

LVR DRC Engine vs. Cadence Pegasus DRC Engine Comparison Report

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Executive Summary

This report compares DRC violation detection results produced by the LVR DRC engine against the Cadence Pegasus DRC engine (reference). The input dataset consists of multiple routed designs evaluated in a LEF/DEF-based flow. For each violation type and layer, the tables include the total violation markers reported by LVR and Pegasus, and the mutual overlap counts. Overlap is reported in two directions: (1) “LVR in Pegasus” and (2) “Pegasus in LVR”. The goal is to quantify agreement, identify mismatch patterns, and summarize the overall quality of LVR per violation type.

How to Read the Metrics

- **LVR Total** and **Pegasus Total** are the number of violation markers reported by each engine for the same design/layer/rule.
- **LVR $\cap$ Pegasus** counts how many LVR markers overlap/match Pegasus markers (as provided in the comparison tables).
- **Pegasus $\cap$ LVR** counts how many Pegasus markers overlap/match LVR markers.
- **Precision** (weighted): $\frac{\sum(LVR \cap Pegasus)}{\sum LVR}$. High precision means most LVR markers are confirmed by Pegasus.
- **Recall** (weighted): $\frac{\sum(Pegasus \cap LVR)}{\sum Pegasus}$. High recall means LVR reproduces most Pegasus markers.

Chapter 1

Dataset Overview

1.1 Designs Included

The dataset contains 16 designs:

- test1111
- test2212
- test2215
- test2221
- test2231
- test2241
- test2271
- test2281
- test2321
- test2361
- test2391
- test3331
- test3391
- test4481
- test4491
- test9991

1.2 Violation Types Included

The dataset includes the following violation types:

- `cut_enclosure`
- `cut_short`
- `nsmetal`
- `off_grid`
- `shorts`
- `table_cut_spacing`
- `table_prl_spacing`

Chapter 2

Overall Summary Across All Designs

2.1 Aggregate by Violation Type

Violation	LVR Total	Pegasus Total	$LVR \cap Pegasus$	$Pegasus \cap LVR$	Precision	Recall
cut_enclosure	3210	2888	2961	2888	0.922	1.000
cut_short	1284	1266	1124	1071	0.875	0.846
nsmetal	42	35	36	27	0.857	0.771
off_grid	9290	5717	2671	5457	0.288	0.955
shorts	9874	6439	9003	5914	0.912	0.918
table_cut_spacing	3809	3620	3806	3507	0.999	0.969
table_prl_spacing	43289	18075	34882	17303	0.806	0.957

Table 2.1: Aggregated totals and overlap metrics across all designs.

2.2 High-Level Assessment

- Violation types with both high precision and high recall are strong indicators of near-parity between LVR and Pegasus for that rule class.
- If recall is high but precision is low, LVR is likely *more aggressive* (additional markers) or uses a different marker segmentation.
- If precision is high but recall is low, LVR is likely *missing* some Pegasus-reported cases or uses different thresholding/geometry interpretation.

Chapter 3

Per-Violation Analysis

3.1 Violation Type: cut_enclosure

3.1.1 Aggregate Metrics (All Designs)

Violation	LVR Total	Pegasus Total	$LVR \cap Pegasus$	$Pegasus \cap LVR$	Precision	Recall
cut_enclosure	3210	2888	2961	2888	0.922	1.000

3.1.2 Plots

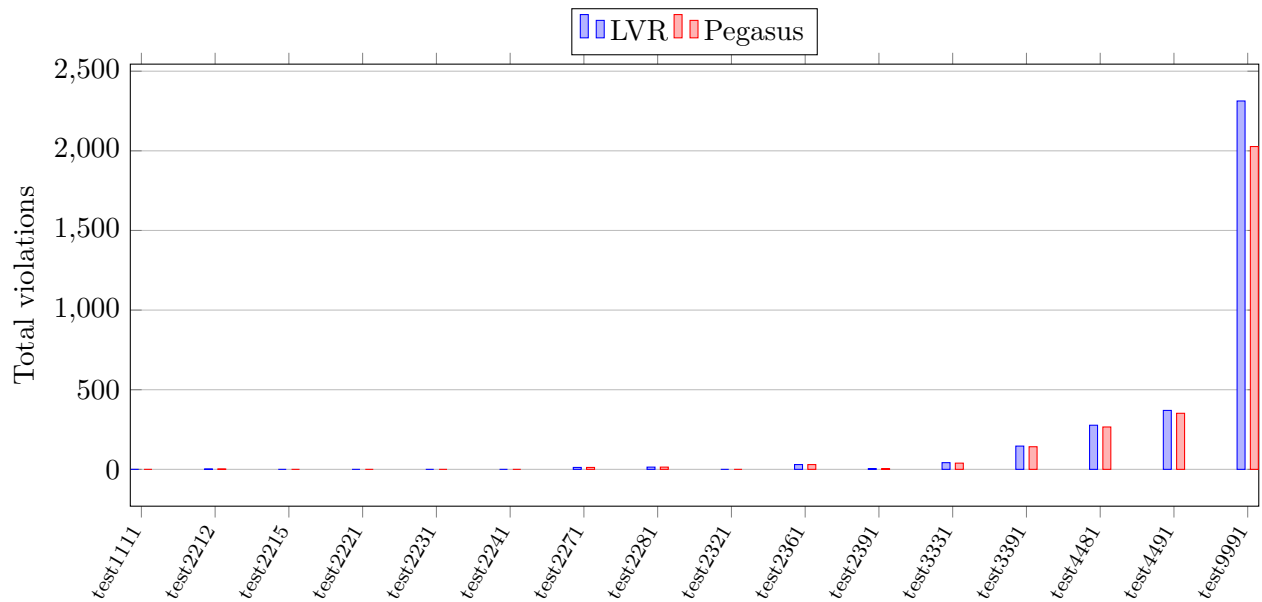


Figure 3.1: Totals by design for cut_enclosure.

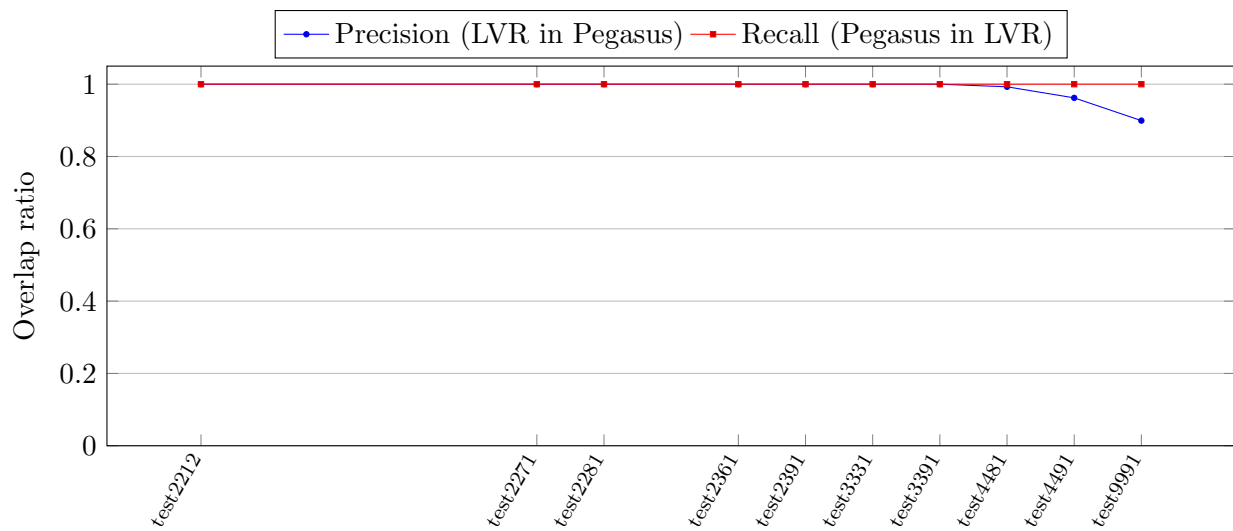


Figure 3.2: Precision/Recall by design for `cut_enclosure`.

3.1.3 10-Line Commentary

- Across all designs, LVR reported 3,210 total 'cut_enclosure' markers vs Pegasus 2,888.
- Weighted precision is 92.2\{\}, i.e., fraction of LVR markers confirmed by Pegasus.
- Weighted recall is 100.0\{\}, i.e., fraction of Pegasus markers reproduced by LVR.
- Both precision and recall are high, indicating strong parity for this violation type.
- Layer-wise concentration of deltas can indicate grid snapping, LEF/DEF layer-map issues, or via representation differences.
- Marker merging/splitting differences can inflate totals even when underlying error geometries match.
- For closure, sample mismatched markers and classify deltas into parameter mismatch vs geometric mismatch vs tool post-processing.
- Use these plots to prioritize debugging on layers with high Pegasus totals but low recall.
- Overall assessment in this report is driven by weighted overlap (not just raw totals).

