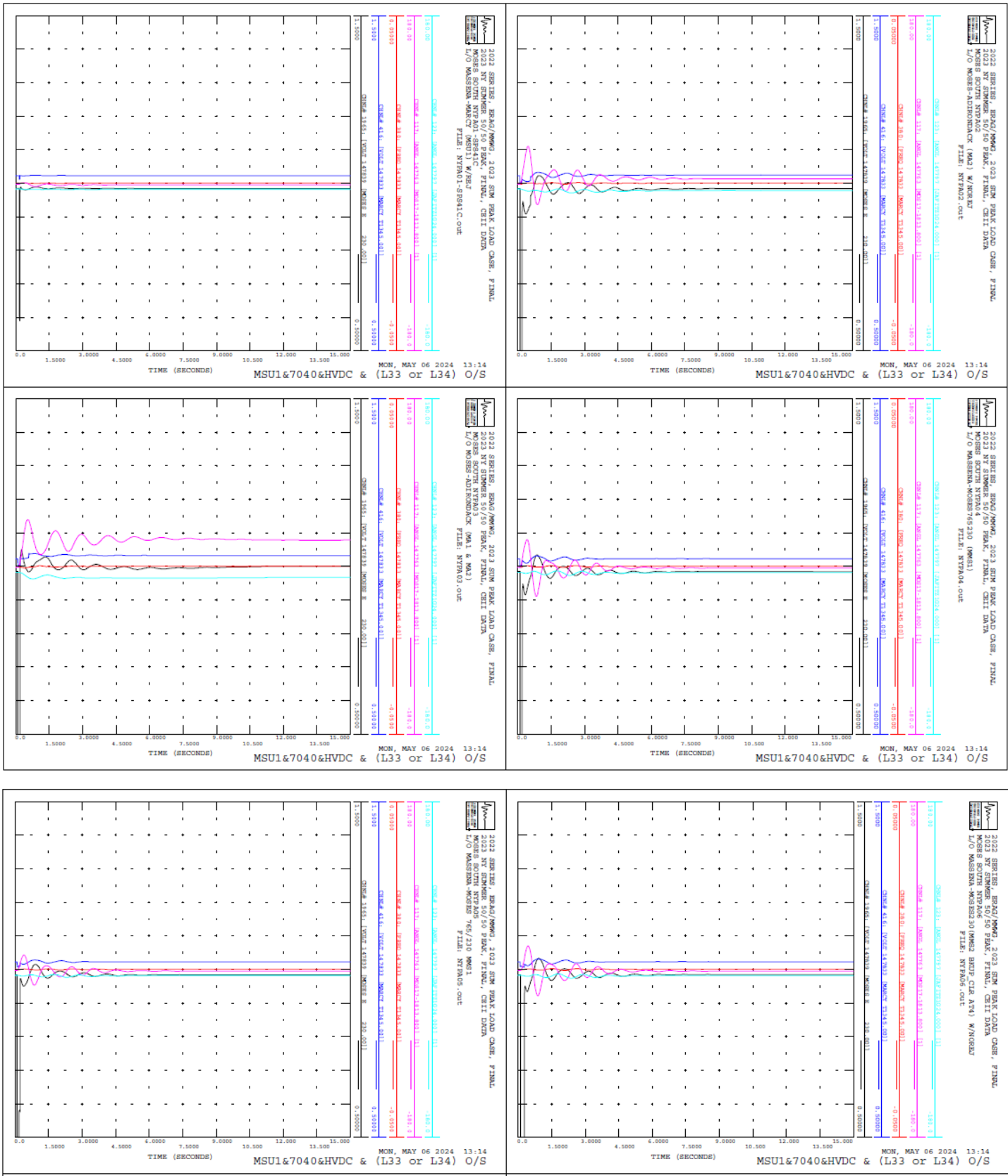
Transfer Cases	
A	MS 950, MSU1&7040&HVDC & (L33 or L34) O/S
B	MS 725, MSU1&7040&HVDC & (MAP1 or MAP2) O/S
C	MS 725, MSU1&7040&HVDC & (L33 or L34) & (MAP1 or MAP2) O/S
D	MS 350, MSU1&7040&HVDC & MAP1 & MAP2 O/S
E	MS 350, MSU1&7040&HVDC & MAP1 & MAP2 & (L33 or L34) O/S
F	MS 950, MSU1&7040&HVDC & R8105 O/S
G	MS 725, MSU1&7040&HVDC & R8105 & (MAP1 or MAP 2) O/S
H	MS 950, MSU1&7040&HVDC & R8105 & (L33 or L34) O/S
I	MS 950, MSU1&7040&HVDC & R8105 & DS 5 115 kV O/S
J	MS 950, MSU1&7040&HVDC & R8105 & NS 4 115 kV O/S
K	MS 950, MSU1&7040&HVDC & DS 5 115 kV O/S
L	MS 950, MSU1&7040&HVDC & NS 4 115 kV O/S
M	MS 2275, L33 & L34 & (MAP1 or MAP2) O/S
N	MS 2275, L33 & L34 & (MAP1 or MAP2) & (MMS1 or MMS2) O/S
O	MS 1875, L33 & L34 & MAP1 & MAP2 O/S
P	MS 3100, MAP1&MAP2 O/S
Q	MS 2850, MAP1&MAP2 & (L33 or L34) O/S
R	MS 2750, MAP1&MAP2 & (L33 or L34) & (MMS1 or MMS2) O/S

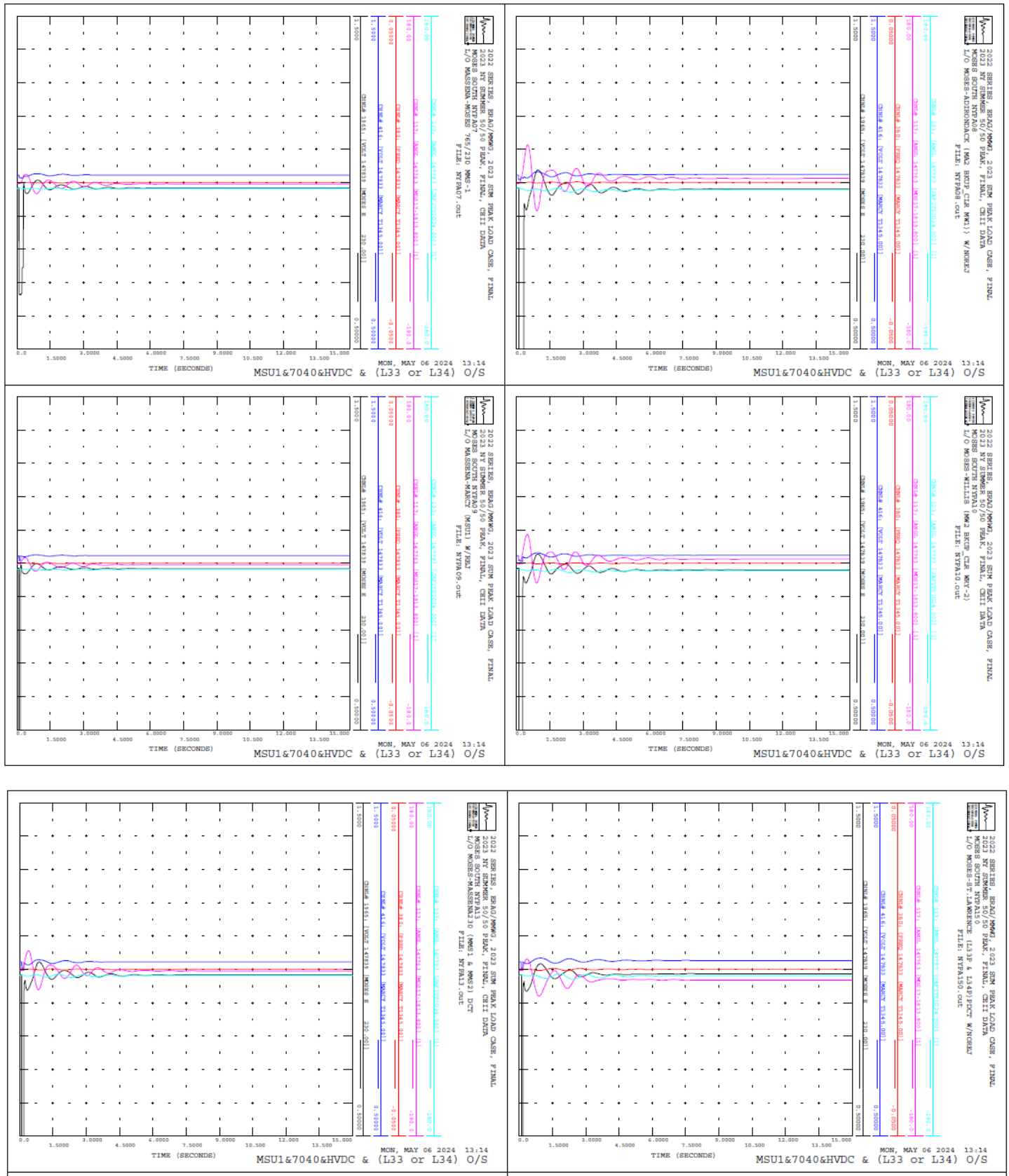
Appendix A: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & (L33 or L34) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	361.4	5.8	DYSE-CLOSE	1245.1	1.8
WEST-CENTRAL	-707.5	127.1	WESTC-CLOSE	176.2	392.9
VOLNEY-EAST	2359.5	-87.2	VOLNEY-CLOSE	3256.4	196.9
MOSES-SOUTH	966.9	91.8	MOSES-CLOSE	787.3	9.2
CENTRAL-EAST	1626.9	-211.9	TOTAL-EAST	2158.9	-375.5
UPNY-SENY	2396.7	-190.2	UPNY-SENY-CL	3212.8	17.9
UPNY-CONED	4473.4	78.5	UPNY-CON-CL	5864.1	144.8
MILLWOOD-SO	5312.5	138.8	LIPA-IMPORT	2021.8	61.5
DNWDIE-SO-PL	3455.8	-325.3	DNWDIE-SO-PC	4846.5	-259.0
DNWDIE-SO-OP	2513.8	-125.0	ABC-JK-PAR	-185.5	308.6
SENY-115kV	61.1	-61.6	SENY-F-To-G	1213.3	-113.7
PJM-NY	-183.2	-150.9	NE-NY-WCSC	587.2	55.5
ON-NY	503.3	143.8	ONT-MICH-PAR	-0.5	-1.6
NORTHERN-EXPORT	787.3	2.7			





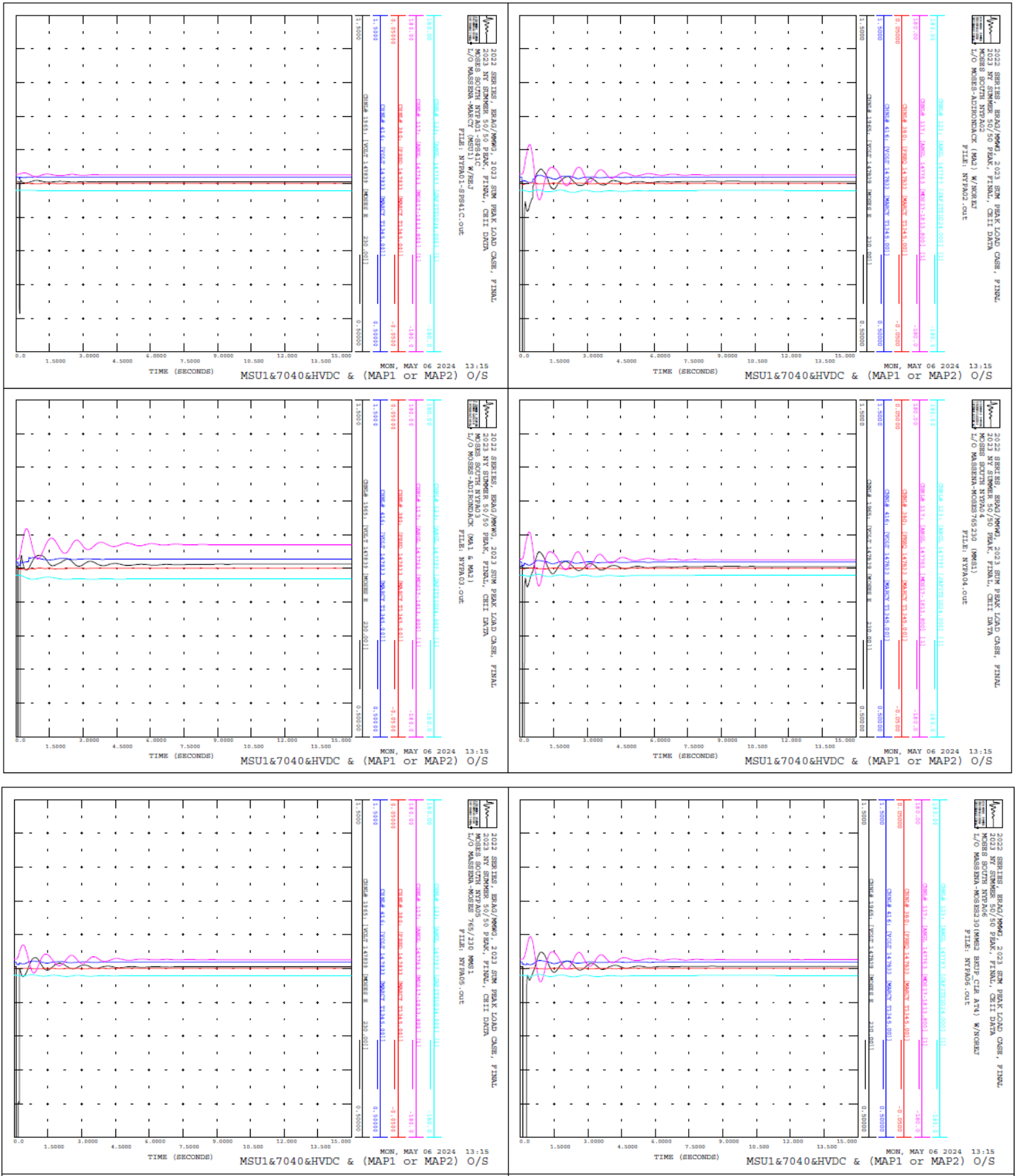


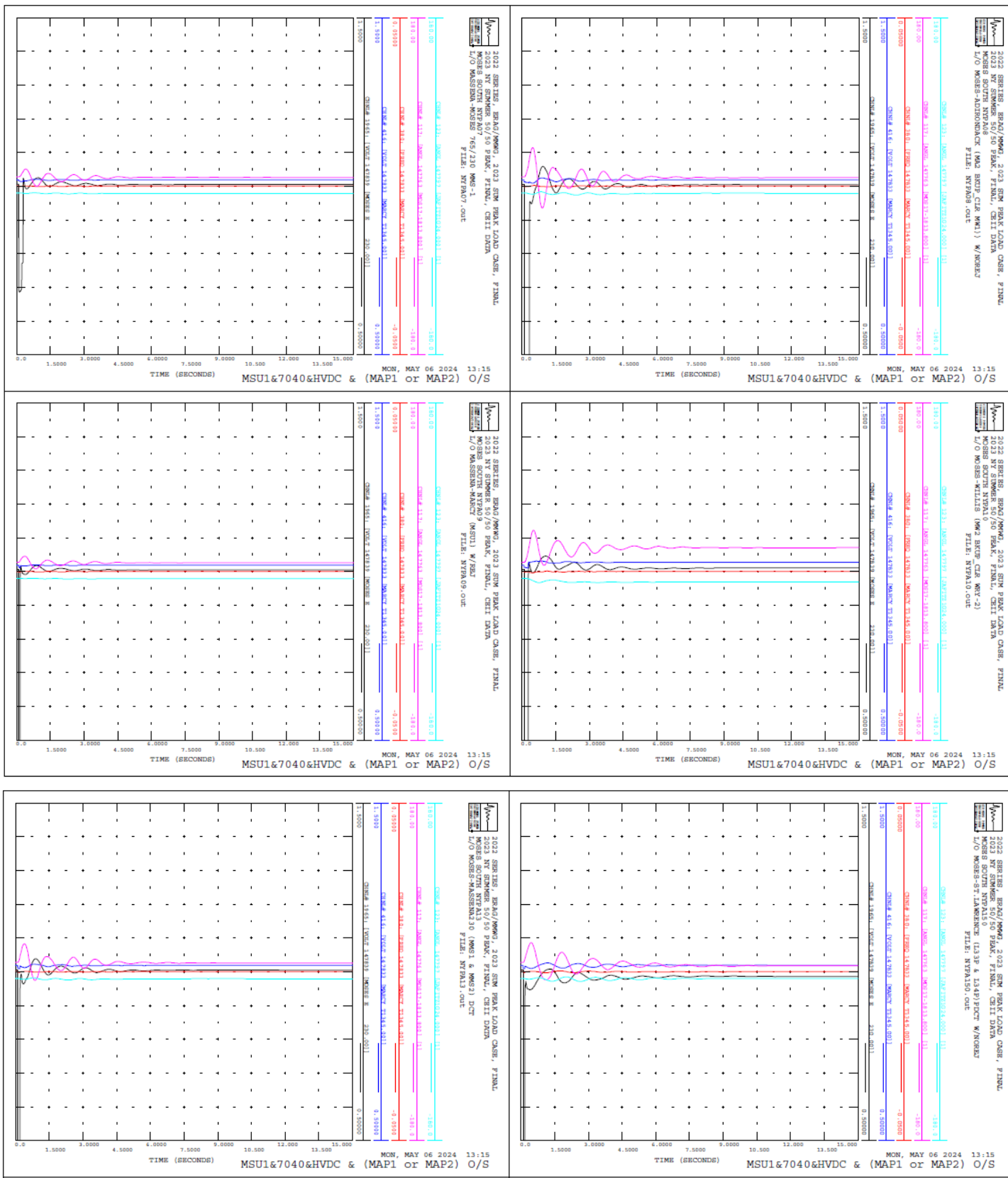
Appendix B: Transfer Case Interface Flow Report/ Angle Frequency and Voltage Responses With MSU1&7040&HVDC & (MAP1 or MAP2) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	508.8	-16.5	DYSE-CLOSE	1242.9	90.3
WEST-CENTRAL	-560.0	137.5	WESTC-CLOSE	174.2	514.0
VOLNEY-EAST	2515.6	-39.6	VOLNEY-CLOSE	3258.0	354.1
MOSES-SOUTH	742.1	88.8	MOSES-CLOSE	789.2	-105.7
CENTRAL-EAST	1619.7	-239.8	TOTAL-EAST	2159.0	-412.4
UPNY-SENY	2370.7	-200.5	UPNY-SENY-CL	3209.3	7.0
UPNY-CONED	4475.1	77.1	UPNY-CON-CL	5866.0	143.3
MILLWOOD-SO	5314.1	137.9	LIPA-IMPORT	2021.8	61.3
DNWDIE-SO-PL	3455.7	-325.9	DNWDIE-SO-PC	4846.6	-259.7
DNWDIE-SO-OP	2513.6	-125.4	ABC-JK-PAR	-163.0	308.1
SENY-115kV	60.5	-61.7	SENY-F-To-G	1202.4	-117.9
PJM-NY	-187.2	-148.8	NE-NY-WCSC	569.1	57.2
ON-NY	505.5	248.3	ONT-MICH-PAR	-3.1	-3.1
NORTHERN-EXPORT	789.2	-112.6			



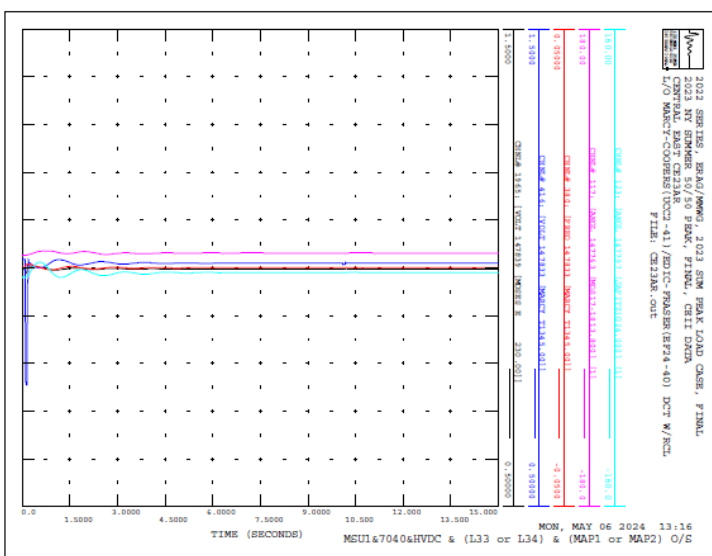
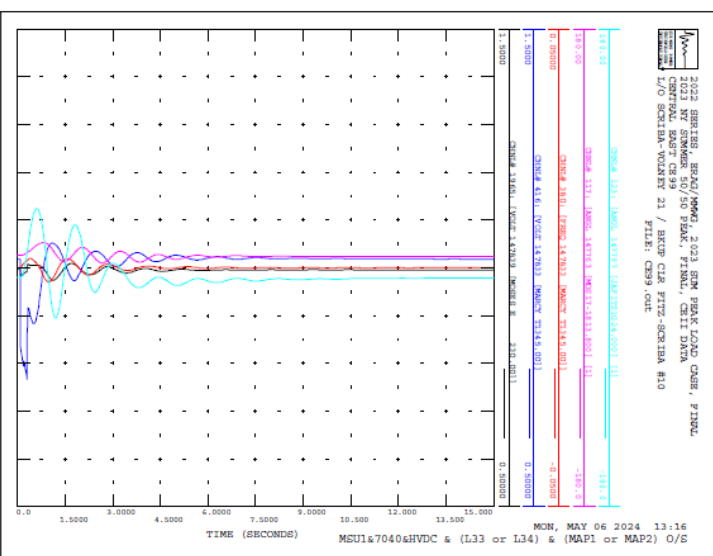


