

Comparative Analysis: SPACENET Dataset (Fourier) - 2024-11-01

Dataset Variations

- Variations compared:** approx1e5, approx1e5, approx1e5, approx1e5
- Image Type:** Green
- Representation:** Fourier

Comparative Results

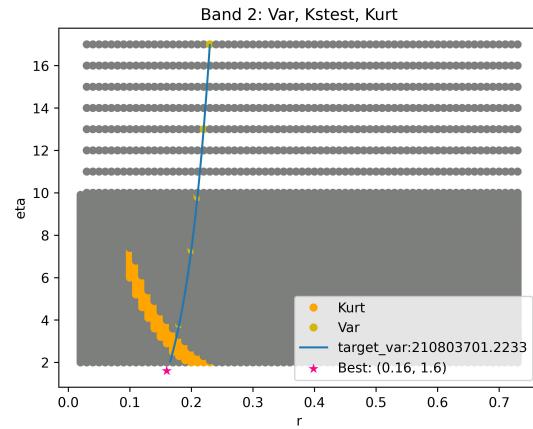
Best parameters comparison:

band	total_samples	Gray_best_r	Red_best_r	Blue_best_r	Green_best_r	Gray_best_eta	Red_best_eta	Blue_best_eta	Green_best_eta	Gray_ks
2	47614	0.159	0.16	0.16	0.16	1.51	1.55	1.53	1.63	
5	102030	0.159	0.159	0.161	0.16	1.04	1	1.09	1.15	
8	326496	0.17	0.169	0.159	0.158	1.14	1.04	0.54	0.6	
11	904666	0.168	0.17	0.179	0.179	0.53	0.6	0.91	1.04	
14	2.7276e+06	0.18	0.18	0.178	0.179	0.55	0.55	0.41	0.53	
17	8.29844e+06	0.19	0.192	0.199	0.2	0.42	0.48	0.62	0.76	
20	2.51402e+07	0.227	0.228	0.228	0.219	0.9	0.91	0.8	0.65	
23	6.57345e+07	0.257	0.259	0.267	0.251	1.22	1.27	1.4	1.05	

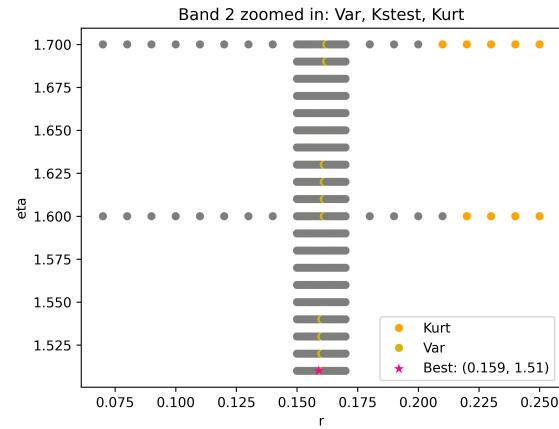
Full Grid Search Combo Plots Comparison

Layer 2

gray

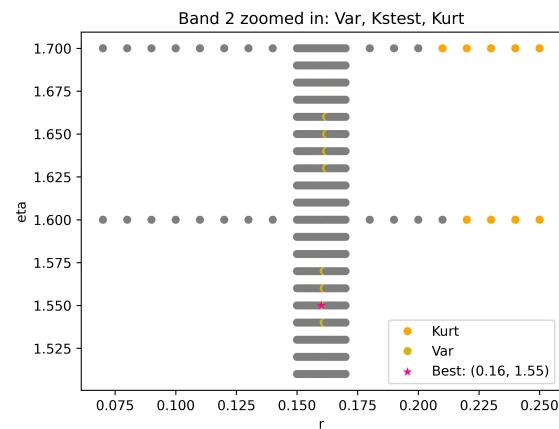
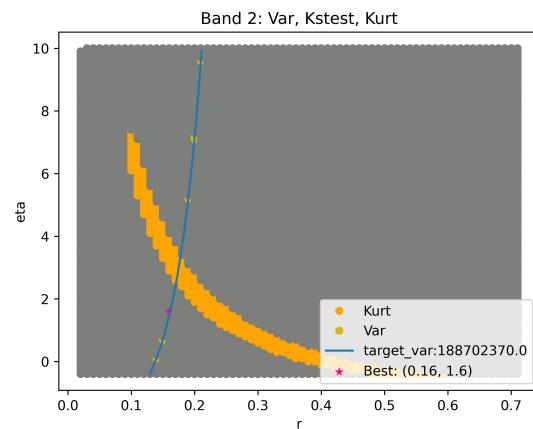