3.2 Violation Type: cut_short

3.2.1 Aggregate Metrics (All Designs)

Violation	LVR Total	Pegasus Total	$LVR \cap Pegasus$	$Pegasus \cap LVR$	Precision	Recall
cut_short	1284	1266	1124	1071	0.875	0.846

3.2.2 Plots

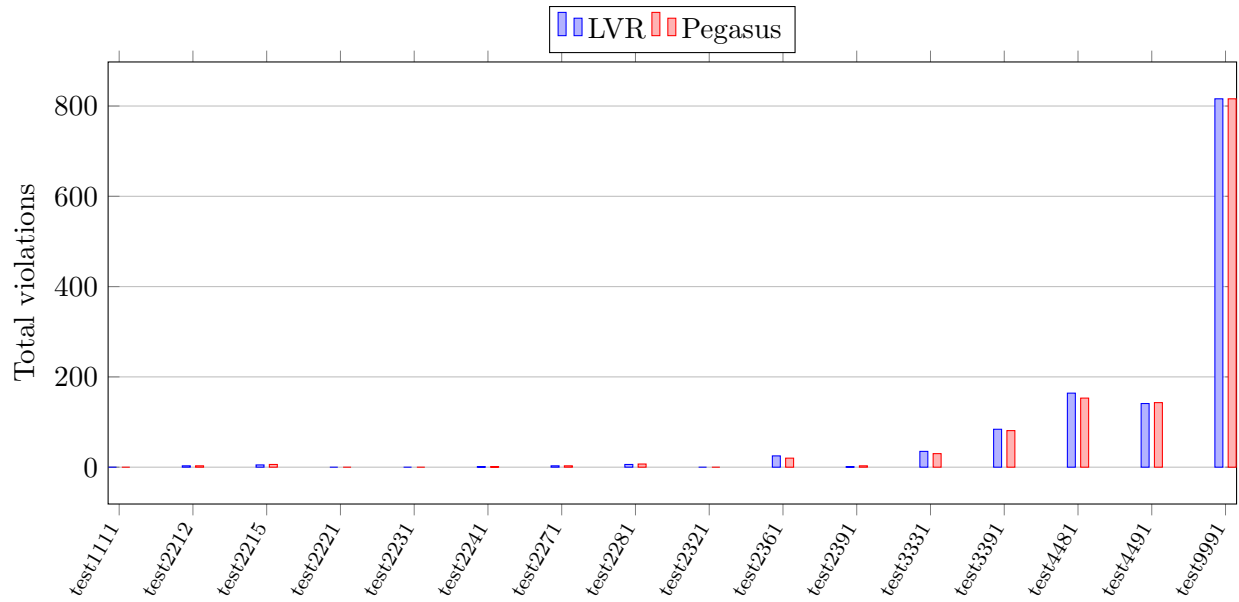


Figure 3.3: Totals by design for cut_short.

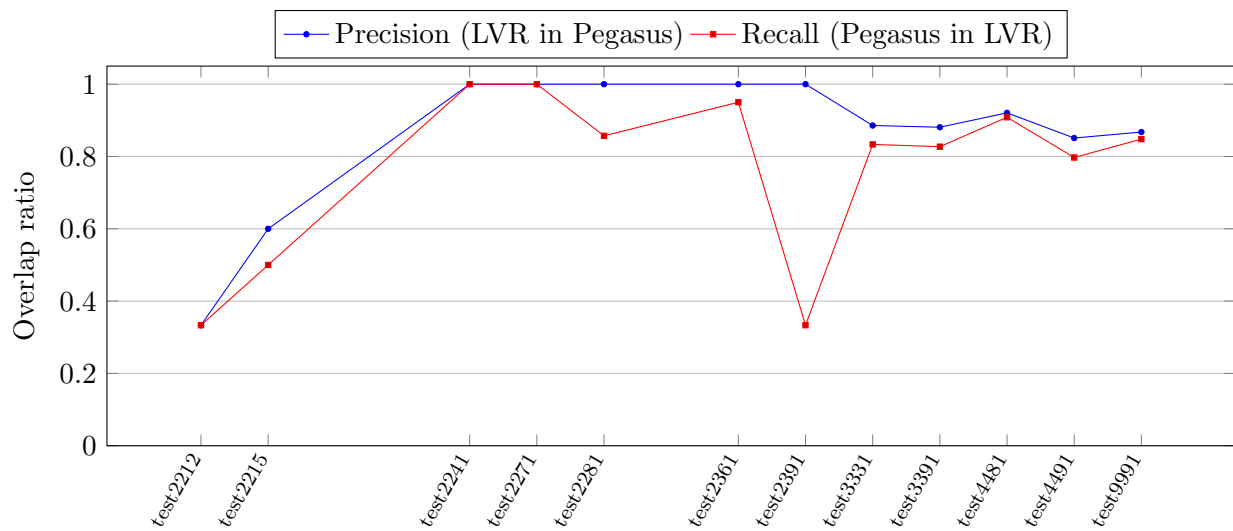


Figure 3.4: Precision/Recall by design for `cut_short`.

3.2.3 10-Line Commentary

- Across all designs, LVR reported 1,284 total 'cut_short' markers vs Pegasus 1,266.
- Weighted precision is 87.5%, i.e., fraction of LVR markers confirmed by Pegasus.
- Weighted recall is 84.6%, i.e., fraction of Pegasus markers reproduced by LVR.
- Precision and recall are moderate: differences likely come from rule nuances or marker segmentation.
- Layer-wise concentration of deltas can indicate grid snapping, LEF/DEF layer-map issues, or via representation differences.
- Marker merging/splitting differences can inflate totals even when underlying error geometries match.
- For closure, sample mismatched markers and classify deltas into parameter mismatch vs geometric mismatch vs tool post-processing.
- Use these plots to prioritize debugging on layers with high Pegasus totals but low recall.
- Overall assessment in this report is driven by weighted overlap (not just raw totals).

3.3 Violation Type: nsmetal

3.3.1 Aggregate Metrics (All Designs)

Violation	LVR Total	Pegasus Total	LVR $\cap$ Pegasus	Pegasus $\cap$ LVR	Precision	Recall
nsmetal	42	35	36	27	0.857	0.771

3.3.2 Plots

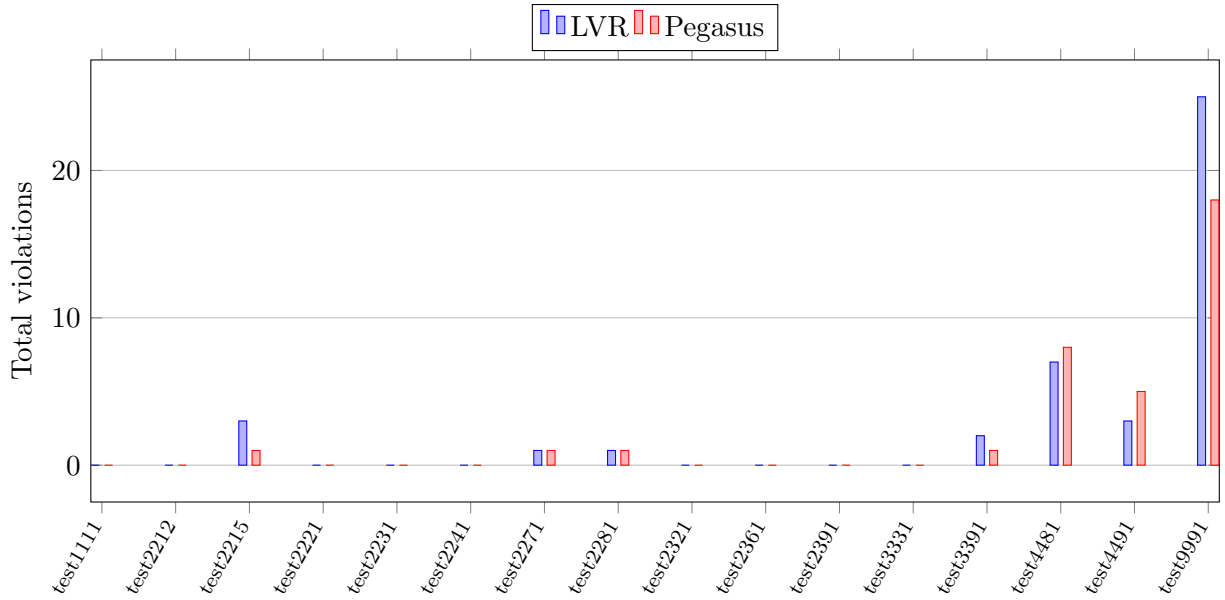


Figure 3.5: Totals by design for nsmetal.