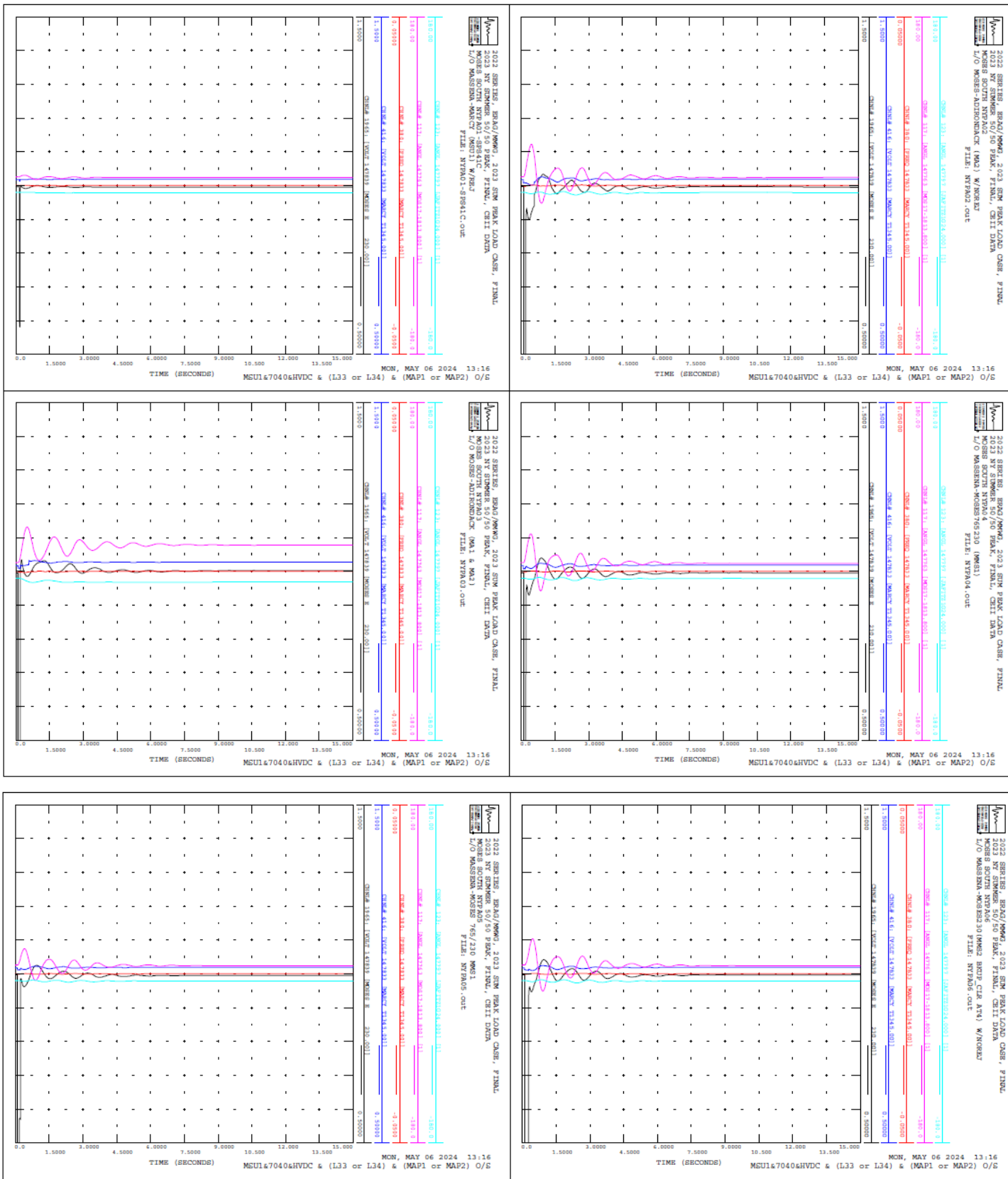


Appendix C: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & (L33 or L34) & (MAP1 or MAP2) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	511.0	-16.6	DYSE-CLOSE	1244.0	18.8
WEST-CENTRAL	-557.7	137.8	WESTC-CLOSE	175.3	442.9
VOLNEY-EAST	2518.0	-37.5	VOLNEY-CLOSE	3258.8	284.7
MOSES-SOUTH	737.5	79.8	MOSES-CLOSE	788.1	-44.9
CENTRAL-EAST	1618.9	-242.7	TOTAL-EAST	2158.9	-415.8
UPNY-SENY	2370.1	-201.0	UPNY-SENY-CL	3209.6	6.4
UPNY-CONED	4475.0	76.9	UPNY-CON-CL	5866.2	143.0
MILLWOOD-SO	5314.2	137.8	LIPA-IMPORT	2021.8	61.3
DNWDIE-SO-PL	3455.4	-325.9	DNWDIE-SO-PC	4846.6	-259.7
DNWDIE-SO-OP	2513.3	-125.4	ABC-JK-PAR	-162.1	308.1
SENY-115kV	60.4	-61.7	SENY-F-To-G	1201.9	-118.1
PJM-NY	-185.8	-148.7	NE-NY-WCSC	569.0	58.9
ON-NY	505.1	249.8	ONT-MICH-PAR	-1.9	-3.1
NORTHERN-EXPORT	788.1	-51.6			



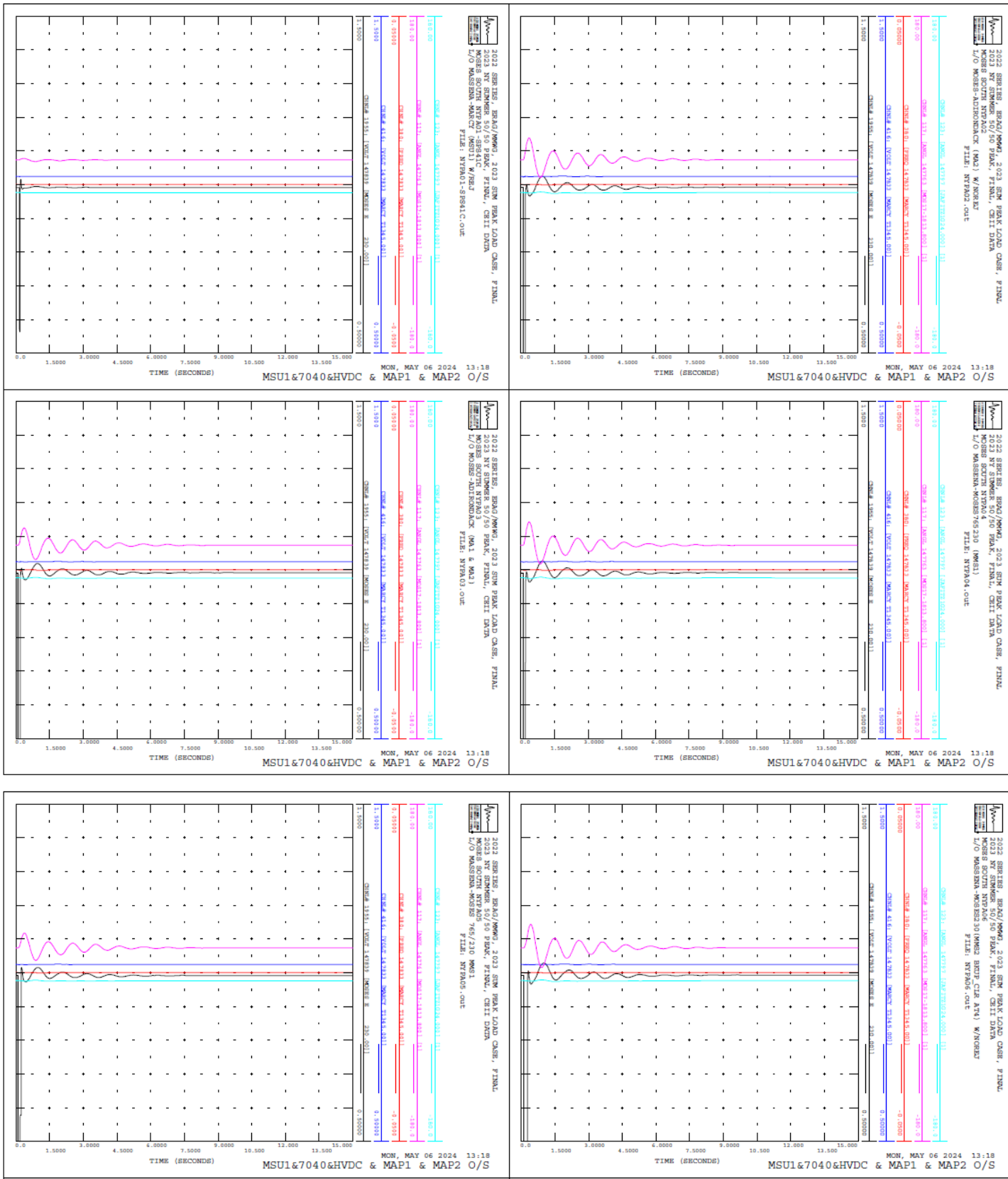


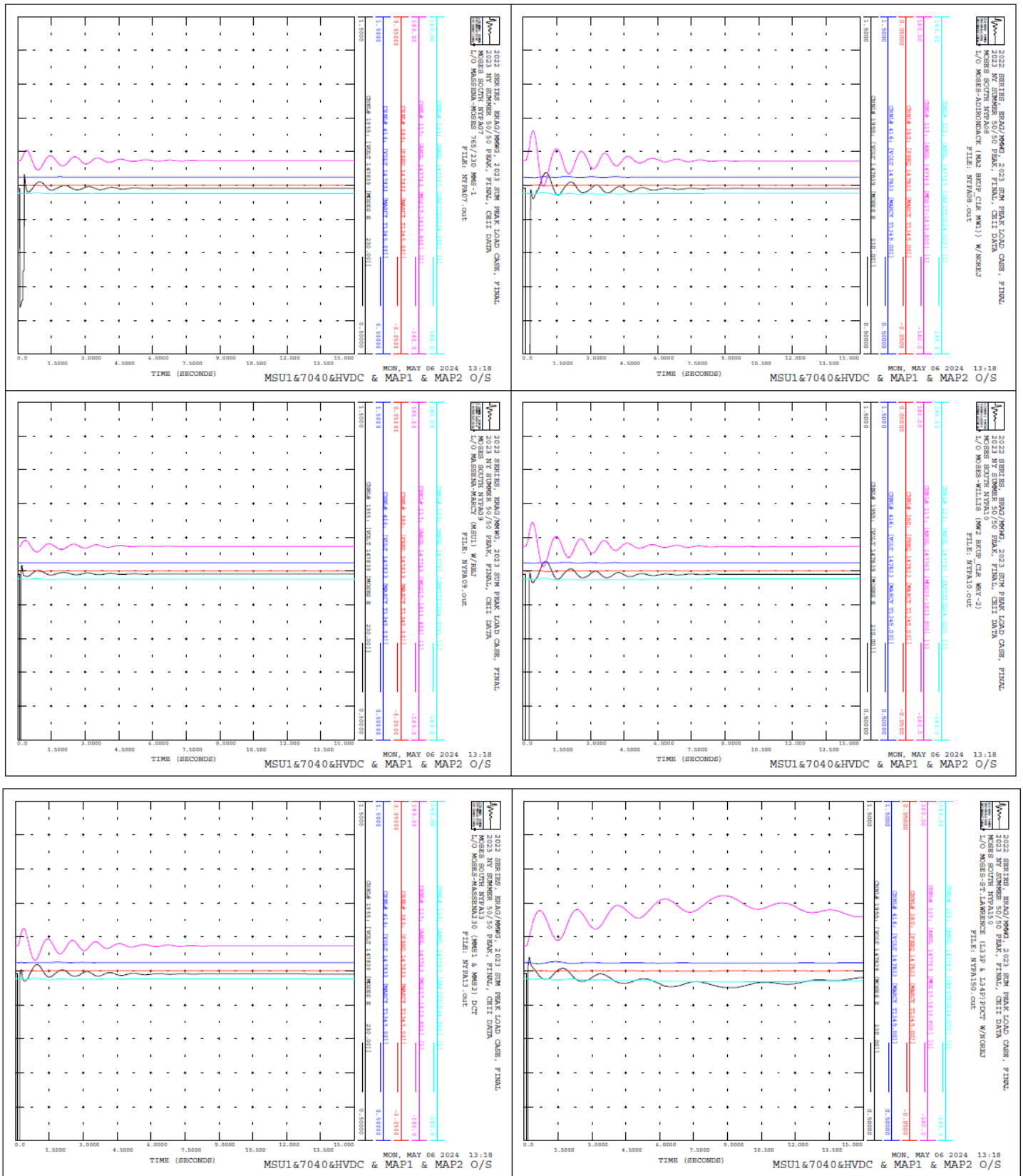
Appendix D: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & MAP1 & MAP2 O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	682.5	-48.8	DYSE-CLOSE	1235.8	-138.8
WEST-CENTRAL	-385.9	135.6	WESTC-CLOSE	167.4	315.4
VOLNEY-EAST	2697.3	-82.1	VOLNEY-CLOSE	3247.3	111.6
MOSES-SOUTH	336.4	-4.1	MOSES-CLOSE	667.1	-2.6
CENTRAL-EAST	1455.0	-178.5	TOTAL-EAST	1939.0	-384.0
UPNY-SENY	2373.6	-199.5	UPNY-SENY-CL	3232.5	7.4
UPNY-CONED	4460.4	88.2	UPNY-CON-CL	5850.7	154.4
MILLWOOD-SO	5307.4	138.0	LIPA-IMPORT	2021.6	60.4
DNWDIE-SO-PL	3455.8	-328.9	DNWDIE-SO-PC	4846.2	-262.7
DNWDIE-SO-OP	2513.4	-127.6	ABC-JK-PAR	-142.0	307.6
SENY-115kV	61.6	-62.1	SENY-F-To-G	1240.7	-113.1
PJM-NY	-182.9	-144.8	NE-NY-WCSC	521.3	57.7
ON-NY	504.7	39.5	ONT-MICH-PAR	-2.1	-3.3
NORTHERN-EXPORT	667.1	-9.3			





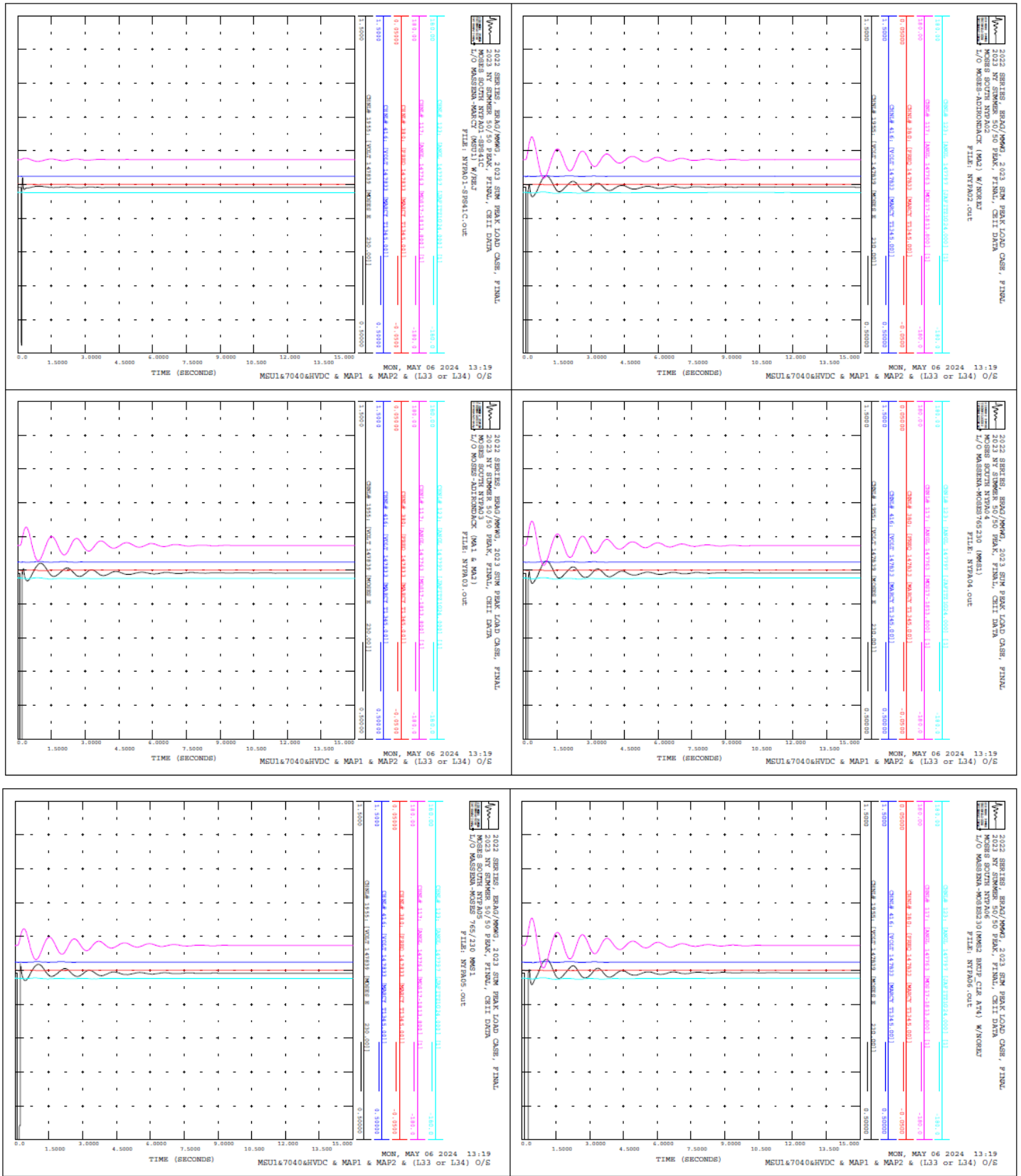


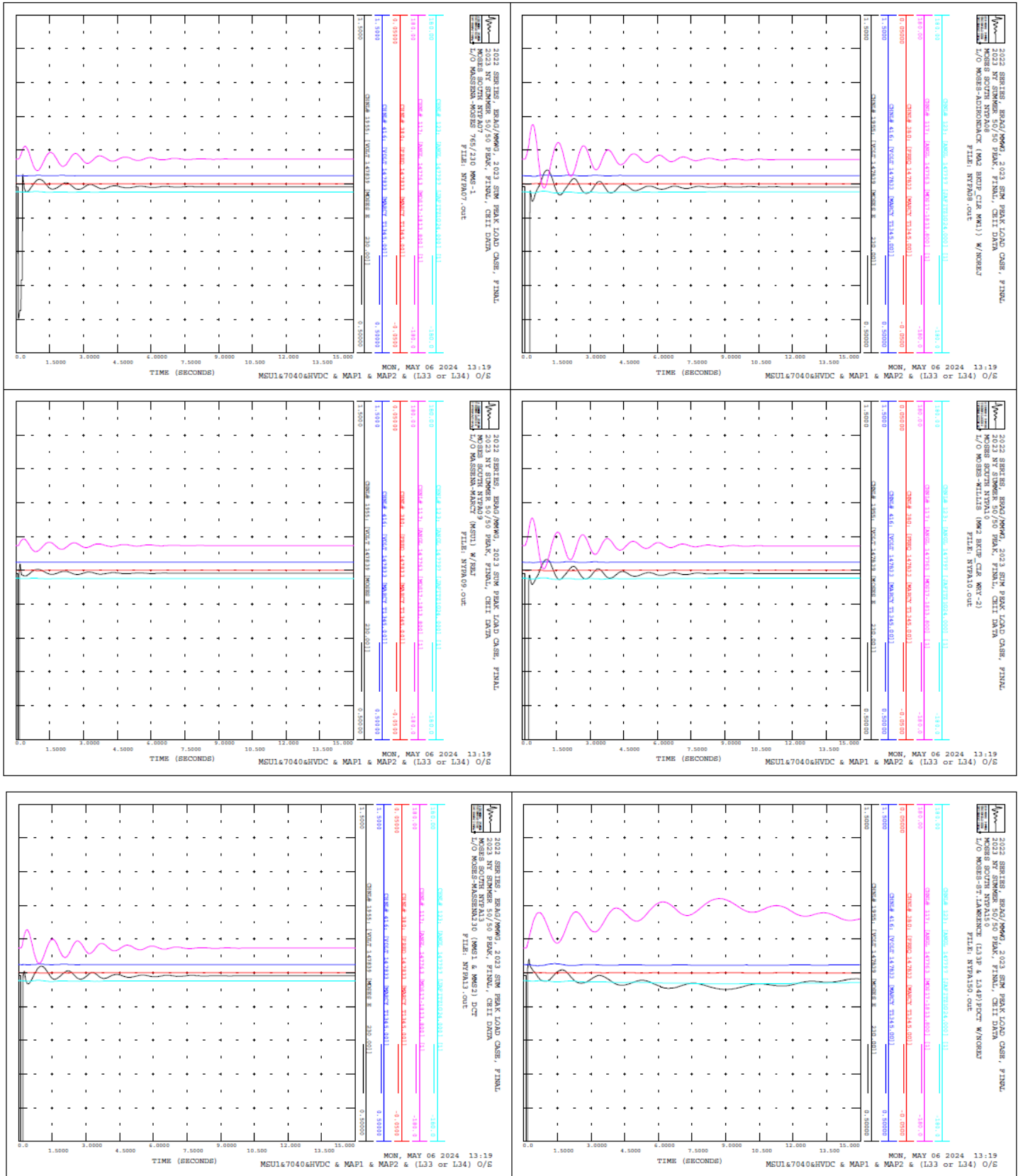
Appendix E: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & MAP1 & MAP2 & (L33 or L34) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	682.4	-48.8	DYSE-CLOSE	1235.7	-138.4
WEST-CENTRAL	-386.0	135.6	WESTC-CLOSE	167.3	315.7
VOLNEY-EAST	2697.1	-82.1	VOLNEY-CLOSE	3247.2	112.0
MOSES-SOUTH	336.5	-4.0	MOSES-CLOSE	667.2	-2.8
CENTRAL-EAST	1455.1	-178.5	TOTAL-EAST	1939.0	-384.0
UPNY-SENY	2373.8	-199.5	UPNY-SENY-CL	3232.4	7.4
UPNY-CONED	4460.3	88.2	UPNY-CON-CL	5850.7	154.5
MILLWOOD-SO	5307.4	137.9	LIPA-IMPORT	2021.6	60.4
DNWDIE-SO-PL	3455.8	-328.9	DNWDIE-SO-PC	4846.2	-262.7
DNWDIE-SO-OP	2513.3	-127.6	ABC-JK-PAR	-142.2	307.6
SENY-115kV	61.6	-62.1	SENY-F-To-G	1240.7	-113.1
PJM-NY	-183.0	-144.8	NE-NY-WCSC	521.2	57.7
ON-NY	504.8	39.9	ONT-MICH-PAR	-2.3	-3.2
NORTHERN-EXPORT	667.2	-9.5			



