====================== BModes v3.00 Main Input File ==================

IEA-15-240-RWT Offshore Tower (from tip to TP 15 m above MSL). Substructure is computed from Subdyn Summary files.

--------- General parameters ---------------------------------------------------------------------

True Echo Echo input file contents to \*.echo file if true.

2 beam\_type 1: blade, 2: tower (-)

0. romg: rotor speed (rpm), automatically set to zero for tower modal analysis

1.0 romg\_mult: rotor speed muliplicative factor (-)

144.495 radius: rotor tip radius measured along coned blade axis OR tower height (m)

15. hub\_rad: hub radius measured along coned blade axis OR tower rigid-base height (m)

0. precone: built-in precone angle (deg), automatically set to zero for a tower

0. bl\_thp: blade pitch setting (deg), automatically set to zero for a tower

1 hub\_conn: hub-to-blade connection [1: cantilevered; other options not yet available]

50 modepr: number of modes to be printed (-)

f TabDelim (true: tab-delimited output tables; false: space-delimited tables)

t mid\_node\_tw (true: output twist at mid-node of elements; false: no mid-node outputs)

--------- Blade-tip or tower-top mass properties --------------------------------------------

1015885.614 tip\_mass blade-tip or tower-top mass (see users' manual) (kg)

-6.476016 cm\_loc tip-mass c.m. offset from the tower axis measured along the tower-tip x reference axis (m)

4.2691133 cm\_axial tip-mass c.m. offset tower tip measures axially along the z axis (m)

3.89258526e+08 ixx\_tip blade lag or tower s-s mass moment of inertia about the tip-section x reference axis (kg-m^2)

2.29364247e+08 iyy\_tip blade flap or tower f-a mass moment of inertia about the tip-section y reference axis (kg-m^2)

1.86875391e+08 izz\_tip torsion mass moment of inertia about the tip-section z reference axis (kg-m^2)

0. ixy\_tip cross product of inertia about x and y reference axes(kg-m^2)

-7199394.0784606 izx\_tip cross product of inertia about z and x reference axes(kg-m^2)

0. iyz\_tip cross product of inertia about y and z reference axes(kg-m^2)

--------- Distributed-property identifiers --------------------------------------------------------

1 id\_mat: material\_type [1: isotropic; non-isotropic composites option not yet available]

'IEA-15-240-RWT\_BModes\_tower\_prop.dat' sec\_props\_file name of beam section properties file (-)

Property scaling factors..............................

1.0 sec\_mass\_mult: mass density multiplier (-)

1.0 flp\_iner\_mult: blade flap or tower f-a inertia multiplier (-)

1.0 lag\_iner\_mult: blade lag or tower s-s inertia multiplier (-)

1.0 flp\_stff\_mult: blade flap or tower f-a bending stiffness multiplier (-)

1.0 edge\_stff\_mult: blade lag or tower s-s bending stiffness multiplier (-)

1.0 tor\_stff\_mult: torsion stiffness multiplier (-)

1.0 axial\_stff\_mult: axial stiffness multiplier (-)

1.0 cg\_offst\_mult: cg offset multiplier (-)

1.0 sc\_offst\_mult: shear center multiplier (-)

1.0 tc\_offst\_mult: tension center multiplier (-)

--------- Finite element discretization --------------------------------------------------

61 nselt: no of blade or tower elements (-)

Distance of element boundary nodes from blade or flexible-tower root (normalized wrt blade or tower length), el\_loc()

0 0.003481894 0.010445682 0.017409471 0.024373259 0.031337047 0.038300836 0.045264624 0.052228412 0.059192201 0.066155989 0.073119777 0.080083565 0.087047354 0.094011142 0.10097493 0.107938719 0.114902507 0.121866295 0.128830084 0.135793872 0.13990 0.149721448 0.156685237 0.163649025 0.170612813 0.177576602 0.18454039 0.191504178 0.198467967 0.205431755 0.212395543 0.219359331 0.22632312 0.233286908 0.240250696 0.247214485 0.250696379 0.320334262 0.37971 0.424791072 0.45961 0.486635 0.51366 0.54068 0.5677 0.594715 0.62173 0.64875 0.67577 0.70279 0.72981 0.75683 0.78385 0.81087 0.83789 0.864905 0.89192 0.91894 0.94596 0.97298 1.0