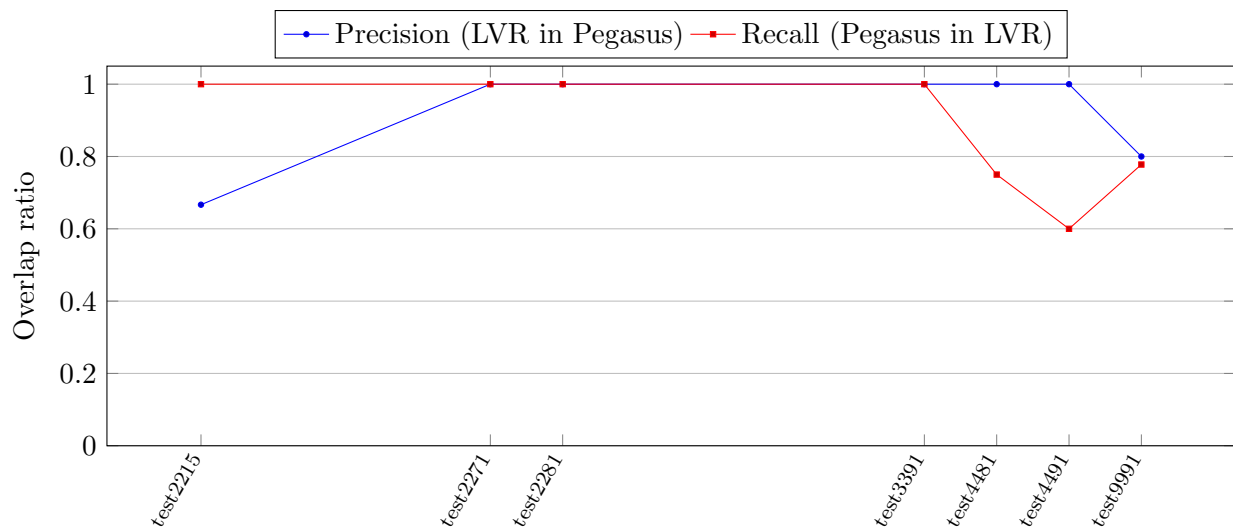


Figure 3.6: Precision/Recall by design for `nsmetal`.

3.3.3 10-Line Commentary

- Across all designs, LVR reported 42 total 'nsmetal' markers vs Pegasus 35.
- Weighted precision is 85.7%, i.e., fraction of LVR markers confirmed by Pegasus.
- Weighted recall is 77.1%, i.e., fraction of Pegasus markers reproduced by LVR.
- Precision and recall are moderate: differences likely come from rule nuances or marker segmentation.
- Layer-wise concentration of deltas can indicate grid snapping, LEF/DEF layer-map issues, or via representation differences.
- Marker merging/splitting differences can inflate totals even when underlying error geometries match.
- For closure, sample mismatched markers and classify deltas into parameter mismatch vs geometric mismatch vs tool post-processing.
- Use these plots to prioritize debugging on layers with high Pegasus totals but low recall.
- Overall assessment in this report is driven by weighted overlap (not just raw totals).

3.4 Violation Type: off_grid

3.4.1 Aggregate Metrics (All Designs)

Violation	LVR Total	Pegasus Total	LVR $\cap$ Pegasus	Pegasus $\cap$ LVR	Precision	Recall
off_grid	9290	5717	2671	5457	0.288	0.955

3.4.2 Plots

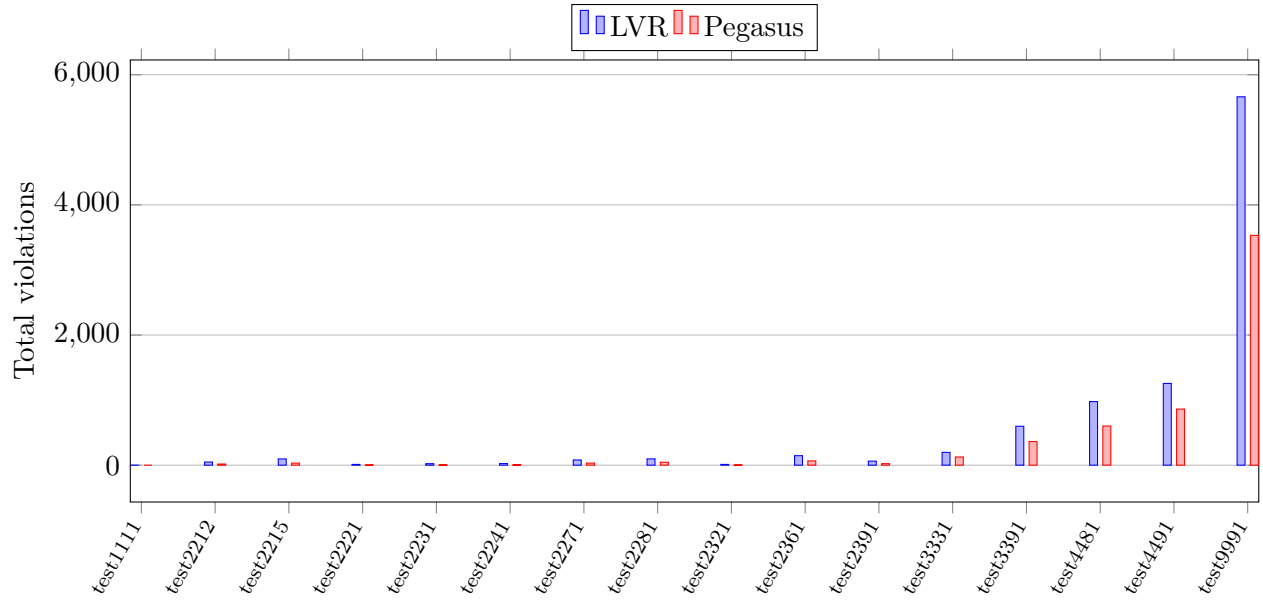


Figure 3.7: Totals by design for off_grid.

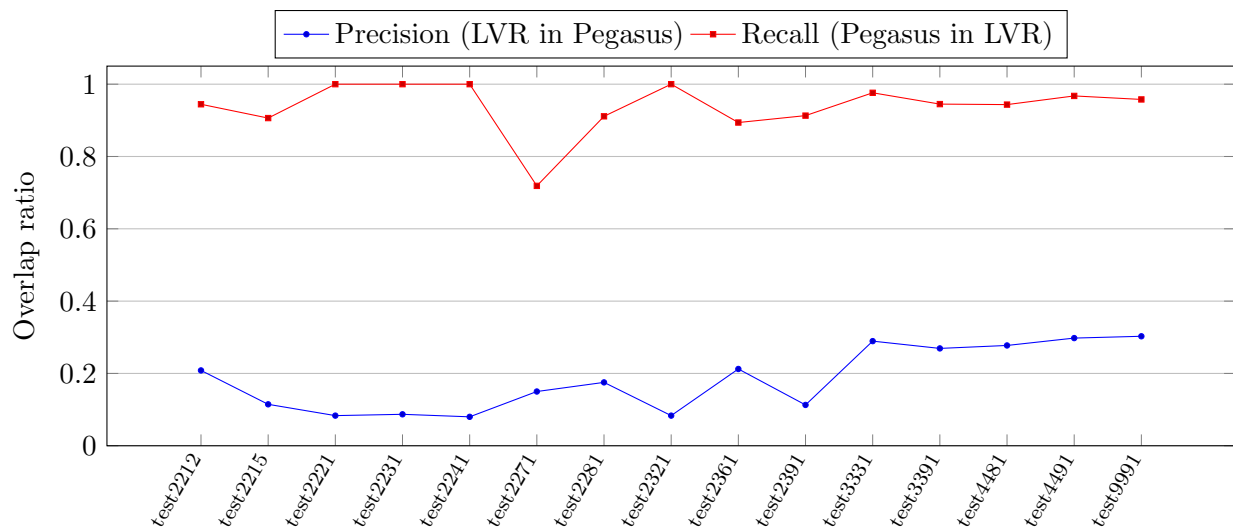


Figure 3.8: Precision/Recall by design for `off_grid`.

3.4.3 10-Line Commentary

- Across all designs, LVR reported 9,290 total 'off_grid' markers vs Pegasus 5,717.
- Weighted precision is 28.8%, i.e., fraction of LVR markers confirmed by Pegasus.
- Weighted recall is 95.5%, i.e., fraction of Pegasus markers reproduced by LVR.
- Recall is high but precision is lower: LVR is catching Pegasus but also reporting extra markers.
- Layer-wise concentration of deltas can indicate grid snapping, LEF/DEF layer-map issues, or via representation differences.
- Marker merging/splitting differences can inflate totals even when underlying error geometries match.
- For closure, sample mismatched markers and classify deltas into parameter mismatch vs geometric mismatch vs tool post-processing.
- Use these plots to prioritize debugging on layers with high Pegasus totals but low recall.
- Overall assessment in this report is driven by weighted overlap (not just raw totals).

