Experiment 2 – Resilience

In this additional document, we consolidate the calculation results from Equation (1) and (2) of experiment 2 in the simulation scenarios that evaluated the resilience capacity for one, two, and three failures, using the PURR and RESISTING mechanisms.

$$TD = \frac{VD - LOSS}{VD} \qquad (1)$$

Table (a) – 1 x Failure

Topology	Failure	Links	Flows	PURR	RESISTING
0	No Failure	**P1** **P2** **P3** **P4** **P5** **P6**	429 406 371 393 399 402	VE= 1	VE= 1
1	(P1)	-	-	TD=1	TD=1
2	(P2)	-	-	TD=1	TD=1
3	(P3)	-	-	TD=1	TD=1
4	(P4)	-	-	TD=1	TD=1
5	(P5)	-	-	TD=1	TD=1
6	(P6)	-	-	TD=1	TD=1

Table (b) – 2 x Failures

Topology	Failure	Links	Flows	PURR	RESISTING
0	No Failure	**P1** **P2** **P3** **P4** **P5** **P6**	429 406 371 393 399 402	TD= 1	TD= 1
1	(P1,P2)	-	-	TD=0,9141	TD=1
2	(P1,P3)	-	-	TD=1	TD=1
3	(P1,P4)	-	-	TD=1	TD=1
4	(P1,P5)	-	-	TD=1	TD=1
5	(P1,P6)	-	-	TD=0,9012	TD=1
6	(P2,P3)	-	-	TD=0,9291	TD=1
7	(P2,P4)	-	-	TD=1	TD=1
8	(P2,P5)	-	-	TD=1	TD=1
9	(P2,P6)	-	-	TD=1	TD=1
10	(P3,P4)	-	-	TD=0,9320	TD=1
11	(P3,P5)	-	-	TD=1	TD=1
12	(P3,P6)	-	-	TD=1	TD=1
13	(P4,P5)	-	-	TD=0,9191	TD=1
14	(P4,P6)	-	-	TD=1	TD=1
15	(P5,P6)	-	-	TD=0,9041	TD=1

Table (c) – 3 x Failures

Topology	Failure	Links	Flows	PURR	RESISTING
0	No Failure	**P1** **P2** **P3** **P4** **P5** **P6**	429 406 371 393 399 402	TD= 1	TD= 1
1	(P1,P2,P3)	-	-	TD=0,7504	TD=1
2	(P2,P3,P4)	-	-	TD=0,7629	TD=1
3	(P3,P4,P5)	-	-	TD=0,7645	TD=1
4	(P4,P5,P6)	-	-	TD=0,7404	TD=1
5	(P5,P6,P1)	-	-	TD=0,735	TD=1
6	(P6,P1,P2)	-	-	TD=0,7466	TD=1
7	(P1,P2,P4)	-	-	TD=0,9141	TD=1
8	(P1,P2,P5)	-	-	TD=0,9141	TD=1
9	(P1,P3,P4)	-	-	TD=0,9320	TD=1
10	(P1,P3,P5)	-	-	TD=1	TD=1
11	(P1,P3,P6)	-	-	TD=0,9012	TD=1
12	(P1,P4,P5)	-	-	TD=0,9191	TD=1
13	(P1,P4,P6)	-	-	TD=0,9012	TD=1
14	(P2,P3,P5)	-	-	TD=0,9291	TD=1
15	(P2,P3,P6)	-	-	TD=0,9291	TD=1
16	(P2,P4,P5)	-	-	TD=0,9191	TD=1
17	(P2,P4,P6)	-	-	TD=1	TD=1
18	(P2,P5,P6)	-	-	TD=0,9041	TD=1
19	(P3,P4,P6)	-	-	TD=0,9320	TD=1
20	(P3,P5,P6)	-	-	TD=0,9041	TD=1

$$TDAvg = \frac{\sum TD}{Quantity.of.Network.Topology} \qquad (2)$$

Table (d) – Average

Failure Scenarios	FRR	Average TD	Average Loss
1 Failure	PURR	1	0
	RESISTING	1	0
2 Failures	PURR	0,96	0,4
	RESISTING	1	1
3 Failures	PURR	0,86	0,14
	RESISTING	1	0