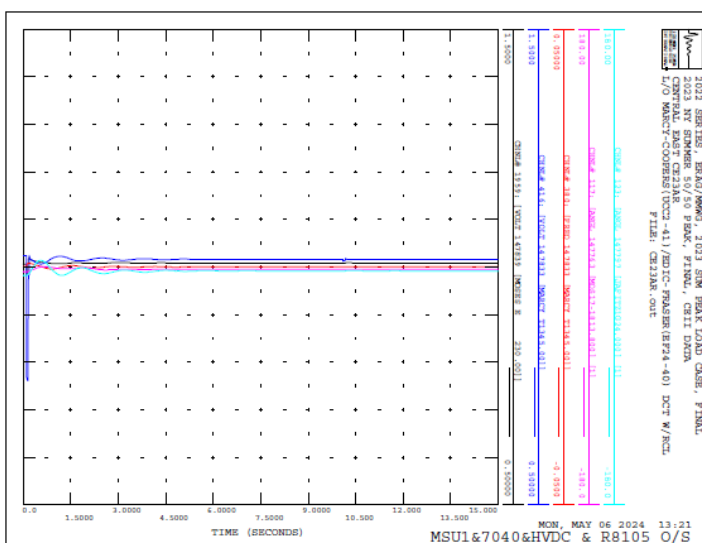


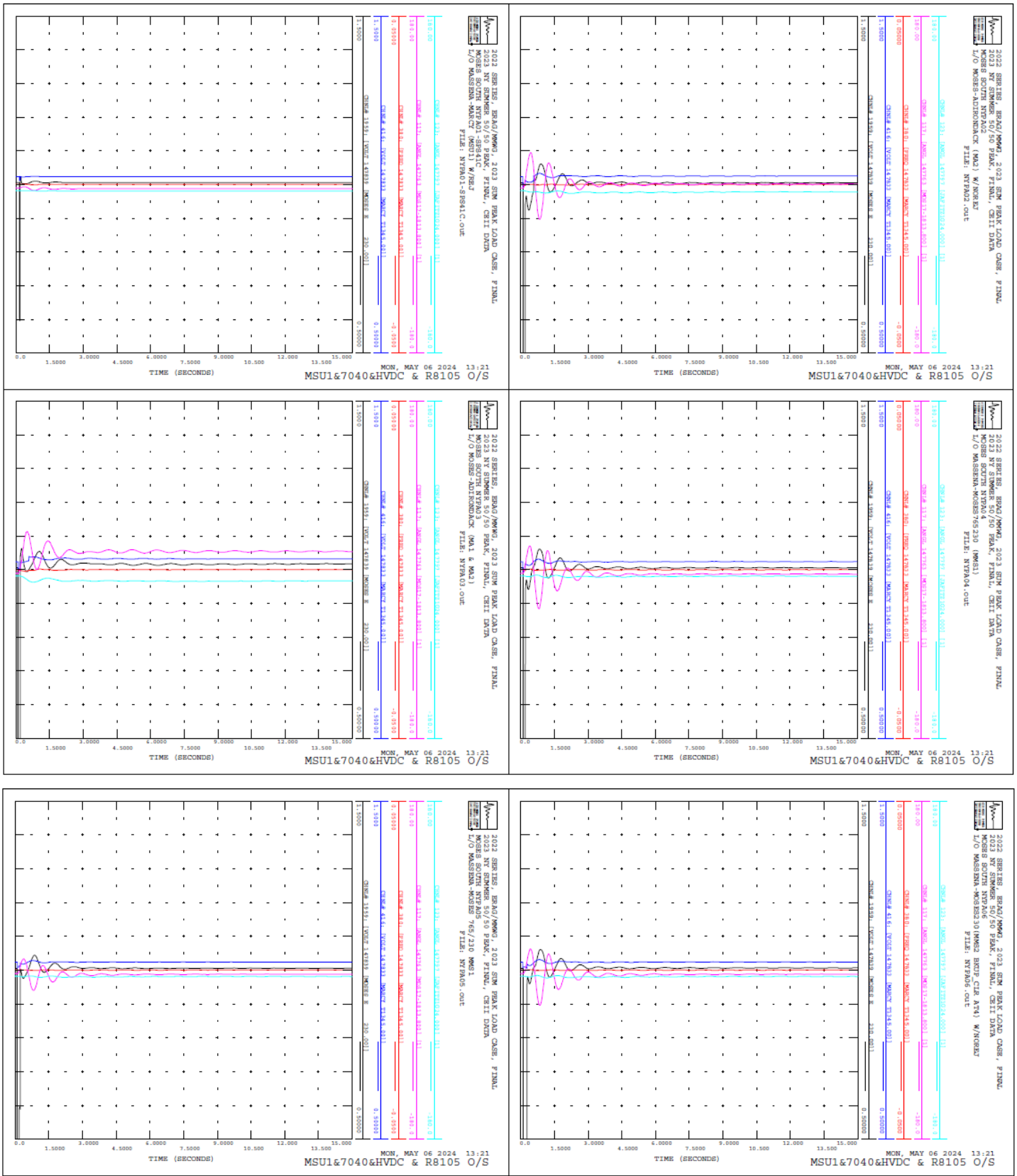


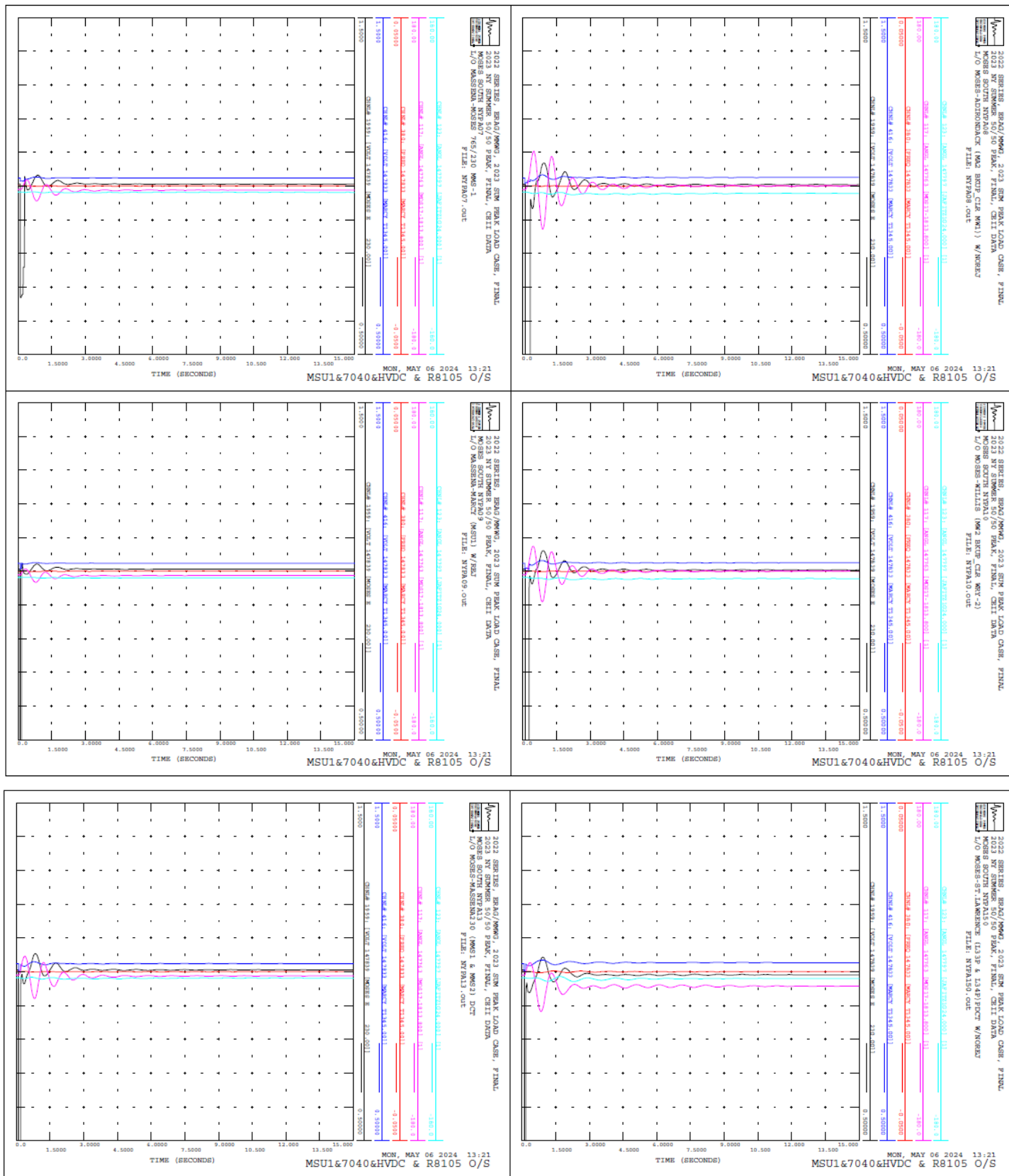
Appendix F: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & R8105 O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	364.1	5.1	DYSE-CLOSE	1246.3	109.3
WEST-CENTRAL	-704.5	127.3	WESTC-CLOSE	177.6	501.4
VOLNEY-EAST	2364.5	-95.1	VOLNEY-CLOSE	3256.0	298.5
MOSES-SOUTH	983.7	92.6	MOSES-CLOSE	787.6	-97.7
CENTRAL-EAST	1591.5	-200.1	TOTAL-EAST	2099.1	-356.5
UPNY-SENY	2365.9	-183.2	UPNY-SENY-CL	3174.5	24.0
UPNY-CONED	4479.6	75.0	UPNY-CON-CL	5870.1	141.1
MILLWOOD-SO	5315.1	140.0	LIPA-IMPORT	2021.7	62.5
DNWDIE-SO-PL	3455.9	-321.8	DNWDIE-SO-PC	4846.3	-255.7
DNWDIE-SO-OP	2513.8	-122.5	ABC-JK-PAR	-192.7	307.5
SENY-115kV	60.3	-61.3	SENY-F-To-G	1197.2	-113.2
PJM-NY	-183.6	-153.7	NE-NY-WCSC	596.4	50.2
ON-NY	504.9	254.1	ONT-MICH-PAR	-2.2	-2.3
NORTHERN-EXPORT	787.6	-104.5			





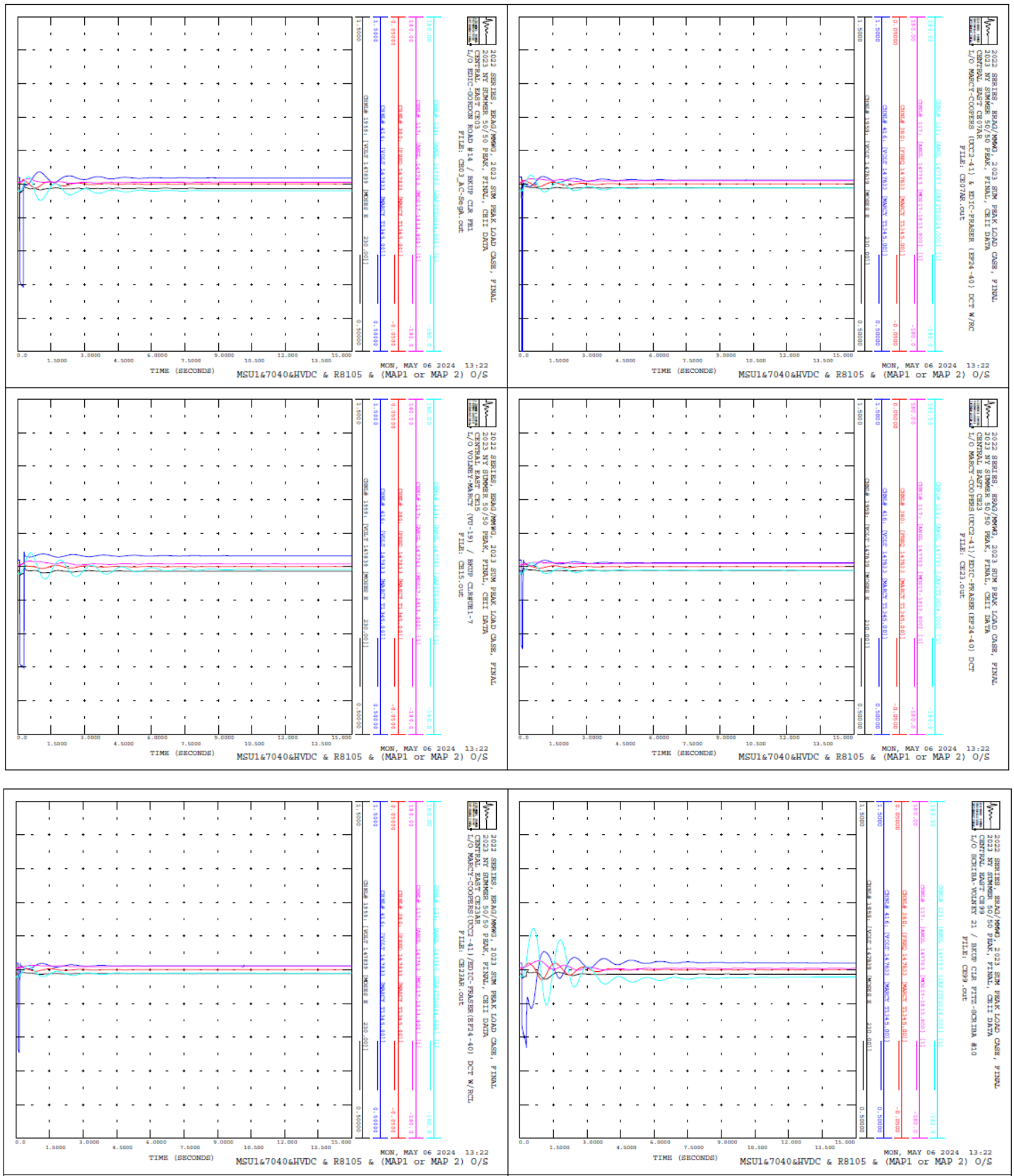


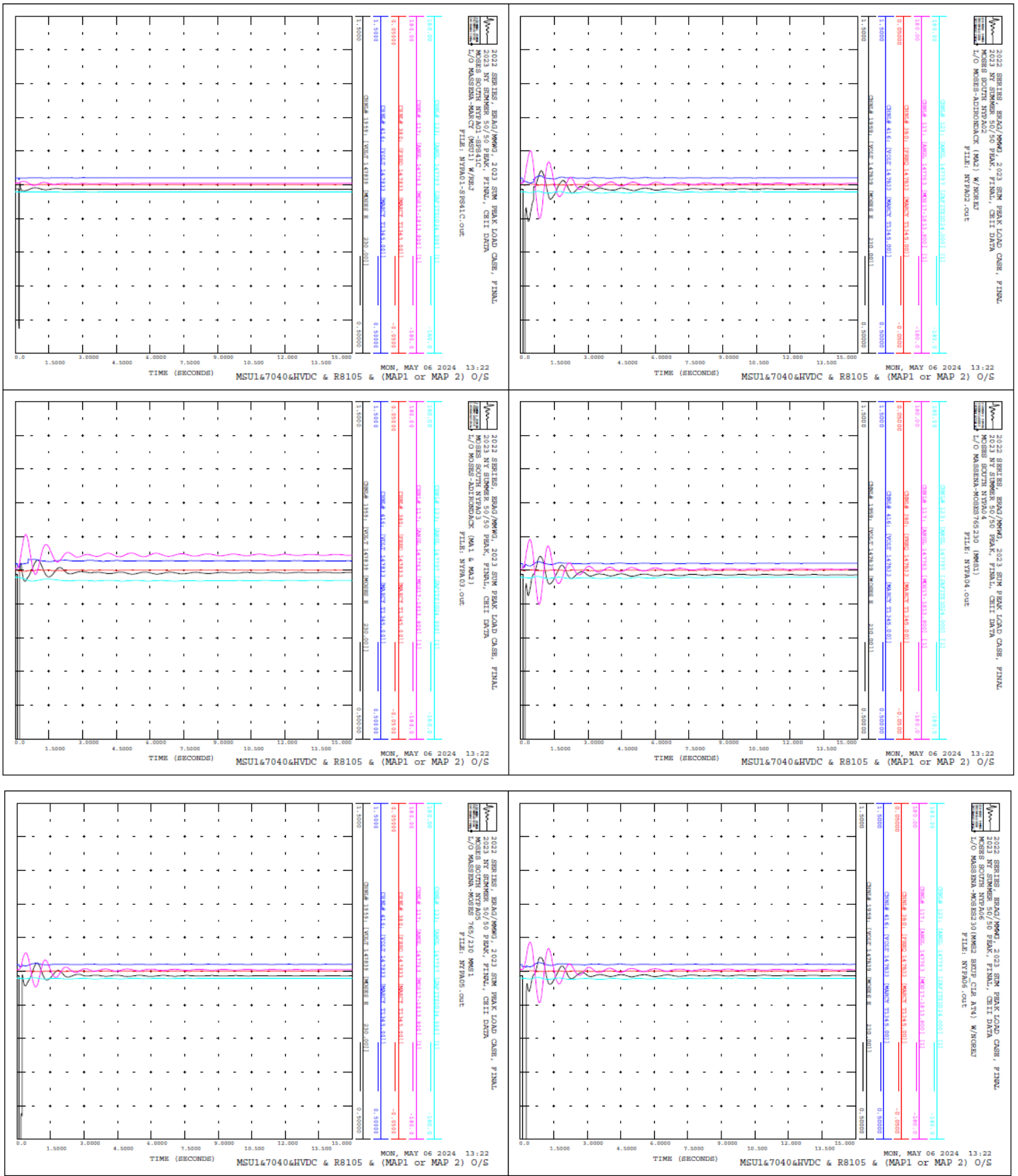
Appendix G: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & R8105 & (MAP1 or MAP2) O/S

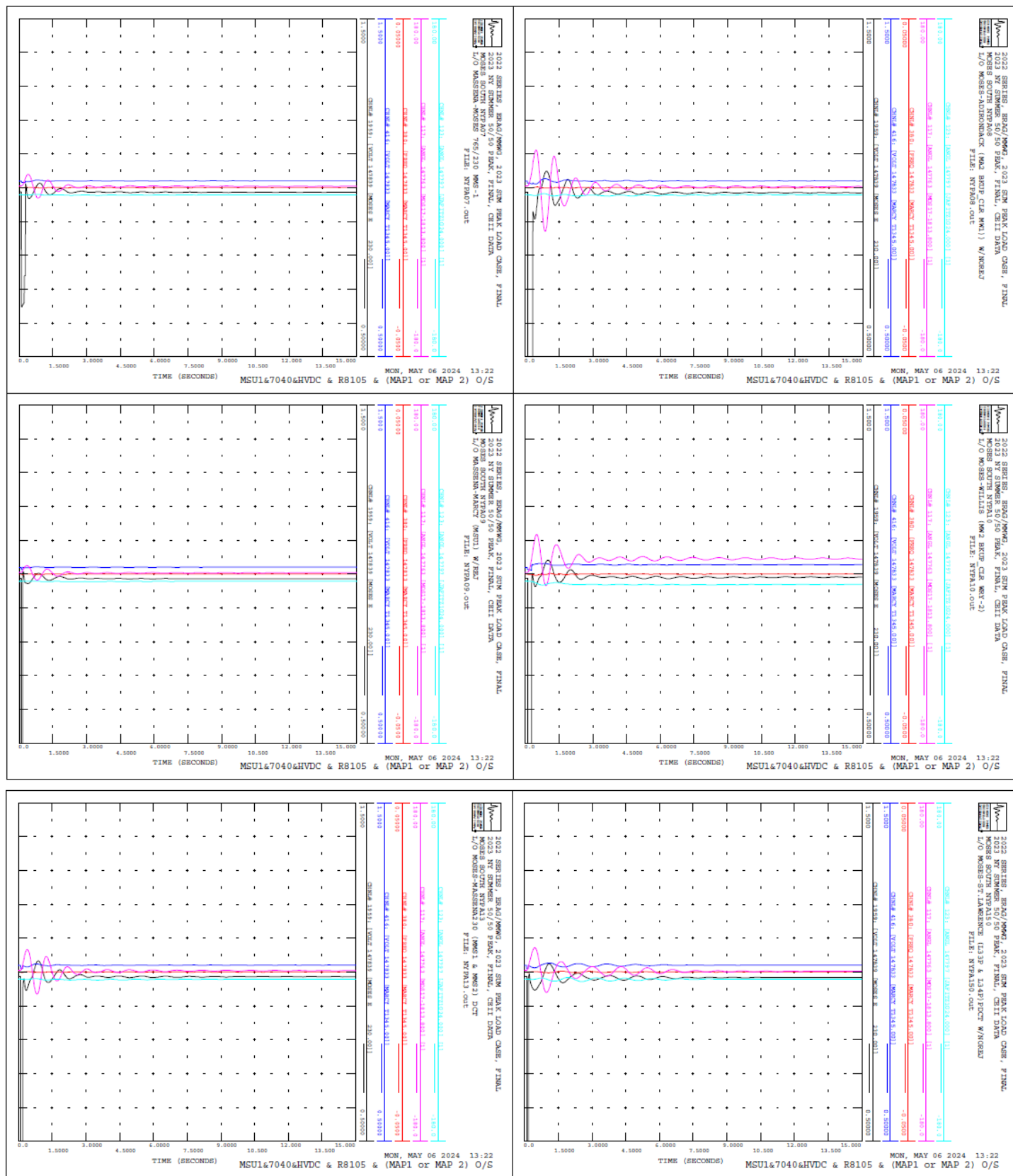
INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	528.1	-20.1	DYSE-CLOSE	1244.1	-68.2
WEST-CENTRAL	-540.5	137.8	WESTC-CLOSE	175.4	359.5
VOLNEY-EAST	2536.6	-53.5	VOLNEY-CLOSE	3254.3	187.1
MOSES-SOUTH	727.6	70.9	MOSES-CLOSE	748.0	29.1
CENTRAL-EAST	1554.7	-229.4	TOTAL-EAST	2069.0	-393.3
UPNY-SENY	2326.0	-191.5	UPNY-SENY-CL	3159.9	14.3
UPNY-CONED	4485.4	70.3	UPNY-CON-CL	5876.6	136.2
MILLWOOD-SO	5318.9	139.6	LIPA-IMPORT	2021.7	62.8
DNWDIE-SO-PL	3455.2	-320.4	DNWDIE-SO-PC	4846.3	-254.5
DNWDIE-SO-OP	2513.3	-121.5	ABC-JK-PAR	-167.8	306.4
SENY-115kV	59.3	-61.3	SENY-F-To-G	1177.7	-117.5
PJM-NY	-184.5	-153.0	NE-NY-WCSC	593.6	54.3
ON-NY	503.9	97.3	ONT-MICH-PAR	-0.8	-2.4
NORTHERN-EXPORT	748.0	22.4			

