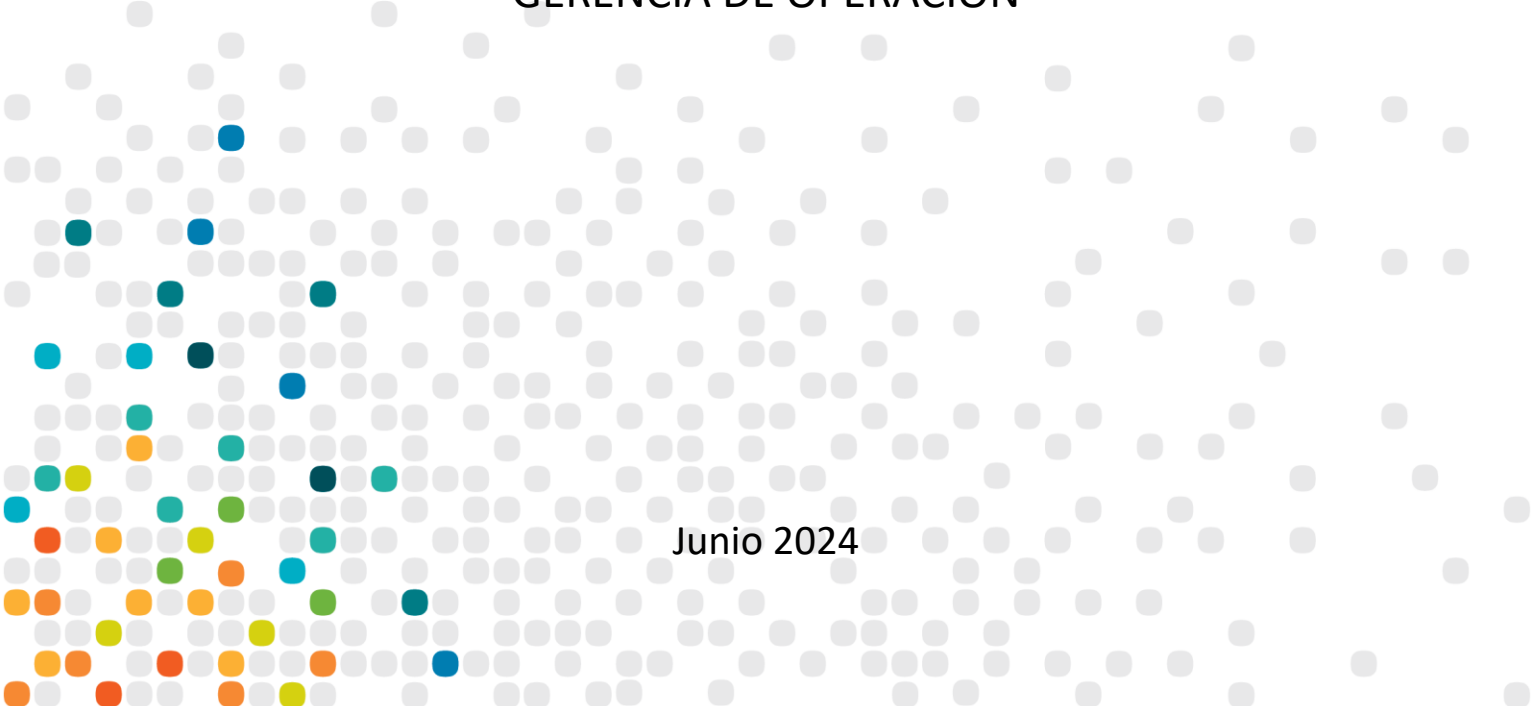

ESTUDIO DE SINTONIZACIÓN DE ESTABILIZADORES DE SISTEMAS DE POTENCIA (PSS)

ANEXO A Informe Final

GERENCIA DE OPERACIÓN

Junio 2024



**Estudio de Sintonización de Estabilizadores de Sistemas de Potencia (PSS)
Informe preparado por el Departamento de Estudios Eléctricos**

Rev.	Fecha	Comentario	Realizó	Revisó / Aprobó
1	19-04-2024	Anexo A Informe Preliminar	Carlos Alvear A. Hernán Barra C. Michelle Cajas R. Marcelo Cifuentes R. Carlos Prieto C	Eugenio Quintana P. Víctor Velar
2	05-06-2024	Anexo A Informe Final	Carlos Alvear A. Hernán Barra C. Michelle Cajas R. Marcelo Cifuentes R. Carlos Prieto C	Eugenio Quintana P. Víctor Velar

