Procedure **TEST_FONCTION**

1 **Goal**

To extract a digital value or an attribute from a function for comparison with a value of reference. The function is a structure of data of the type `function` or `tablecloth`.

This procedure writes a conventional message then "OK" (if it is good) or "NOOK" (if not).

It does not stop the execution if the test is not checked; this makes it possible systematically to use it either for the tests of validation, or to extract and print a value of a function or a tablecloth for a particular value of a parameter.

This order is used primarily by the cases tests to validate the not-regression of the results.
2 Syntax

TEST_FONCTION

    (  
    ♦ / VALUE = _F ( ♦ FUNCTION = _F, / [function]
    ♦  / VALUE = _F ( ♦ FUNCTION = _F, / [function]
    ◊ NOM_PARA = lnom, / [l_Kn]
    ◊ VALE_PARA = will lpara, / [l_R]
    ◊ VALE_PARA = will lpara, / [l_R]
    # Definition of the value of reference:
    # to see TEST_RESU [u4.92.01]
    ),
    / ATTRIBUTE =_F ( ♦ FUNCTION = _F, / [function]
    ♦ PARA = reality, / [R]
    ♦  / PARA = reality, / [R]
    ♦  | PREC_PARA = / prec, / [R]
    ♦  | PREC_PARA = / prec, / [R]
    ♦  | CRIT_PARA = / 'RELATIVE', / [DEFECT]
    ♦  | CRIT_PARA = / 'RELATIVE', / [DEFECT]
    ♦  | CRIT_PARA = / 'RELATIVE', / [DEFECT]
    ♦  | CRIT_PARA = / 'RELATIVE', / [DEFECT]
    ♦ ATTR = / 'NOM_PARA',
    ♦ ATTR = / 'NOM_PARA',
    ♦ ATTR = / 'NOM_PARA',
    ♦ ATTR = / 'NOM_PARA',
    ♦ ATTR = / 'NOM_PARA',
    ◊ ATTR_REFE = attr, / [KN]
    ◊ ATTR_REFE = attr, / [KN]
    ◊ LEGEND = legend, / [KN]
    ◊ LEGEND = legend, / [KN]
    ♦ REFERENCE = / 'ANALYTICAL', / [DEFECT]
    ♦ REFERENCE = / 'ANALYTICAL', / [DEFECT]
    ♦ REFERENCE = / 'ANALYTICAL', / [DEFECT]
    ♦ REFERENCE = / 'ANALYTICAL', / [DEFECT]
    ♦ REFERENCE = / 'ANALYTICAL', / [DEFECT]
    ◊ TEST_NOOK = / 'NOT', / [DEFECT]
    ◊ TEST_NOOK = / 'NOT', / [DEFECT]
    ◊ TEST_NOOK = / 'NOT', / [DEFECT]
    ◊ TEST_NOOK = / 'NOT', / [DEFECT]
    ◊ TEST_NOOK = / 'NOT', / [DEFECT]
    )

The functions are is with actual values [function], that is to say with complex values [fonction_C].
3 Operands

3.1 Keyword VALUE

♦ VALUE =
Keyword factor to test a value of a function or a tablecloth.

3.1.1 Operand FUNCTION

♦ FUNCTION = F
Name of the function (with a parameter) or tablecloth (with two parameters) on which is carried out the operation.

3.1.2 Operand NOM_PARA

◊ NOM_PARA = lnom
In the case of a function, this keyword is not treated.
In the case of a tablecloth, the user will give 2 names of parameter: the first defining the parameter of the tablecloth, the second defining the parameter of the function which one wants to test (see the order DEFI_NAPPE [U4.31.03]).

3.1.3 Operand VALE_PARA

♦ VALE_PARA = will lpara
In the case of a function, the user gives the value of the parameter for which the value of the function is tested.
In the case of a tablecloth, the user gives the 2 values corresponding to the names of the two parameters (that of the tablecloth and that of the function).

3.1.4 Keywords common to the orders TEST_XXX

The definition of the values of nonregression and reference, as well as acceptable tolerances, the comparison criterion is detailed in the documentation [u4.92.01] of the order TEST_RESU.

Specificities of TEST_FONCTION are:
• pas de whole values or character strings,
• pas de tolerance on the value of the parameter (TOLE_MACHINE and CRITERION takes only one value).

3.2 Keyword ATTRIBUTE

/ ATTRIBUTE =
Keyword factor to test an attribute of a function or a tablecloth.

3.2.1 Operand FUNCTION

♦ FUNCTION = F
Name of the function or the tablecloth on which the operation is carried out.