ANGLE FREQUENCY AND VOLTAGE RESPONSES





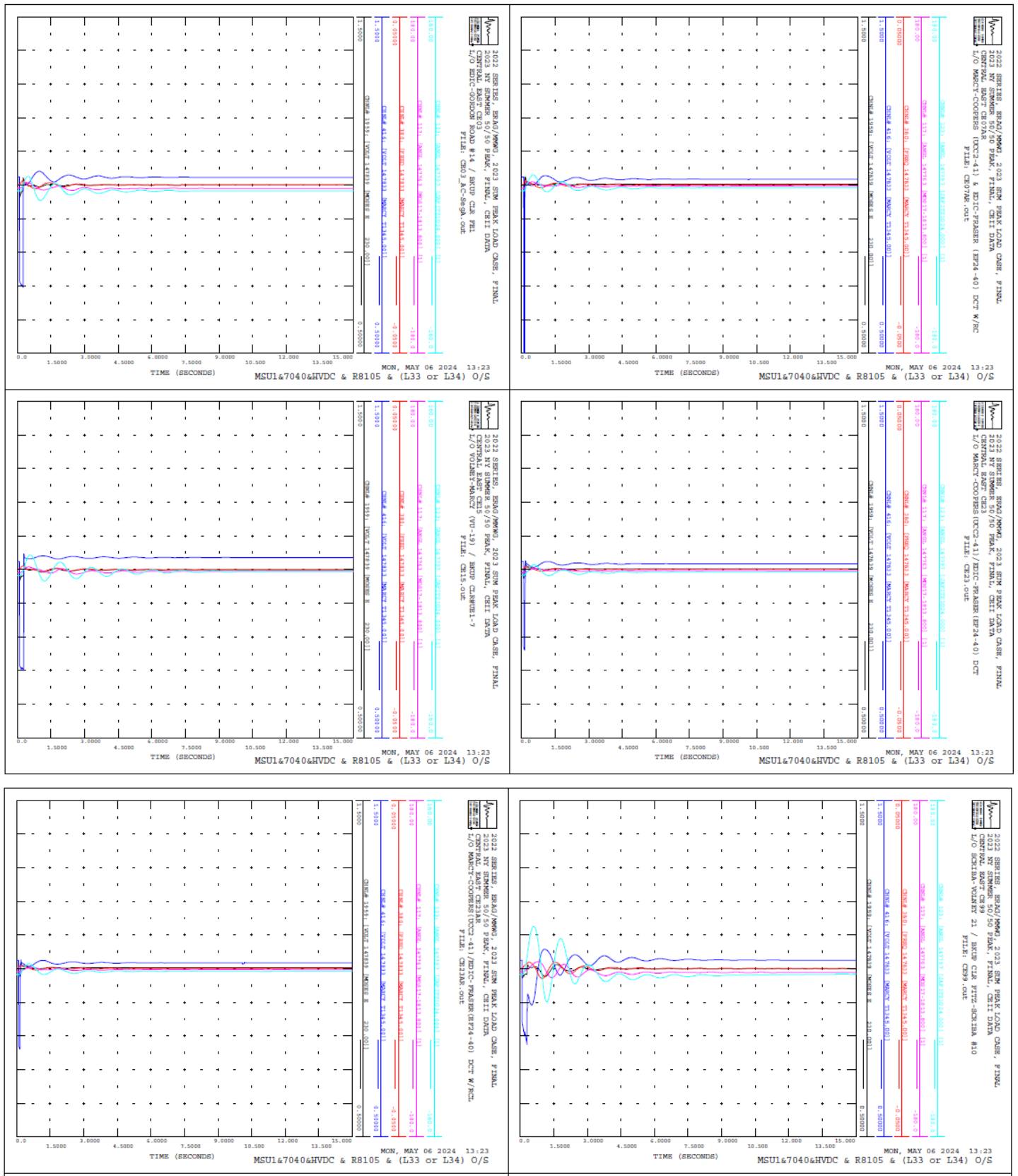


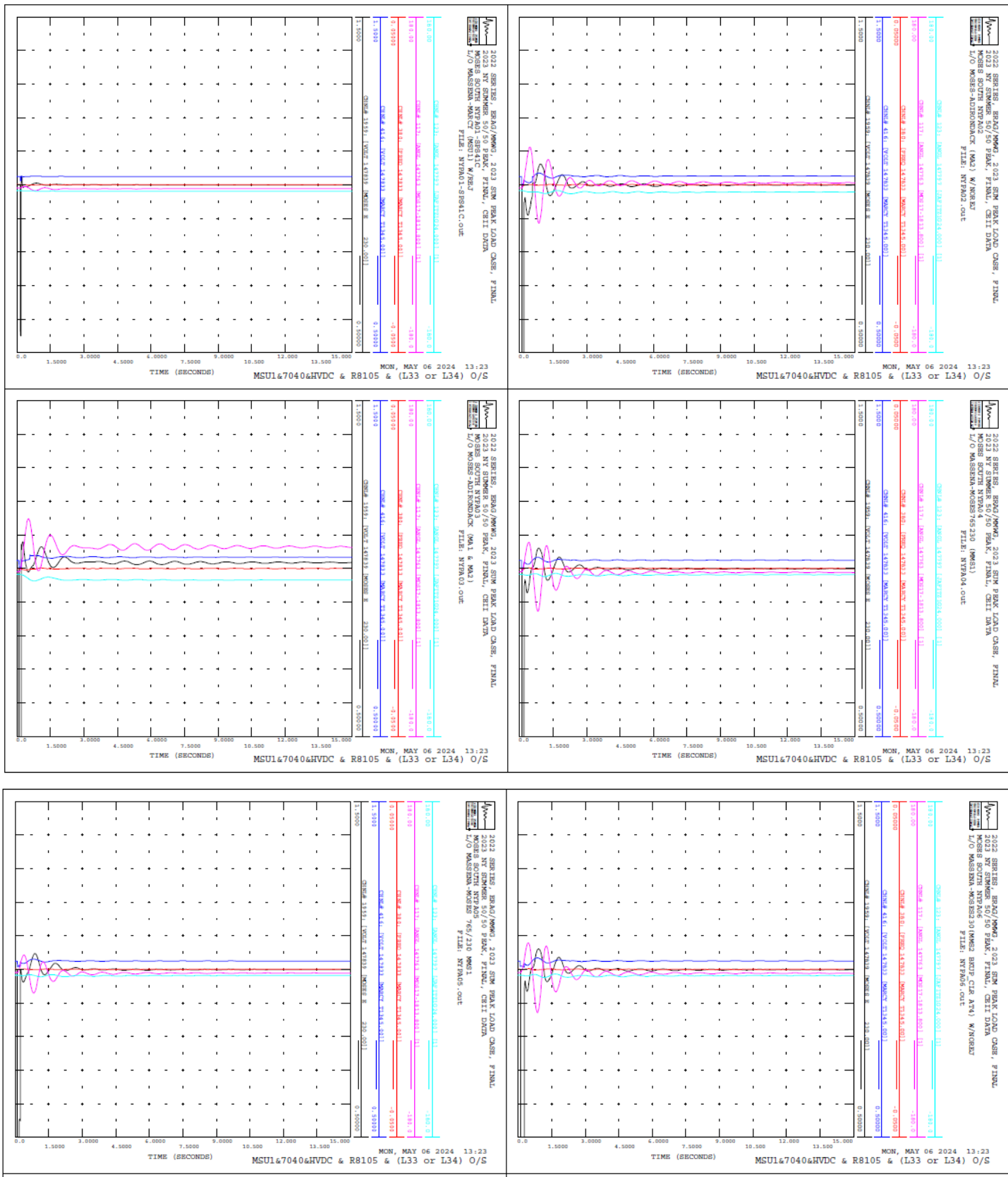
Appendix H: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & R8105 & (L33 or L34) O/S

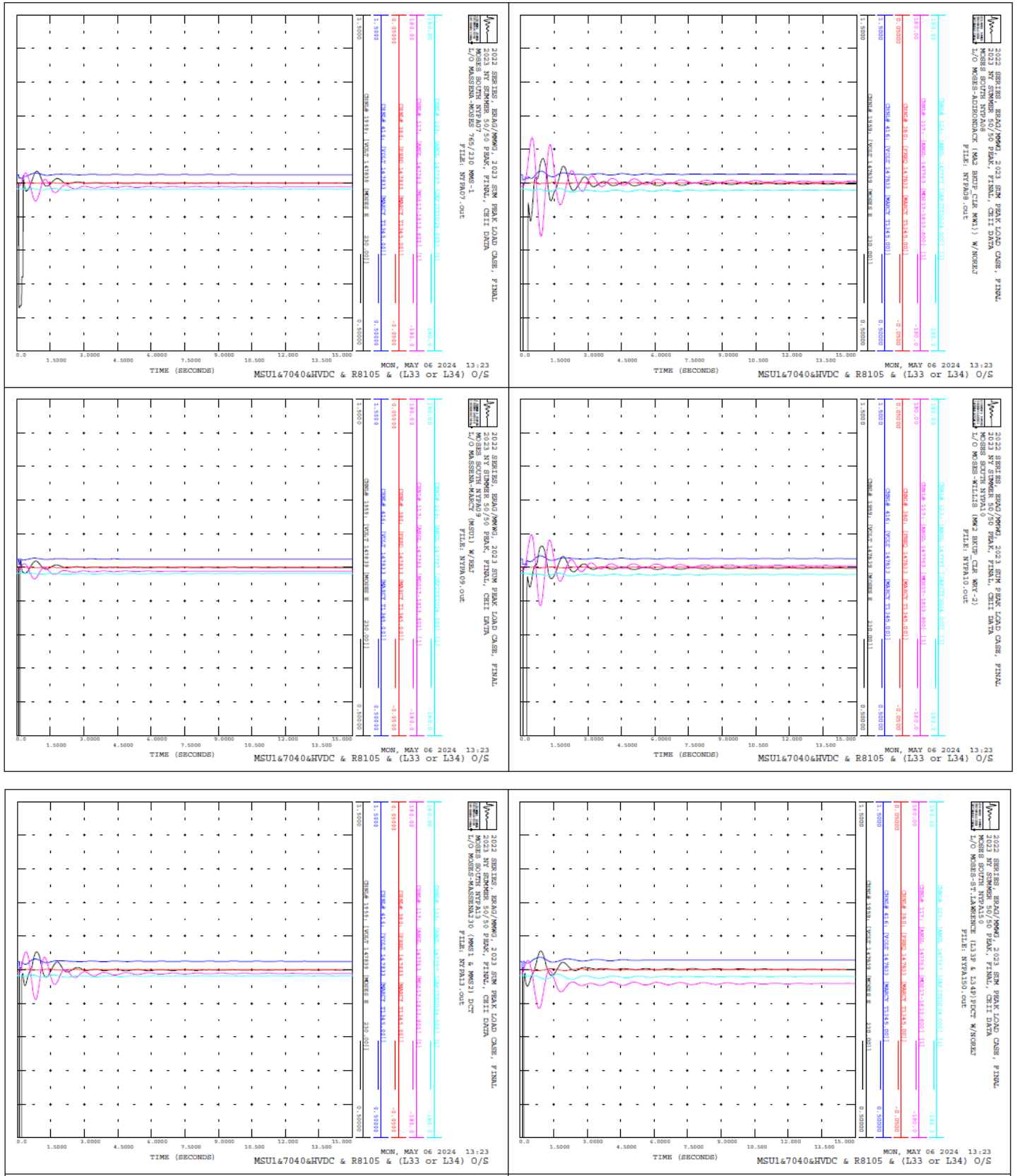
INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	363.0	4.8	DYSE-CLOSE	1245.4	-11.9
WEST-CENTRAL	-705.6	126.7	WESTC-CLOSE	176.7	379.8
VOLNEY-EAST	2368.0	-103.6	VOLNEY-CLOSE	3262.6	168.8
MOSES-SOUTH	984.1	108.1	MOSES-CLOSE	787.7	41.0
CENTRAL-EAST	1605.0	-192.4	TOTAL-EAST	2128.5	-348.8
UPNY-SENY	2380.9	-181.7	UPNY-SENY-CL	3194.8	25.8
UPNY-CONED	4475.6	78.8	UPNY-CON-CL	5864.6	145.2
MILLWOOD-SO	5311.4	140.4	LIPA-IMPORT	2021.7	62.1
DNWDIE-SO-PL	3457.3	-323.6	DNWDIE-SO-PC	4846.3	-257.3
DNWDIE-SO-OP	2515.1	-123.6	ABC-JK-PAR	-187.1	307.7
SENY-115kV	60.7	-61.4	SENY-F-To-G	1204.0	-111.5
PJM-NY	-184.9	-153.2	NE-NY-WCSC	595.1	48.3
ON-NY	505.6	132.8	ONT-MICH-PAR	-2.4	-1.4
NORTHERN-EXPORT	787.7	34.2			

ANGLE FREQUENCY AND VOLTAGE RESPONSES





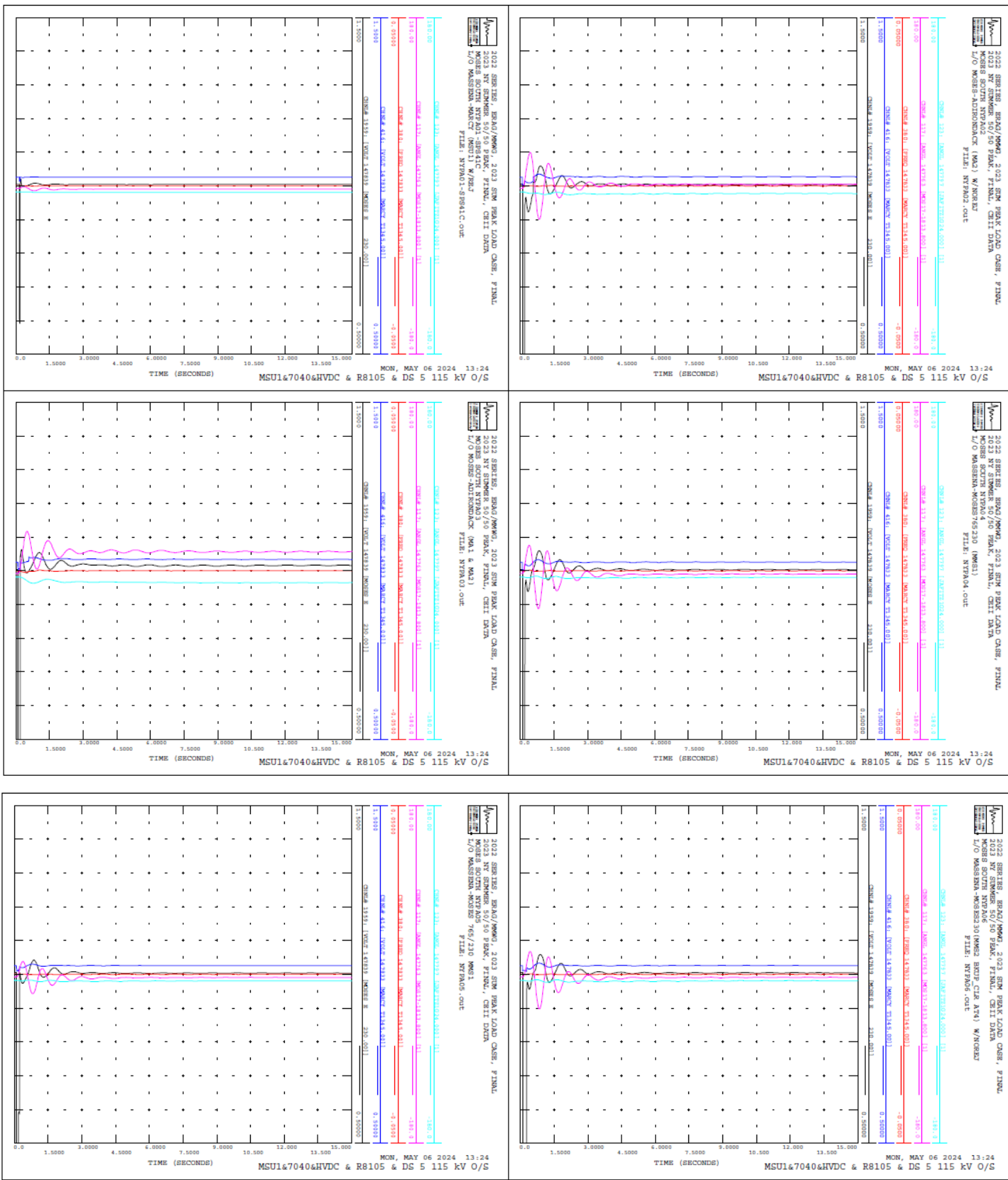


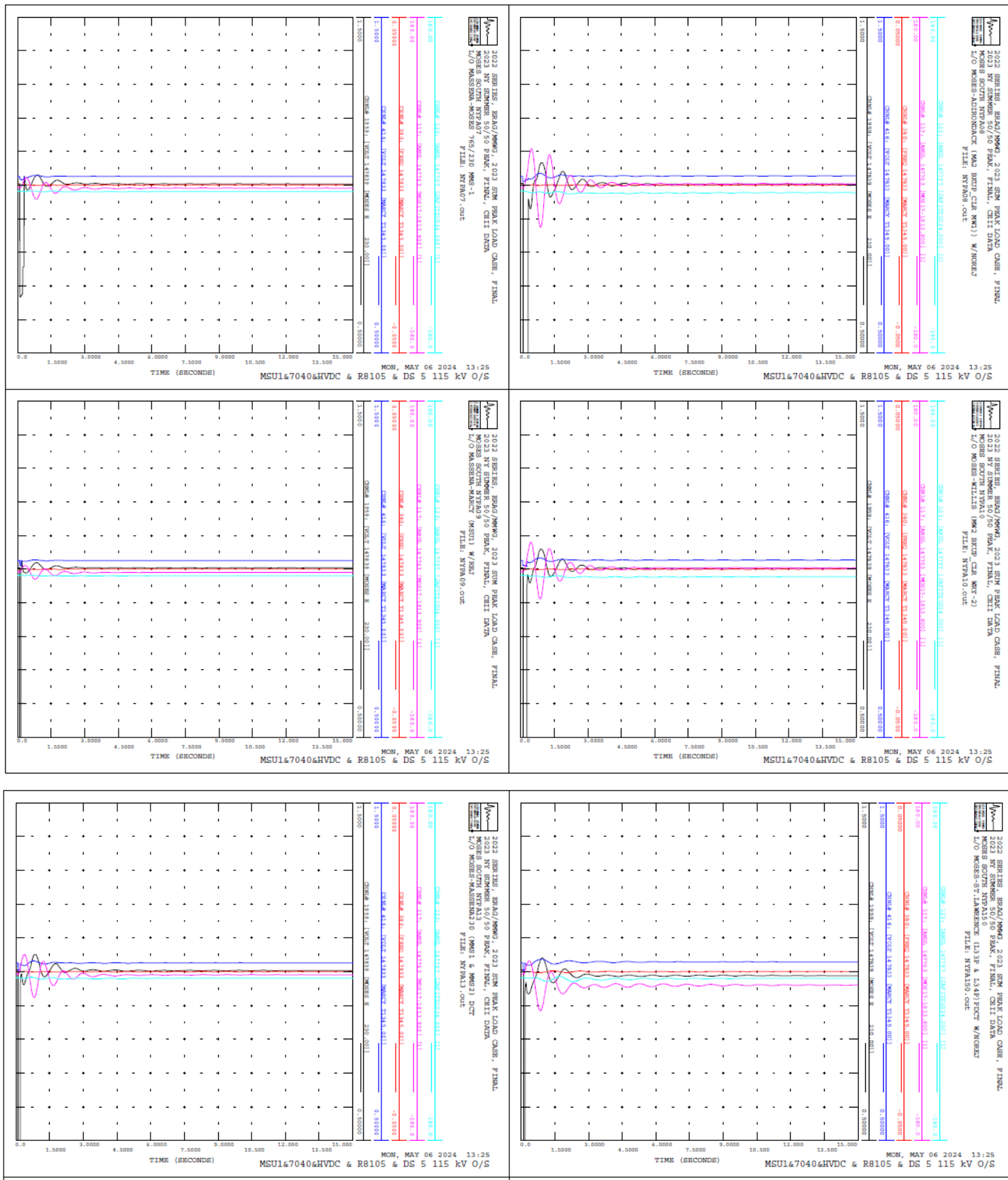
Appendix I: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & R8105 & DS 5 115kV O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	364.2	3.5	DYSE-CLOSE	1246.4	108.9
WEST-CENTRAL	-704.5	125.8	WESTC-CLOSE	177.7	501.0
VOLNEY-EAST	2364.6	-112.3	VOLNEY-CLOSE	3255.3	283.6
MOSES-SOUTH	982.9	152.1	MOSES-CLOSE	787.9	-42.3
CENTRAL-EAST	1591.0	-191.1	TOTAL-EAST	2099.0	-342.9
UPNY-SENY	2365.3	-177.4	UPNY-SENY-CL	3175.1	28.9
UPNY-CONED	4479.8	75.4	UPNY-CON-CL	5870.2	141.4
MILLWOOD-SO	5315.3	140.8	LIPA-IMPORT	2021.7	62.9
DNWDIE-SO-PL	3455.8	-320.3	DNWDIE-SO-PC	4846.3	-254.2
DNWDIE-SO-OP	2514.0	-121.4	ABC-JK-PAR	-191.8	306.7
SENY-115kV	60.3	-61.2	SENY-F-To-G	1196.9	-111.6
PJM-NY	-181.7	-156.0	NE-NY-WCSC	596.9	48.9
ON-NY	503.0	256.9	ONT-MICH-PAR	-0.0	-2.5
NORTHERN-EXPORT	787.9	-49.2			