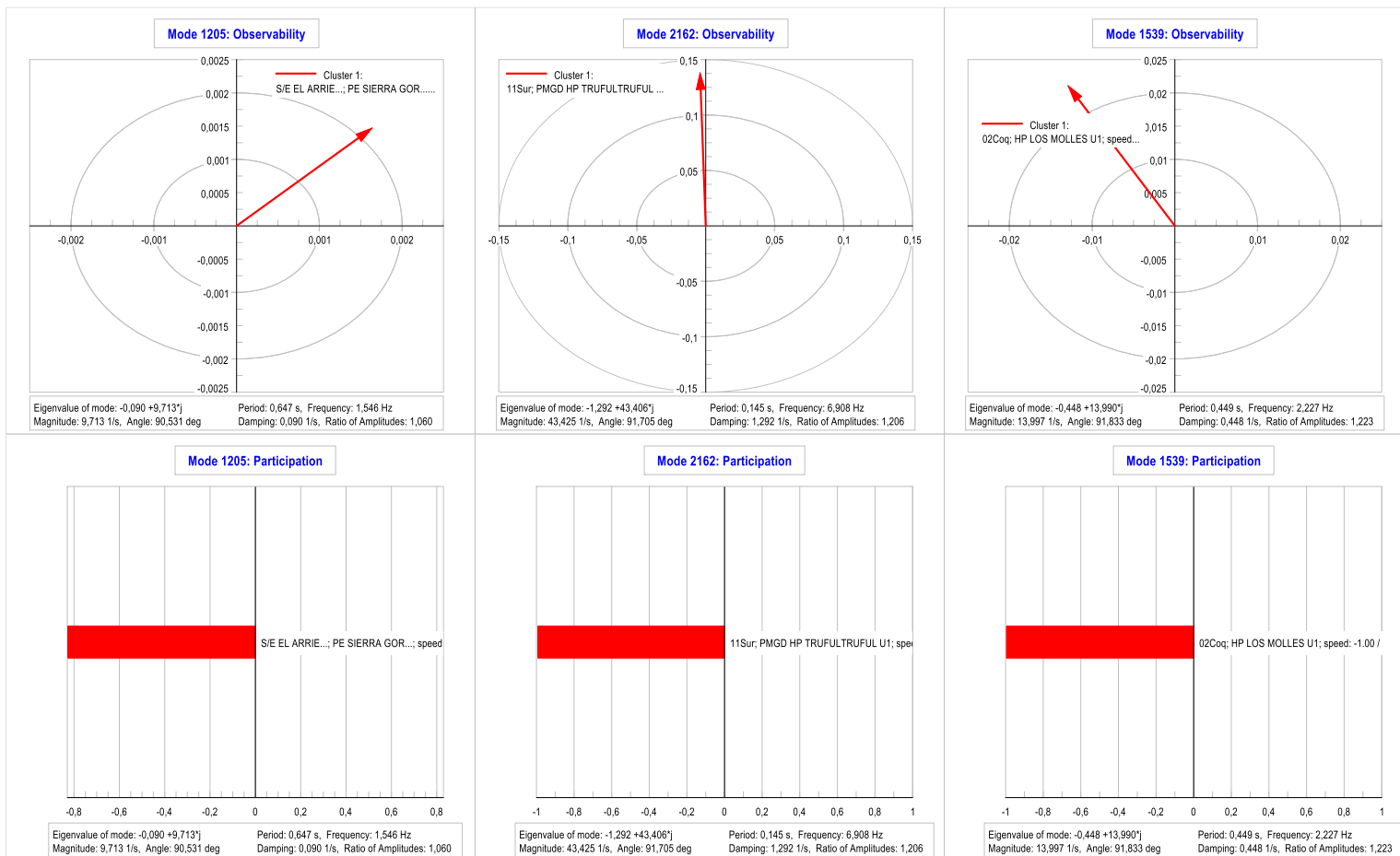
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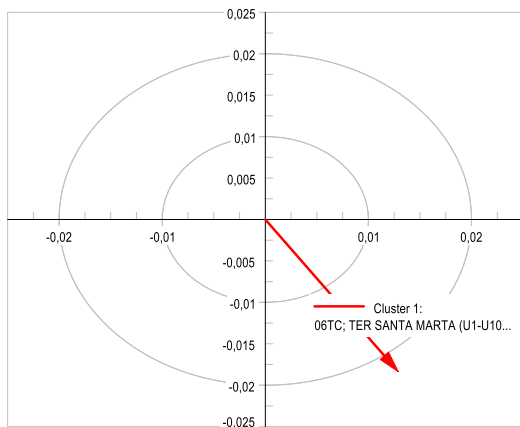
15 MODOS CRÍTICOS

15.1 Escenario E1 DA día Mar2024

15.1.1 Red N

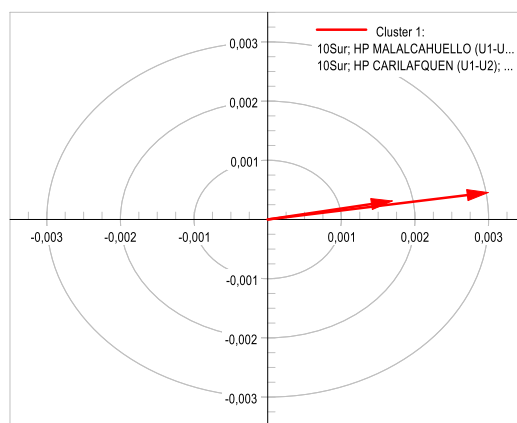


Mode 1437: Observability



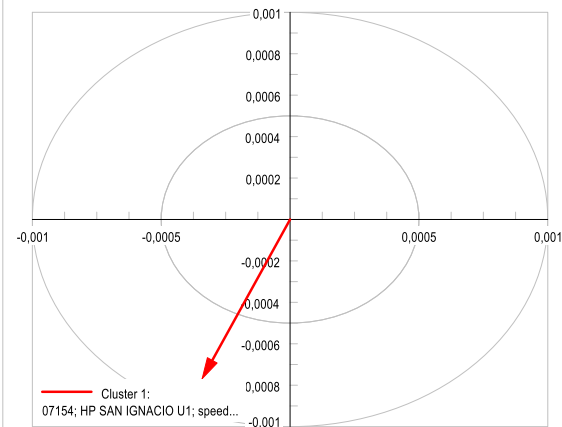
Eigenvalue of mode: $-0,272 + 7,052j$ Period: 0,891 s, Frequency: 1,122 Hz
Magnitude: 7,057 1/s, Angle: 92,206 deg Damping: 0,272 1/s, Ratio of Amplitudes: 1,274