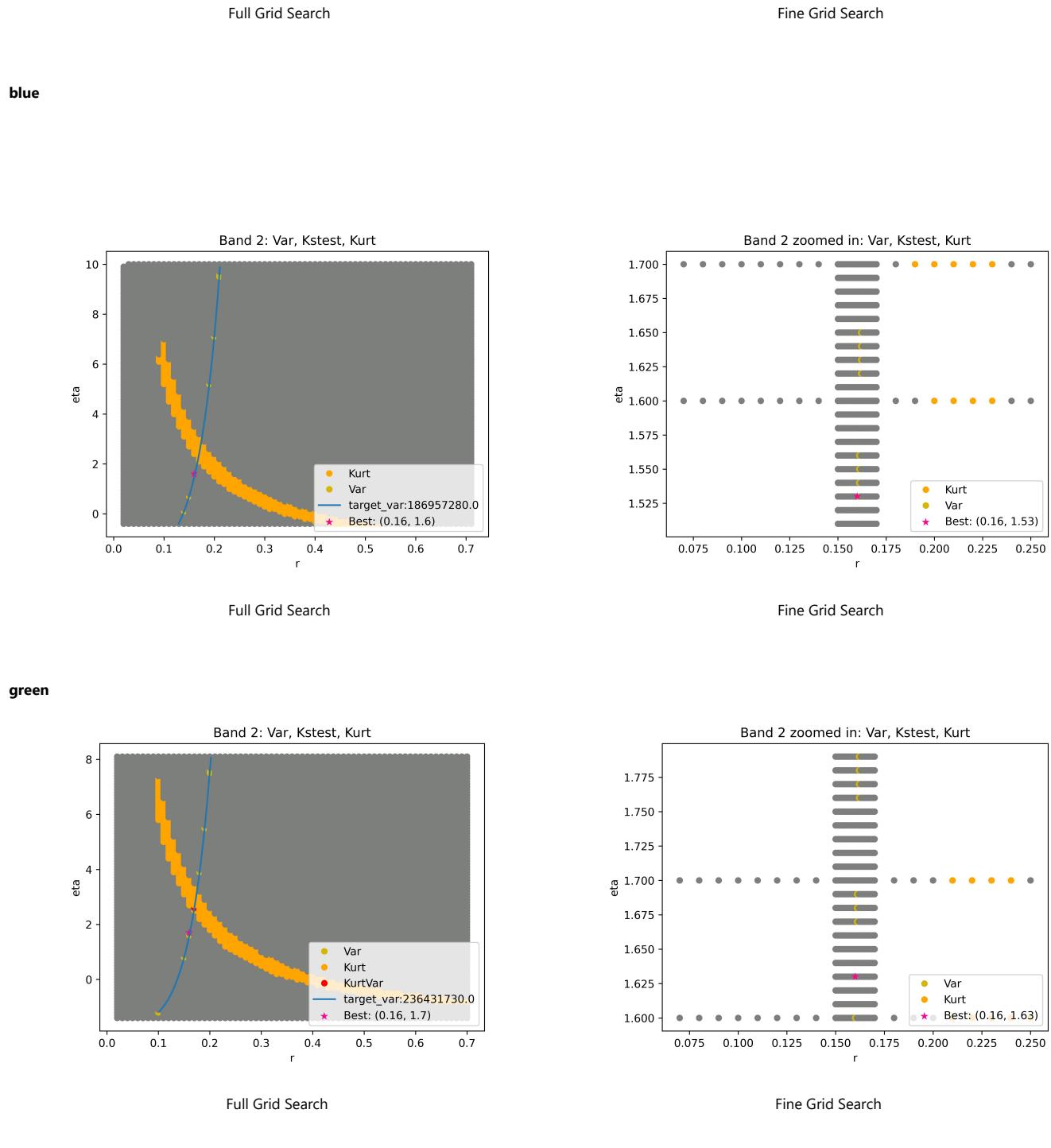
Full Grid Search



Fine Grid Search

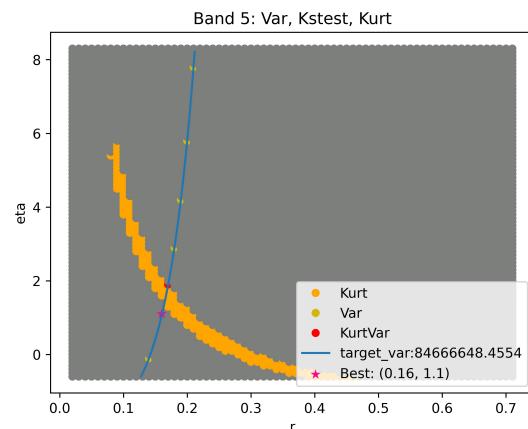
red



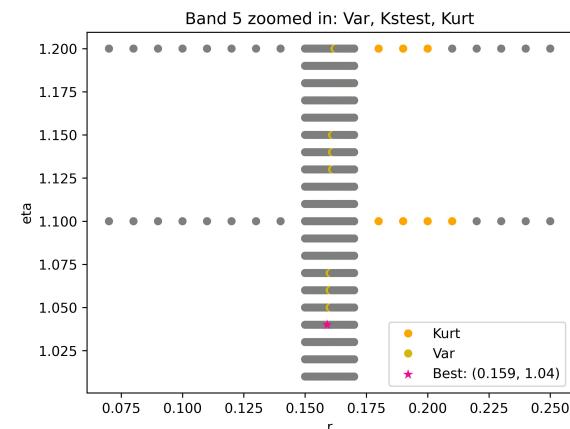


Layer 5

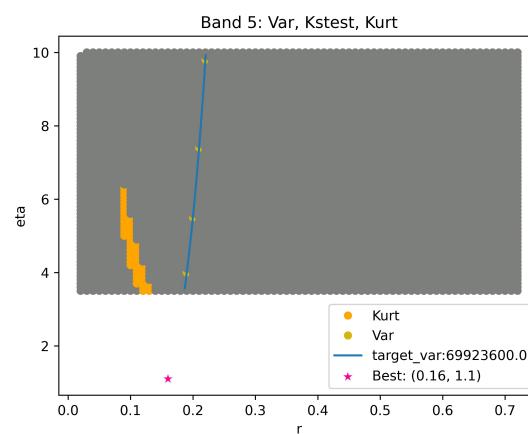
gray



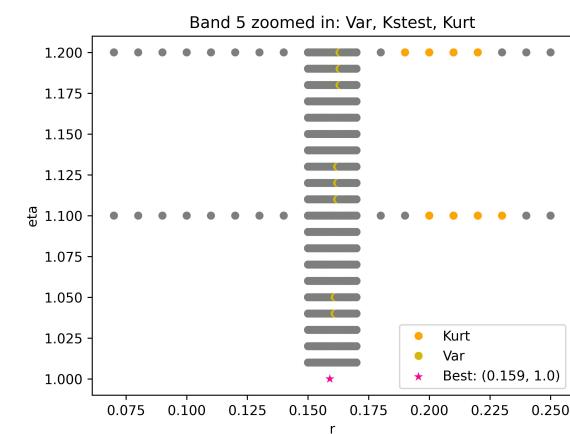
Full Grid Search



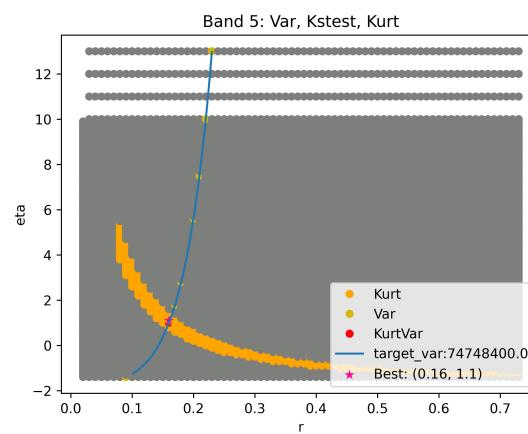
Fine Grid Search

red

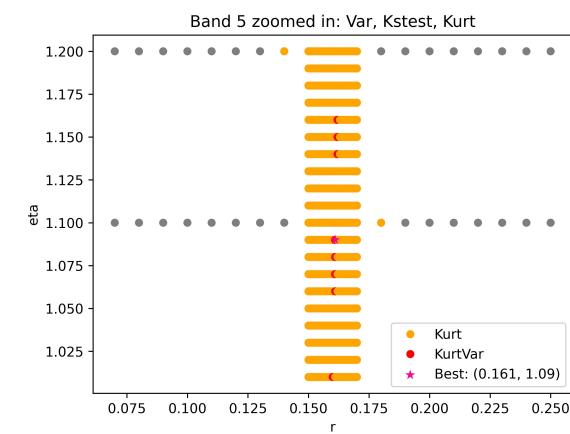
Full Grid Search



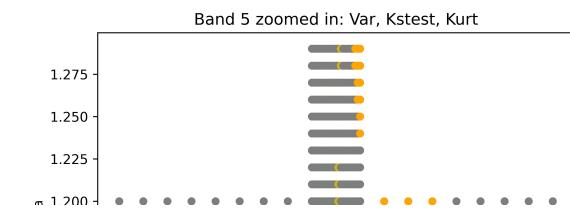
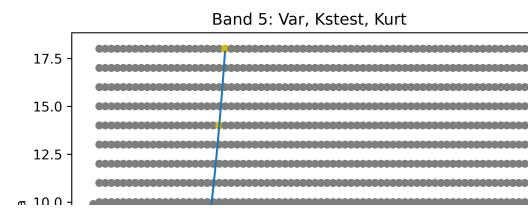
Fine Grid Search

