

DS-0321 & DS-0322 FFT Analysis Software

Display method of Campbell plot

Applicable version: DS-0320 ver. 2.2.0.123 (17/05/2013) or later

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About Campbell plot

In Campbell plot, the vertical axis represents frequency, the horizontal axis represents rpm, and the inclined axis represents rpm order, with the size of circles representing amplitudes. The order, rpm and frequency of large amplitude are recognized at one glance. It is used for the noise test of compressor or vibration test of turbine.

This document describes the operation procedure after the constant-ratio tracking analysis. For details on the tracking analysis operation, refer to the operation manual “DS-0322 Basic Operation procedure for Constant-ratio Tracking Analysis”.

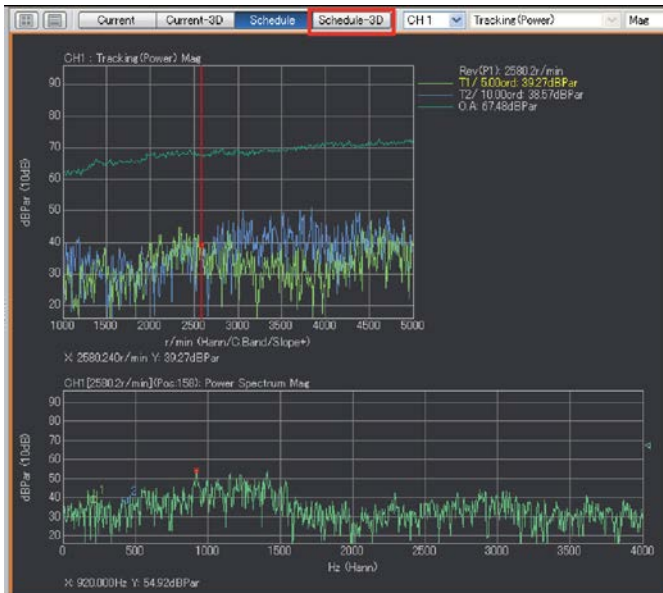
■Operation flow

1. Displaying the Campbell diagram
2. Setting of the Campbell diagram display
3. Setting of the reference circle of Campbell diagram

■ Operation procedure

1. Displaying Campbell diagram

Select [Schedule-3D] on the tab after the tracking analysis.



The selected 3D graph is displayed. Display the Campbell diagram in this screen.

Click [Data Display Setting] > [3D Display] > [Campbell Diagram Setting] in this order.

3D Display	Color Map Display
Disp Line Count	1000 Line
Fill Color	Color
Vertical Sectional View	<input type="checkbox"/>
Horizontal Sectional View	<input type="checkbox"/>
3D Array Display Setting	
Line & Fill	Line
Angle	75°
Y-axis Scale Ratio	Medium
Schedule Setting	
Sort in Descending Order	<input type="checkbox"/>
Range Condition	<input type="checkbox"/>
Range Condition Mode	Block No
Upper-limit Block Count	1000
Lower-limit Block Count	0
Upper-limit Rpm	8000r/min
Lower-limit Rpm	0r/min
Upper-limit Time	512000s
Lower-limit Time	0s
Step Auto	<input type="checkbox"/>
Step Count	20step
Tracking Cursor	<input type="checkbox"/>
Campbell Diagram Setting	<input checked="" type="checkbox"/>
ALL	<input type="checkbox"/>
Plot Order Lower Limit	1
Plot Order Upper Limit	15
Plot Order Resolution	1
Plot Frequency Lower Limit	0Hz
Plot Frequency Upper Limit	1000Hz
Plot Rot Speed Lower Limit	0r/min
Plot Rot Speed Upper Limit	4000r/min

2. Setting the Campbell diagram display

Set the order, frequency and rotation speed of the graph to be plotted.

When ALL is set to ON, entire measurement points are plotted.