Mode 1424: Observability



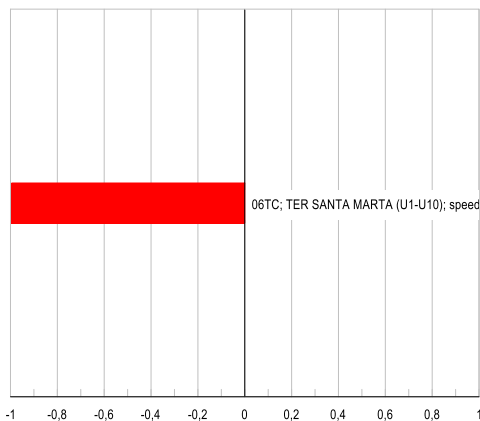
Eigenvalue of mode: $-0,257 + 5,430j$ Period: 1,157 s, Frequency: 0,864 Hz
Magnitude: 5,436 1/s, Angle: 92,706 deg Damping: 0,257 1/s, Ratio of Amplitudes: 1,346

Mode 1543: Observability



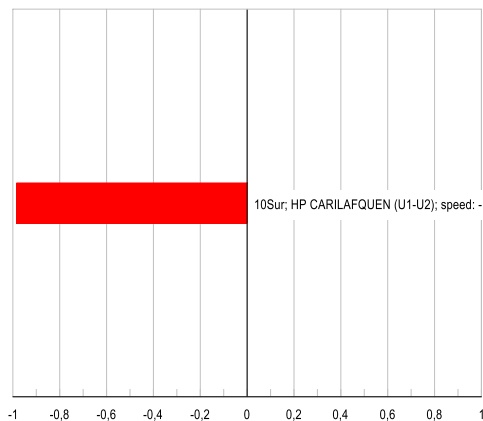
Eigenvalue of mode: $-0,451 + 8,688j$ Period: 0,723 s, Frequency: 1,383 Hz
Magnitude: 8,700 1/s, Angle: 92,971 deg Damping: 0,451 1/s, Ratio of Amplitudes: 1,386

Mode 1437: Participation



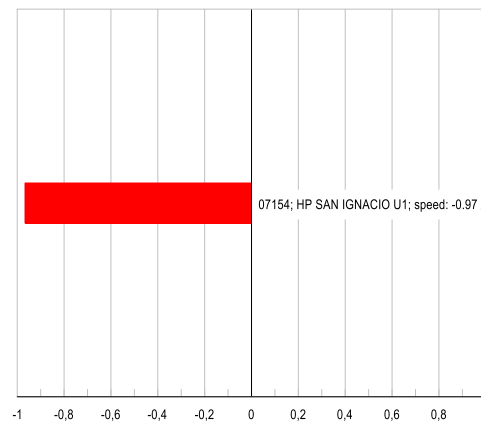
Eigenvalue of mode: $-0,272 + 7,052j$ Period: 0,891 s, Frequency: 1,122 Hz
Magnitude: 7,057 1/s, Angle: 92,206 deg Damping: 0,272 1/s, Ratio of Amplitudes: 1,274

Mode 1424: Participation



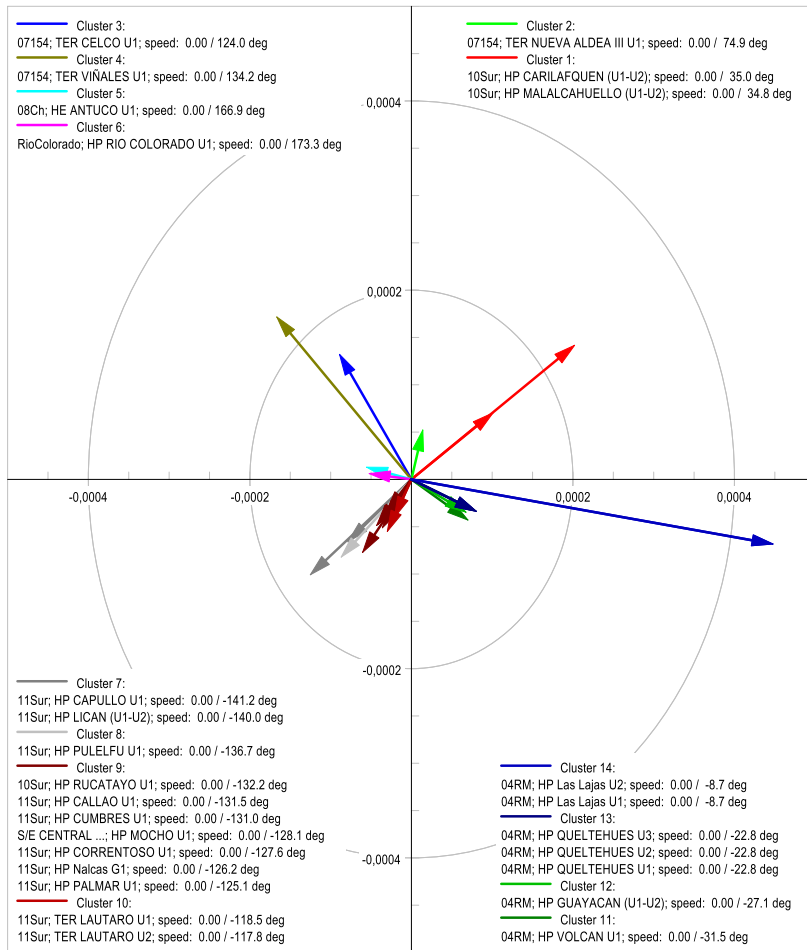
Eigenvalue of mode: $-0,257 + 5,430j$ Period: 1,157 s, Frequency: 0,864 Hz
Magnitude: 5,436 1/s, Angle: 92,706 deg Damping: 0,257 1/s, Ratio of Amplitudes: 1,346