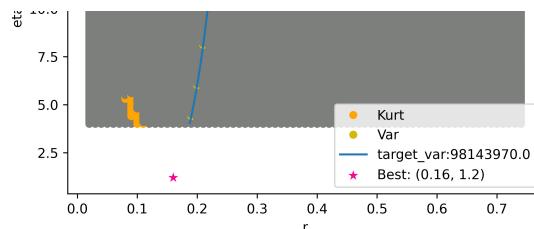
blue

Full Grid Search

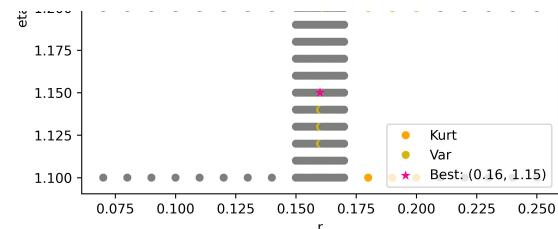


Fine Grid Search

green



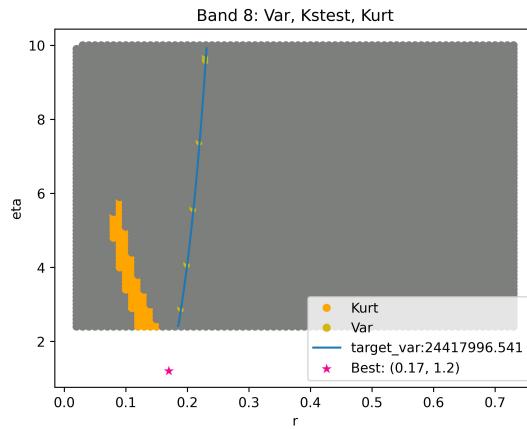
Full Grid Search



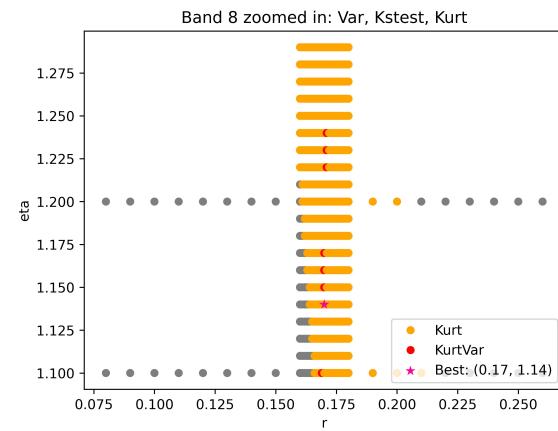
Fine Grid Search

Layer 8

gray

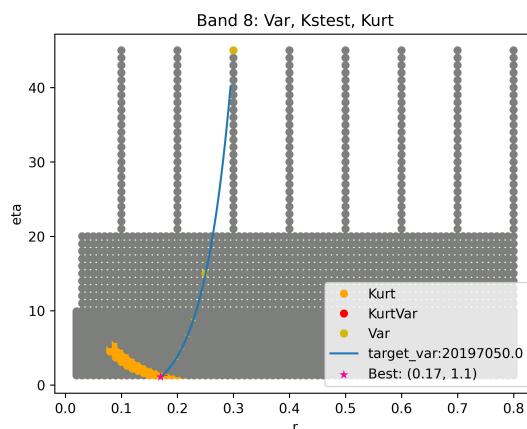


Full Grid Search

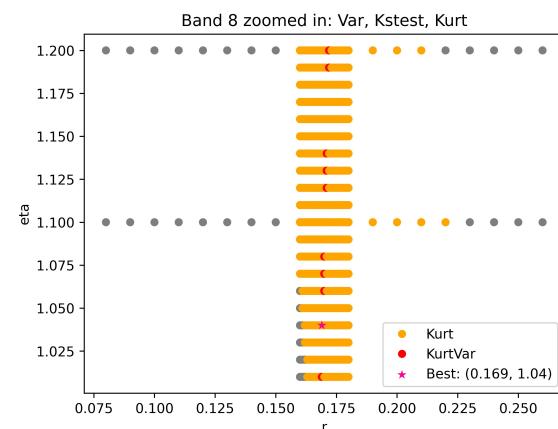


Fine Grid Search

red

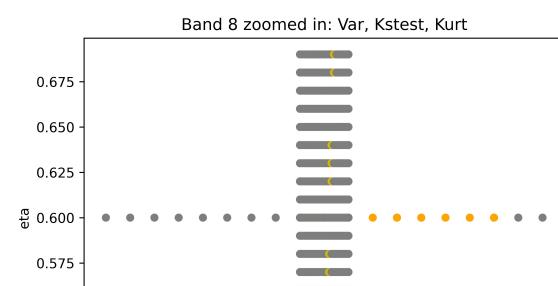
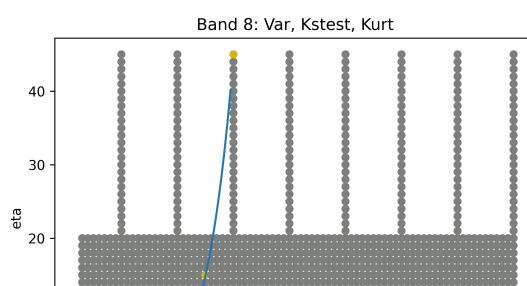