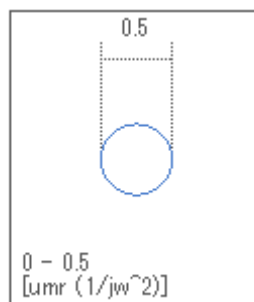
Campbell Diagram Setting	
ALL	<input type="checkbox"/>
Plot Order Lower Limit	1
Plot Order Upper Limit	15
Plot Order Resolution	1
Plot Frequency Lower Limit	0Hz
Plot Frequency Upper Limit	1000Hz
Plot Rot Speed Lower Limit	0r/min
Plot Rot Speed Upper Limit	4000r/min

3. Setting the reference circle of the Campbell diagram

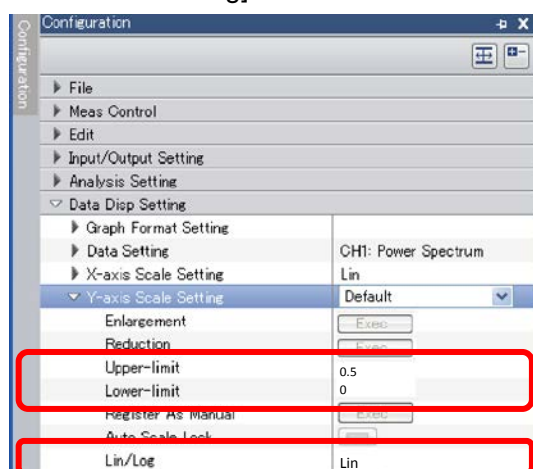
The amplitude value is expressed as the size of circle.

Set the lower and upper limit of the order, frequency and rotation speed properly.

*In this document, acceleration is converted as a displacement
(Perform double integral in the frequency calculus.)

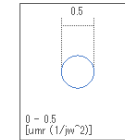
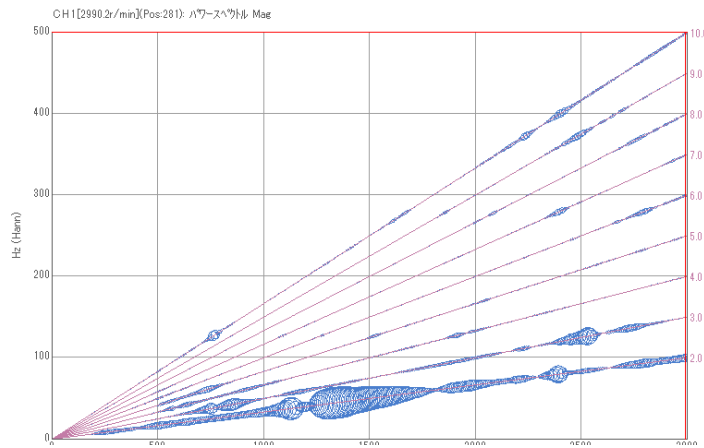


Change the setting of the reference circle from the [Upper limit] and [Lower limit], click [Data Display Setting] > [Y-axis Scale Setting] in this order.

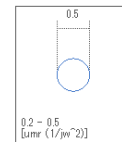
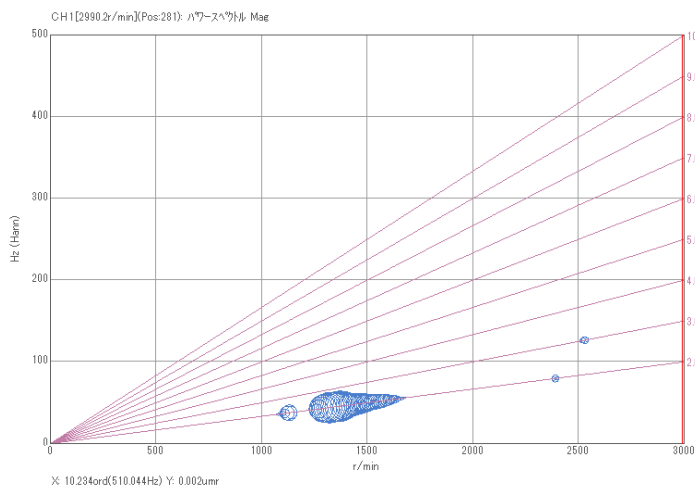


*In this document, the Y-axis scale is displayed as Lin.

■ The difference of the reference circle depending on the setting

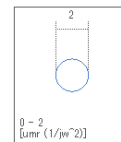
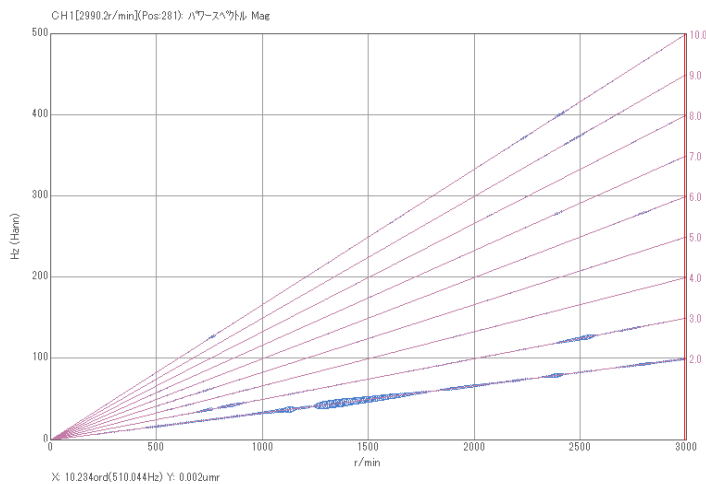


Lower limit value: 0
Upper limit value: 0.5



Lower limit value: 0.2
Lower limit value: 0.5

The lower limit is too small, so the small size amplitude cannot be displayed.