Mode 1543: Participation



Eigenvalue of mode: $-0,451 + 8,688j$ Period: 0,723 s, Frequency: 1,383 Hz
Magnitude: 8,700 1/s, Angle: 92,971 deg Damping: 0,451 1/s, Ratio of Amplitudes: 1,386

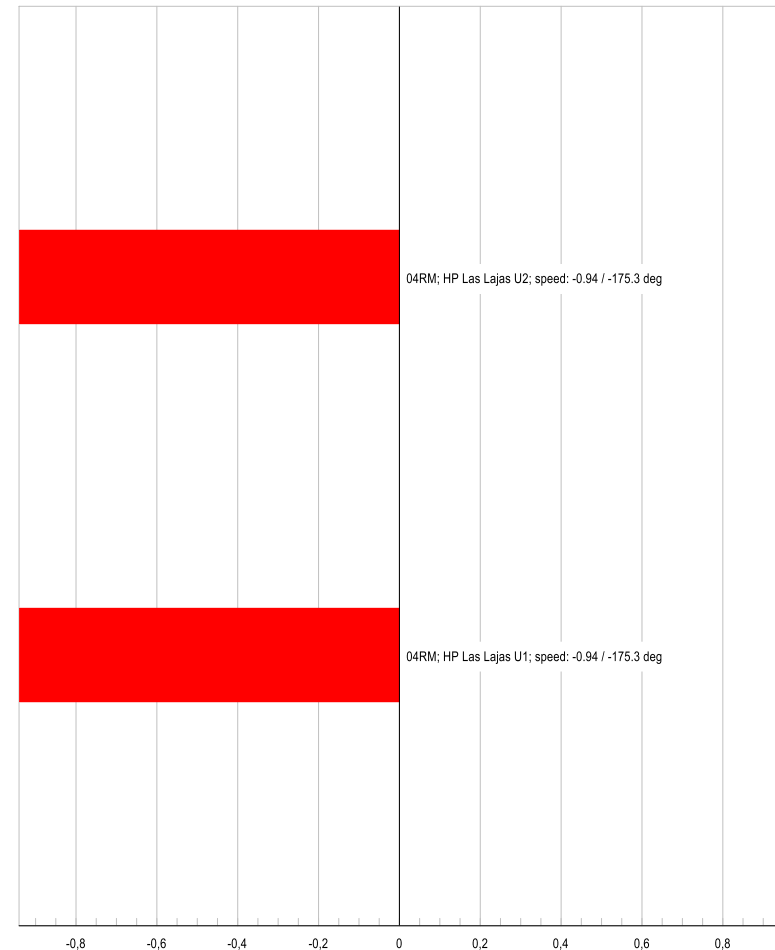
Mode 1488: Observability



Eigenvalue of mode: $-0.354 + 5.688j$
Magnitude: 5,699 1/s, Angle: 93,565 deg

Period: 1,105 s, Frequency: 0,905 Hz
Damping: 0,354 1/s, Ratio of Amplitudes: 1,479

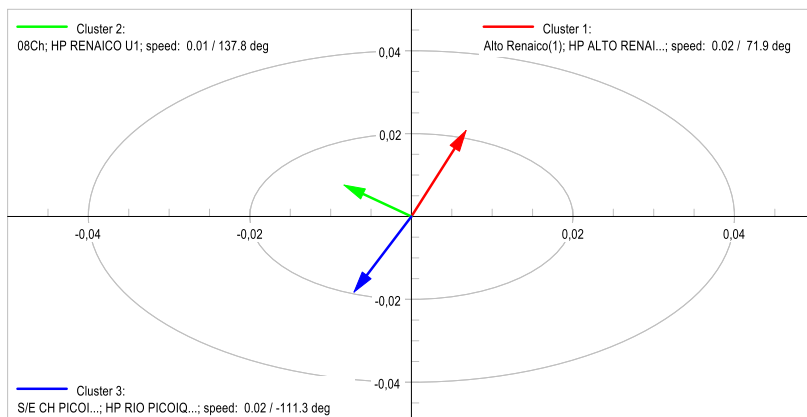
Mode 1488: Participation



Eigenvalue of mode: $-0.354 + 5.688j$
Magnitude: 5,699 1/s, Angle: 93,565 deg

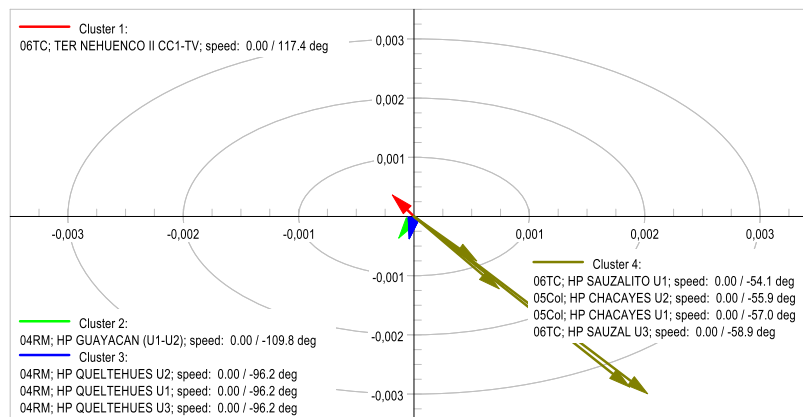
Period: 1,105 s, Frequency: 0,905 Hz
Damping: 0,354 1/s, Ratio of Amplitudes: 1,479