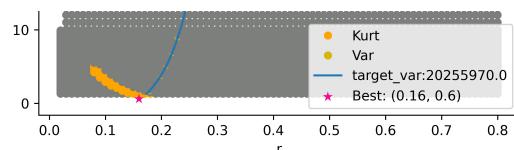
Full Grid Search



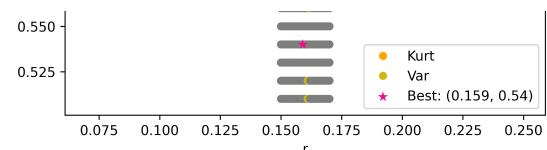
Fine Grid Search

blue

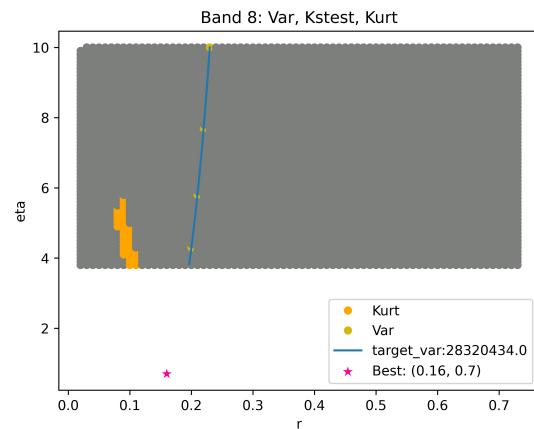




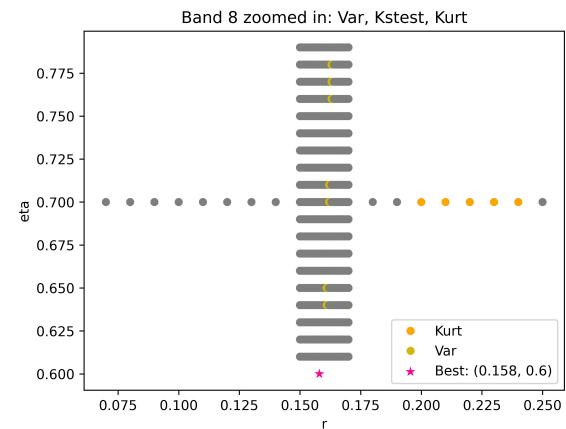
Full Grid Search



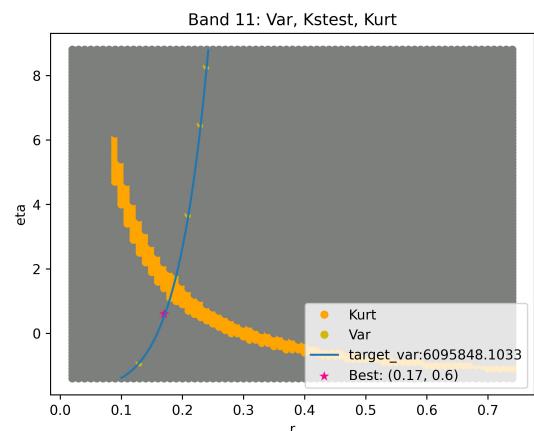
Fine Grid Search

green

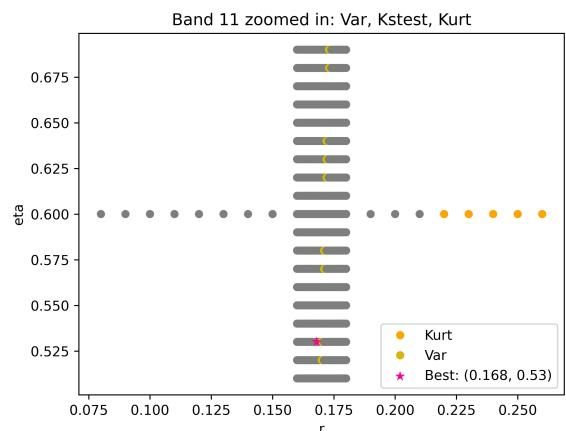
Full Grid Search



Fine Grid Search

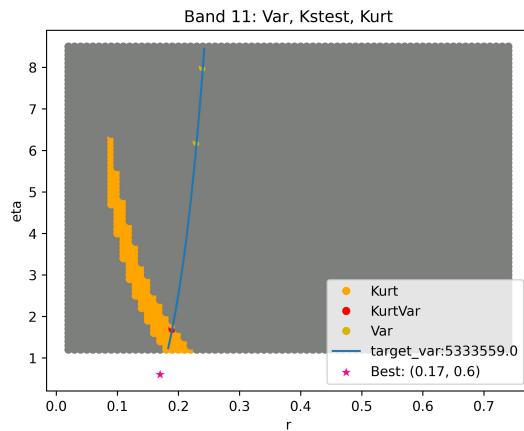
Layer 11**gray**

Full Grid Search

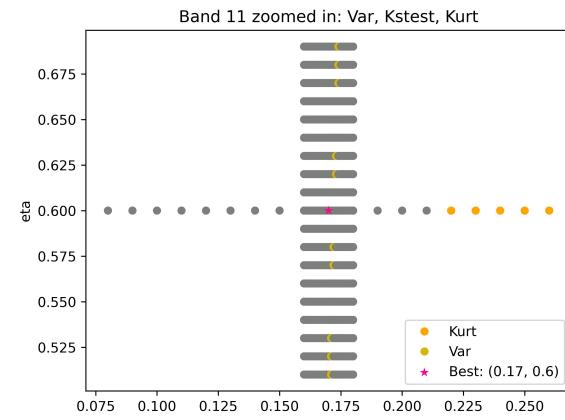


Fine Grid Search

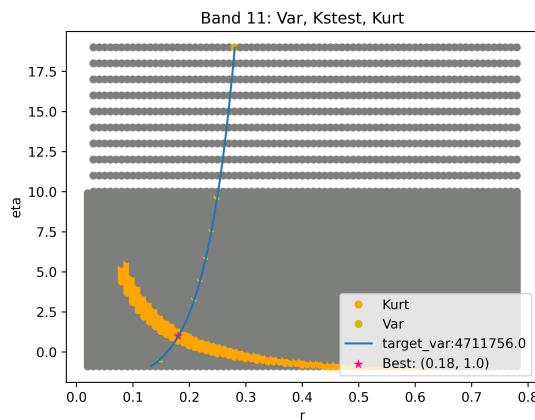
red



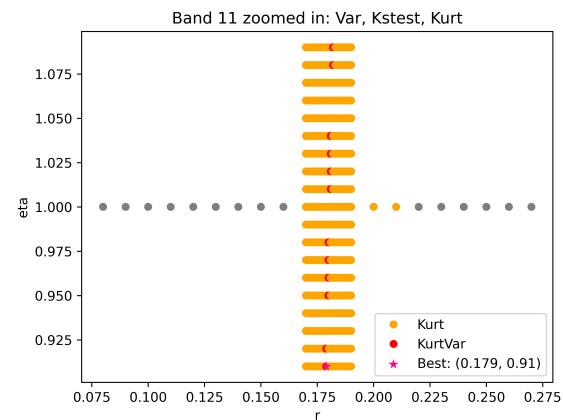
Full Grid Search



