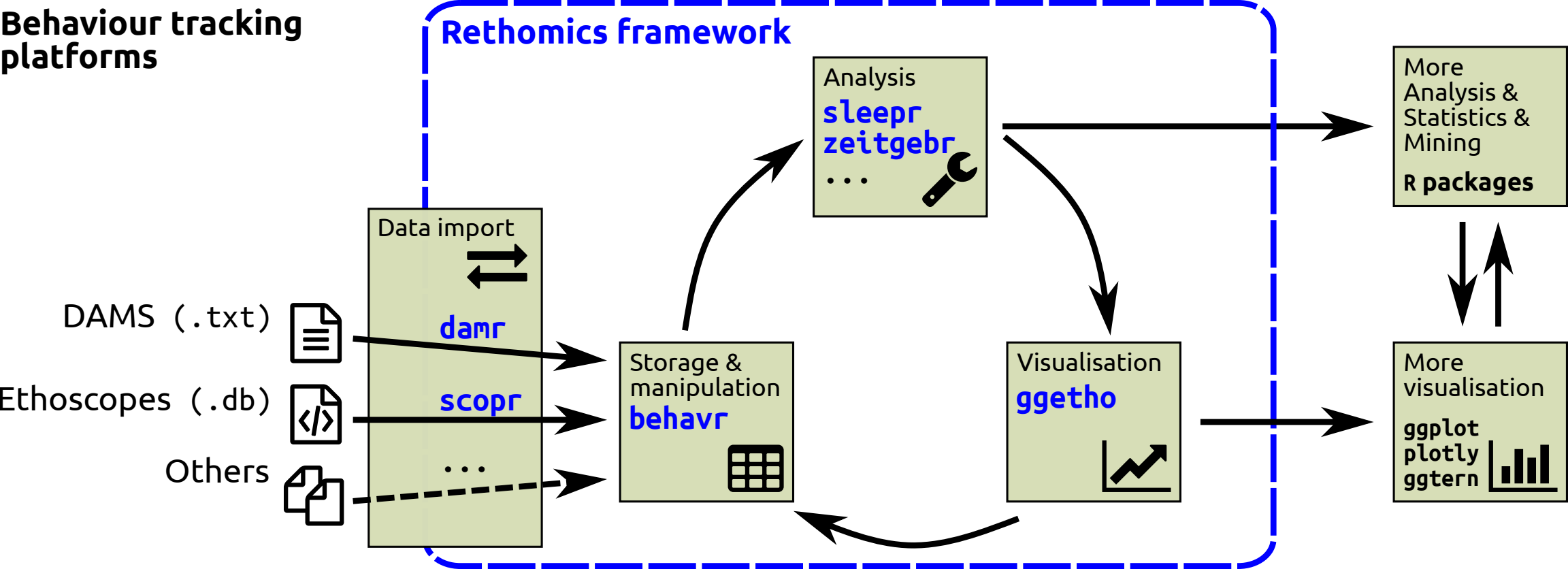

Behaviour tracking platforms
Rethomics framework
Analysis
sleepr
zeitgebr
...
More Analysis & Statistics & Mining
R packages
Data import
damr
scopr
...
DAMS (.txt)
Ethoscopes (.db)
Others
Storage & manipulation
behavr
Visualisation
ggetho
More visualisation
ggplot
plotly
ggtern

A

Metadata

id	machine_name	date	...	condition	sex	...	p
xxx...xx|x	machine_001	2016-09-01	...	A	M	...	p_1
xxx...xx|y	machine_001	2016-09-01	...	B	M	...	p_2
xxx...xx|z	machine_002	2016-09-03	...	A	F	...	p_3
⋮	⋮	⋮	⋱	⋮	⋮	⋱	⋮
n	$machine_n$	$date_n$	...	$condition_n$	sex_n	...	p_n

Platform fields | Experiment fields

+

Data

id	t	activity	...	q
xxx...xx|x	1	1	⋱	$q_{1,1}$
xxx...xx|x	2	0	⋱	$q_{1,2}$
xxx...xx|x	3	0	⋱	$q_{1,3}$
xxx...xx|x	⋮	⋮	⋱	⋮
xxx...xx|y	⋮	⋮	⋱	⋮
xxx...xx|z	1	0	⋱	$q_{3,1}$
xxx...xx|z	2	2	⋱	$q_{3,2}$
xxx...xx|z	3	0	⋱	$q_{3,3}$
xxx...xx|z	⋮	⋮	⋱	⋮
⋮	⋮	⋮	⋱	⋮
n	⋮	⋮	⋱	q_{n,k_n}