Mode 2180: Observability



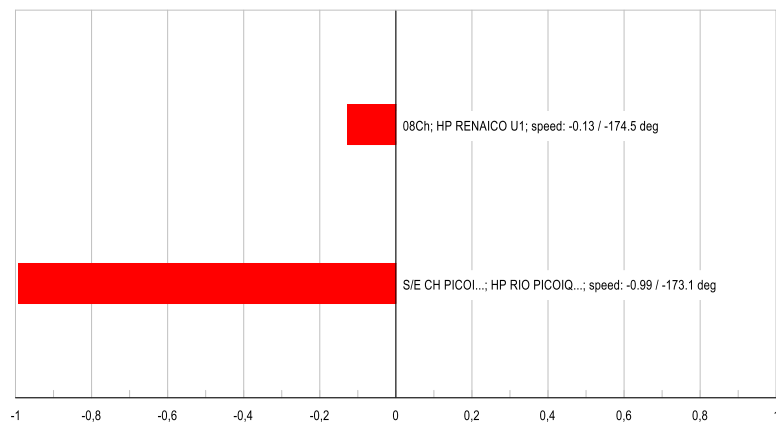
Eigenvalue of mode: $-1,335 + 20,479j$ Period: 0,307 s, Frequency: 3,259 Hz
Magnitude: 20,523 1/s, Angle: 93,731 deg Damping: 1,335 1/s, Ratio of Amplitudes: 1,506

Mode 1661: Observability



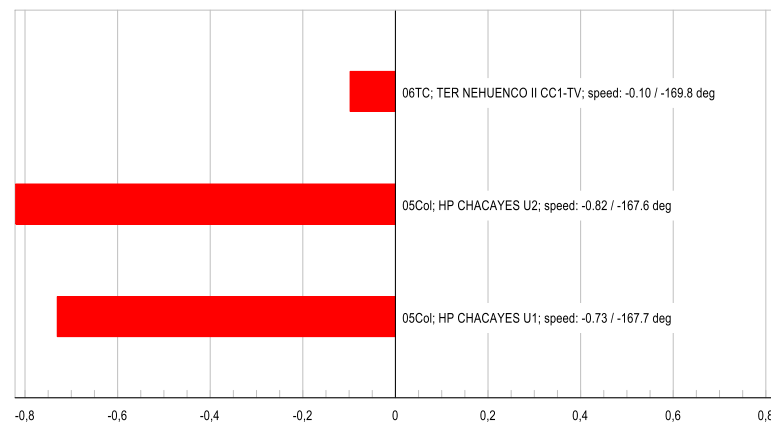
Eigenvalue of mode: $-0,519 + 7,832j$ Period: 0,802 s, Frequency: 1,247 Hz
Magnitude: 7,850 1/s, Angle: 93,791 deg Damping: 0,519 1/s, Ratio of Amplitudes: 1,516

Mode 2180: Participation



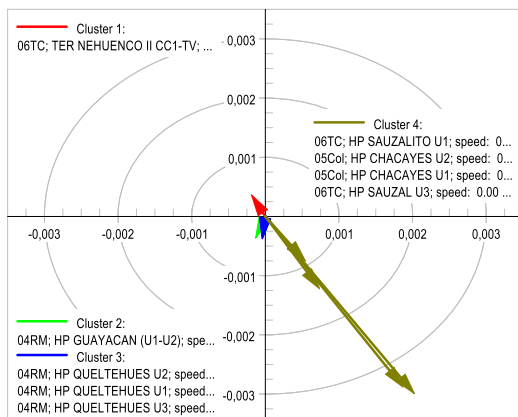
Eigenvalue of mode: $-1,335 + 20,479j$ Period: 0,307 s, Frequency: 3,259 Hz
Magnitude: 20,523 1/s, Angle: 93,731 deg Damping: 1,335 1/s, Ratio of Amplitudes: 1,506

Mode 1661: Participation



Eigenvalue of mode: $-0,519 + 7,832j$ Period: 0,802 s, Frequency: 1,247 Hz
Magnitude: 7,850 1/s, Angle: 93,791 deg Damping: 0,519 1/s, Ratio of Amplitudes: 1,516

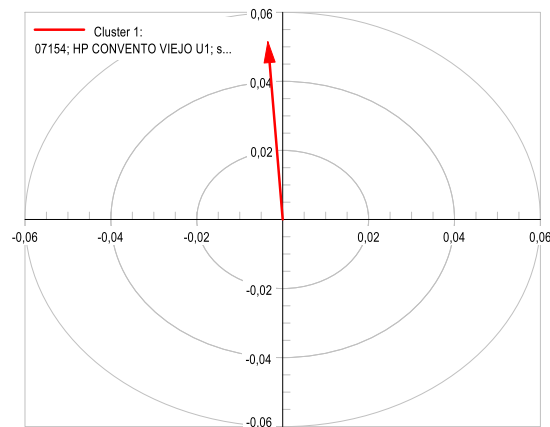
Mode 1661: Observability



Eigenvalue of mode: $-0.519 + 7.832j$
Magnitude: 7,850 1/s, Angle: 93,791 deg

Period: 0,802 s, Frequency: 1,247 Hz
Damping: 0,519 1/s, Ratio of Amplitudes: 1,516