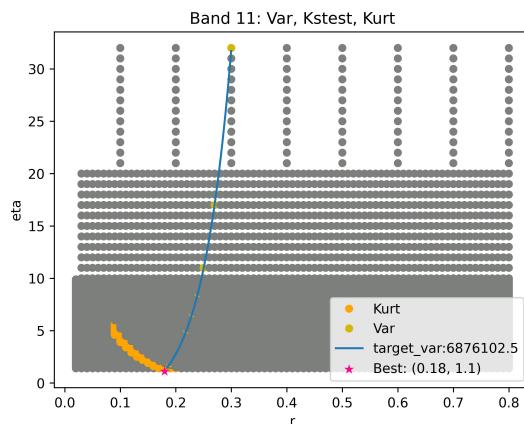
Fine Grid Search

blue

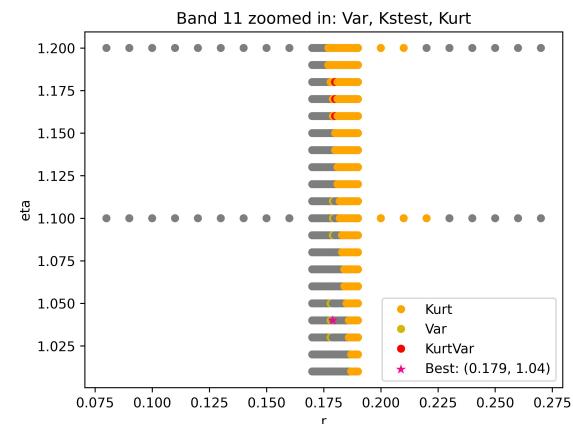
Full Grid Search



Fine Grid Search

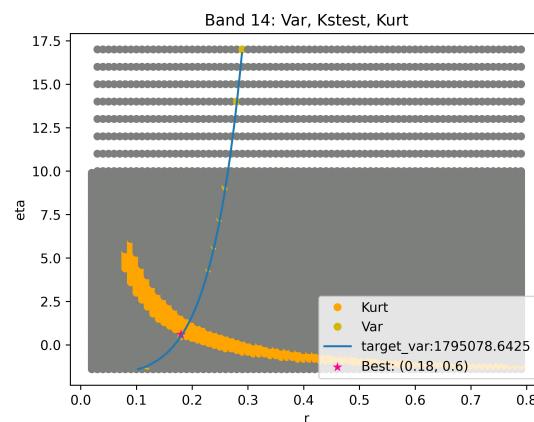
green

Full Grid Search

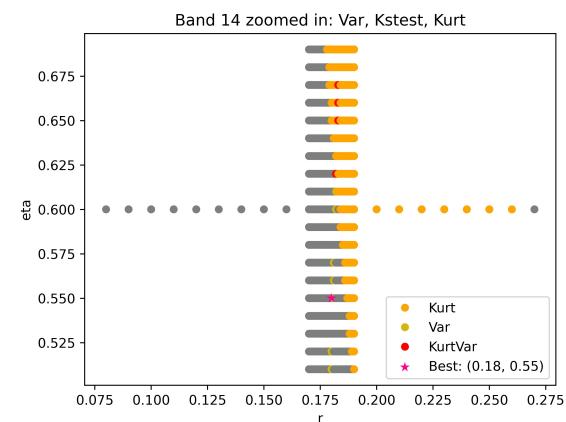


Fine Grid Search

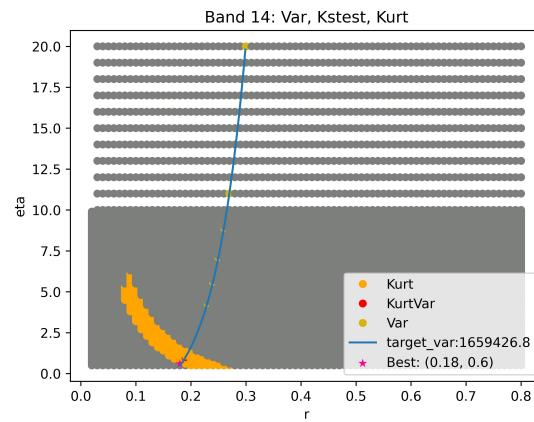
Layer 14

gray

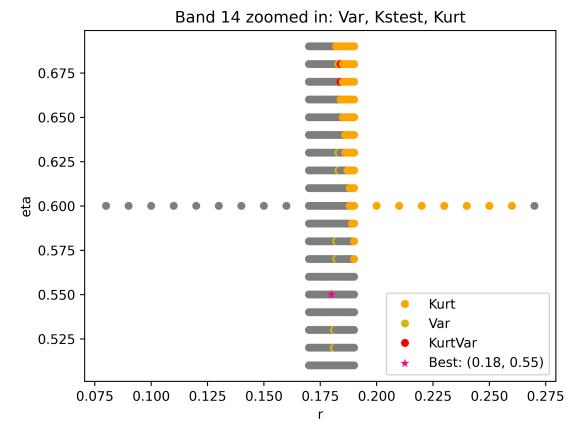
Full Grid Search



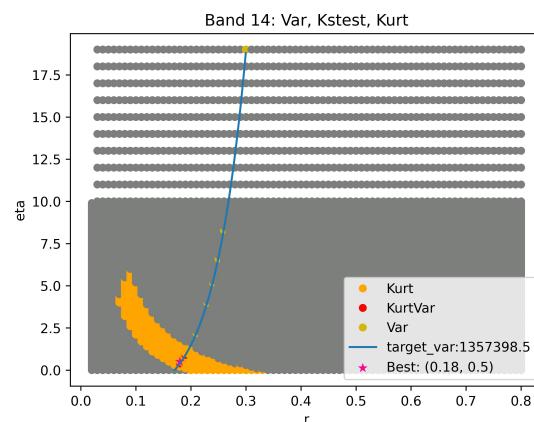
Fine Grid Search

red

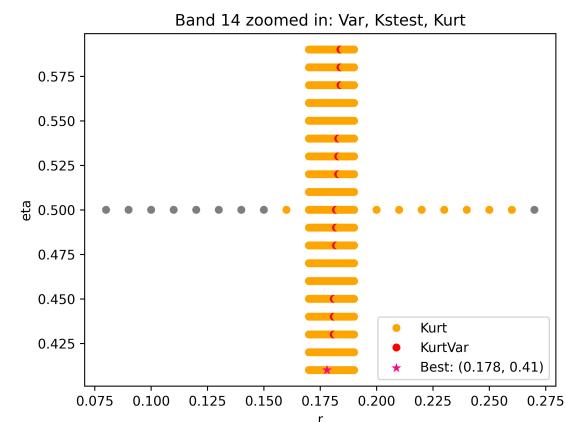
Full Grid Search



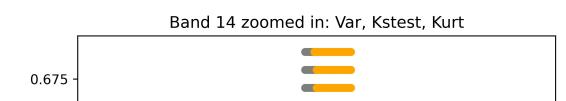
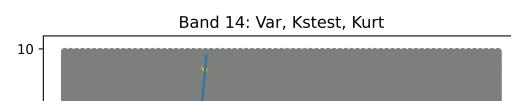
Fine Grid Search