3.5 Violation Type: shorts

3.5.1 Aggregate Metrics (All Designs)

Violation	LVR Total	Pegasus Total	$LVR \cap Pegasus$	$Pegasus \cap LVR$	Precision	Recall
shorts	9874	6439	9003	5914	0.912	0.918

3.5.2 Plots

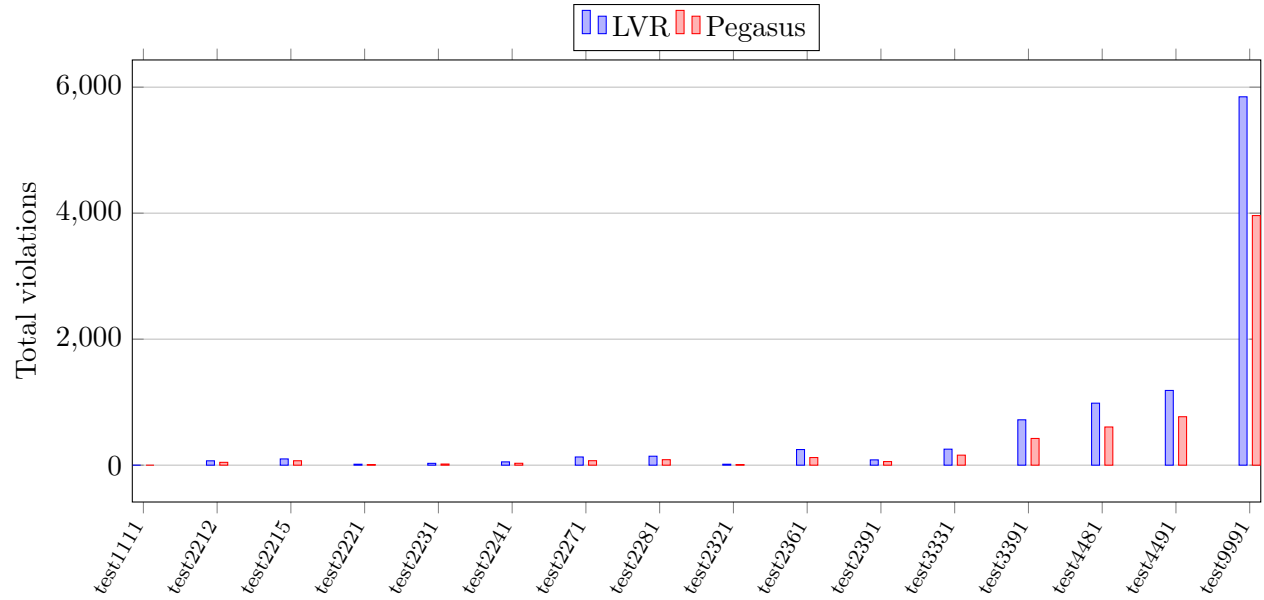


Figure 3.9: Totals by design for **shorts**.

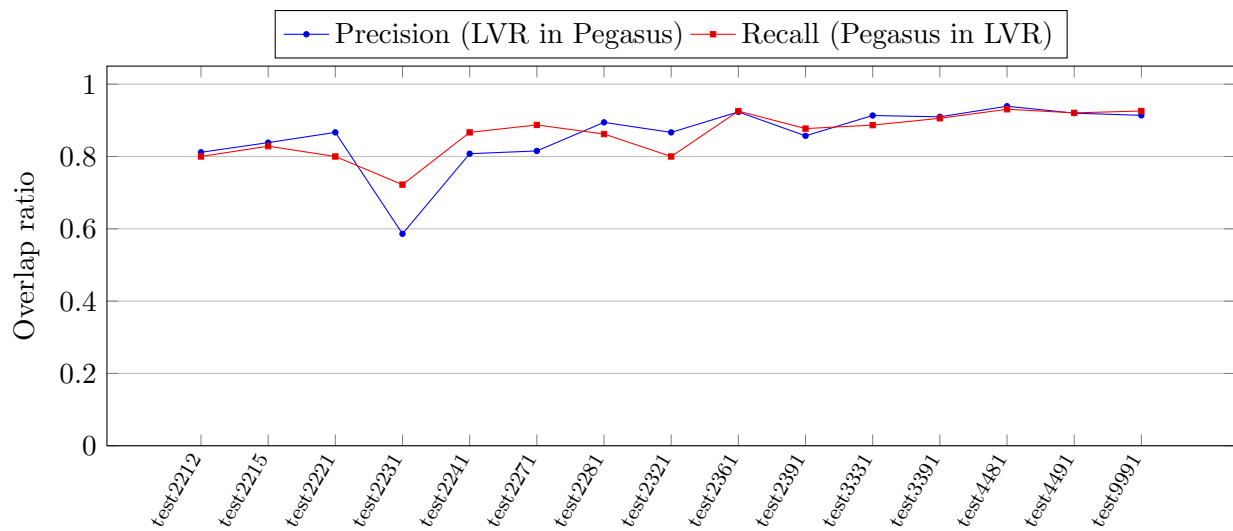


Figure 3.10: Precision/Recall by design for **shorts**.

3.5.3 10-Line Commentary

- Across all designs, LVR reported 9,874 total 'shorts' markers vs Pegasus 6,439.
- Weighted precision is 91.2%, i.e., fraction of LVR markers confirmed by Pegasus.
- Weighted recall is 91.8%, i.e., fraction of Pegasus markers reproduced by LVR.
- Both precision and recall are high, indicating strong parity for this violation type.
- Layer-wise concentration of deltas can indicate grid snapping, LEF/DEF layer-map issues, or via representation differences.
- Marker merging/splitting differences can inflate totals even when underlying error geometries match.
- For closure, sample mismatched markers and classify deltas into parameter mismatch vs geometric mismatch vs tool post-processing.
- Use these plots to prioritize debugging on layers with high Pegasus totals but low recall.
- Overall assessment in this report is driven by weighted overlap (not just raw totals).

3.6 Violation Type: table_cut_spacing

3.6.1 Aggregate Metrics (All Designs)

Violation	LVR Total	Pegasus Total	$LVR \cap Pegasus$	$Pegasus \cap LVR$	Precision	Recall
table_cut_spacing	3809	3620	3806	3507	0.999	0.969

3.6.2 Plots

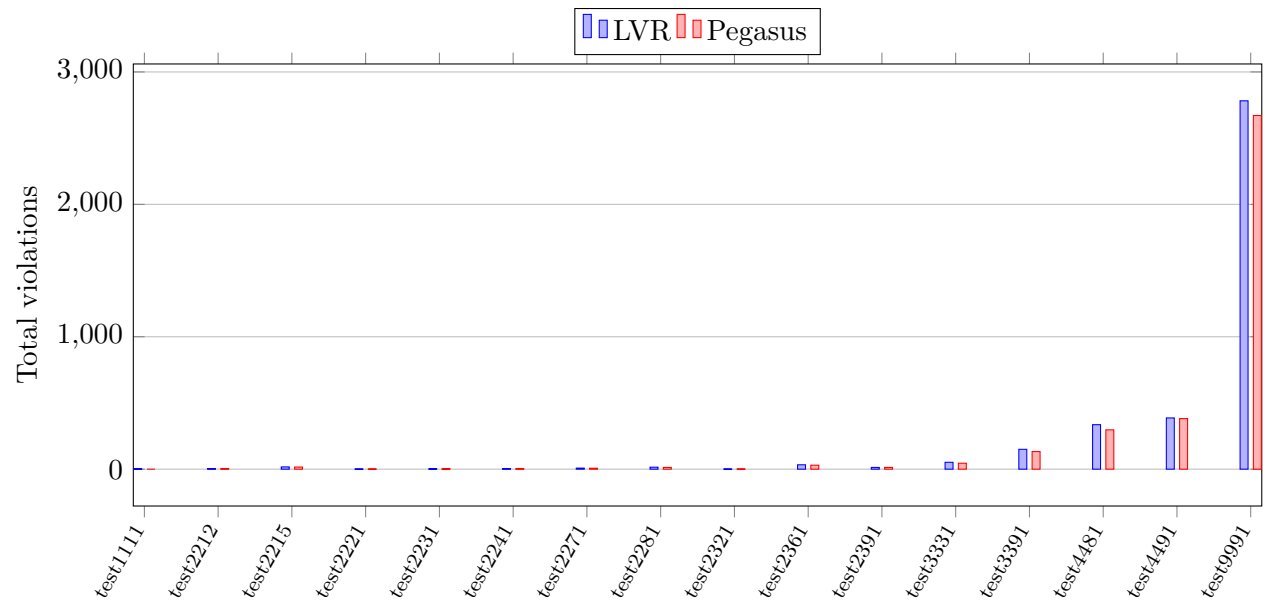


Figure 3.11: Totals by design for `table_cut_spacing`.

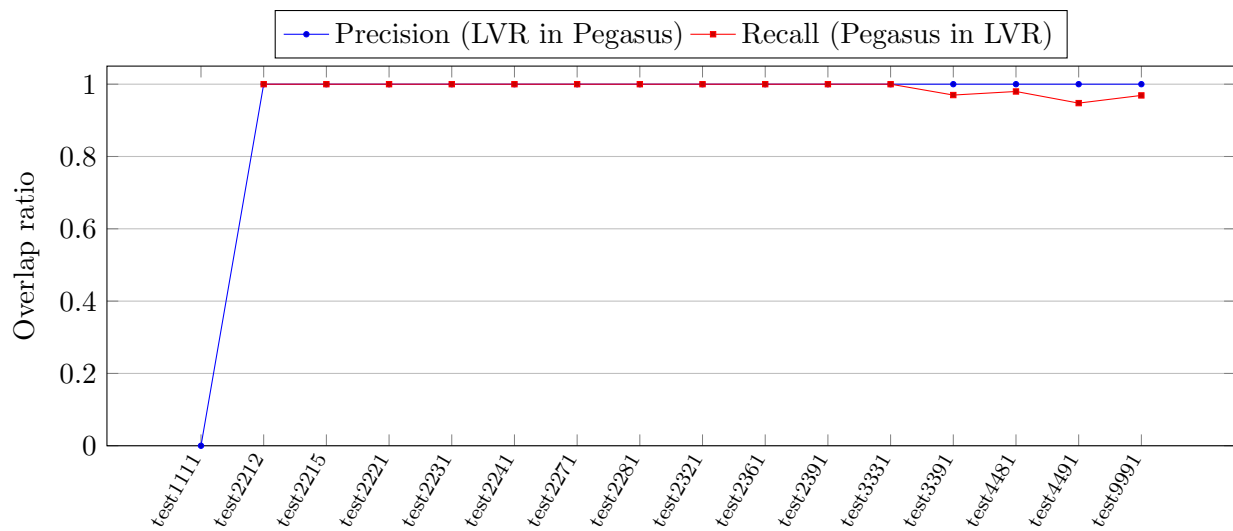


Figure 3.12: Precision/Recall by design for `table_cut_spacing`.