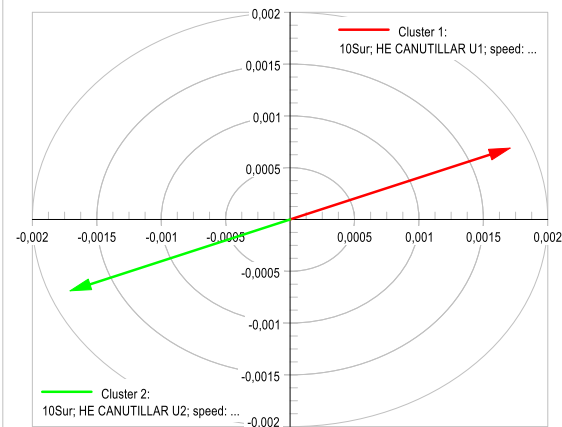
Mode 2106: Observability



Eigenvalue of mode: $-1.082 + 16.180j$
Magnitude: 16,216 1/s, Angle: 93,825 deg

Period: 0,388 s, Frequency: 2,575 Hz
Damping: 1,082 1/s, Ratio of Amplitudes: 1,522

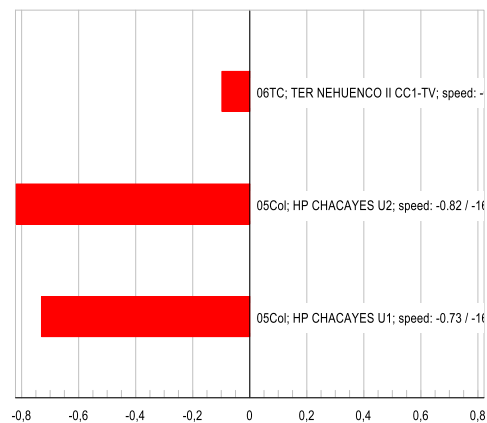
Mode 1822: Observability



Eigenvalue of mode: $-0.843 + 11.217j$
Magnitude: 11,249 1/s, Angle: 94,296 deg

Period: 0,560 s, Frequency: 1,785 Hz
Damping: 0,843 1/s, Ratio of Amplitudes: 1,603

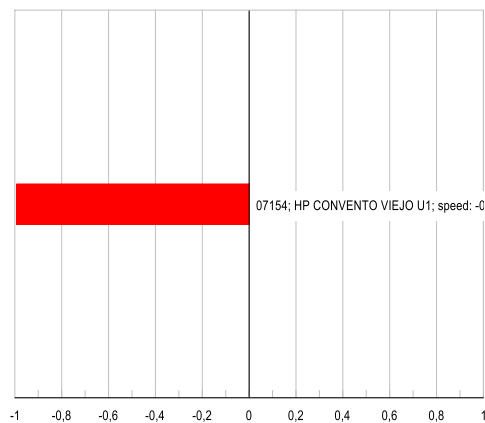
Mode 1661: Participation



Eigenvalue of mode: $-0.519 + 7.832j$
Magnitude: 7,850 1/s, Angle: 93,791 deg

Period: 0,802 s, Frequency: 1,247 Hz
Damping: 0,519 1/s, Ratio of Amplitudes: 1,516

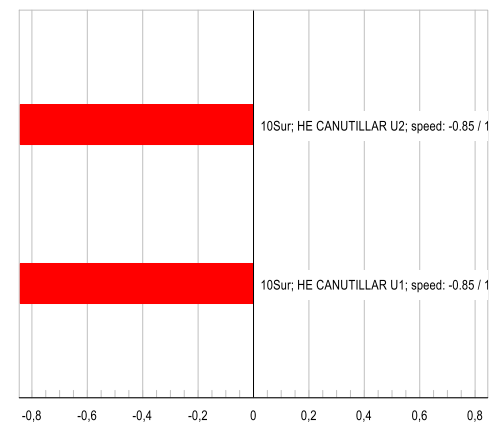
Mode 2106: Participation



Eigenvalue of mode: $-1.082 + 16.180j$
Magnitude: 16,216 1/s, Angle: 93,825 deg

Period: 0,388 s, Frequency: 2,575 Hz
Damping: 1,082 1/s, Ratio of Amplitudes: 1,522