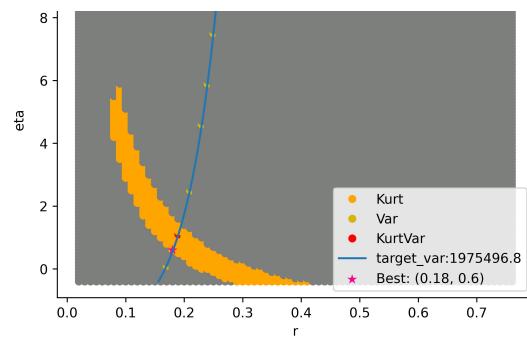
blue

Full Grid Search

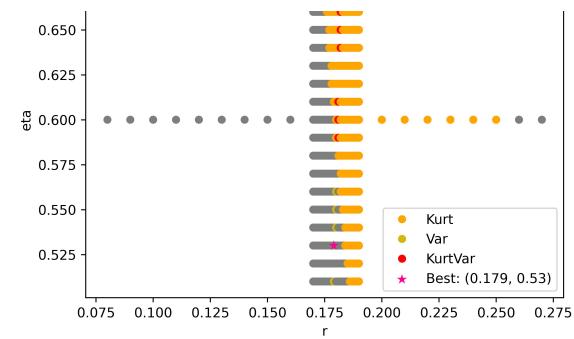


Fine Grid Search

green

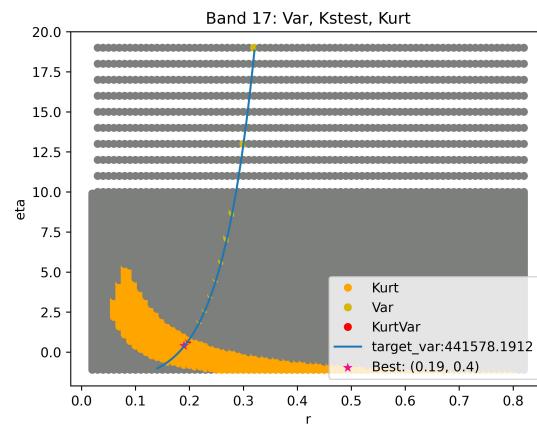


Full Grid Search

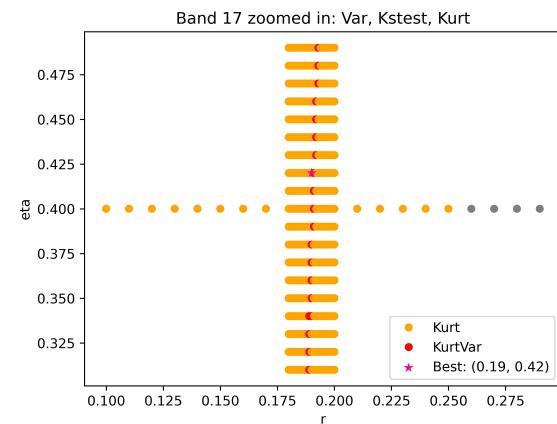


Fine Grid Search

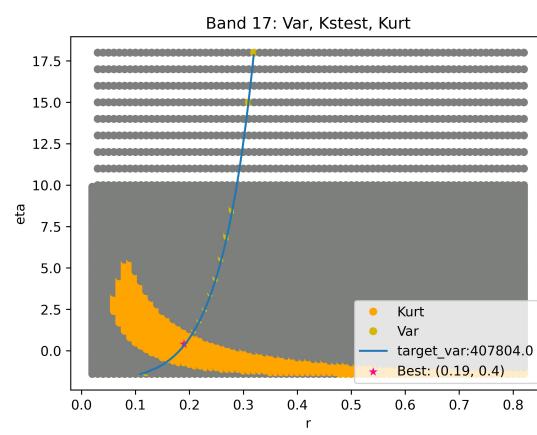
Layer 17

gray

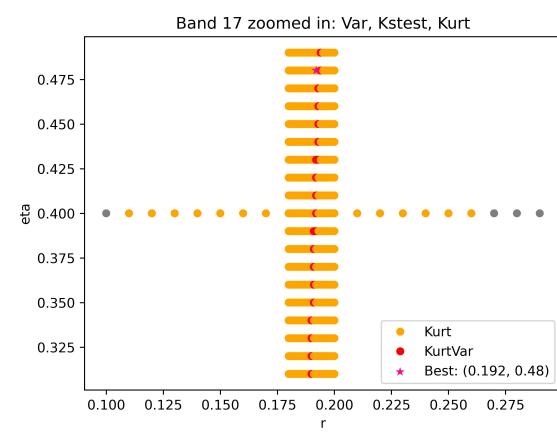
Full Grid Search



Fine Grid Search

red

Full Grid Search

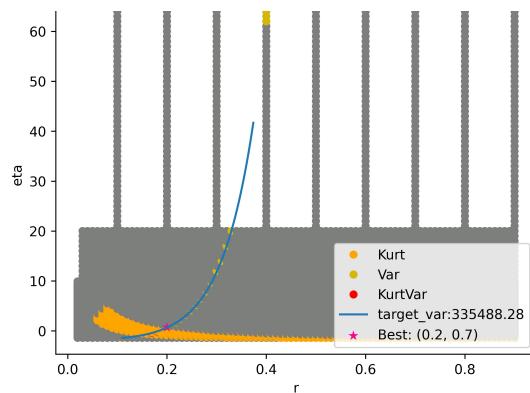


Fine Grid Search

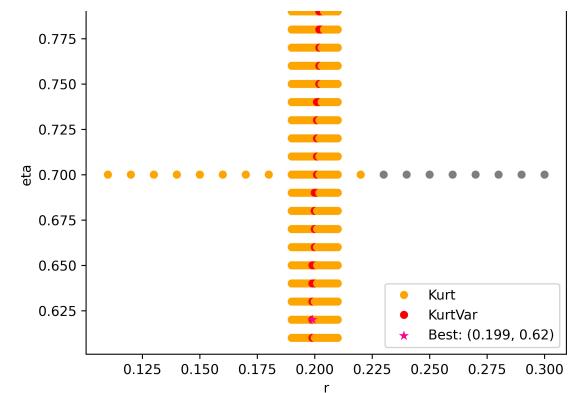
blue

Band 17: Var, Ktest, Kurt

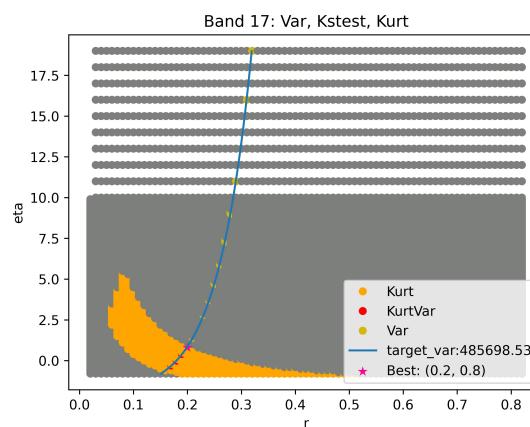
Band 17 zoomed in: Var, Ktest, Kurt



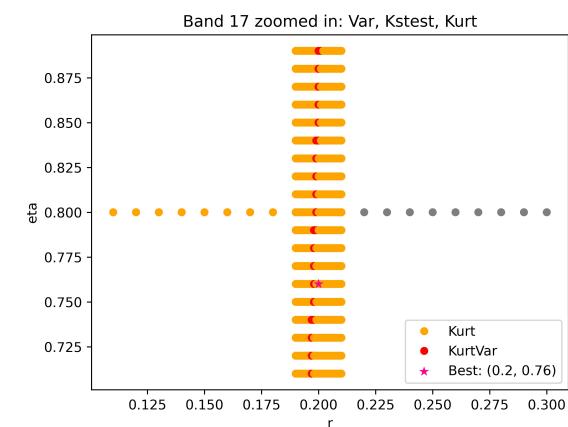
Full Grid Search



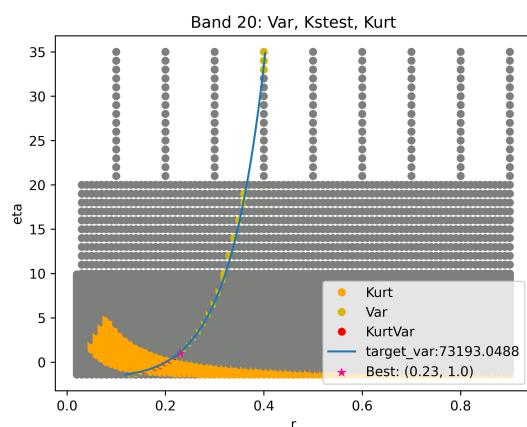
Fine Grid Search

green

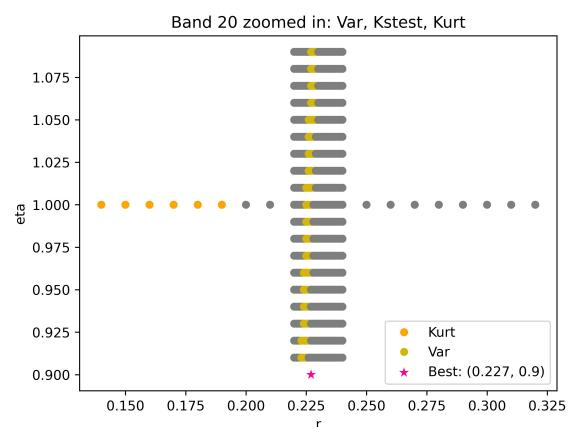
Full Grid Search



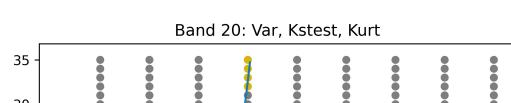
Fine Grid Search

Layer 20**gray**

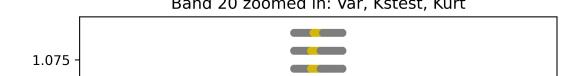
Full Grid Search

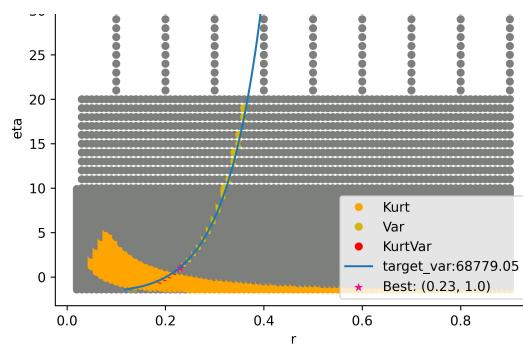


Fine Grid Search

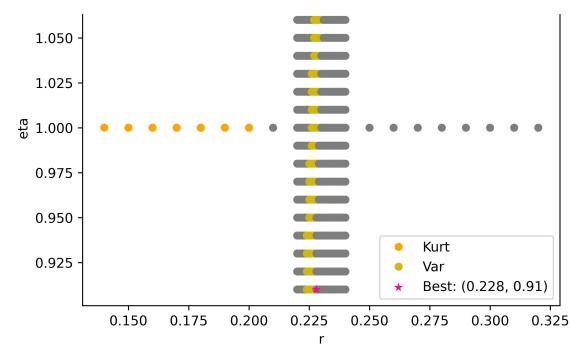
red

Band 20 zoomed in: Var, Ktest, Kurt

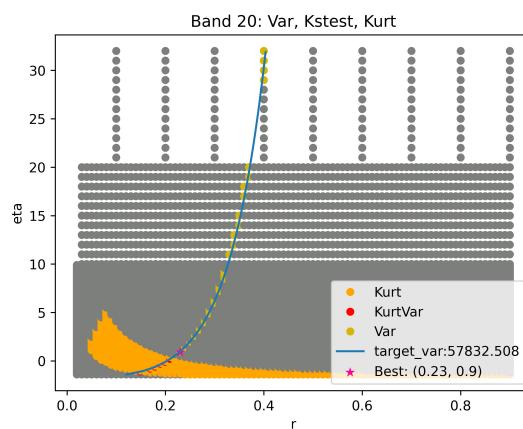




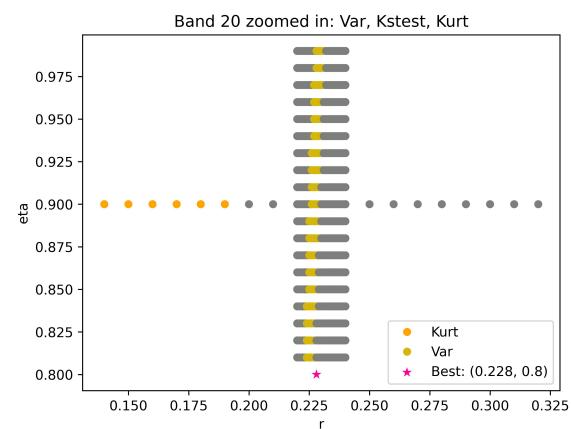
Full Grid Search



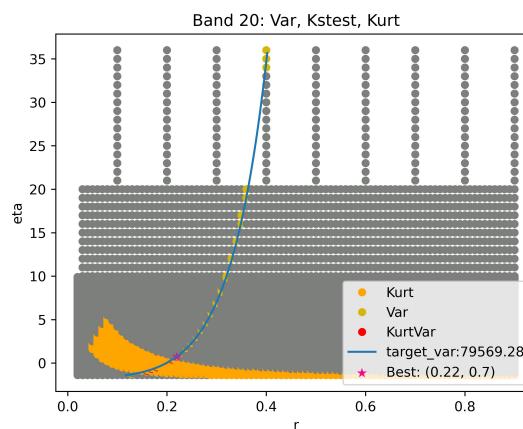
Fine Grid Search

blue

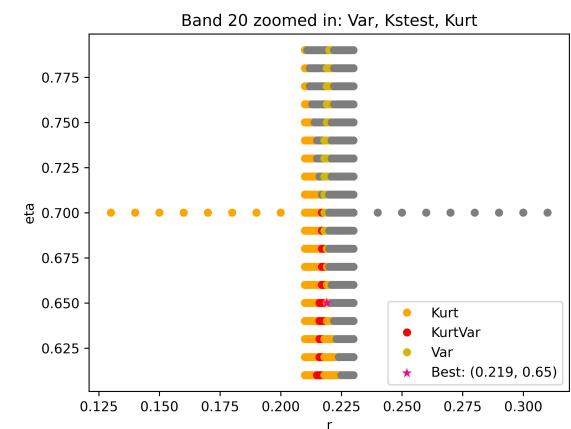
Full Grid Search



Fine Grid Search

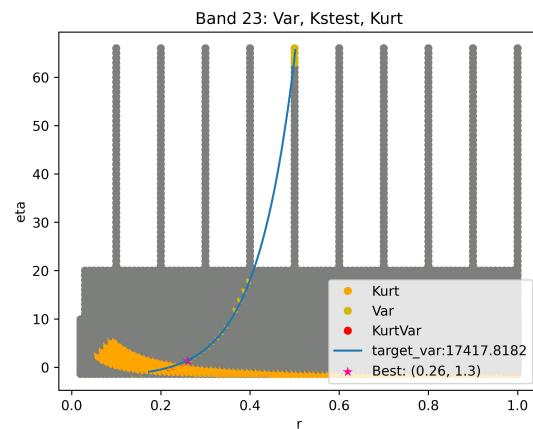
green

Full Grid Search