Lower limit value: 0
Lower limit value: 2

The upper limit is too large, so the circle formed in a small size as a whole.

■Explanation of the setting item

ALL: When set to ON, all measurement data are plotted despite of the plot condition.

When set to OFF, the data of order component according to the plot condition is plotted.

Plot order lower limit: Set the plot order lower limit in a range of from 0 to 800.0.

Plot order upper limit: Set the plot order upper limit in a range of from 0.1 to 800.0.

Plot order resolution: Set the plot order resolution (fineness) in a range of from 0.0 to 800.0.

Plot frequency lower limit: Set the plot frequency lower limit in a range of from 0.0 to 100000.0.

Plot frequency upper limit: Set the plot frequency upper limit in a range of from 0.001 to 100000.0.

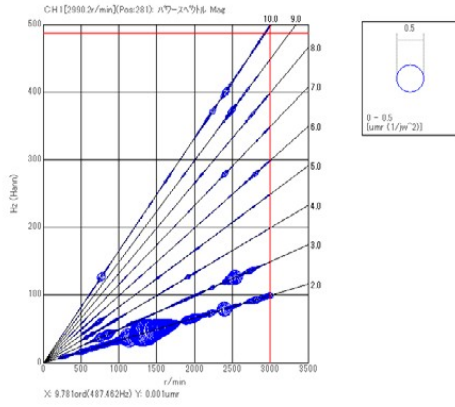
Plot rotation speed lower limit: Set the plot rotation speed lower limit in a range of from 0.0 to 384000.0.

Plot rotation speed upper limit: Set the plot rotation speed upper limit in a range of from 0.0 to 384000.0.

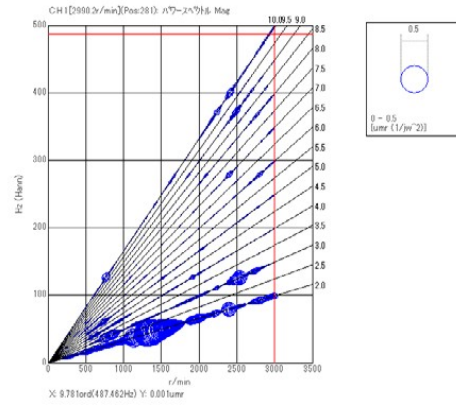
*The measurement value may not exist depending on the measurement condition.

■ Measurement screen example

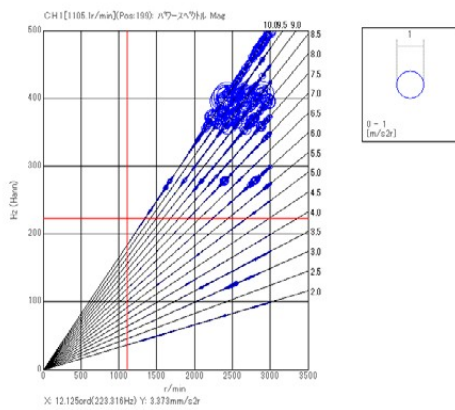
Difference of plot order resolution:



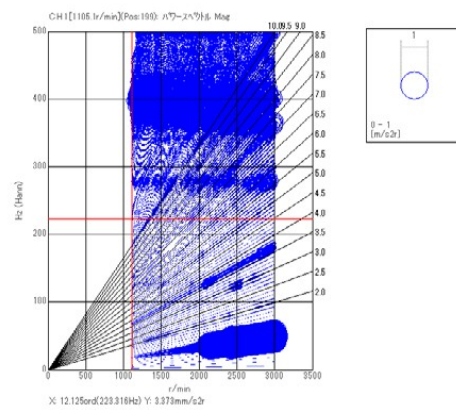
Plot order resolution: 1



Plot order resolution: 0.5



Plot order resolution: ALL OFF



Plot order resolution: ALL ON

- END -