3.6.3 10-Line Commentary

- Across all designs, LVR reported 3,809 total 'table_cut_spacing' markers vs Pegasus 3,620.
- Weighted precision is 99.9%, i.e., fraction of LVR markers confirmed by Pegasus.
- Weighted recall is 96.9%, i.e., fraction of Pegasus markers reproduced by LVR.
- Both precision and recall are high, indicating strong parity for this violation type.
- Layer-wise concentration of deltas can indicate grid snapping, LEF/DEF layer-map issues, or via representation differences.
- Marker merging/splitting differences can inflate totals even when underlying error geometries match.
- For closure, sample mismatched markers and classify deltas into parameter mismatch vs geometric mismatch vs tool post-processing.
- Use these plots to prioritize debugging on layers with high Pegasus totals but low recall.
- Overall assessment in this report is driven by weighted overlap (not just raw totals).

3.7 Violation Type: table_prl_spacing

3.7.1 Aggregate Metrics (All Designs)

Violation	LVR Total	Pegasus Total	LVR $\cap$ Pegasus	Pegasus $\cap$ LVR	Precision	Recall
table_prl_spacing	43289	18075	34882	17303	0.806	0.957

3.7.2 Plots

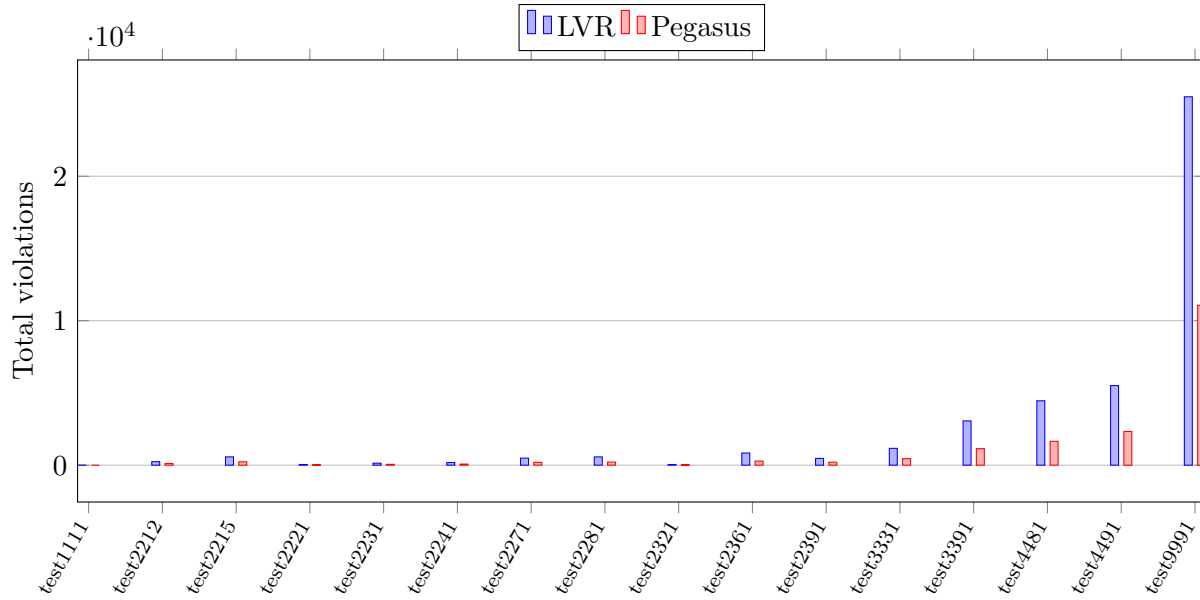


Figure 3.13: Totals by design for table_prl_spacing.

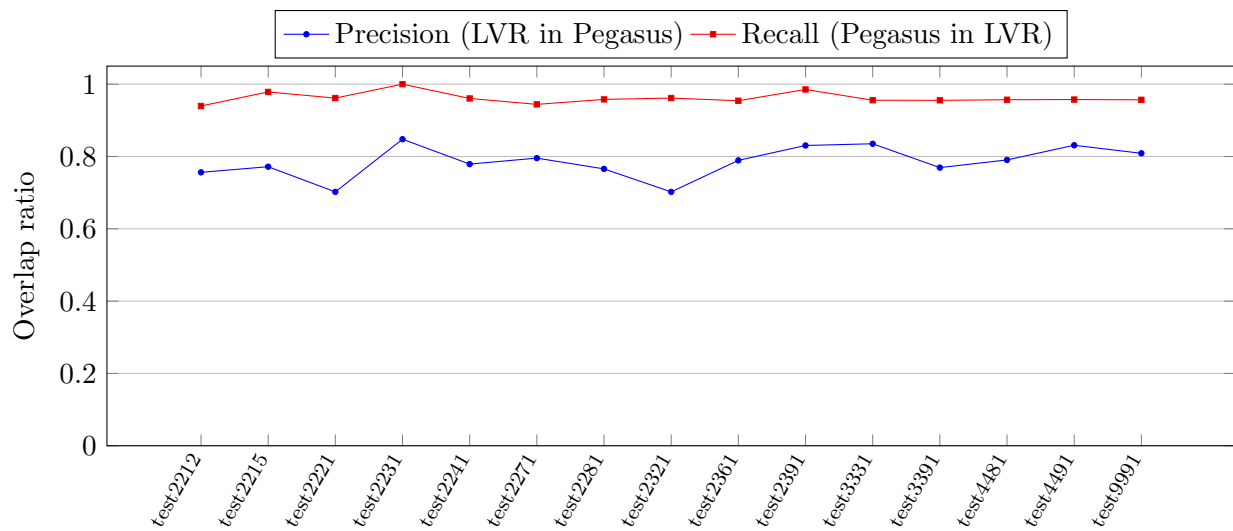


Figure 3.14: Precision/Recall by design for `table_prl_spacing`.

3.7.3 10-Line Commentary

- Across all designs, LVR reported 43,289 total 'table_prl_spacing' markers vs Pegasus 18,075.
- Weighted precision is 80.6%, i.e., fraction of LVR markers confirmed by Pegasus.
- Weighted recall is 95.7%, i.e., fraction of Pegasus markers reproduced by LVR.
- Precision and recall are moderate: differences likely come from rule nuances or marker segmentation.
- Layer-wise concentration of deltas can indicate grid snapping, LEF/DEF layer-map issues, or via representation differences.
- Marker merging/splitting differences can inflate totals even when underlying error geometries match.
- For closure, sample mismatched markers and classify deltas into parameter mismatch vs geometric mismatch vs tool post-processing.
- Use these plots to prioritize debugging on layers with high Pegasus totals but low recall.
- Overall assessment in this report is driven by weighted overlap (not just raw totals).

Appendix A

Per-Design Detailed Tables (All Blocks)

A.1 Design test1111

Table A.1: Design test1111 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

Table A.2: Design test1111 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

Table A.3: Design test1111 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

Table A.4: Design test1111 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

Table A.5: Design test1111 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

Table A.6: Design test1111 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

Table A.7: Design test1111 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

Table A.8: Design test1111 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	0	0	0.0	0	0.0
OVERALL		3	0	0	0.0	0	0.0

A.2 Design test2212

Table A.9: Design test2212 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	38	0	0	0.0	0	0.0
off_grid	M2	8	12	8	100.0	11	91.7
off_grid	M3	2	6	2	100.0	6	100.0
OVERALL		48	18	10	20.8	17	94.4

Table A.10: Design test2212 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	2	2	0	0.0	0	0.0
cut_short	V2	1	1	1	100.0	1	100.0
OVERALL		3	3	1	33.3	1	33.3

Table A.11: Design test2212 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	38	0	0	0.0	0	0.0
off_grid	M2	8	12	8	100.0	11	91.7
off_grid	M3	2	6	2	100.0	6	100.0
OVERALL		48	18	10	20.8	17	94.4

Table A.12: Design test2212 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	4	4	4	100.0	4	100.0
OVERALL		4	4	4	100.0	4	100.0

Table A.13: Design test2212 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	233	108	175	75.1	101	93.5
table_prl_spacing	M2	9	8	8	88.9	8	100.0
OVERALL		242	116	183	75.6	109	94.0

Table A.14: Design test2212 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	56	32	45	80.4	25	78.1
shorts	M2	12	12	10	83.3	10	83.3
shorts	M3	1	1	1	100.0	1	100.0
OVERALL		69	45	56	81.2	36	80.0