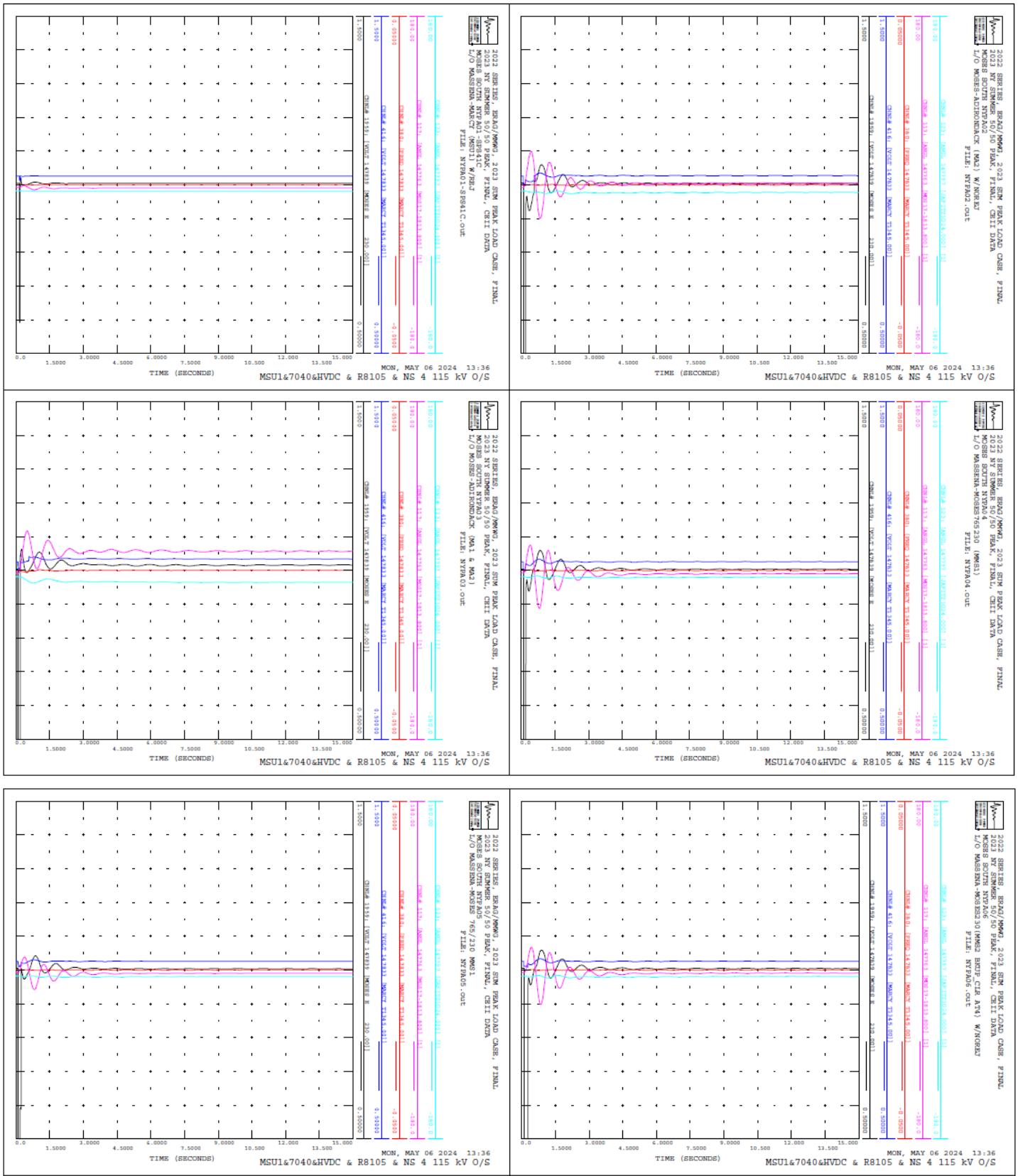


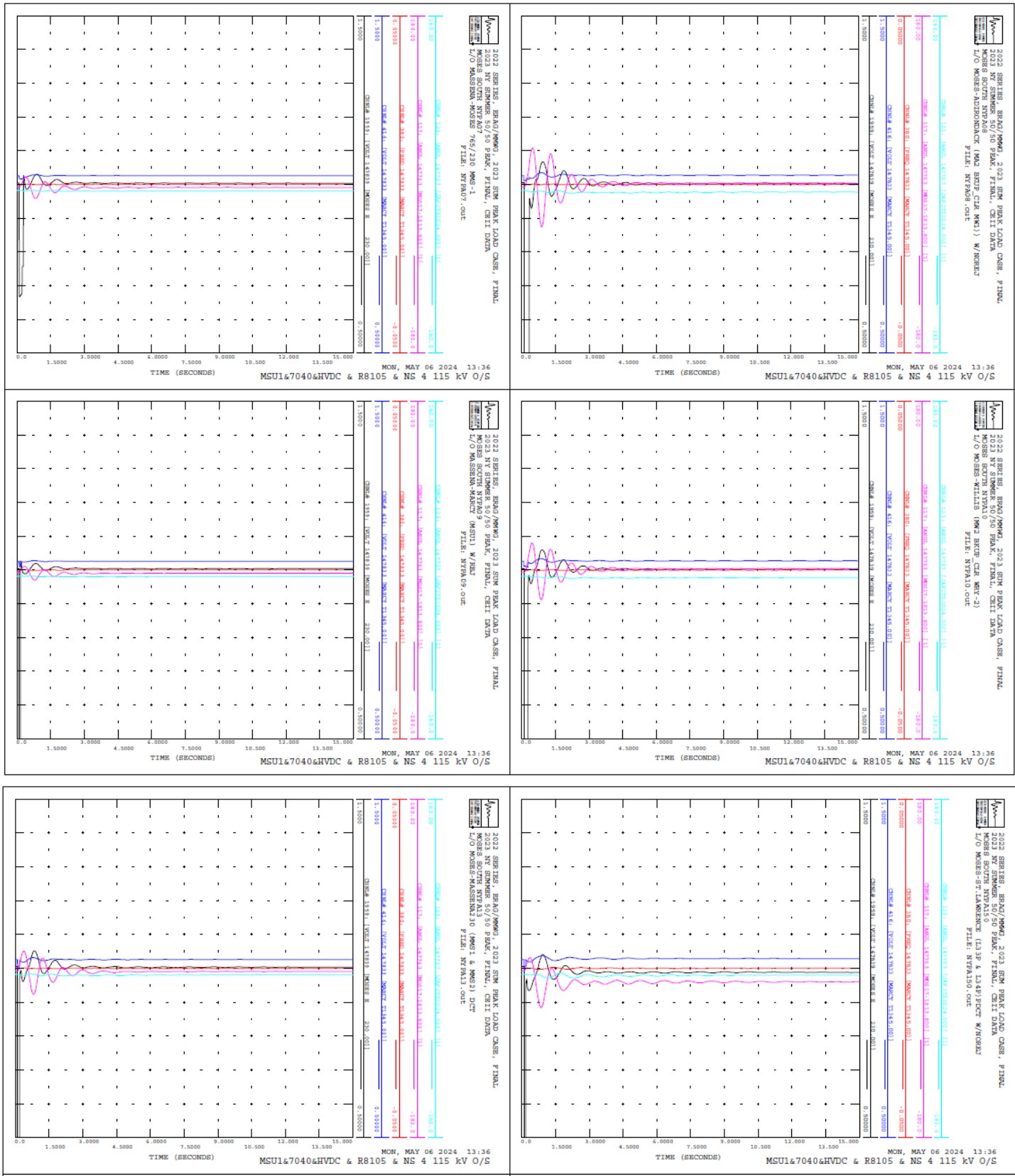
Appendix J: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & R8105 & NS 4 115kV O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	364.3	3.5	DYSE-CLOSE	1246.4	108.8
WEST-CENTRAL	-704.5	125.8	WESTC-CLOSE	177.6	501.0
VOLNEY-EAST	2364.6	-112.4	VOLNEY-CLOSE	3255.2	283.4
MOSES-SOUTH	982.9	149.1	MOSES-CLOSE	787.9	-45.2
CENTRAL-EAST	1591.0	-191.0	TOTAL-EAST	2099.0	-342.7
UPNY-SENY	2365.4	-177.4	UPNY-SENY-CL	3175.1	29.0
UPNY-CONED	4479.7	75.4	UPNY-CON-CL	5870.2	141.4
MILLWOOD-SO	5315.3	140.8	LIPA-IMPORT	2021.7	62.9
DNWDIE-SO-PL	3455.8	-320.3	DNWDIE-SO-PC	4846.3	-254.2
DNWDIE-SO-OP	2514.0	-121.4	ABC-JK-PAR	-191.9	306.8
SENY-115kV	60.3	-61.2	SENY-F-To-G	1197.0	-111.6
PJM-NY	-181.8	-156.0	NE-NY-WCSC	596.9	48.8
ON-NY	503.1	256.8	ONT-MICH-PAR	-0.0	-2.5
NORTHERN-EXPORT	787.9	-52.1			





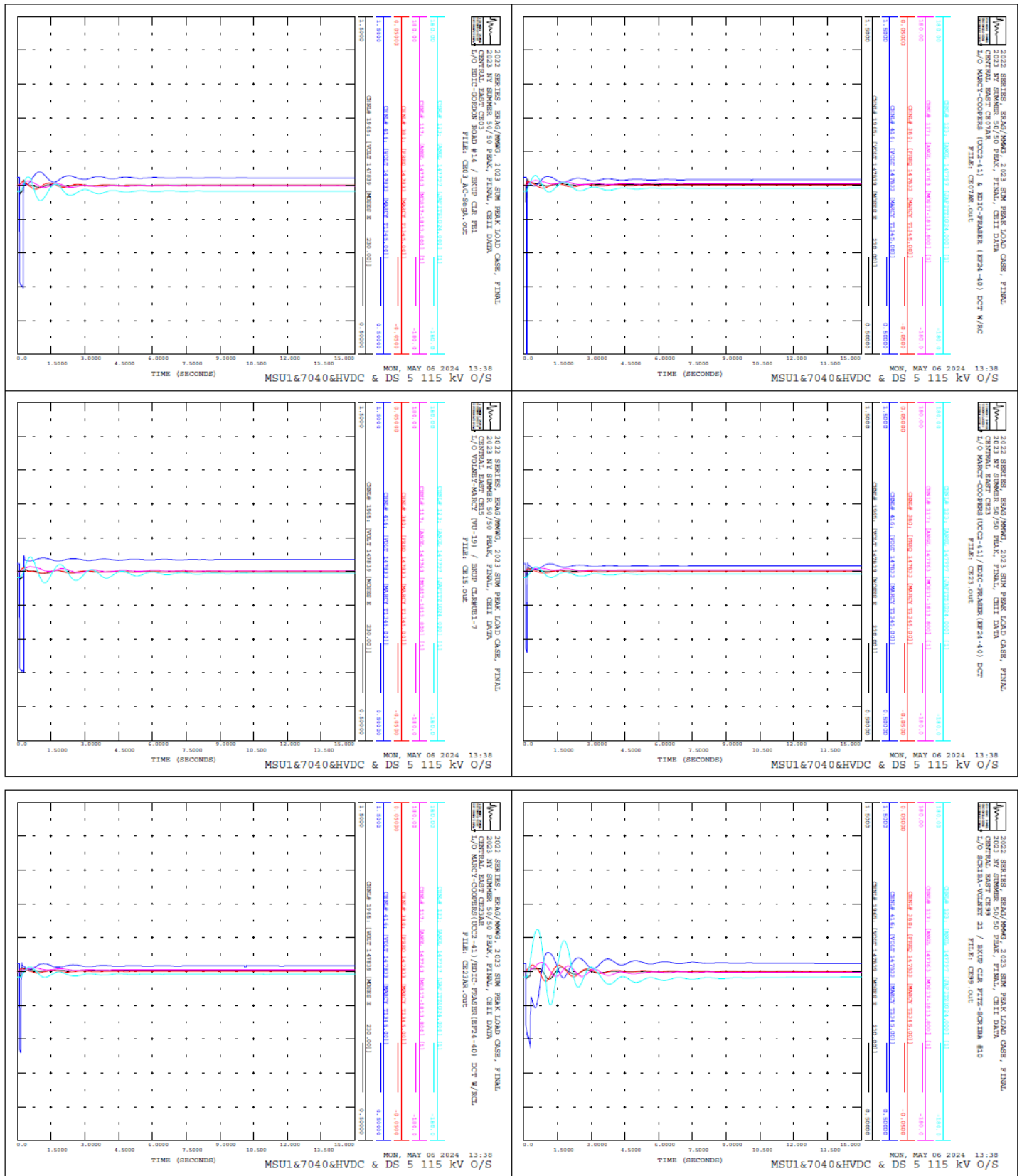


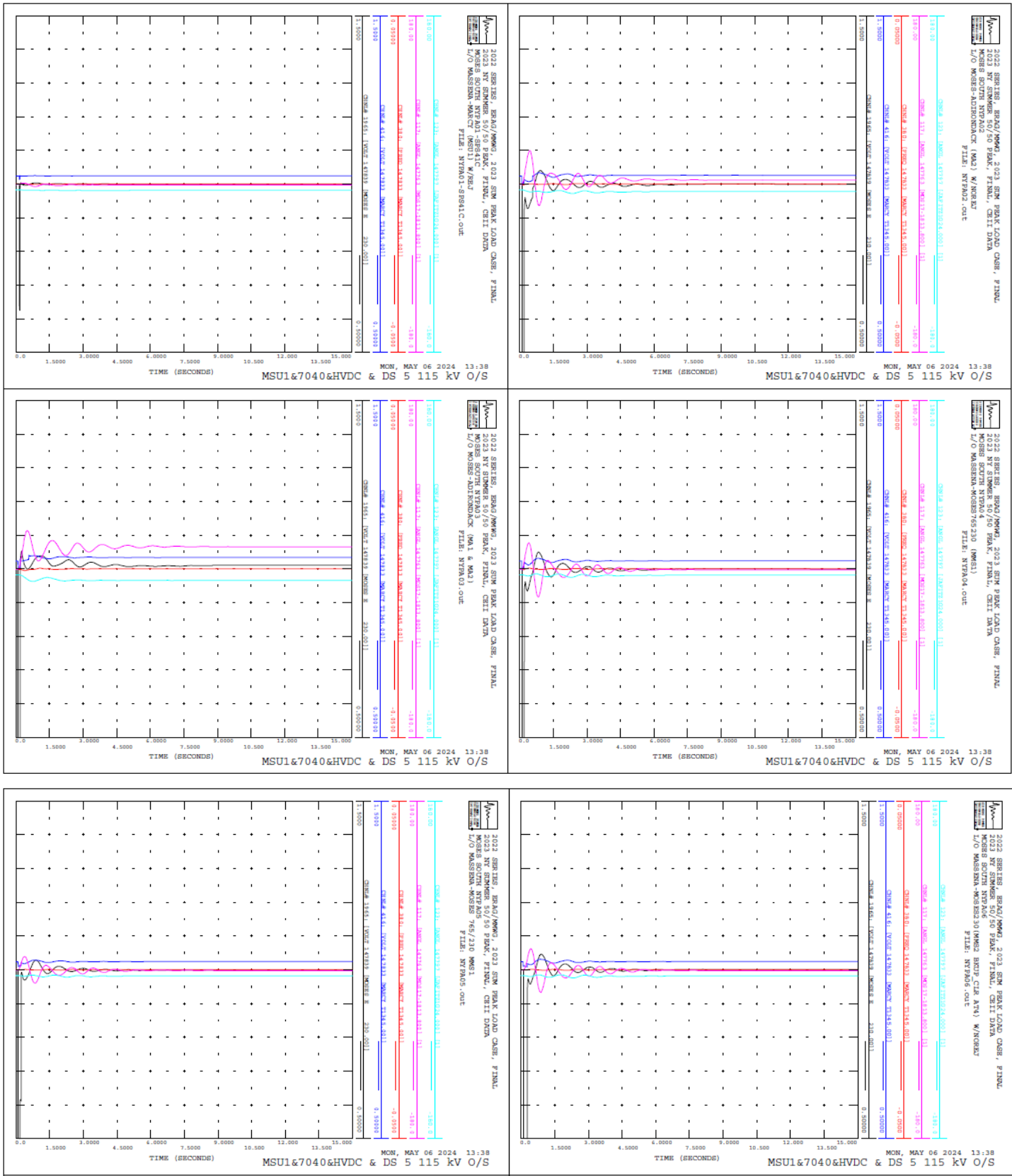
Appendix K: Transfer Case Interface Flow Report/ Angle Frequency and Voltage Responses With MSU1&7040&HVDC & DS 5 115kV O/S

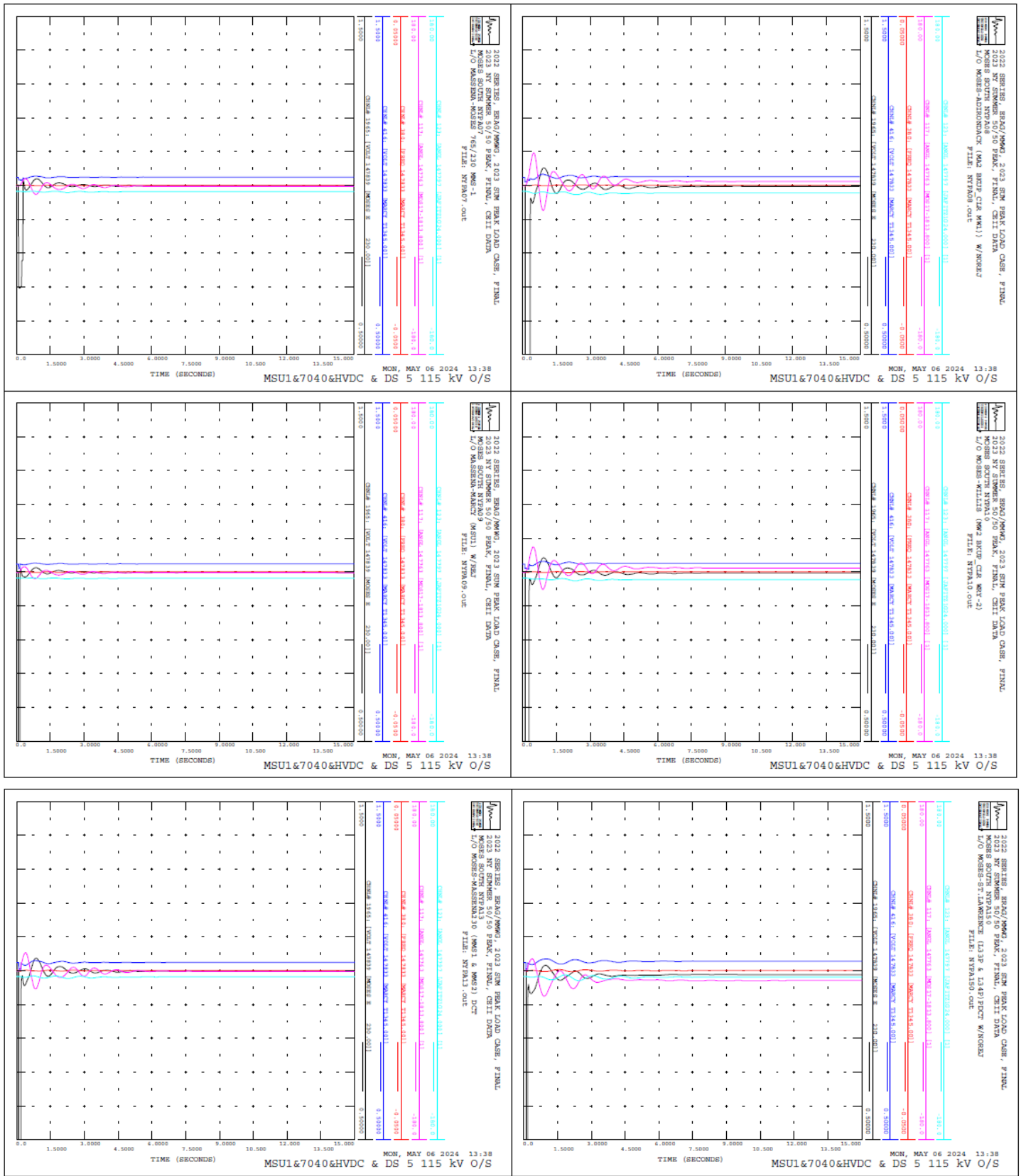
INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	374.0	1.5	DYSE-CLOSE	1245.4	111.1
WEST-CENTRAL	-694.6	125.6	WESTC-CLOSE	176.8	505.1
VOLNEY-EAST	2367.4	-103.5	VOLNEY-CLOSE	3251.4	295.6
MOSES-SOUTH	956.6	116.9	MOSES-CLOSE	787.0	-79.1
CENTRAL-EAST	1623.8	-200.1	TOTAL-EAST	2158.5	-359.8
UPNY-SENY	2396.9	-185.6	UPNY-SENY-CL	3214.7	21.8
UPNY-CONED	4473.6	78.7	UPNY-CON-CL	5864.3	144.9
MILLWOOD-SO	5312.5	139.4	LIPA-IMPORT	2021.7	61.9
DNWDIE-SO-PL	3455.5	-323.9	DNWDIE-SO-PC	4846.2	-257.8
DNWDIE-SO-OP	2513.6	-124.0	ABC-JK-PAR	-183.9	307.9
SENY-115kV	61.1	-61.5	SENY-F-To-G	1212.9	-112.5
PJM-NY	-183.5	-153.2	NE-NY-WCSC	589.3	51.5
ON-NY	503.9	258.0	ONT-MICH-PAR	-0.5	-2.5
NORTHERN-EXPORT	787.0	-85.9			

