

NAG Library Routine Document

X02ANF

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

X02ANF returns the **safe range** of complex floating-point arithmetic.

2 Specification

```
FUNCTION X02ANF ( )
REAL (KIND=nag_wp) X02ANF
```

3 Description

X02ANF is defined to be the smallest positive model number z such that for any x in the range $[z, 1/z]$ the following can be computed without undue loss of accuracy, overflow, underflow or other error:

$-w$
 $1/w$
 $-1/w$
 \sqrt{w}
 $\log(w)$
 $\exp(\log(w))$
 $y^{(\log(w)/\log(y))}$ for any y
 $|w|$

where w is any of x , ix , $x + ix$, $1/x$, i/x , $1/x + i/x$, and i is the square root of -1 .

4 References

None.

5 Arguments

None.

6 Error Indicators and Warnings

None.

7 Accuracy

None.

8 Parallelism and Performance

X02ANF is not threaded in any implementation.

9 Further Comments

None.

10 Example

See Section 10 in X02AJF.