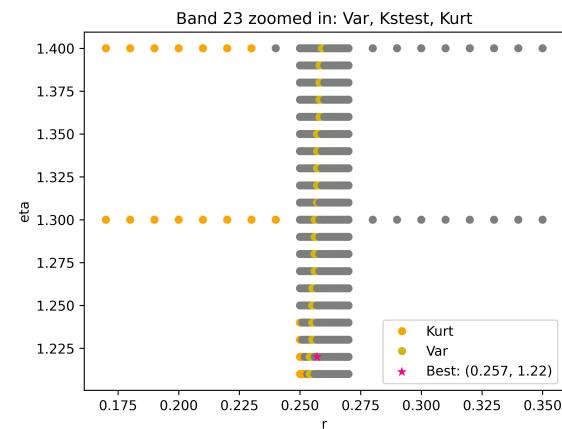


Fine Grid Search

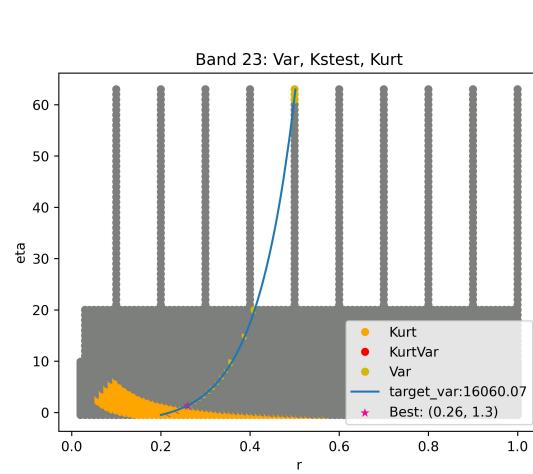
Layer 23**gray**



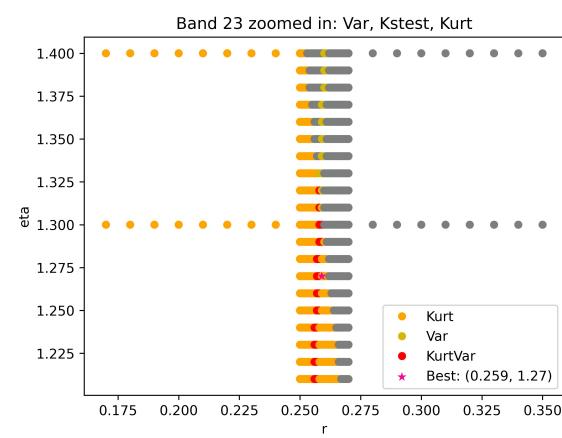
Full Grid Search



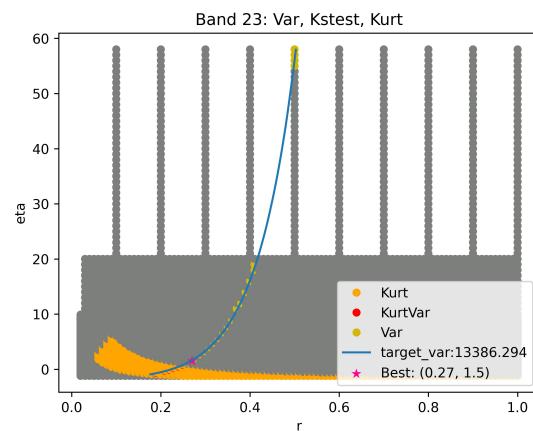
Fine Grid Search



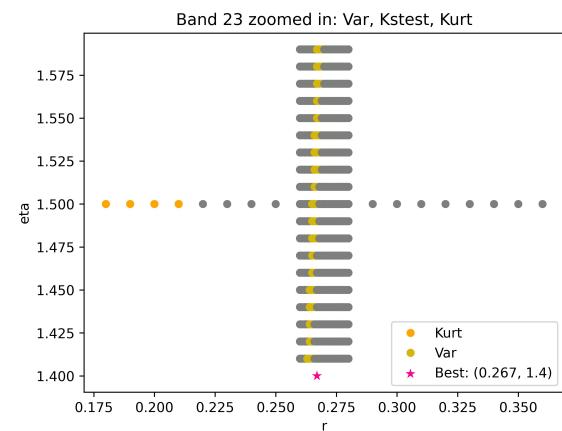
Full Grid Search



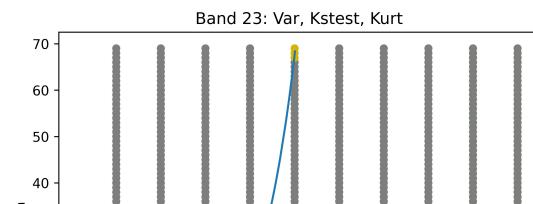
Fine Grid Search

red

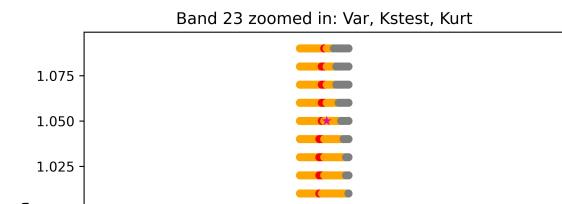
Full Grid Search

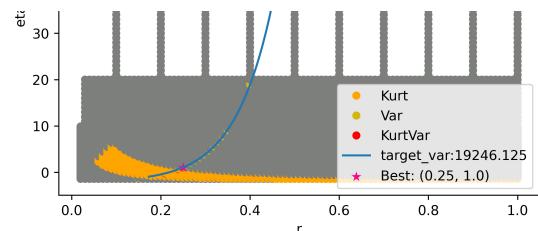


Fine Grid Search

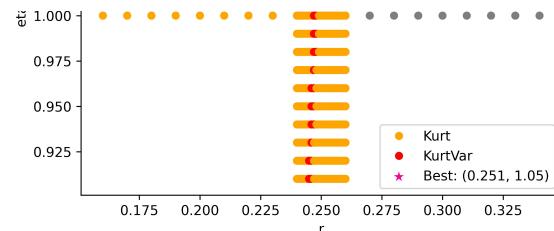
blue

Full Grid Search





Full Grid Search



Fine Grid Search

Compare CDF PDF Plots



Individual Analyses

gray

Optimization progression:

band	initial_r	initial_eta	kstest_stat_initial	best_r	best_eta	iter1_r	iter1_eta	kstest_stat_iter1
2	0.16	1.6	0.0134767	0.159	1.51	0.159	1.51	0.012798
5	0.16	1.1	0.0137607	0.159	1.04	0.159	1.04	0.0135444
8	0.17	1.2	0.0135236	0.17	1.14	0.17	1.14	0.0122607
11	0.17	0.6	0.0123291	0.168	0.53	0.168	0.53	0.0103259
14	0.18	0.6	0.0113105	0.18	0.55	0.18	0.55	0.0092794
17	0.19	0.4	0.0090515	0.19	0.42	0.19	0.42	0.0053148
20	0.23	1	0.0047507	0.227	0.9	0.227	0.9	0.0036526
23	0.26	1.3	0.005128	0.257	1.22	0.257	1.22	0.0033469

red

Optimization progression:

band	initial_r	initial_eta	kstest_stat_initial	best_r	best_eta	iter1_r	iter1_eta	kstest_stat_iter1
2	0.16	1.6	0.0139004	0.16	1.55	0.16	1.55	0.0120623
5	0.16	1.1	0.0146592	0.159	1	0.159	1	0.0128993