Table A.15: Design test2212 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.16: Design test2212 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	2	2	2	100.0	2	100.0
OVERALL		2	2	2	100.0	2	100.0

A.3 Design test2215

Table A.17: Design test2215 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	85	0	0	0.0	0	0.0
off_grid	M2	10	29	10	100.0	26	89.7
off_grid	M3	1	3	1	100.0	3	100.0
OVERALL		96	32	11	11.5	29	90.6

Table A.18: Design test2215 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	4	5	2	50.0	2	40.0
cut_short	V2	1	1	1	100.0	1	100.0
OVERALL		5	6	3	60.0	3	50.0

Table A.19: Design test2215 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	85	0	0	0.0	0	0.0
off_grid	M2	10	29	10	100.0	26	89.7
off_grid	M3	1	3	1	100.0	3	100.0
OVERALL		96	32	11	11.5	29	90.6

Table A.20: Design test2215 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	16	15	16	100.0	15	100.0
table_cut_spacing	V2	1	1	1	100.0	1	100.0
OVERALL		17	16	17	100.0	16	100.0

Table A.21: Design test2215 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	557	221	431	77.4	216	97.7
table_prl_spacing	M2	16	11	11	68.8	11	100.0
table_prl_spacing	M3	1	1	1	100.0	1	100.0
OVERALL		574	233	443	77.2	228	97.9

Table A.22: Design test2215 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	71	45	61	85.9	39	86.7
shorts	M2	27	24	21	77.8	18	75.0
shorts	M3	1	1	1	100.0	1	100.0
OVERALL		99	70	83	83.8	58	82.9

Table A.23: Design test2215 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
nsmetal	M1	3	1	2	66.7	1	100.0
OVERALL		3	1	2	66.7	1	100.0

Table A.24: Design test2215 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

A.4 Design test2221

Table A.25: Design test2221 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	11	0	0	0.0	0	0.0
off_grid	M2	1	3	1	100.0	3	100.0
OVERALL		12	3	1	8.3	3	100.0

Table A.26: Design test2221 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.27: Design test2221 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	11	0	0	0.0	0	0.0
off_grid	M2	1	3	1	100.0	3	100.0
OVERALL		12	3	1	8.3	3	100.0

Table A.28: Design test2221 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	1	1	1	100.0	1	100.0
OVERALL		1	1	1	100.0	1	100.0

Table A.29: Design test2221 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	46	25	32	69.6	24	96.0
table_prl_spacing	M2	1	1	1	100.0	1	100.0
OVERALL		47	26	33	70.2	25	96.2

Table A.30: Design test2221 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	15	10	13	86.7	8	80.0
OVERALL		15	10	13	86.7	8	80.0

Table A.31: Design test2221 – Block 7

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.32: Design test2221 – Block 8

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

A.5 Design test2231

Table A.33: Design test2231 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	21	0	0	0.0	0	0.0
off_grid	M2	2	4	2	100.0	4	100.0
OVERALL		23	4	2	8.7	4	100.0

Table A.34: Design test2231 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.35: Design test2231 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	21	0	0	0.0	0	0.0
off_grid	M2	2	4	2	100.0	4	100.0
OVERALL		23	4	2	8.7	4	100.0

Table A.36: Design test2231 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	3	3	3	100.0	3	100.0
OVERALL		3	3	3	100.0	3	100.0

Table A.37: Design test2231 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	134	55	114	85.1	55	100.0
table_prl_spacing	M2	4	3	3	75.0	3	100.0
OVERALL		138	58	117	84.8	58	100.0

Table A.38: Design test2231 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	21	10	12	57.1	8	80.0
shorts	M2	8	8	5	62.5	5	62.5
OVERALL		29	18	17	58.6	13	72.2

Table A.39: Design test2231 – Block 7

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.40: Design test2231 – Block 8

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

A.6 Design test2241

Table A.41: Design test2241 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	23	0	0	0.0	0	0.0
off_grid	M2	1	3	1	100.0	3	100.0
off_grid	M3	1	3	1	100.0	3	100.0
OVERALL		25	6	2	8.0	6	100.0

Table A.42: Design test2241 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	1	1	1	100.0	1	100.0
OVERALL		1	1	1	100.0	1	100.0

Table A.43: Design test2241 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	23	0	0	0.0	0	0.0
off_grid	M2	1	3	1	100.0	3	100.0
off_grid	M3	1	3	1	100.0	3	100.0
OVERALL		25	6	2	8.0	6	100.0

Table A.44: Design test2241 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	4	4	4	100.0	4	100.0
OVERALL		4	4	4	100.0	4	100.0

Table A.45: Design test2241 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	172	71	133	77.3	69	97.2
table_prl_spacing	M2	9	5	8	88.9	4	80.0
OVERALL		181	76	141	77.9	73	96.1

Table A.46: Design test2241 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	42	20	33	78.6	17	85.0
shorts	M2	10	10	9	90.0	9	90.0
OVERALL		52	30	42	80.8	26	86.7

Table A.47: Design test2241 – Block 7

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.48: Design test2241 – Block 8

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

A.7 Design test2271

Table A.49: Design test2271 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	68	0	0	0.0	0	0.0
off_grid	M2	10	22	10	100.0	19	86.4
off_grid	M3	2	4	2	100.0	4	100.0
off_grid	M4	0	6	0	0.0	0	0.0
OVERALL		80	32	12	15.0	23	71.9

Table A.50: Design test2271 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	2	2	2	100.0	2	100.0
cut_short	V2	1	1	1	100.0	1	100.0
OVERALL		3	3	3	100.0	3	100.0

Table A.51: Design test2271 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	68	0	0	0.0	0	0.0
off_grid	M2	10	22	10	100.0	19	86.4
off_grid	M3	2	4	2	100.0	4	100.0
off_grid	M4	0	6	0	0.0	0	0.0
OVERALL		80	32	12	15.0	23	71.9

Table A.52: Design test2271 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	8	7	8	100.0	7	100.0
OVERALL		8	7	8	100.0	7	100.0

Table A.53: Design test2271 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	478	187	378	79.1	176	94.1
table_prl_spacing	M2	9	8	9	100.0	8	100.0
table_prl_spacing	M3	2	2	2	100.0	2	100.0
OVERALL		489	197	389	79.6	186	94.4

Table A.54: Design test2271 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	106	49	86	81.1	44	89.8
shorts	M2	22	20	18	81.8	17	85.0
shorts	M3	2	2	2	100.0	2	100.0
OVERALL		130	71	106	81.5	63	88.7

Table A.55: Design test2271 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
nsmetal	M1	1	1	1	100.0	1	100.0
OVERALL		1	1	1	100.0	1	100.0

Table A.56: Design test2271 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	12	12	12	100.0	12	100.0
OVERALL		12	12	12	100.0	12	100.0

A.8 Design test2281

Table A.57: Design test2281 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	80	0	0	0.0	0	0.0
off_grid	M2	10	25	10	100.0	21	84.0
off_grid	M3	7	20	7	100.0	20	100.0
OVERALL		97	45	17	17.5	41	91.1

Table A.58: Design test2281 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	3	4	3	100.0	3	75.0
cut_short	V2	3	3	3	100.0	3	100.0
OVERALL		6	7	6	100.0	6	85.7

Table A.59: Design test2281 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	80	0	0	0.0	0	0.0
off_grid	M2	10	25	10	100.0	21	84.0
off_grid	M3	7	20	7	100.0	20	100.0
OVERALL		97	45	17	17.5	41	91.1

Table A.60: Design test2281 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	12	11	12	100.0	11	100.0
table_cut_spacing	V2	2	1	2	100.0	1	100.0
table_cut_spacing	V3	1	1	1	100.0	1	100.0
OVERALL		15	13	15	100.0	13	100.0

Table A.61: Design test2281 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	547	194	415	75.9	187	96.4
table_prl_spacing	M2	18	15	16	88.9	13	86.7
table_prl_spacing	M3	7	5	7	100.0	5	100.0
OVERALL		572	214	438	76.6	205	95.8

Table A.62: Design test2281 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	108	53	100	92.6	48	90.6
shorts	M2	30	30	23	76.7	23	76.7
shorts	M3	4	4	4	100.0	4	100.0
OVERALL		142	87	127	89.4	75	86.2

Table A.63: Design test2281 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
nsmetal	M1	1	1	1	100.0	1	100.0
OVERALL		1	1	1	100.0	1	100.0

Table A.64: Design test2281 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	14	14	14	100.0	14	100.0
OVERALL		14	14	14	100.0	14	100.0

A.9 Design test2321

Table A.65: Design test2321 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	11	0	0	0.0	0	0.0
off_grid	M2	1	3	1	100.0	3	100.0
OVERALL		12	3	1	8.3	3	100.0

Table A.66: Design test2321 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.67: Design test2321 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	11	0	0	0.0	0	0.0
off_grid	M2	1	3	1	100.0	3	100.0
OVERALL		12	3	1	8.3	3	100.0

Table A.68: Design test2321 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	1	1	1	100.0	1	100.0
OVERALL		1	1	1	100.0	1	100.0