B

	Metadata	Data
Select	**`dt[CRITERIA, meta = TRUE]`** `> male_meta <- dt[sex == "M", meta = TRUE]`	**`dt[CRITERIA]`** `> late_dt <- dt[t > 5]` Note: metadata is updated when selection removes all data from one id.
Alter, create & delete (meta)variables	**`dt[, X := value, meta = TRUE]`** `> dt[, genotype := "wt", meta = TRUE]` `> dt[, sex := NULL, meta = TRUE]` # delete	**`dt[, Y := value]`** `> dt[, t_2 := t-1]` `> dt[, t := NULL]` # delete *t* Note: update data in place. No copy of dt in memory.
Expand metavariables as variables	**`dt[xmv(X)]`** `> dt <- dt[xmv(sex) == "M"]` # select *data* with *sex* `> dt[, s := xmv(sex)]` # copy metavariable as variable	

Aggregate & summary	**`dt[, OPERATION, by = id]`**
	
	`> # mean activity, per individual`
	`> dt <- dt[,.(`
	`  mean_act = mean(activity)`
	`  ), by = id]`
	`> dt[, .N, by = id]` # count reads per *id*
		OPERATION

Join data & metadata	**`rejoin(dt)`** `> full_table <- rejoin(dt)` Note: used mostly after aggregation or preprocessing	**REJOIN**

A

B

58.Tim/NKCCOX
57.Tim/NKCCOX
56.Tim/NKCCOX
55.Tim/NKCCOX
54.Tim/NKCCOX
53.Tim/NKCCOX
52.Tim/NKCCOX
51.Tim/NKCCOX
50.Tim/NKCCOX
49.Tim/NKCCOX
48.Tim/NKCCOX
47.Tim/NKCCOX
46.Tim/NKCCOX
45.Tim/NKCCOX
32.Tim/NKCCOX
31.Tim/NKCCOX
30.Tim/NKCCOX
29.Tim/NKCCOX
28.Tim/NKCCOX
27.Tim/NKCCOX
26.Tim/NKCCOX
25.Tim/NKCCOX
24.Tim/NKCCOX
23.Tim/NKCCOX
22.Tim/NKCCOX
21.Tim/NKCCOX
20.Tim/NKCCOX
19.Tim/NKCCOX
18.Tim/NKCCOX
17.Tim/NKCCOX
16.Tim/NKCCOX
15.Tim/NKCCOX
14.Tim/NKCCOX
13.Tim/NKCCOX
44.NKCCOX/+
43.NKCCOX/+
42.NKCCOX/+
41.NKCCOX/+
40.NKCCOX/+
39.NKCCOX/+
38.NKCCOX/+
37.NKCCOX/+
36.NKCCOX/+
35.NKCCOX/+
34.NKCCOX/+
33.NKCCOX/+
12.NKCCOX/+
11.NKCCOX/+
10.NKCCOX/+
9.NKCCOX/+
8.NKCCOX/+
7.NKCCOX/+
6.NKCCOX/+
5.NKCCOX/+
4.NKCCOX/+
3.NKCCOX/+
2.NKCCOX/+
1.NKCCOX/+