8	0.17	1.1	0.0112189	0.169	1.04	0.169	1.04	0.0107948
11	0.17	0.6	0.0089761	0.17	0.6	0.17	0.6	0.0089761
14	0.18	0.6	0.010865	0.18	0.55	0.18	0.55	0.0087076
17	0.19	0.4	0.0089293	0.192	0.48	0.192	0.48	0.0056518
20	0.23	1	0.003891	0.228	0.91	0.228	0.91	0.0022924
23	0.26	1.3	0.0022315	0.259	1.27	0.259	1.27	0.0021093

blue

Optimization progression:

band	initial_r	initial_eta	kstest_stat_initial	best_r	best_eta	iter1_r	iter1_eta	kstest_stat_iter1
2	0.16	1.6	0.015444	0.16	1.53	0.16	1.53	0.0126345
5	0.16	1.1	0.0145874	0.161	1.09	0.161	1.09	0.0130095
8	0.16	0.6	0.0114054	0.159	0.54	0.159	0.54	0.0107491
11	0.18	1	0.0130805	0.179	0.91	0.179	0.91	0.0116684
14	0.18	0.5	0.0100246	0.178	0.41	0.178	0.41	0.0086797
17	0.2	0.7	0.0097256	0.199	0.62	0.199	0.62	0.0067653
20	0.23	0.9	0.0068757	0.228	0.8	0.228	0.8	0.0018183
23	0.27	1.5	0.0044928	0.267	1.4	0.267	1.4	0.0032283

green

Optimization progression:

band	initial_r	initial_eta	kstest_stat_initial	best_r	best_eta	iter1_r	iter1_eta	kstest_stat_iter1
2	0.16	1.7	0.0149368	0.16	1.63	0.16	1.63	0.0126924
5	0.16	1.2	0.0143578	0.16	1.15	0.16	1.15	0.0130481
8	0.16	0.7	0.0114418	0.158	0.6	0.158	0.6	0.0108658
11	0.18	1.1	0.0123813	0.179	1.04	0.179	1.04	0.0119797
14	0.18	0.6	0.0106575	0.179	0.53	0.179	0.53	0.0090828
17	0.2	0.8	0.0092807	0.2	0.76	0.2	0.76	0.0070335
20	0.22	0.7	0.0056062	0.219	0.65	0.219	0.65	0.0027046
23	0.25	1	0.004461	0.251	1.05	0.251	1.05	0.0032874