Table A.69: Design test2321 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	46	25	32	69.6	24	96.0
table_prl_spacing	M2	1	1	1	100.0	1	100.0
OVERALL		47	26	33	70.2	25	96.2

Table A.70: Design test2321 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	15	10	13	86.7	8	80.0
OVERALL		15	10	13	86.7	8	80.0

Table A.71: Design test2321 – Block 7

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.72: Design test2321 – Block 8

Violation	Layer	LVR	Pegasus	$\text{LVR} \cap \text{Pegasus}$		$\text{Pegasus} \cap \text{LVR}$	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

A.10 Design test2361

Table A.73: Design test2361 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	115	0	0	0.0	0	0.0
off_grid	M2	19	36	19	100.0	33	91.7
off_grid	M3	10	23	10	100.0	23	100.0
off_grid	M4	2	7	2	100.0	3	42.9
OVERALL		146	66	31	21.2	59	89.4

Table A.74: Design test2361 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	12	11	12	100.0	10	90.9
cut_short	V2	12	8	12	100.0	8	100.0
cut_short	V4	1	1	1	100.0	1	100.0
OVERALL		25	20	25	100.0	19	95.0

Table A.75: Design test2361 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	115	0	0	0.0	0	0.0
off_grid	M2	19	36	19	100.0	33	91.7
off_grid	M3	10	23	10	100.0	23	100.0
off_grid	M4	2	7	2	100.0	3	42.9
OVERALL		146	66	31	21.2	59	89.4

Table A.76: Design test2361 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	17	15	17	100.0	15	100.0
table_cut_spacing	V2	4	3	4	100.0	3	100.0
table_cut_spacing	V3	12	12	12	100.0	12	100.0
OVERALL		33	30	33	100.0	30	100.0

Table A.77: Design test2361 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	788	245	614	77.9	233	95.1
table_prl_spacing	M2	37	27	35	94.6	26	96.3
table_prl_spacing	M3	12	10	12	100.0	10	100.0
table_prl_spacing	M4	3	2	2	66.7	2	100.0
OVERALL		840	284	663	78.9	271	95.4

Table A.78: Design test2361 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	186	74	170	91.4	68	91.9
shorts	M2	40	29	37	92.5	26	89.7
shorts	M3	16	12	16	100.0	12	100.0
shorts	M4	5	5	5	100.0	5	100.0
shorts	M5	1	1	1	100.0	1	100.0
OVERALL		248	121	229	92.3	112	92.6

Table A.79: Design test2361 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.80: Design test2361 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	30	30	30	100.0	30	100.0
OVERALL		30	30	30	100.0	30	100.0

A.11 Design test2391

Table A.81: Design test2391 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	55	0	0	0.0	0	0.0
off_grid	M2	3	10	3	100.0	9	90.0
off_grid	M3	4	12	4	100.0	12	100.0
off_grid	M4	0	1	0	0.0	0	0.0
OVERALL		62	23	7	11.3	21	91.3

Table A.82: Design test2391 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	1	3	1	100.0	1	33.3
OVERALL		1	3	1	100.0	1	33.3

Table A.83: Design test2391 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	55	0	0	0.0	0	0.0
off_grid	M2	3	10	3	100.0	9	90.0
off_grid	M3	4	12	4	100.0	12	100.0
off_grid	M4	0	1	0	0.0	0	0.0
OVERALL		62	23	7	11.3	21	91.3

Table A.84: Design test2391 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	11	11	11	100.0	11	100.0
table_cut_spacing	V2	2	2	2	100.0	2	100.0
OVERALL		13	13	13	100.0	13	100.0

Table A.85: Design test2391 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	440	186	365	83.0	183	98.4
table_prl_spacing	M2	23	16	19	82.6	16	100.0
table_prl_spacing	M3	3	3	3	100.0	3	100.0
OVERALL		466	205	387	83.0	202	98.5

Table A.86: Design test2391 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	59	33	53	89.8	32	97.0
shorts	M2	24	23	18	75.0	17	73.9
shorts	M3	1	1	1	100.0	1	100.0
OVERALL		84	57	72	85.7	50	87.7

Table A.87: Design test2391 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.88: Design test2391 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	4	4	4	100.0	4	100.0
OVERALL		4	4	4	100.0	4	100.0

A.12 Design test3331

Table A.89: Design test3331 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	140	0	0	0.0	0	0.0
off_grid	M2	43	87	43	100.0	84	96.6
off_grid	M3	12	33	12	100.0	33	100.0
off_grid	M4	2	6	2	100.0	6	100.0
OVERALL		197	126	57	28.9	123	97.6

Table A.90: Design test3331 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	17	15	13	76.5	11	73.3
cut_short	V2	15	12	15	100.0	11	91.7
cut_short	V3	3	3	3	100.0	3	100.0
OVERALL		35	30	31	88.6	25	83.3

Table A.91: Design test3331 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	140	0	0	0.0	0	0.0
off_grid	M2	43	87	43	100.0	84	96.6
off_grid	M3	12	33	12	100.0	33	100.0
off_grid	M4	2	6	2	100.0	6	100.0
OVERALL		197	126	57	28.9	123	97.6

Table A.92: Design test3331 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	33	28	33	100.0	28	100.0
table_cut_spacing	V2	6	5	6	100.0	5	100.0
table_cut_spacing	V3	12	11	12	100.0	11	100.0
table_cut_spacing	V4	1	1	1	100.0	1	100.0
OVERALL		52	45	52	100.0	45	100.0

Table A.93: Design test3331 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	1093	392	910	83.3	375	95.7
table_prl_spacing	M2	54	43	45	83.3	40	93.0
table_prl_spacing	M3	18	16	18	100.0	16	100.0
OVERALL		1165	451	973	83.5	431	95.6

Table A.94: Design test3331 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	167	93	150	89.8	81	87.1
shorts	M2	71	52	66	93.0	46	88.5
shorts	M3	14	12	14	100.0	12	100.0
shorts	M4	2	2	2	100.0	2	100.0
OVERALL		254	159	232	91.3	141	88.7

Table A.95: Design test3331 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
No violations reported in either engine for this block.							
OVERALL		0	0	0	0.0	0	0.0

Table A.96: Design test3331 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	42	39	42	100.0	39	100.0
OVERALL		42	39	42	100.0	39	100.0

A.13 Design test3391

Table A.97: Design test3391 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	437	0	0	0.0	0	0.0
off_grid	M2	112	242	112	100.0	230	95.0
off_grid	M3	34	71	34	100.0	71	100.0
off_grid	M4	15	50	15	100.0	42	84.0
OVERALL		598	363	161	26.9	343	94.5

Table A.98: Design test3391 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	45	46	37	82.2	34	73.9
cut_short	V2	34	30	32	94.1	28	93.3
cut_short	V3	4	4	4	100.0	4	100.0
cut_short	V4	1	1	1	100.0	1	100.0
OVERALL		84	81	74	88.1	67	82.7

Table A.99: Design test3391 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	437	0	0	0.0	0	0.0
off_grid	M2	112	242	112	100.0	230	95.0
off_grid	M3	34	71	34	100.0	71	100.0
off_grid	M4	15	50	15	100.0	42	84.0
OVERALL		598	363	161	26.9	343	94.5

Table A.100: Design test3391 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	99	84	99	100.0	80	95.2
table_cut_spacing	V2	21	19	21	100.0	19	100.0
table_cut_spacing	V3	23	23	23	100.0	23	100.0
table_cut_spacing	V4	7	7	7	100.0	7	100.0
OVERALL		150	133	150	100.0	129	97.0

Table A.101: Design test3391 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	2852	980	2172	76.2	937	95.6
table_prl_spacing	M2	168	121	146	86.9	115	95.0
table_prl_spacing	M3	36	30	31	86.1	30	100.0
table_prl_spacing	M4	8	10	8	100.0	8	80.0
OVERALL		3064	1141	2357	76.9	1090	95.5

Table A.102: Design test3391 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	494	254	444	89.9	229	90.2
shorts	M2	168	120	153	91.1	105	87.5
shorts	M3	49	43	49	100.0	43	100.0
shorts	M4	9	7	9	100.0	7	100.0
OVERALL		720	424	655	91.0	384	90.6

Table A.103: Design test3391 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
nsmetal	M1	2	1	2	100.0	1	100.0
OVERALL		2	1	2	100.0	1	100.0

Table A.104: Design test3391 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	142	138	142	100.0	138	100.0
cut_enclosure	V5	4	4	4	100.0	4	100.0
OVERALL		146	142	146	100.0	142	100.0

A.14 Design test4481

Table A.105: Design test4481 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	705	0	0	0.0	0	0.0
off_grid	M2	197	412	197	100.0	392	95.1
off_grid	M3	64	157	64	100.0	157	100.0
off_grid	M4	11	33	10	90.9	19	57.6
OVERALL		977	602	271	27.7	568	94.4

Table A.106: Design test4481 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	78	75	70	89.7	66	88.0
cut_short	V2	75	67	70	93.3	62	92.5
cut_short	V3	9	9	9	100.0	9	100.0
cut_short	V4	2	2	2	100.0	2	100.0
OVERALL		164	153	151	92.1	139	90.8

