

NAG Library Routine Document

F06KLF

Note: before using this routine, please read the Users' Note for your implementation to check the interpretation of ***bold italicised*** terms and other implementation-dependent details.

1 Purpose

F06KLF determines the index of the first negligible element of a real vector.

2 Specification

```
FUNCTION F06KLF (N, X, INCX, TOL)
  INTEGER F06KLF
  INTEGER N, INCX
  REAL (KIND=nag_wp) X(*), TOL
```

3 Description

F06KLF finds the first element of the n -element real vector x for which

$$|x_{k+1}| \leq tol \max(|x_1|, \dots, |x_k|)$$

and returns the index k via the function name. If no such k exists, then the value n is returned. If a negative value of tol is supplied, the value of ***machine precision*** is used in place of tol .

4 References

None.

5 Arguments

- 1: N – INTEGER *Input*
On entry: n , the number of elements in x .
- 2: X(*) – REAL (KIND=nag_wp) array *Input*
Note: the dimension of the array X must be at least $\max(1, 1 + (N - 1) \times \text{INCX})$.
On entry: the n -element vector x . x_i must be stored in $X(1 + (i - 1) \times \text{INCX})$, for $i = 1, 2, \dots, N$.
 Intermediate elements of X are not referenced.
- 3: INCX – INTEGER *Input*
On entry: the increment in the subscripts of X between successive elements of x .
Constraint: $\text{INCX} > 0$.
- 4: TOL – REAL (KIND=nag_wp) *Input*
On entry: the value tol .

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

F06KLF is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.
