NAG Library Routine Document

F06FKF

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

F06FKF computes the weighted Euclidean norm of a real vector.

2 Specification

double precision `FUNCTION F06FKF(N, W, INCW, X, INCX)`

```
INTEGER                          N, INCW, INCX
double precision                 W(*), X(*)
```

3 Description

F06FKF returns, via the function name, the weighted Euclidean norm

$$\sqrt{x^{\mathrm{T}}Wx}$$

of the n element real vector x, where $W = \mathrm{diag}(w)$ and w is a vector of weights.

4 References

None.

5 Parameters

1: N – INTEGER *Input*

On entry: n, the number of elements in x.

2: W($*$) – ***double precision*** array *Input*

Note: the dimension of the array W must be at least $\max(1, 1 + (\mathrm{N} - 1)|\mathrm{INCW}|)$.

On entry: w, the vector of weights.

Constraint: $\mathrm{W}(i) \geq 0$, for $i = 1, 2, \ldots, \mathrm{N}$.

3: INCW – INTEGER *Input*

On entry: the increment in the subscripts of W between successive elements of w.

4: X($*$) – ***double precision*** array *Input*

Note: the dimension of the array X must be at least $1 + (\mathrm{N} - 1)|\mathrm{INCX}|$.

On entry: the incremented array X must contain the n element vector x.

5: INCX – INTEGER *Input*

On entry: the increment in the subscripts of X between successive elements of x.

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

None.