ANGLE FREQUENCY AND VOLTAGE RESPONSES





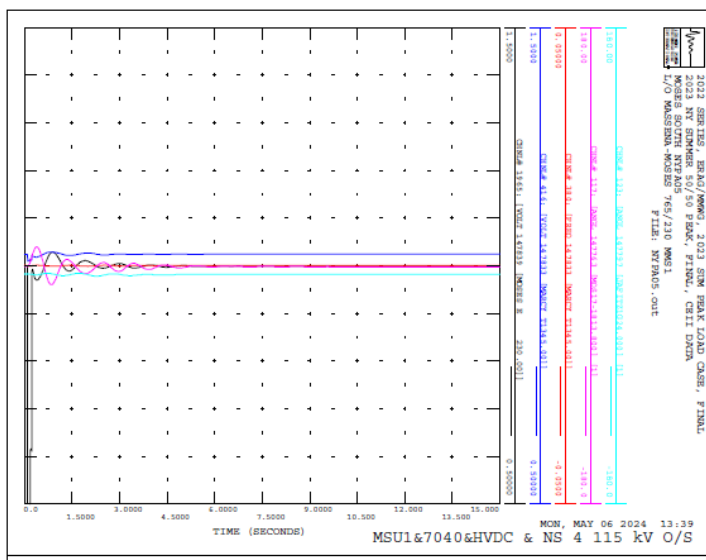
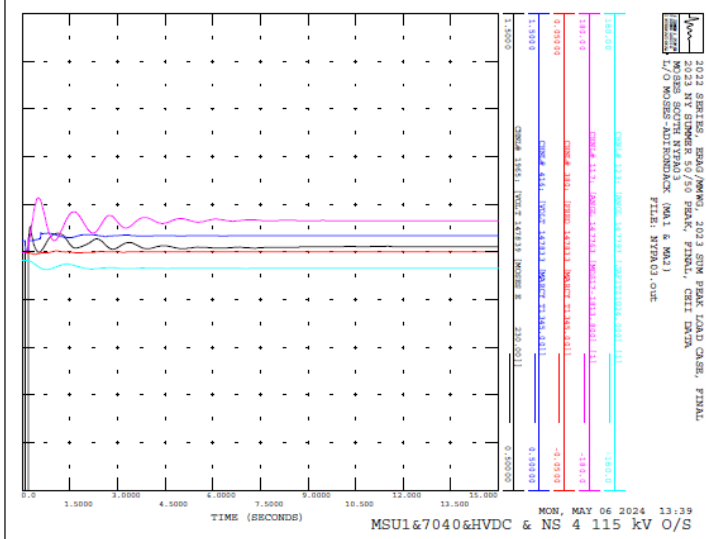
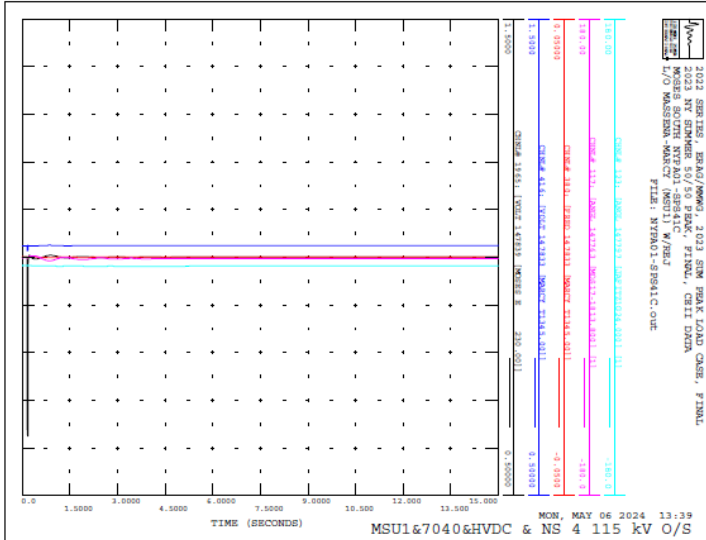
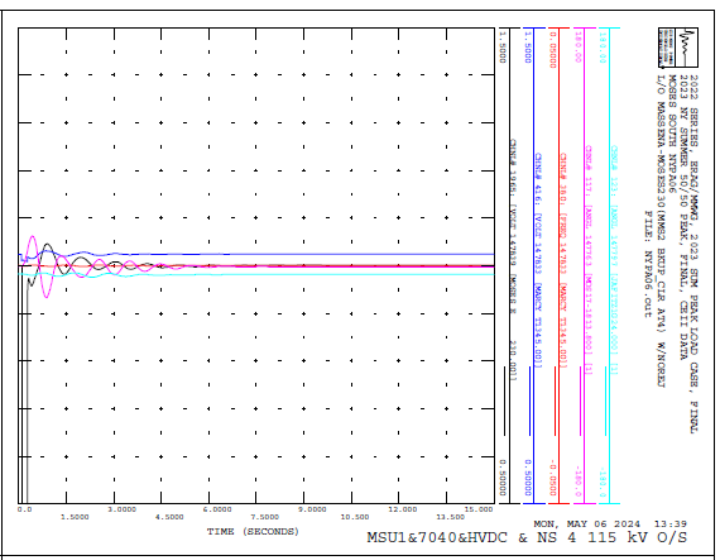
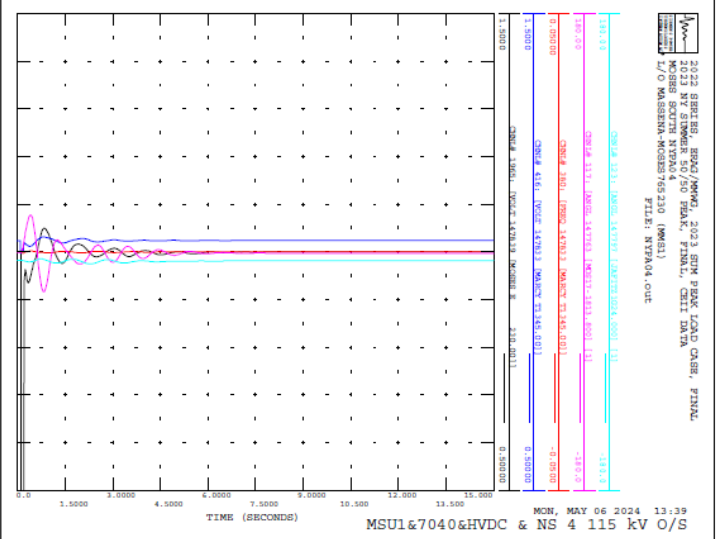
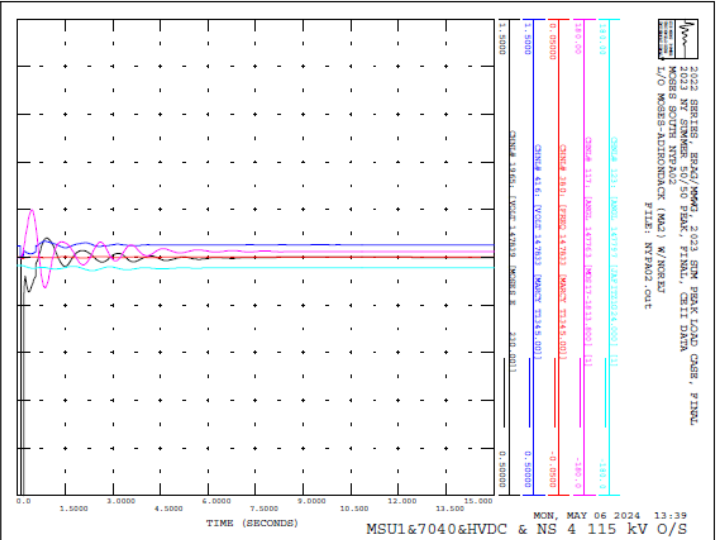


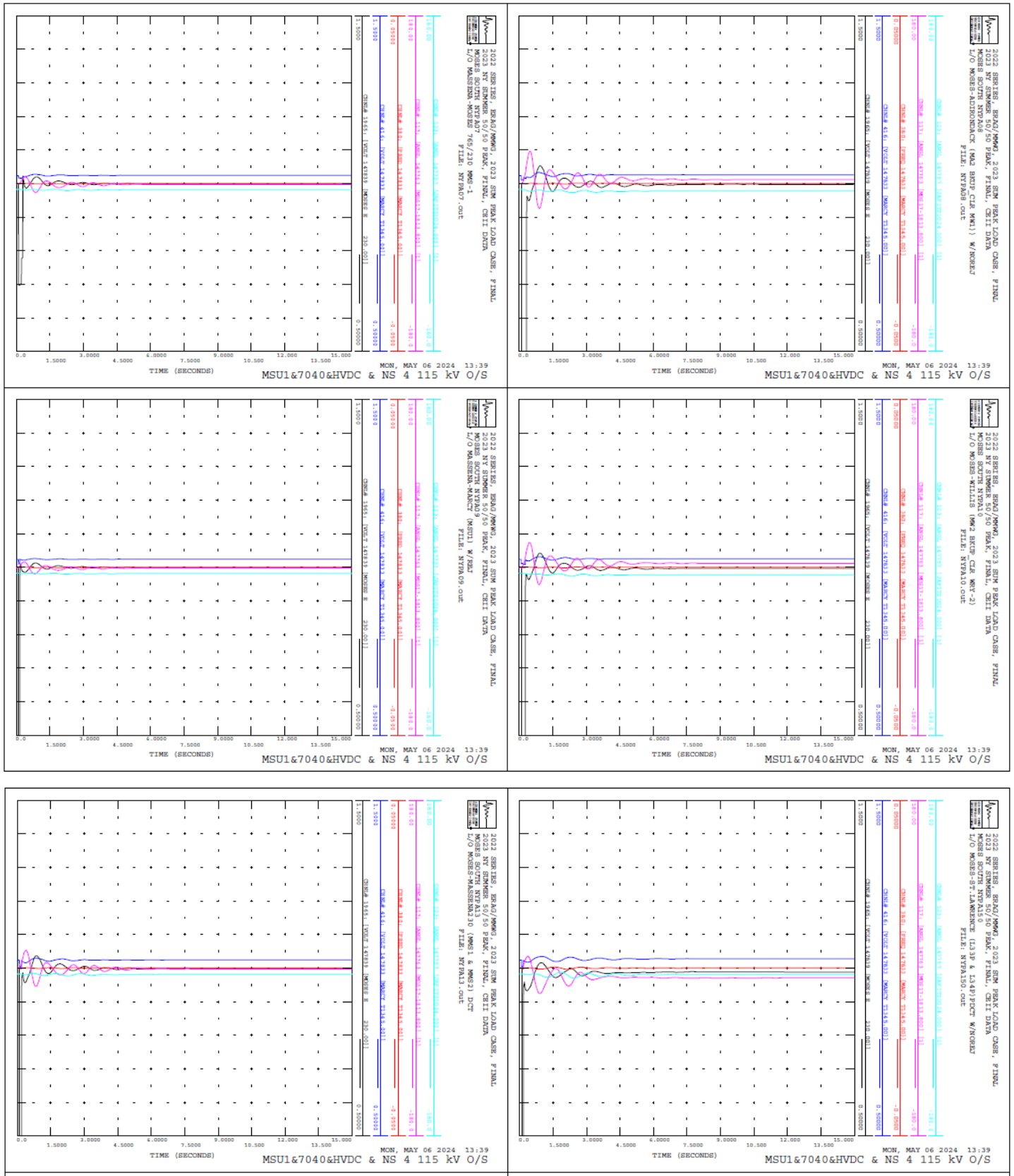
Appendix L: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MSU1&7040&HVDC & NS 4 115kV O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	373.7	1.5	DYSE-CLOSE	1245.5	110.8
WEST-CENTRAL	-694.9	125.6	WESTC-CLOSE	176.8	504.7
VOLNEY-EAST	2367.3	-103.6	VOLNEY-CLOSE	3251.5	295.1
MOSES-SOUTH	957.0	115.3	MOSES-CLOSE	787.1	-80.3
CENTRAL-EAST	1623.8	-200.0	TOTAL-EAST	2158.6	-359.6
UPNY-SENY	2396.9	-185.6	UPNY-SENY-CL	3214.7	21.8
UPNY-CONED	4473.6	78.7	UPNY-CON-CL	5864.4	144.9
MILLWOOD-SO	5312.6	139.4	LIPA-IMPORT	2021.7	61.9
DNWDIE-SO-PL	3455.5	-323.9	DNWDIE-SO-PC	4846.3	-257.8
DNWDIE-SO-OP	2513.6	-124.0	ABC-JK-PAR	-183.8	307.9
SENY-115kV	61.1	-61.5	SENY-F-To-G	1212.9	-112.4
PJM-NY	-183.3	-153.3	NE-NY-WCSC	589.3	51.4
ON-NY	503.7	257.6	ONT-MICH-PAR	-0.5	-2.5
NORTHERN-EXPORT	787.1	-87.1			





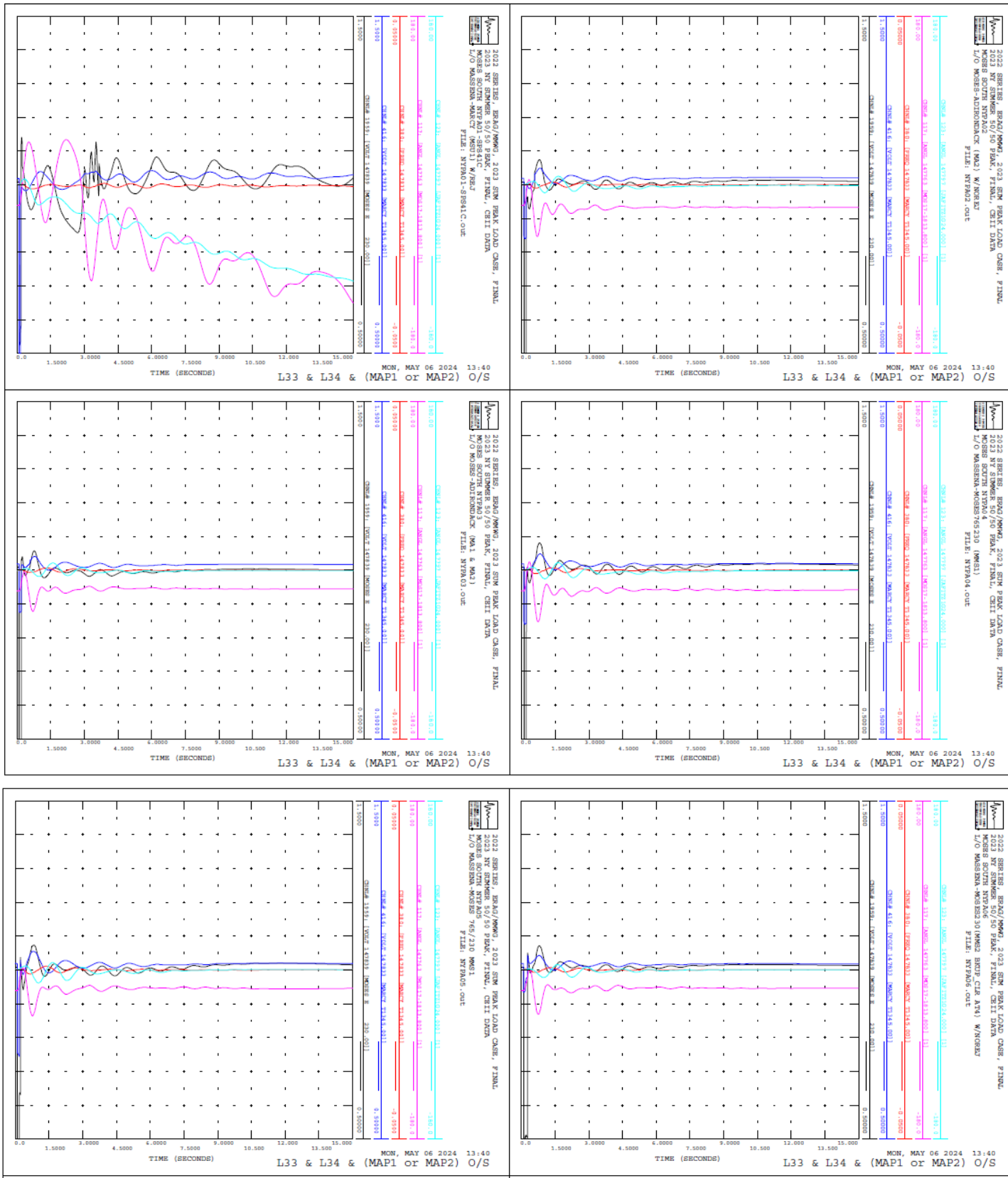


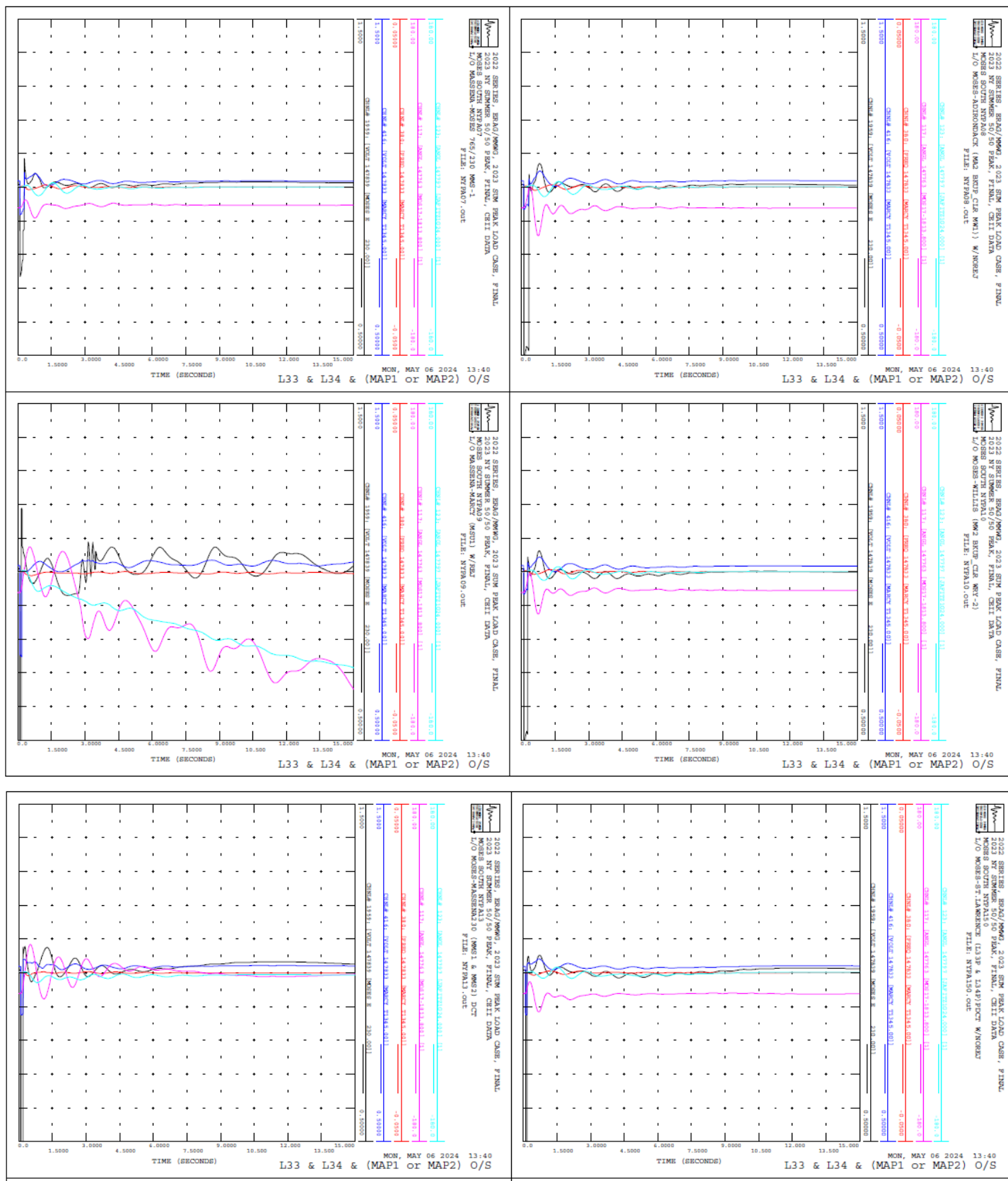
Appendix M: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses with L33 & L34 & (MAP1 or MAP2) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	981.5	-58.9	DYSE-CLOSE	1866.9	29.6
WEST-CENTRAL	-86.2	165.6	WESTC-CLOSE	799.1	513.1
VOLNEY-EAST	2989.7	-346.6	VOLNEY-CLOSE	3876.8	-40.8
MOSES-SOUTH	2284.9	-118.0	MOSES-CLOSE	2288.7	-125.4
CENTRAL-EAST	2853.8	-233.7	TOTAL-EAST	4359.8	-358.1
UPNY-SENY	3375.7	-53.8	UPNY-SENY-CL	4379.2	174.1
UPNY-CONED	5497.4	510.4	UPNY-CON-CL	6889.1	607.4
MILLWOOD-SO	6262.8	287.5	LIPA-IMPORT	2021.7	78.0
DNWDIE-SO-PL	4558.6	-582.9	DNWDIE-SO-PC	5950.2	-485.9
DNWDIE-SO-OP	3617.2	-123.5	ABC-JK-PAR	1.6	313.6
SENY-115kV	83.3	-67.9	SENY-F-To-G	1649.8	-45.9
PJM-NY	-153.8	5.9	NE-NY-WCSC	272.5	113.8
ON-NY	1113.5	70.6	ONT-MICH-PAR	-0.2	-5.2
NORTHERN-EXPORT	793.6	98.5			





