

# Package ‘mkssd’

February 22, 2022

**Version** 1.2

**Date** 2022-02-21

**Title** Efficient Multi-Level k-Circulant Supersaturated Designs

**Author** B N Mandal <mandal.stat@gmail.com>

**Maintainer** B N Mandal <mandal.stat@gmail.com>

**Depends** R(>= 2.13.0)

**Description** Generates efficient balanced non-aliased multi-level k-circulant supersaturated designs by interchanging the elements of the generator vector. Attempts to generate a supersaturated design that has chisquare efficiency more than user specified efficiency level (mef). Displays the progress of generation of an efficient multi-level k-circulant design through a progress bar. The progress of 100% means that one full round of interchange is completed. More than one full round (typically 4-5 rounds) of interchange may be required for larger designs.

**License** GPL (>= 2)

**NeedsCompilation** no

**Repository** CRAN

**Date/Publication** 2022-02-22 09:10:05 UTC

## R topics documented:

mkssd . . . . .	1
<b>Index</b>	<b>4</b>

---

mkssd	<i>Efficient multi-level k-circulant supersaturated designs</i>
-------	---

---

**Description**

mkssd is a package that generates efficient balanced non-aliased multi-level k-circulant supersaturated designs by interchanging the elements of the generator vector. The package tries to generate a supersaturated design that has chisquare efficiency more than user specified efficiency level (mef). The package also displays the progress of generation of an efficient multi-level k-circulant design through a progress bar. The progress of 100 per cent means that one full round of interchange is completed. More than one full round (typically 4-5 rounds) of interchange may be required for larger designs.

**Usage**

```
mkssd(m, n, q, k, mef)
```

**Arguments**

m	number of factors
n	number of runs
q	number of levels
k	order of circulation
mef	minimum efficiency required, should be between 0 to 1

**Value**

A list containing following items

m	number of factors
n	number of runs
q	number of levels
k	order of circulation
generator.vector	generator vector
design	design
efficiency	chi-square efficiency
max.chisq	maximum chi-square
time.taken	time taken to generate the design
number.aliased.pairs	number of aliased pairs

**Author(s)**

B N Mandal

**References**

B. N. Mandal, V. K. Gupta & Rajender Parsad (2014) Construction of Efficient Multi-Level k-Circulant Supersaturated Designs, Communications in Statistics - Theory and Methods, 43:3, 599-615

*mkssd*

3

**Examples**

`mkssd(10,6,3,2,1)`

# Index

- \* **efficiency**
  - mkssd, 1
- \* **k-circulant**
  - mkssd, 1
- \* **mkssd**
  - mkssd, 1
- \* **multi-level**
  - mkssd, 1
- \* **supersaturated design**
  - mkssd, 1

mkssd, 1