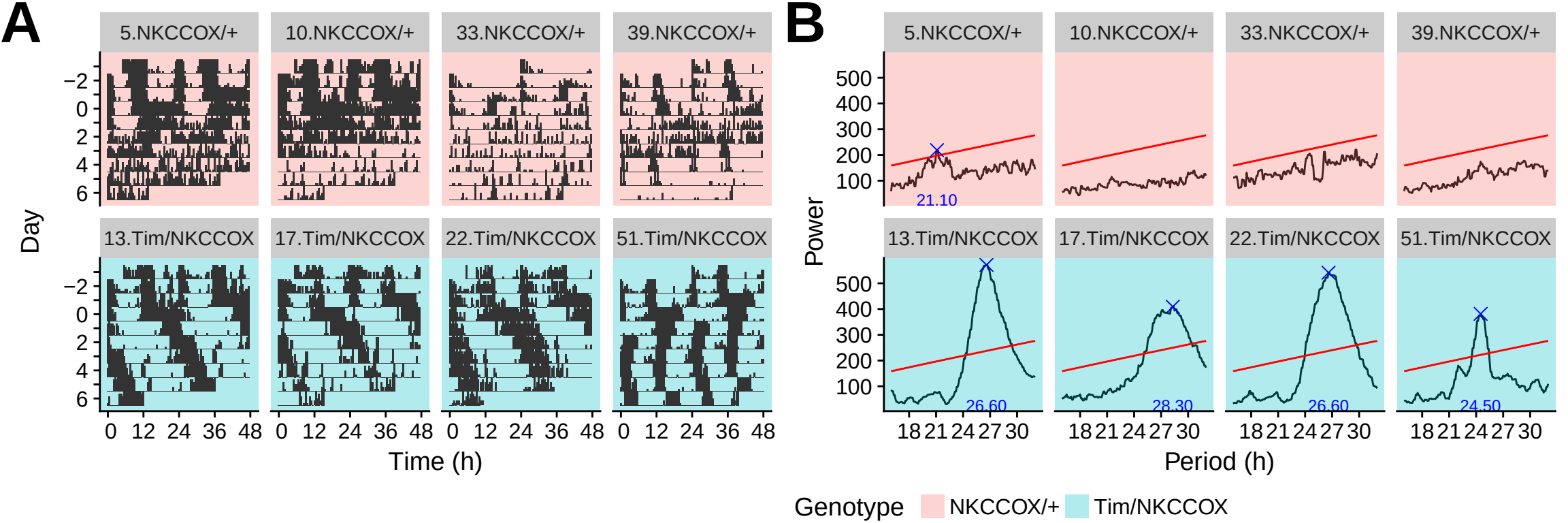
−3 0 3 6

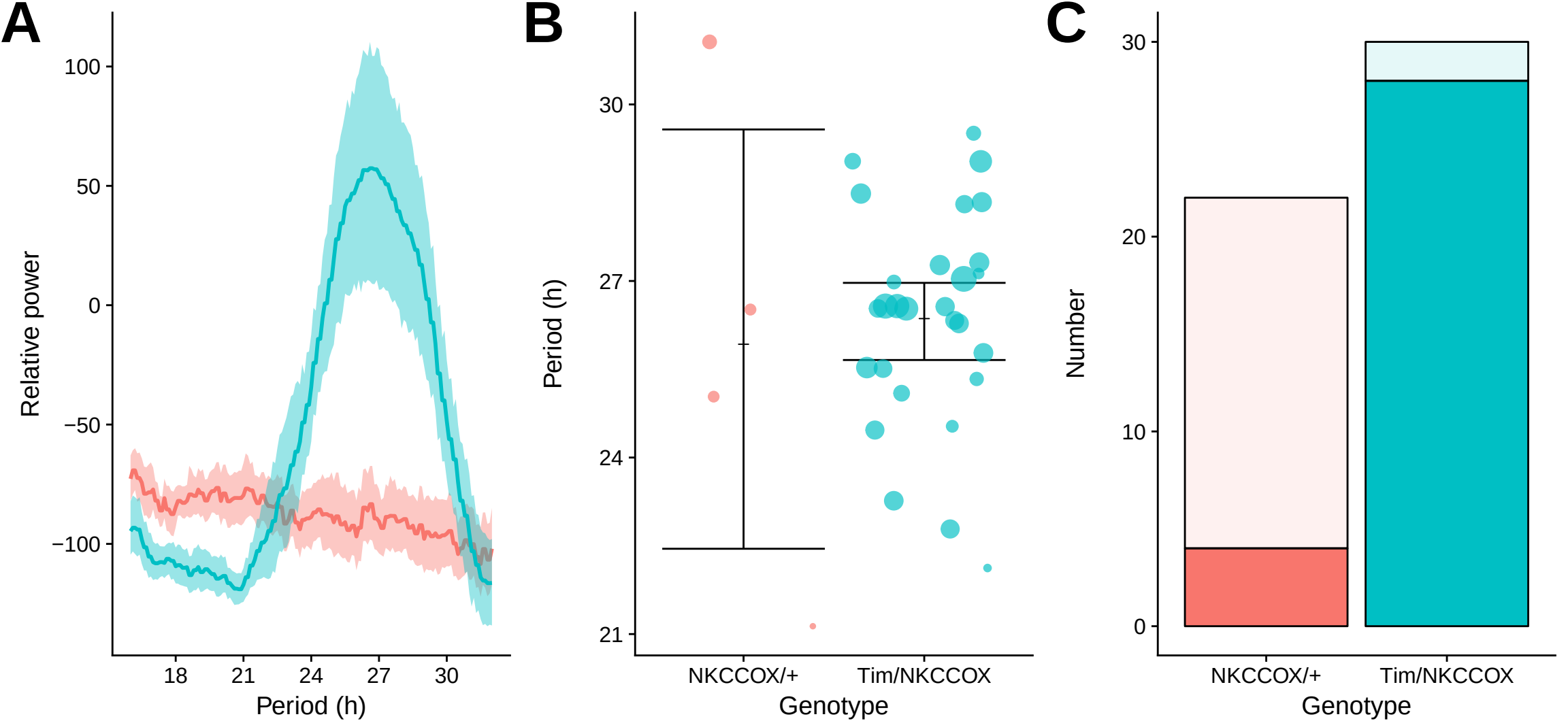
Time (day)

