

# NAG Library Routine Document

## X02AMF

**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

X02AMF returns the **safe range** of floating point arithmetic.

### 2 Specification

```
FUNCTION X02AMF (  
REAL (KIND=nag_wp) X02AMF
```

### 3 Description

X02AMF 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:

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

### 4 References

None.

### 5 Parameters

None.

### 6 Error Indicators and Warnings

None.

### 7 Accuracy

None.

### 8 Further Comments

None.

### 9 Example

See Section 9 in X02AJF.