Table A.107: Design test4481 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	705	0	0	0.0	0	0.0
off_grid	M2	197	412	197	100.0	392	95.1
off_grid	M3	64	157	64	100.0	157	100.0
off_grid	M4	11	33	10	90.9	19	57.6
OVERALL		977	602	271	27.7	568	94.4

Table A.108: Design test4481 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	161	140	161	100.0	135	96.4
table_cut_spacing	V2	50	45	50	100.0	44	97.8
table_cut_spacing	V3	111	100	111	100.0	100	100.0
table_cut_spacing	V4	14	12	14	100.0	12	100.0
OVERALL		336	297	336	100.0	291	98.0

Table A.109: Design test4481 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	4036	1354	3173	78.6	1298	95.9
table_prl_spacing	M2	294	196	236	80.3	184	93.9
table_prl_spacing	M3	105	84	95	90.5	84	100.0
table_prl_spacing	M4	18	16	16	88.9	13	81.2
table_prl_spacing	M5	1	1	1	100.0	1	100.0
OVERALL		4454	1651	3521	79.1	1580	95.7

Table A.110: Design test4481 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	607	318	567	93.4	296	93.1
shorts	M2	241	174	226	93.8	159	91.4
shorts	M3	100	84	95	95.0	79	94.0
shorts	M4	32	26	32	100.0	26	100.0
shorts	M5	4	4	4	100.0	4	100.0
OVERALL		984	606	924	93.9	564	93.1

Table A.111: Design test4481 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
nsmetal	M1	3	2	3	100.0	2	100.0
nsmetal	M2	3	4	3	100.0	3	75.0
nsmetal	M3	0	1	0	0.0	0	0.0
nsmetal	M4	1	1	1	100.0	1	100.0
OVERALL		7	8	7	100.0	6	75.0

Table A.112: Design test4481 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	259	250	259	100.0	250	100.0
cut_enclosure	V5	16	16	16	100.0	16	100.0
cut_enclosure	V6	2	0	0	0.0	0	0.0
OVERALL		277	266	275	99.3	266	100.0

A.15 Design test4491

Table A.113: Design test4491 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	879	0	0	0.0	0	0.0
off_grid	M2	272	577	269	98.9	570	98.8
off_grid	M3	90	230	90	100.0	229	99.6
off_grid	M4	15	55	15	100.0	35	63.6
OVERALL		1256	862	374	29.8	834	96.8

Table A.114: Design test4491 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	71	77	62	87.3	60	77.9
cut_short	V2	64	60	53	82.8	49	81.7
cut_short	V3	5	5	4	80.0	4	80.0
cut_short	V4	1	1	1	100.0	1	100.0
OVERALL		141	143	120	85.1	114	79.7

Table A.115: Design test4491 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	879	0	0	0.0	0	0.0
off_grid	M2	272	577	269	98.9	570	98.8
off_grid	M3	90	230	90	100.0	229	99.6
off_grid	M4	15	55	15	100.0	35	63.6
OVERALL		1256	862	374	29.8	834	96.8

Table A.116: Design test4491 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	179	179	179	100.0	165	92.2
table_cut_spacing	V2	59	58	59	100.0	54	93.1
table_cut_spacing	V3	125	121	125	100.0	119	98.3
table_cut_spacing	V4	24	24	24	100.0	24	100.0
OVERALL		387	382	387	100.0	362	94.8

Table A.117: Design test4491 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	4989	1907	4105	82.3	1828	95.9
table_prl_spacing	M2	346	256	304	87.9	242	94.5
table_prl_spacing	M3	129	118	125	96.9	116	98.3
table_prl_spacing	M4	40	42	39	97.5	38	90.5
table_prl_spacing	M5	7	7	7	100.0	7	100.0
OVERALL		5511	2330	4580	83.1	2231	95.8

Table A.118: Design test4491 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	788	427	717	91.0	395	92.5
shorts	M2	287	235	267	93.0	211	89.8
shorts	M3	78	75	74	94.9	70	93.3
shorts	M4	32	31	32	100.0	31	100.0
shorts	M5	1	1	1	100.0	1	100.0
OVERALL		1186	769	1091	92.0	708	92.1

Table A.119: Design test4491 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
nsmetal	M1	0	2	0	0.0	0	0.0
nsmetal	M2	2	2	2	100.0	2	100.0
nsmetal	M4	1	1	1	100.0	1	100.0
OVERALL		3	5	3	100.0	3	60.0

Table A.120: Design test4491 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	341	331	335	98.2	331	100.0
cut_enclosure	V5	21	21	21	100.0	21	100.0
cut_enclosure	V6	8	0	0	0.0	0	0.0
OVERALL		370	352	356	96.2	352	100.0

A.16 Design test9991

Table A.121: Design test9991 – Block 1

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	3814	0	0	0.0	0	0.0
off_grid	M2	1066	1844	1063	99.7	1746	94.7
off_grid	M3	564	1430	564	100.0	1410	98.6
off_grid	M4	81	242	81	100.0	215	88.8
off_grid	M5	4	13	4	100.0	10	76.9
off_grid	M6	1	1	1	100.0	1	100.0
off_grid	M7	1	2	1	100.0	1	50.0
off_grid	M8	87	0	0	0.0	0	0.0
off_grid	M9	43	0	0	0.0	0	0.0
OVERALL		5661	3532	1714	30.3	3383	95.8

Table A.122: Design test9991 – Block 2

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_short	V1	370	383	308	83.2	306	79.9
cut_short	V2	356	344	315	88.5	302	87.8
cut_short	V3	66	65	61	92.4	60	92.3
cut_short	V4	21	21	21	100.0	21	100.0
cut_short	V6	1	1	1	100.0	1	100.0
cut_short	V7	1	1	1	100.0	1	100.0
cut_short	V8	1	1	1	100.0	1	100.0
OVERALL		816	816	708	86.8	692	84.8

Table A.123: Design test9991 – Block 3

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
off_grid	M1	3814	0	0	0.0	0	0.0
off_grid	M2	1066	1844	1063	99.7	1746	94.7
off_grid	M3	564	1430	564	100.0	1410	98.6
off_grid	M4	81	242	81	100.0	215	88.8
off_grid	M5	4	13	4	100.0	10	76.9
off_grid	M6	1	1	1	100.0	1	100.0
off_grid	M7	1	2	1	100.0	1	50.0
off_grid	M8	87	0	0	0.0	0	0.0
off_grid	M9	43	0	0	0.0	0	0.0
OVERALL		5661	3532	1714	30.3	3383	95.8

Table A.124: Design test9991 – Block 4

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_cut_spacing	V1	863	846	863	100.0	795	94.0
table_cut_spacing	V2	386	370	386	100.0	354	95.7
table_cut_spacing	V3	1208	1150	1208	100.0	1135	98.7
table_cut_spacing	V4	325	304	325	100.0	304	100.0
table_cut_spacing	V8	0	1	0	0.0	0	0.0
OVERALL		2782	2671	2782	100.0	2588	96.9

Table A.125: Design test9991 – Block 5

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
table_prl_spacing	M1	22645	8673	18041	79.7	8304	95.7
table_prl_spacing	M2	1536	1195	1356	88.3	1148	96.1
table_prl_spacing	M3	916	807	853	93.1	796	98.6
table_prl_spacing	M4	254	235	237	93.3	224	95.3
table_prl_spacing	M5	86	84	86	100.0	84	100.0
table_prl_spacing	M6	1	33	1	100.0	1	3.0
table_prl_spacing	M7	0	6	0	0.0	0	0.0
table_prl_spacing	M8	44	23	34	77.3	23	100.0
table_prl_spacing	M9	17	9	16	94.1	9	100.0
table_prl_spacing	PAD	0	2	0	0.0	0	0.0
OVERALL		25499	11067	20624	80.9	10589	95.7

Table A.126: Design test9991 – Block 6

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
shorts	M1	3449	1902	3050	88.4	1720	90.4
shorts	M2	1154	938	1095	94.9	873	93.1
shorts	M3	714	647	669	93.7	604	93.4
shorts	M4	411	360	410	99.8	360	100.0
shorts	M5	90	90	90	100.0	90	100.0
shorts	M6	1	1	1	100.0	1	100.0
shorts	M7	1	4	1	100.0	1	25.0
shorts	M8	14	11	14	100.0	10	90.9
shorts	M9	13	9	13	100.0	9	100.0
OVERALL		5847	3962	5343	91.4	3668	92.6

Table A.127: Design test9991 – Block 7

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
nsmetal	M1	21	12	16	76.2	10	83.3
nsmetal	M2	4	5	4	100.0	4	80.0
nsmetal	M8	0	1	0	0.0	0	0.0
OVERALL		25	18	20	80.0	14	77.8

Table A.128: Design test9991 – Block 8

Violation	Layer	LVR	Pegasus	LVR $\cap$ Pegasus		Pegasus $\cap$ LVR	
		Tot	Tot	Count	(%)	Count	(%)
cut_enclosure	V3	1829	1766	1819	99.5	1766	100.0
cut_enclosure	V5	266	261	261	98.1	261	100.0
cut_enclosure	V6	218	0	0	0.0	0	0.0
OVERALL		2313	2027	2080	89.9	2027	100.0