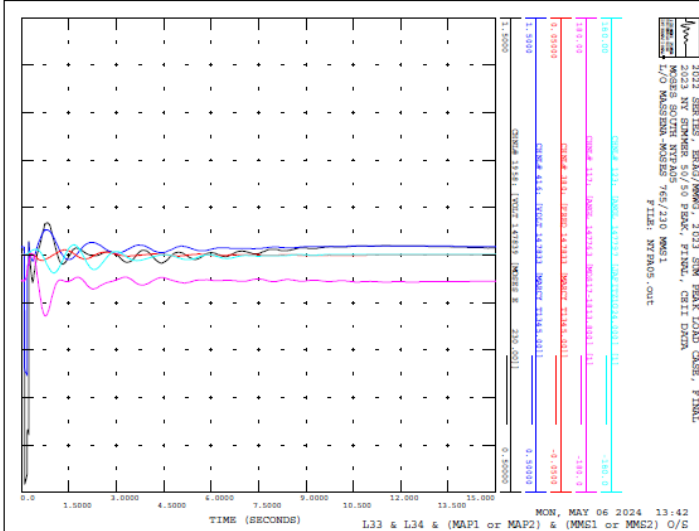
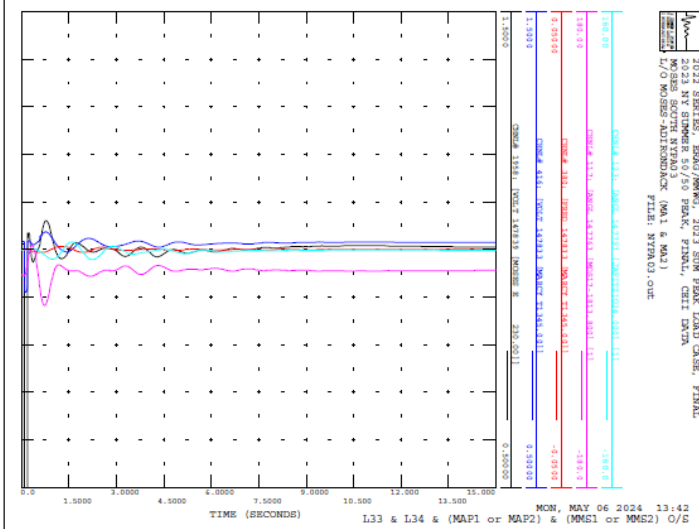
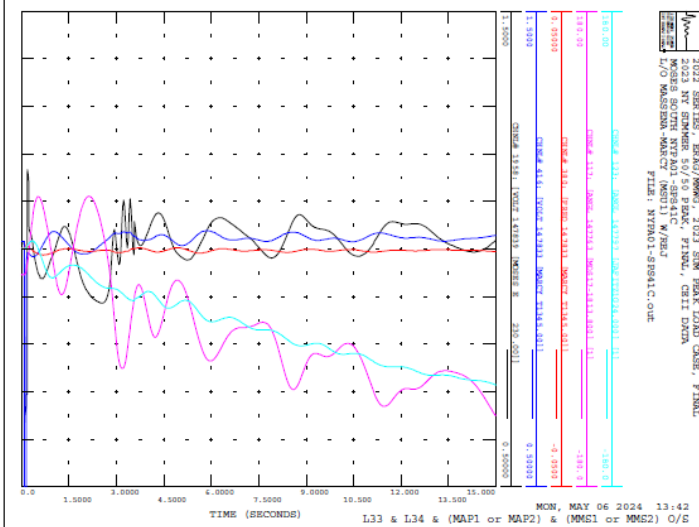
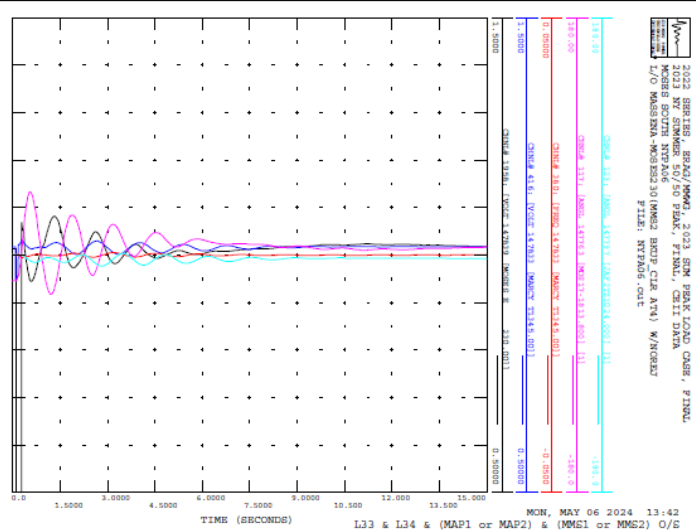
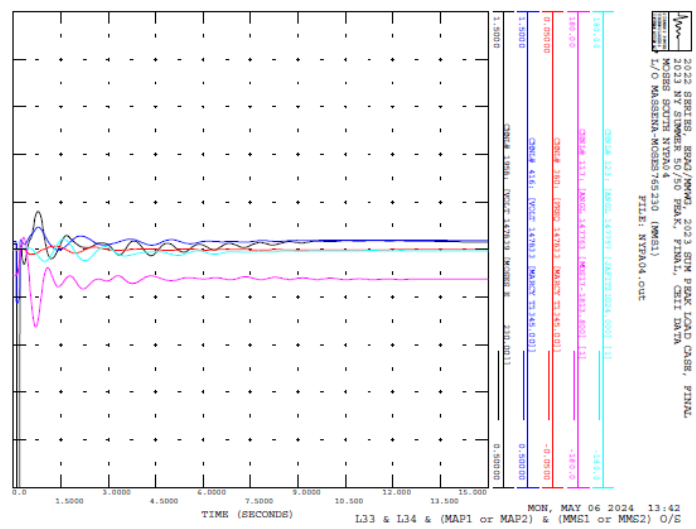
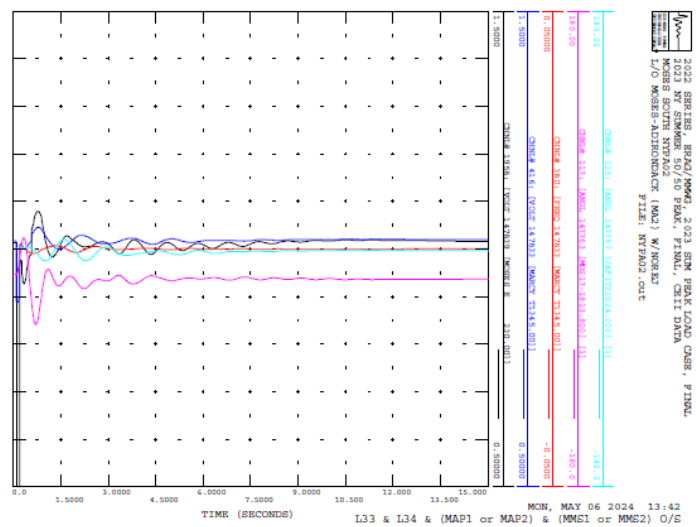


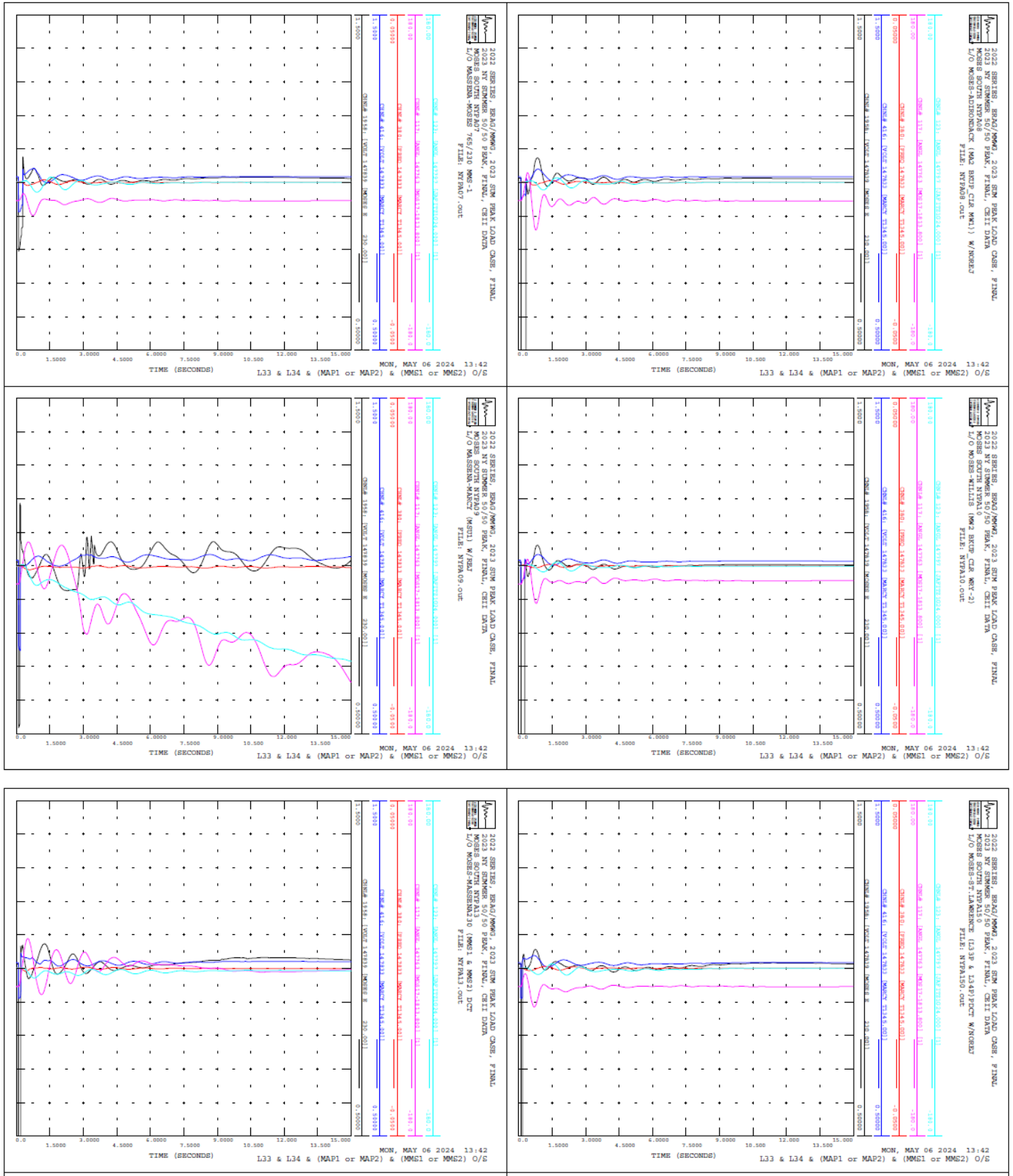
Appendix N: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With L33 & L34 & (MAP1 or MAP2) & (MMS1 or MMS2) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	982.0	-56.7	DYSE-CLOSE	1867.3	35.6
WEST-CENTRAL	-85.8	168.3	WESTC-CLOSE	799.6	519.6
VOLNEY-EAST	3000.3	-325.9	VOLNEY-CLOSE	3883.4	-17.4
MOSES-SOUTH	2284.5	-139.1	MOSES-CLOSE	2288.2	-146.1
CENTRAL-EAST	2860.5	-245.7	TOTAL-EAST	4369.9	-377.7
UPNY-SENY	3383.3	-62.5	UPNY-SENY-CL	4384.1	166.9
UPNY-CONED	5497.8	510.6	UPNY-CON-CL	6888.2	607.9
MILLWOOD-SO	6262.4	286.2	LIPA-IMPORT	2021.7	77.2
DNWDIE-SO-PL	4559.9	-586.5	DNWDIE-SO-PC	5950.2	-489.1
DNWDIE-SO-OP	3618.4	-125.5	ABC-JK-PAR	-0.7	315.0
SENY-115kV	83.5	-68.2	SENY-F-To-G	1654.5	-47.7
PJM-NY	-151.7	9.7	NE-NY-WCSC	271.2	116.6
ON-NY	1112.2	71.5	ONT-MICH-PAR	1.0	-5.3
NORTHERN-EXPORT	793.8	68.5			



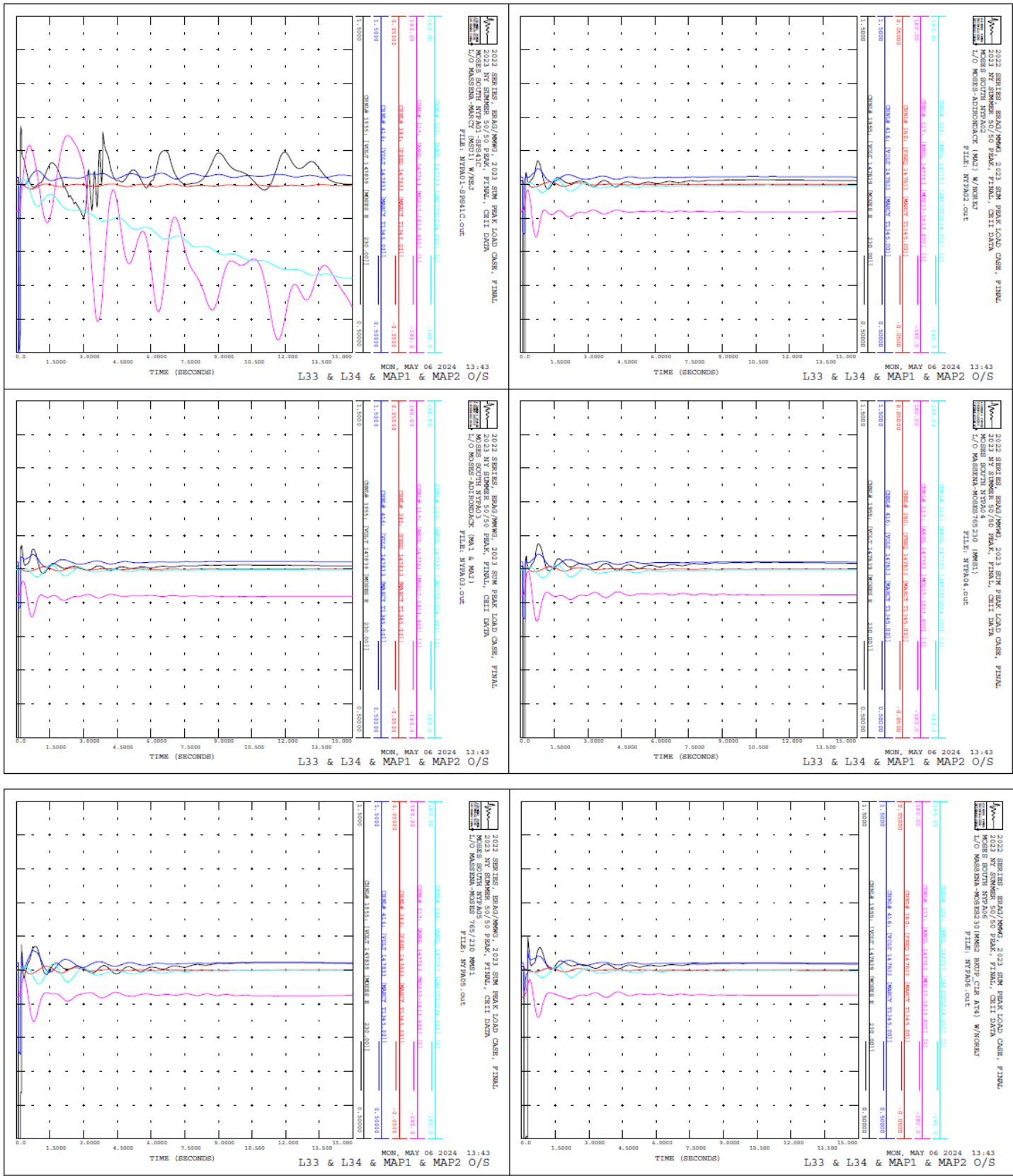


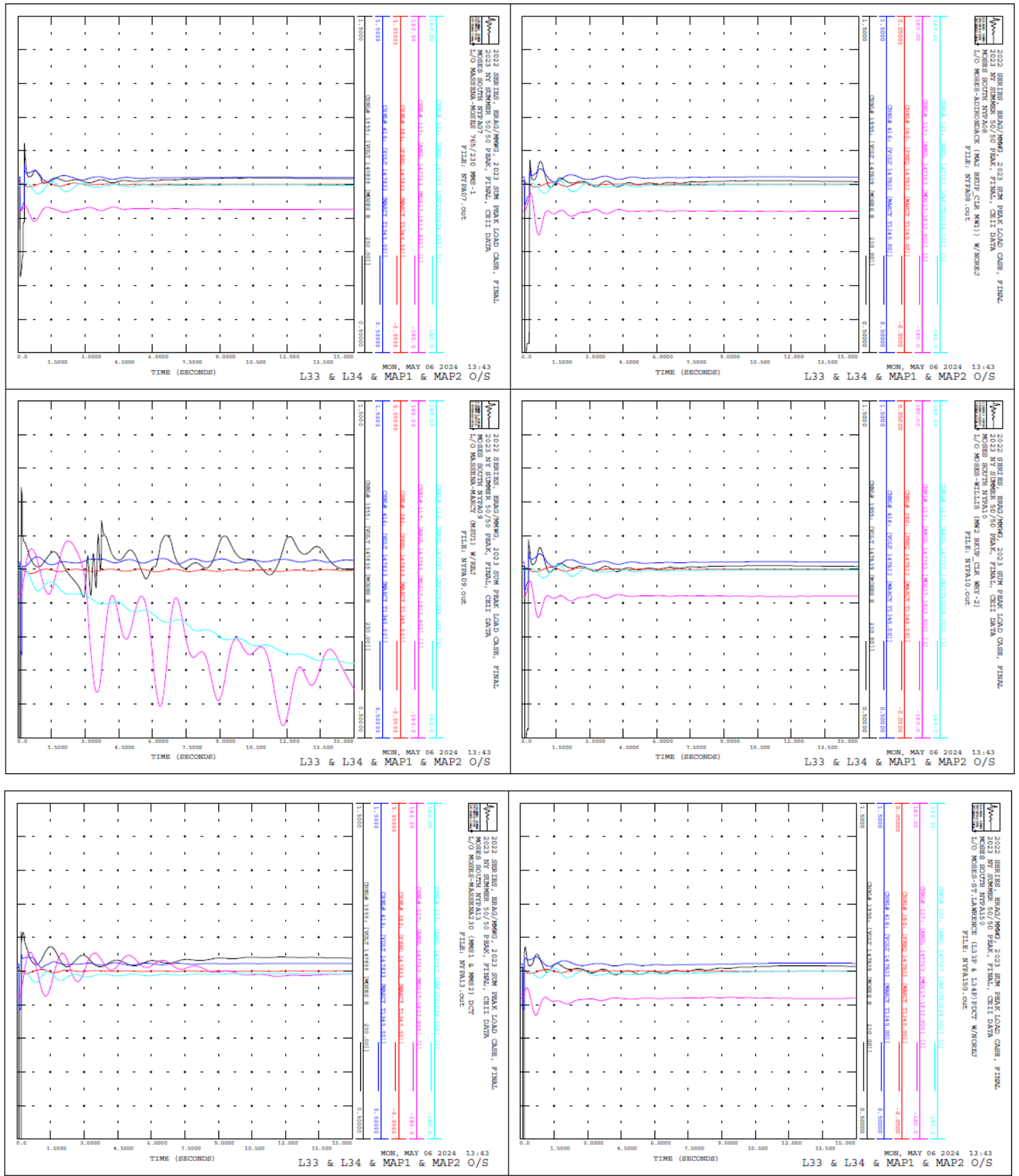


Appendix O: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With L33 & L34 & MAP1 & MAP2 O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	987.4	-66.2	DYSE-CLOSE	1865.8	-21.4
WEST-CENTRAL	-80.4	158.8	WESTC-CLOSE	797.9	464.5
VOLNEY-EAST	2983.1	-380.0	VOLNEY-CLOSE	3866.8	-104.9
MOSES-SOUTH	1885.3	-140.5	MOSES-CLOSE	1888.7	-147.8
CENTRAL-EAST	2558.3	-254.2	TOTAL-EAST	3879.3	-333.0
UPNY-SENY	3104.6	-0.7	UPNY-SENY-CL	4106.1	207.6
UPNY-CONED	5492.9	504.6	UPNY-CON-CL	6883.4	599.8
MILLWOOD-SO	6259.2	290.2	LIPA-IMPORT	2021.8	66.6
DNWDIE-SO-PL	4559.9	-570.7	DNWDIE-SO-PC	5950.4	-475.5
DNWDIE-SO-OP	3618.2	-101.2	ABC-JK-PAR	-0.0	293.3
SENY-115kV	74.7	-65.1	SENY-F-To-G	1511.5	-46.7
PJM-NY	-155.2	-38.6	NE-NY-WCSC	327.4	85.5
ON-NY	1114.1	67.6	ONT-MICH-PAR	-0.6	-5.1
NORTHERN-EXPORT	393.1	140.1			