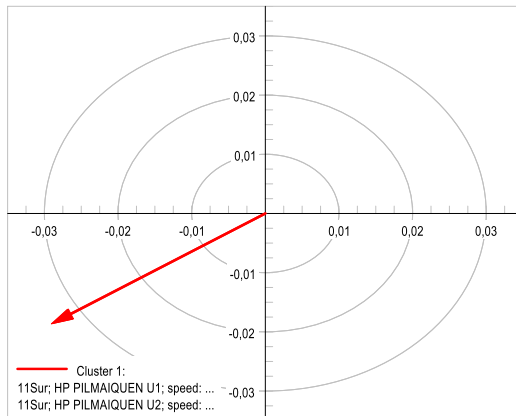
Mode 1822: Participation



Eigenvalue of mode: $-0.843 + 11.217j$
Magnitude: 11,249 1/s, Angle: 94,296 deg

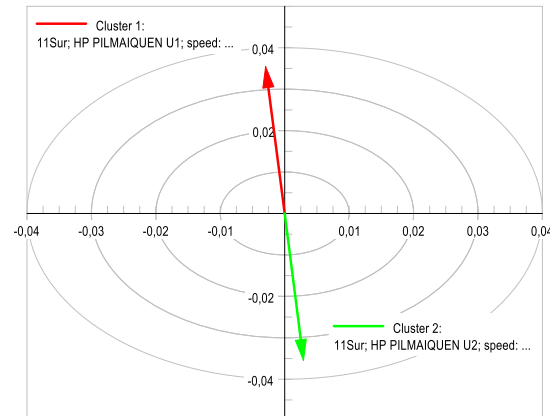
Period: 0,560 s, Frequency: 1,785 Hz
Damping: 0,843 1/s, Ratio of Amplitudes: 1,603

Mode 1844: Observability



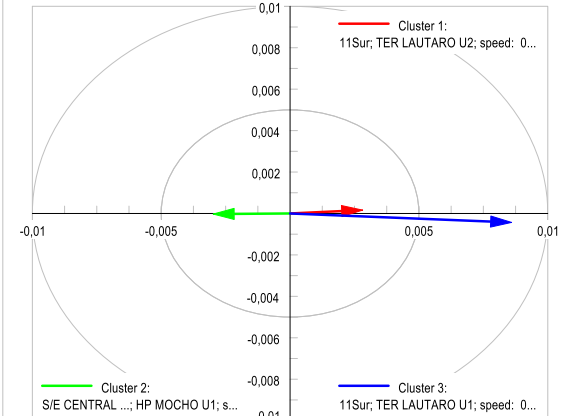
Eigenvalue of mode: $-0,853 + 10,815j$
Magnitude: 10,849 1/s, Angle: 94,510 deg
Period: 0,581 s, Frequency: 1,721 Hz
Damping: 0,853 1/s, Ratio of Amplitudes: 1,642

Mode 1895: Observability



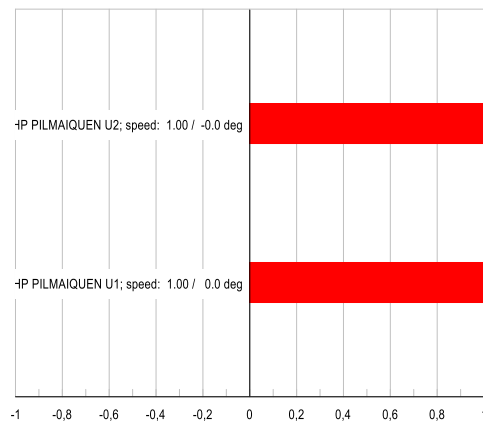
Eigenvalue of mode: $-0,931 + 11,137j$
Magnitude: 11,176 1/s, Angle: 94,777 deg
Period: 0,564 s, Frequency: 1,773 Hz
Damping: 0,931 1/s, Ratio of Amplitudes: 1,691

Mode 1709: Observability



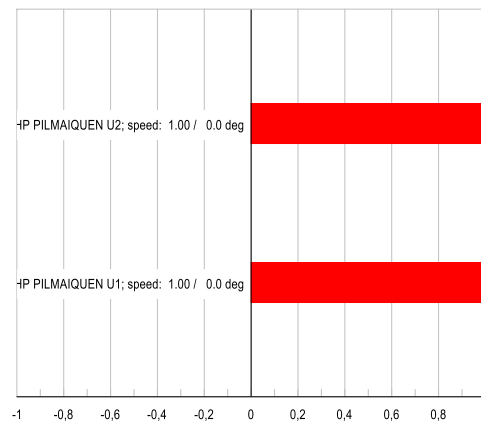
Eigenvalue of mode: $-0,613 + 7,283j$
Magnitude: 7,309 1/s, Angle: 94,809 deg
Period: 0,863 s, Frequency: 1,159 Hz
Damping: 0,613 1/s, Ratio of Amplitudes: 1,697

Mode 1844: Participation



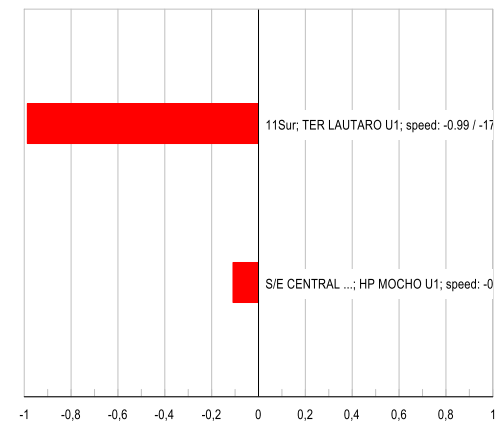
Eigenvalue of mode: $-0,853 + 10,815j$
Magnitude: 10,849 1/s, Angle: 94,510 deg
Period: 0,581 s, Frequency: 1,721 Hz
Damping: 0,853 1/s, Ratio of Amplitudes: 1,642