--------- Properties of tower support subsystem (read only if beam\_type is 2) ------------

1 tow\_support: : aditional tower support [0: no additional support; 1: floating-platform or monopile with or without tension wires] (-)

-15.0 draft : depth of tower base from the ground or the MSL (mean sea level) (m)

0.0 cm\_pform : distance of platform c.m. below the MSL (m)

0.0 mass\_pform : platform mass (kg)

Platform mass inertia 3X3 matrix (i\_matrix\_pform):

0. 0. 0.

0. 0. 0.

0. 0. 0.

-15.0 ref\_msl : distance of platform reference point below the MSL (m)

Platform-reference-point-referred hydrodynamic 6X6 matrix (hydro\_M):

0.168773E+06 0.000000E+00 0.000000E+00 0.000000E+00 -0.987753E+06 0.000000E+00

0.000000E+00 0.168773E+06 0.000000E+00 0.987753E+06 0.000000E+00 0.000000E+00

0.000000E+00 0.000000E+00 0.146961E+06 0.000000E+00 0.000000E+00 0.000000E+00

0.000000E+00 0.987753E+06 0.000000E+00 0.830811E+07 0.000000E+00 0.000000E+00

-0.987753E+06 0.000000E+00 0.000000E+00 0.000000E+00 0.830811E+07 0.000000E+00

0.000000E+00 0.000000E+00 0.000000E+00 0.000000E+00 0.000000E+00 0.364523E+07

Platform-reference-point-referred hydrodynamic 6X6 stiffness matrix (hydro\_K):

0.353727E+09 0.000000E+00 0.000000E+00 0.000000E+00 -0.751078E+10 0.000000E+00

0.000000E+00 0.353727E+09 0.000000E+00 0.751078E+10 0.000000E+00 0.000000E+00

0.000000E+00 0.000000E+00 0.656870E+10 0.000000E+00 0.000000E+00 0.000000E+00

0.000000E+00 0.751078E+10 0.000000E+00 0.240814E+12 0.000000E+00 0.000000E+00

-0.751078E+10 0.000000E+00 0.000000E+00 0.000000E+00 0.240814E+12 0.000000E+00

0.000000E+00 0.000000E+00 0.000000E+00 0.000000E+00 0.000000E+00 0.644996E+11

Mooring-system 6X6 stiffness matrix (mooring\_K):

0.0 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 0.0

Distributed (hydrodynamic) added-mass per unit length along a flexible portion of the tower length:

0 n\_secs\_m\_distr: number of sections at which added mass per unit length is specified (-)

0. 0. : z\_distr\_m [row array of size n\_added\_m\_pts; section locations wrt the flexible tower base over which distributed mass is specified] (m)

0. 0. : distr\_m [row array of size n\_added\_m\_pts; added distributed masses per unit length] (kg/m)

Distributed elastic stiffness per unit length along a flexible portion of the tower length:

0 n\_secs\_k\_distr: number of points at which distributed stiffness per unit length is specified (-)

Tension wires data

0 n\_attachments: no of wire-attachment locations on tower [0: no tension wires] (-)

0 n\_wires: no of wires attached at each location (must be 3 or higher) (-)

0 node\_attach: node numbers of attacments location (node number must be more than 1 and less than nselt+2) (-)

0.e0 0.e0 wire\_stfness: wire spring constant in each set (see users' manual) (N/m)

0. 0. th\_wire: angle of tension wires (wrt the horizontal ground plane) at each attachment point (deg)

END of Main Input File Data \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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