3.2.2 Operand PARA

◊ PARA = real
In the case of a function, this keyword is not necessary.
In the case of a tablecloth, the user gives the value of the parameter to recover the function in order to test the attribute.

### 3.2.3 Operands PREC_PARA / CRIT_PARA

◊ PREC_PARA = prec

One searches the function defined by the value of the parameter in an interval defined by the absolute or relative position:

“inst ± prec” (confer CRITERION [§3.2.3]).

By default \( \text{prec} = 1.0\times10^{-3} \).

◊ CRIT_PARA =

‘RELATIVE’ : the interval of research is: \([\text{inst} (1\text{-prec}), \text{inst} (1\text{+prec})]\)

‘ABSOLUTE’ : the interval of research is: \([\text{inst}\text{-prec}, \text{inst}\text{+prec}]\)

### 3.2.4 Operand ATTR

♦ ATTR =

Name of the attribute to be tested. For the significance of the attributes to refer to DEFI_FONCTION [U4.31.02] or with DEFI_NAPPE [U4.31.03].

### 3.2.5 Operand ATTR_REFE

♦ ATTR_REFE = attr

Attribute of reference. For the significance of the attributes to refer to DEFI_FONCTION [U4.31.02] or with DEFI_NAPPE [U4.31.03].

### 3.3 Operand TEST_NOOK

◊ TEST_NOOK =

This option, to use with precaution, makes it possible to simulate that the attributes of a function (in particular to limit its field of definition) will be well interpreted.

Example:

On a function with PROL_GAUCHE = ‘EXCLUDED’, if one tests the function with a value of parameter lower than the value of the lower limit of the interval of definition of the function, one should obtain an error.

With TEST_NOOK = ‘YES’, TEST_FONCTION return the result ‘OK’.

Warning: The translation process used on this website is a "Machine Translation". It may be imprecise and inaccurate in whole or in part and is provided as a convenience.

Copyright 2019 EDF R&D - Licensed under the terms of the GNU FDL (http://www.gnu.org/copyleft/fdl.html)
4 Examples

4.1 Checking of a tablecloth

```c
4. df1 = DEFI_FONCTION ( NOM_PARA = 'INST', NOM_RESU = 'DEPL',
                      VALE = (0., 0., 1., 1., 2., 2., 3., 3.,
                      4., 4.) )
4. df2 = DEFI_FONCTION ( NOM_PARA = 'INST', NOM_RESU = 'DEPL',
                      VALE = (3., 3., 4., 4., 5., 5. ) )
4. dn1 = DEFI_NAPPE  ( NOM_PARA = 'AMOR', NOM_RESU = 'DEPL',
                      VALE = (0.01, 0.02),
                      FUNCTION = (df1, df2 ) )
```

```
TEST_FONCTION ( 
    # the attribute is checked 'NOM_PARA' function df1 in the tablecloth dn1
    ATTRIBUTE = (_F (FUNCTION = dn1,
                   PARA = 0.01, # 0.01 reached df1
                   ATTR = 'NOM_PARA_FONC',
                   ATTR_REFE = 'INST' ) ),
    # the attribute is checked 'NOM_PARA' tablecloth dn1
    _F (FUNCTION = dn1,
         ATTR = 'NOM_PARA',
         ATTR_REFE = 'AMOR' ) ),
    # a value of the tablecloth is checked dn1 (in practice on the function df1)
    VALUE = (FUNCTION = dn1,
             NOM_PARA = ('AMOR', 'INST' ),
             VALE_PARA = (0.01, 1. ),
             VALE_REFE = 1. )
)
```

4.2 Checking of a function

```c
li1=DEFI_LISTE_REEL ( DEBUT=0.,
                      INTERVALLE=_F (JUSQU_A=2*pi, PAS=2*pi/20), )

f1=FORMULE ( NOM_PARA=' INST',
              VALE=' sin (INST) + cos (INST) ','
)

fonc=CALC_FONC_INTERP ( FONCTION=f1,
                         LIST_PARA=li1,
                         NOM_RESU=' DEPL',
                         INTERPOL=' LIN',)
```

```
TEST_FONCTION ( 
    # an attribute of the function is tested
    ATTRIBUT=_F (FONCTION=fonc,
                  ATTR=' INTERPOL',
                  ATTR_REFE=' LIN LIN ' ),
    # a value of the function is tested
    VALEUR=_F ( FONCTION=fonc,
               VALE_PARA=pi,
               REFERENCE=' ANALYTIQUE',
               VALE_CALC=-1.,
               VALE_REFE=sin (pi) +cos (pi), ),
)
```