Code_Aster

Version default

Titre : Macro-commande LISS_SPECTRE
Responsable : BANCI Fabien

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cf9f406cfb11

Macro-order LISS_SPECTRE

1   Goal

This macro-order makes it possible to carry out smoothings of spectra starting from tables resulting from MACR_SPECTRE or of tablecloths defined by the user, thanks to calls to CALC_FONCTION/LISS_ENVELOPPE. Tables resulting from MACR_SPECTRE are transformed into tablecloths (frequency, damping) before regrouping and smoothing.
The provided spectra are gathered by direction and floor before carrying out smoothing.

Lastly, four files are created for a given floor and a direction:
- impression of the spectra smoothed with the format TABLE
- impression of the spectra smoothed with the graphic format
- impression of the envelope of the spectra rough, possibly widened, with the format TABLE
- impression of the envelope of the spectra rough, possibly widened, and of the spectra smoothed with the graphic format

These files are created in REPE_OUT.

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2   Syntax

```
LISS_SPECTRE (
    ♦   SPECTRUM  = _F (
                     ♦  /  TABLE                = table          [table_sdaster]
                        /  TABLECLOTH             = tablecloth
     [tablecloth]
                        ♦  DIRECTION       =  /'X',          [K8]
                                              /'Y',
                                              /'Z',
                                              /'H'
                        ♦   NAME            = name          [K24]
                        ◊   BUILDING        = beats         [K24]
                        ◊   COMMENT       = how          [K24]
                 ◊   ELARG                      = elarg         [R]
                     )
    ♦  OPTION =                              /  'CHECKING',
                                             /  'DESIGN',
    ◊  NB_FREQ_LISS  =  / 10                              [DEFECT]
                        /nb_freq,                         [I]
    ◊  FREQ_MIN      = freq_min                           [R]
    ◊  FREQ_MAX      = freq_max                           [R]
    ◊  ZPA           = zpa                                [R]

    # Page layout graphic
    ◊  BORNE_X       = (xmin, xmax),                 [l_R]
    ◊  BORNE_Y       = (ymin, ymax),                 [l_R]
    ◊  ECHELLE_X     =  / 'LIN',                  [DEFECT]
                        / 'LOG',
    ◊  ECHELLE_Y     =  / 'FLAX',                 [DEFECT]
                        / 'LOG'
    ◊  LEGENDE_X     = xlegen,                    [KN]
    ◊  LEGENDE_Y     = ylegen,                    [KN]
          )
```

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3   Operands

3.1   Keyword SPECTRUM

This keyword is obligatory to inform the various spectra to be treated .

3.1.1   Operand TABLE

This operand makes it possible to provide spectra in the form of a table resulting from the macro-order MACR_SPECTRE. In this case, the macro-order builds tablecloths starting from the provided table (of parameters FREQ and AMOR). One builds a tablecloth for a name of floor and a direction given. Besides the name of the floor, the name of the building and a comment are recovered if they are present (see [U4.32.11]).

3.1.2   Operand NRAPPE

This operand makes it possible to the user to provide spectra directly in the form of tablecloths whose parameters are the frequency and damping. Extra information must then be provided to be able to proceed at the stage of regrouping of the tablecloths by direction and floor. They is the operands DIRECTION and NAME. Operands BUILDING and COMMENT can also be well informed to fill the cartridges of the graphic exits.

3.1.3   Operand DIRECTION

This keyword, obligatory if the spectra are defined by the keyword TABLECLOTH, allows to inform the direction of the spectra. It takes one of the 4 following values: 'X', 'Y', 'Z', 'H'.

3.1.4   Operand NAME

This keyword makes it possible to define the name of the floor from which the spectrum defined by the keyword is resulting TABLECLOTH.
It is obligatory if TABLECLOTH is present.

3.1.5   Operand BUILDING

This keyword makes it possible to define the name of the building in which the floor is from which the spectrum defined by the keyword is resulting TABLECLOTH.
This keyword is optional. If it is indicated, it is in particular used for the nomenclature of the files "tables" and "figures" created.

3.1.6   Operand COMMENT

This keyword makes it possible to give a comment in link with the spectrum defined by the keyword TABLECLOTH.
This keyword is optional. If it is indicated, it will appear in the subtitles of the figures created.

3.1.7   Operand ELARG

This keyword makes it possible to define the widening which will be applied to the spectrum at the time of the stage of smoothing (call to CALC_FONCTION/LISS_ENVELOPPE).

The impact of this value of widening is explained in [U4.32.04] (See ELARG in LISS_ENVELOPPE).

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Note: this keyword has an impact only for OPTION=' VERIFICATION'.

3.2 Keyword OPTION

This obligatory keyword makes it possible to define the option of smoothing of CALC_FONCTION/LISS_ENVELOPPE.

/ 'DESIGN'
The first stage consists in building an envelope on the provided spectra. In one second stage, one carries out the smoothing of the spectrum obtained according to the number of smoothed points requested NB_FREQ_LISS.

/ 'VERIFICATION'
The first stage consists in carrying out a smoothing of each provided spectrum. Then, one carries out a widening of each spectrum following the coefficients provided in ELARG. In a third stage, one calculates the envelope of the widened spectra. Lastly, one carries out the smoothing of the spectrum obtained according to the number of smoothed points requested.

3.3 Keyword NB_FREQ_LISS

Many frequencies desired for the smoothed spectra. In the case of the option ' DESIGN ', only one value is provided. For the option' CHECKING ', one can provide two values in the form D' a couple which will be applied respectively to the first and the second smoothing.

3.4 Keywords FREQ_MIN and FREQ_MAX

Beach of definition in frequency of the smoothed spectrum. Frequencies mentioned under FREQ_MIN and FREQ_MAX must be selected among the frequencies of discretization of the rough spectrum. By default, one considers the complete spectrum.

3.5 Keyword ZPA

Value of the high frequency acceleration which one wishes to impose for the smoothed spectra. This keyword is optional. By default, it is the value of ZPA of the spectrum with less damping which is retained.

3.6 Keywords BORNE_X, BORNE_Y, ECHELLE_X, ECHELLE_Y, LEGENDE_X, LEGENDE_Y

These keywords are used during the impression of the figures. They are transmitted to IMPR_FONCTION. The details are given in [U4.33.01].