−3 0 3 6

Time (day)

Moving 0% 50% 100%


A
5.NKCCOX/+
10.NKCCOX/+
33.NKCCOX/+
39.NKCCOX/+
13.Tim/NKCCOX
17.Tim/NKCCOX
22.Tim/NKCCOX
51.Tim/NKCCOX
Day
−2
0
2
4
6
0 12 24 36 48
Time (h)
B
Power
100
200
300
400
500
21.10
26.60
28.30
26.60
24.50
18 21 24 27 30
Period (h)
Genotype
NKCCOX/+
Tim/NKCCOX


A
B
C
Relative power
100
50
0
−50
−100
18
21
24
27
30
Period (h)
Period (h)
30
27
24
21
NKCCOX/+
Tim/NKCCOX
Genotype
Number
30
20
10
0
NKCCOX/+
Tim/NKCCOX
Genotype
Genotype
NKCCOX/+
Tim/NKCCOX
Peak power
300
400
500
Arhythmic
Rhythmic

A

B

1.NKCCOX/+ 2.NKCCOX/+ 3.NKCCOX/+ 4.NKCCOX/+
5.NKCCOX/+ 6.NKCCOX/+ 7.NKCCOX/+ 8.NKCCOX/+
9.NKCCOX/+ 10.NKCCOX/+ 11.NKCCOX/+ 12.NKCCOX/+
33.NKCCOX/+ 34.NKCCOX/+ 35.NKCCOX/+ 36.NKCCOX/+
37.NKCCOX/+ 38.NKCCOX/+ 39.NKCCOX/+ 41.NKCCOX/+
42.NKCCOX/+ 44.NKCCOX/+ 13.Tim/NKCCOX 14.Tim/NKCCOX
15.Tim/NKCCOX 16.Tim/NKCCOX 17.Tim/NKCCOX 19.Tim/NKCCOX
20.Tim/NKCCOX 21.Tim/NKCCOX 22.Tim/NKCCOX 23.Tim/NKCCOX
24.Tim/NKCCOX 25.Tim/NKCCOX 26.Tim/NKCCOX 27.Tim/NKCCOX
28.Tim/NKCCOX 29.Tim/NKCCOX 31.Tim/NKCCOX 32.Tim/NKCCOX
45.Tim/NKCCOX 46.Tim/NKCCOX 47.Tim/NKCCOX 48.Tim/NKCCOX
50.Tim/NKCCOX 51.Tim/NKCCOX 52.Tim/NKCCOX 53.Tim/NKCCOX
55.Tim/NKCCOX 56.Tim/NKCCOX 57.Tim/NKCCOX 58.Tim/NKCCOX

Day

Time (h)

power

Period (h)

21.10 26.50 31.10 25.00 26.60 27.30 27.00 26.50 28.30 26.50 27.00 25.50 26.60 27.30 26.60 25.80 26.30 25.10 26.30 24.50 29.00 25.50 23.30 29.50 22.10 25.30 24.50 28.30 27.10 22.80 29.00 28.50