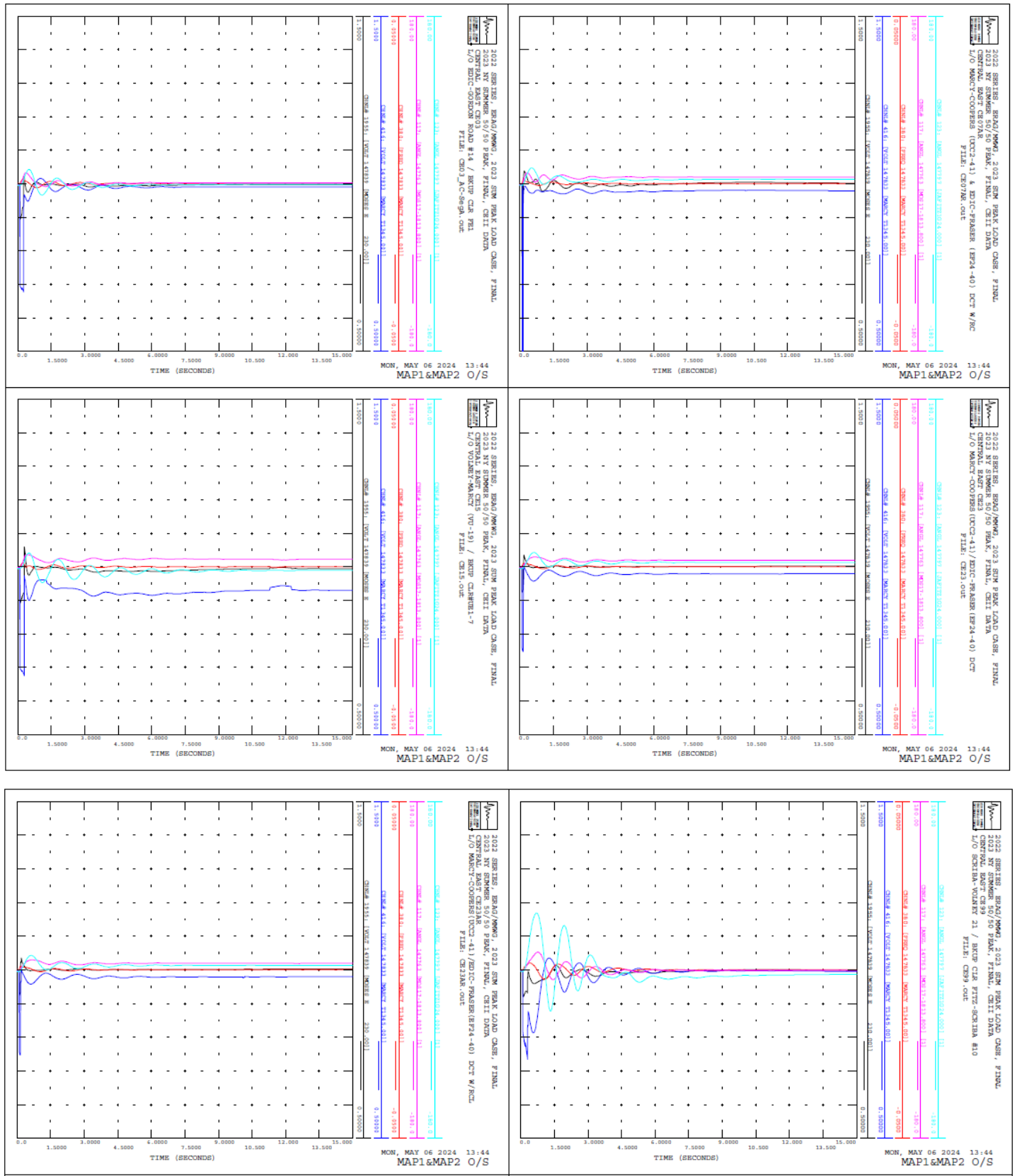


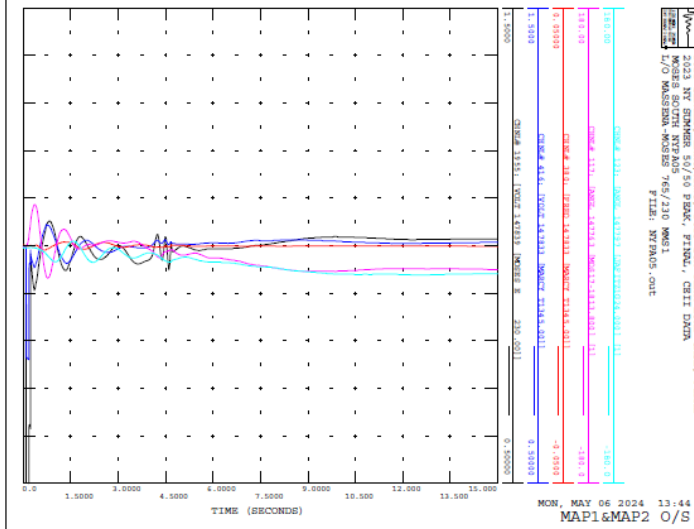
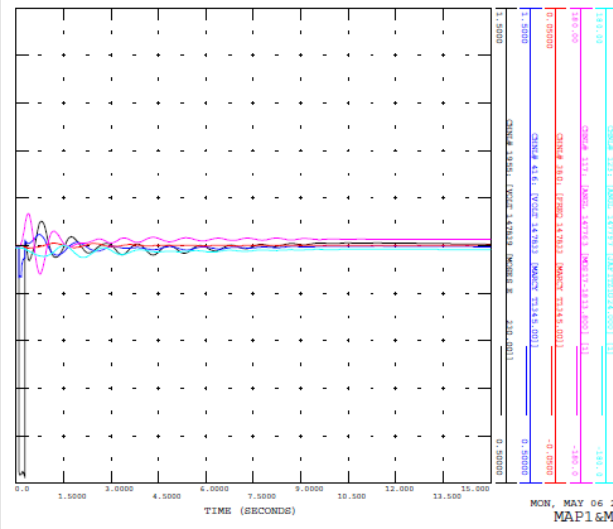
Appendix P: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MAP1 & MAP2 O/S

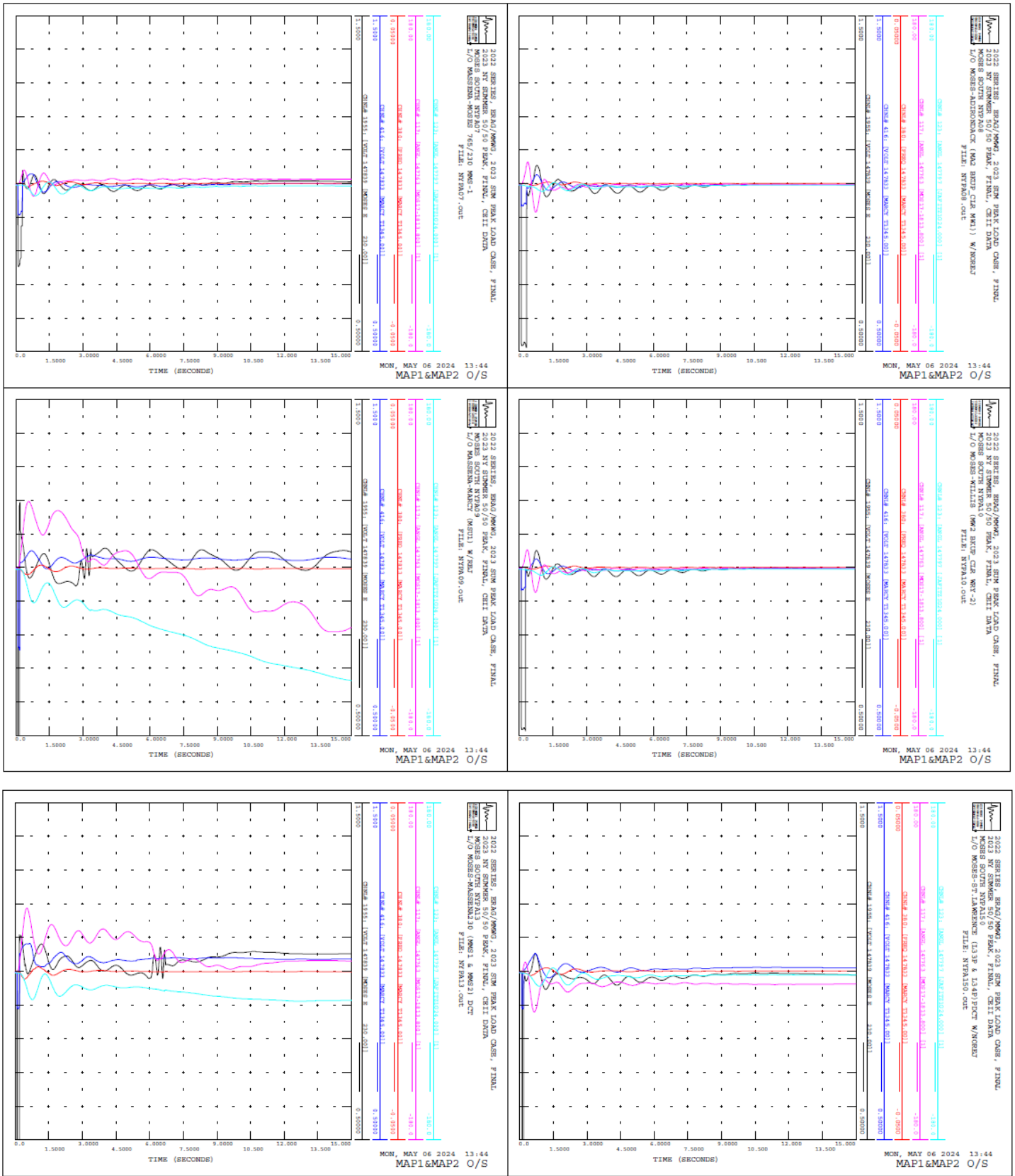
INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	790.3	-60.0	DYSE-CLOSE	2151.4	390.0
WEST-CENTRAL	-278.1	146.2	WESTC-CLOSE	1083.0	853.2
VOLNEY-EAST	2797.1	246.0	VOLNEY-CLOSE	4175.3	914.8
MOSES-SOUTH	3102.6	193.6	MOSES-CLOSE	2647.5	-123.4
CENTRAL-EAST	3136.1	-315.0	TOTAL-EAST	4826.4	-455.6
UPNY-SENY	3664.8	-117.9	UPNY-SENY-CL	4667.5	135.5
UPNY-CONED	5426.8	558.9	UPNY-CON-CL	6817.8	660.7
MILLWOOD-SO	6220.8	267.7	LIPA-IMPORT	2021.4	60.5
DNWDIE-SO-PL	4558.8	-646.0	DNWDIE-SO-PC	5949.8	-544.2
DNWDIE-SO-OP	3617.3	-164.1	ABC-JK-PAR	1.3	338.4
SENY-115kV	91.7	-70.0	SENY-F-To-G	1783.2	-50.8
PJM-NY	-143.4	53.0	NE-NY-WCSC	222.4	157.8
ON-NY	1381.6	367.3	ONT-MICH-PAR	1.4	3.1
NORTHERN-EXPORT	1165.5	-8.2			

ANGLE FREQUENCY AND VOLTAGE RESPONSES





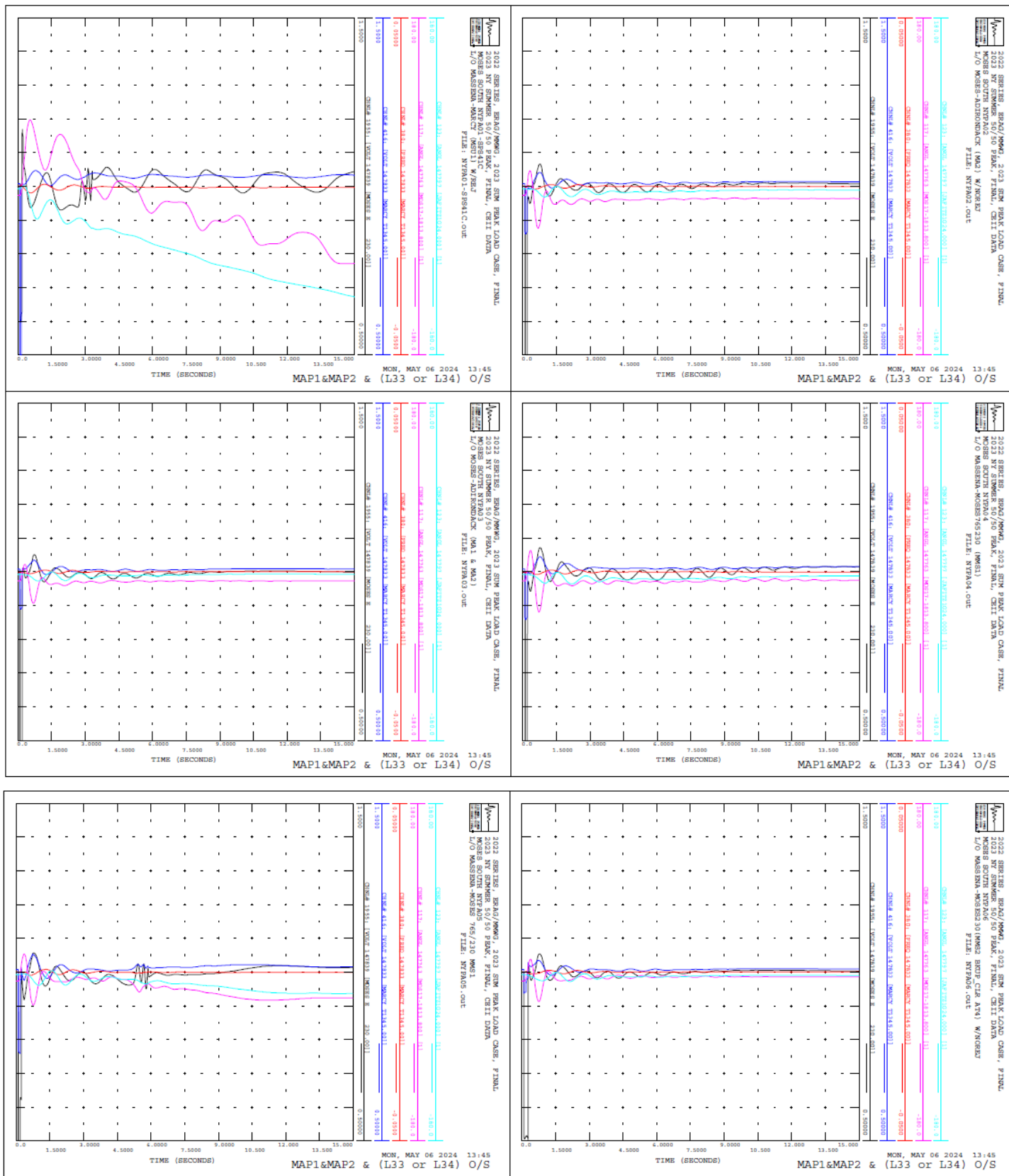


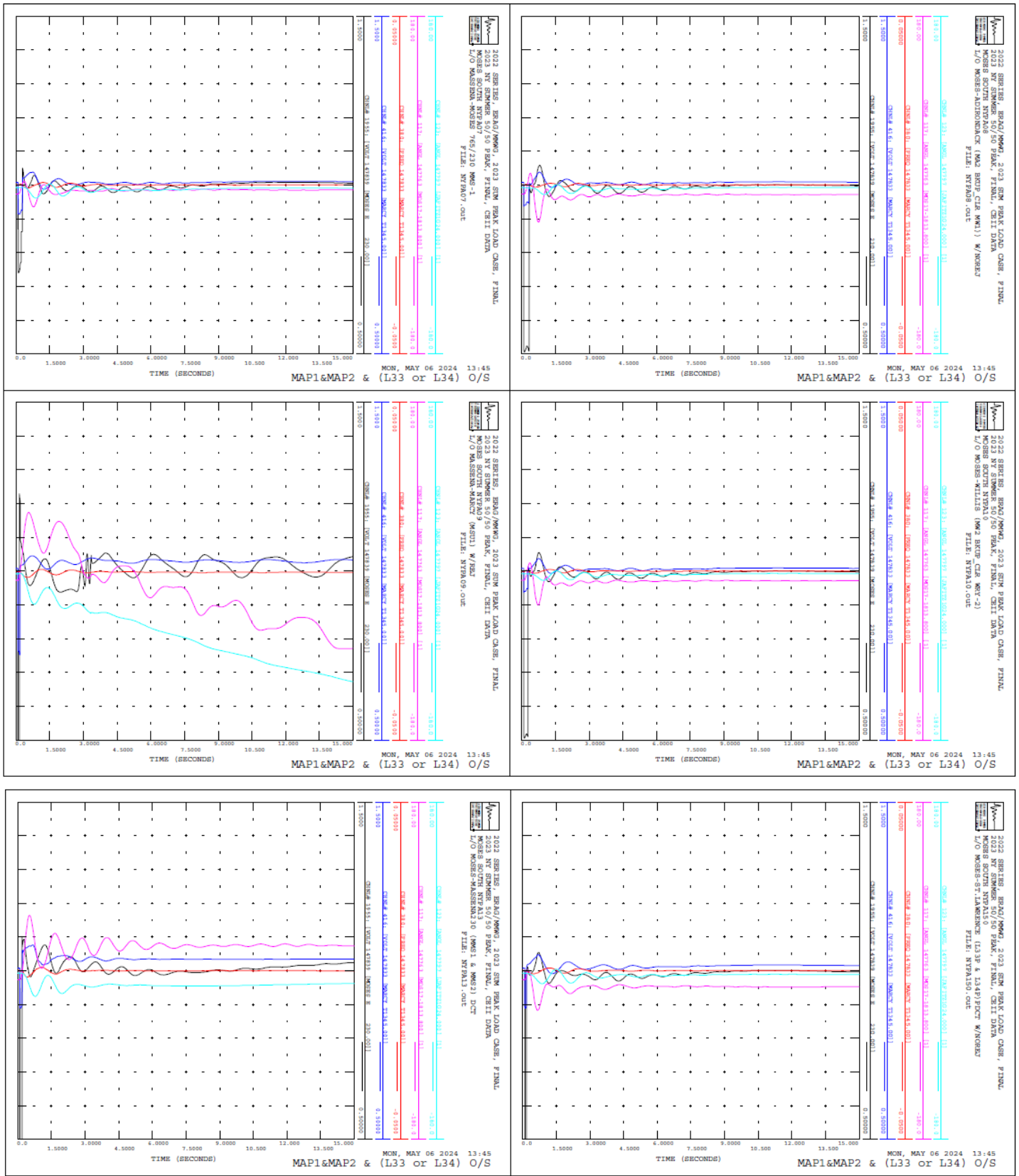
Appendix Q: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MAP1 & MAP2 & (L33 or L34) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	962.5	-93.6	DYSE-CLOSE	2153.6	168.9
WEST-CENTRAL	-105.5	129.2	WESTC-CLOSE	1085.5	649.7
VOLNEY-EAST	2985.3	150.5	VOLNEY-CLOSE	4172.0	643.1
MOSES-SOUTH	2845.4	67.3	MOSES-CLOSE	2564.9	-87.9
CENTRAL-EAST	3073.7	-229.5	TOTAL-EAST	4767.1	-330.1
UPNY-SENY	3644.7	-80.8	UPNY-SENY-CL	4652.5	160.6
UPNY-CONED	5443.9	547.0	UPNY-CON-CL	6837.5	646.8
MILLWOOD-SO	6234.1	274.1	LIPA-IMPORT	2021.7	66.9
DNWDIE-SO-PL	4556.9	-623.1	DNWDIE-SO-PC	5950.4	-523.3
DNWDIE-SO-OP	3615.8	-149.9	ABC-JK-PAR	5.4	326.8
SENY-115kV	91.5	-68.8	SENY-F-To-G	1772.0	-47.9
PJM-NY	-139.3	26.9	NE-NY-WCSC	255.7	134.2
ON-NY	1380.3	221.3	ONT-MICH-PAR	2.7	-5.3
NORTHERN-EXPORT	1077.5	21.2			







Appendix R: Transfer Case Interface Flow Report/Angle Frequency and Voltage Responses With MAP1 & MAP2 & (L33 or L34) & (MMS1 or MMS2) O/S

INTERFACE FLOW REPORT

Interface	MW	MVAr	Interface	MW	MVAr
DYSINGER-EAST	962.1	-82.3	DYSE-CLOSE	2150.5	183.7
WEST-CENTRAL	-105.7	141.7	WESTC-CLOSE	1082.7	665.8
VOLNEY-EAST	2988.1	83.7	VOLNEY-CLOSE	4174.2	577.8
MOSES-SOUTH	2752.2	-1.0	MOSES-CLOSE	2484.4	-162.5
CENTRAL-EAST	3030.2	-248.2	TOTAL-EAST	4683.3	-347.0
UPNY-SENY	3588.2	-79.5	UPNY-SENY-CL	4595.8	159.4
UPNY-CONED	5453.5	540.1	UPNY-CON-CL	6846.9	639.5
MILLWOOD-SO	6238.8	278.6	LIPA-IMPORT	2021.7	68.6
DNWDIE-SO-PL	4556.8	-619.1	DNWDIE-SO-PC	5950.2	-519.8
DNWDIE-SO-OP	3615.8	-148.0	ABC-JK-PAR	5.3	324.3
SENY-115kV	90.1	-68.5	SENY-F-To-G	1747.5	-52.5
PJM-NY	-141.9	25.6	NE-NY-WCSC	256.6	132.1
ON-NY	1379.9	232.3	ONT-MICH-PAR	3.1	-5.5
NORTHERN-EXPORT	1000.6	37.8			