Mode 1895: Participation



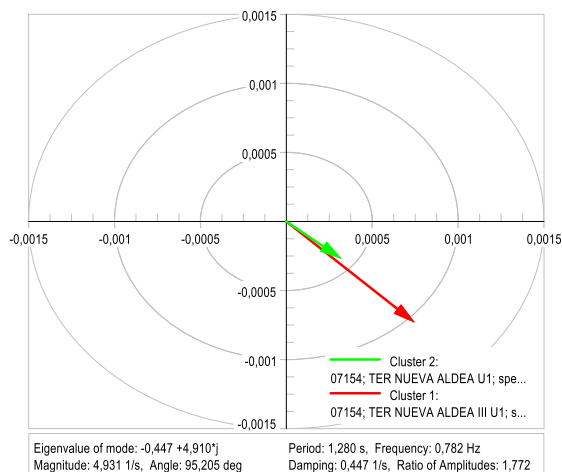
Eigenvalue of mode: $-0,931 + 11,137j$
Magnitude: 11,176 1/s, Angle: 94,777 deg
Period: 0,564 s, Frequency: 1,773 Hz
Damping: 0,931 1/s, Ratio of Amplitudes: 1,691

Mode 1709: Participation

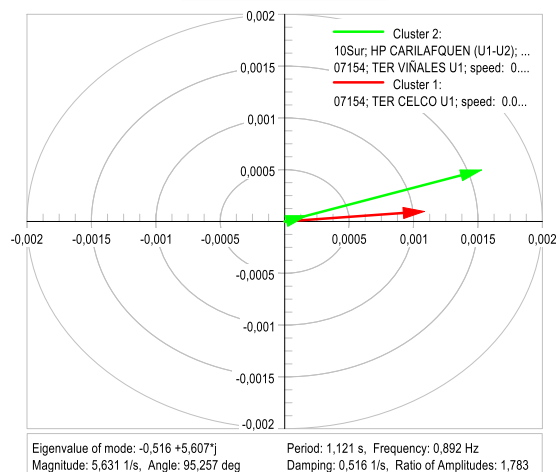


Eigenvalue of mode: $-0,613 + 7,283j$
Magnitude: 7,309 1/s, Angle: 94,809 deg
Period: 0,863 s, Frequency: 1,159 Hz
Damping: 0,613 1/s, Ratio of Amplitudes: 1,697

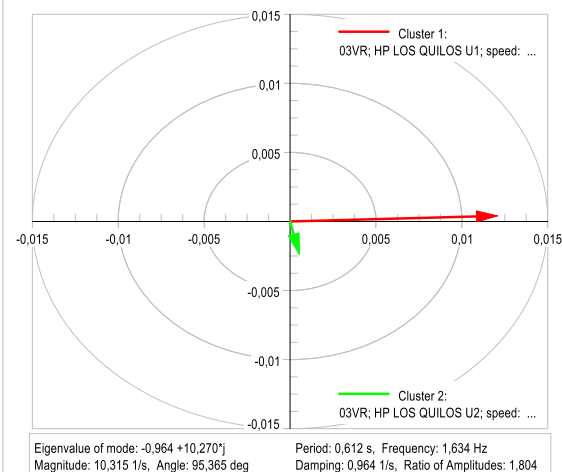
Mode 1537: Observability



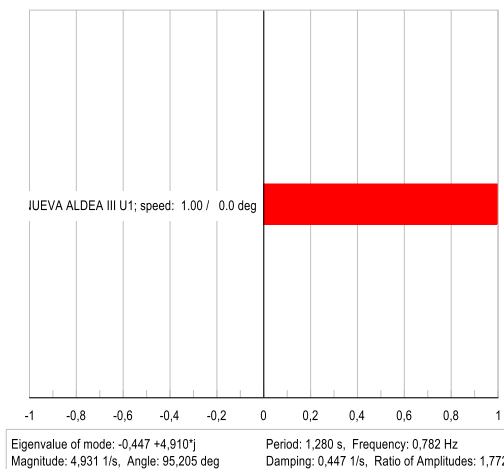
Mode 1657: Observability



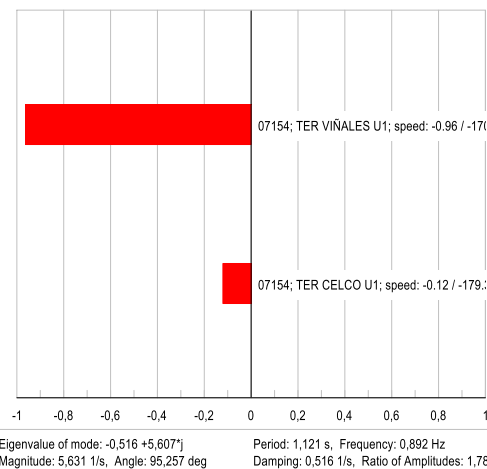
Mode 1909: Observability



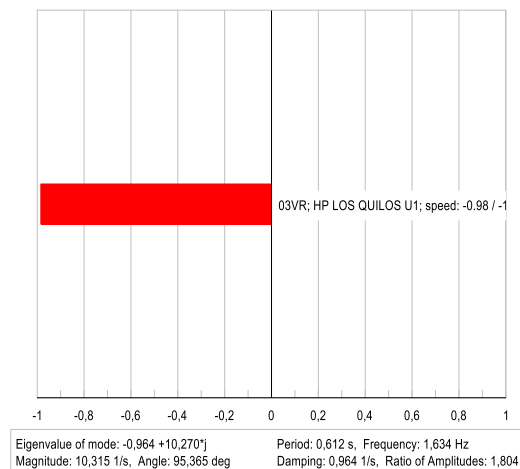
Mode 1537: Participation



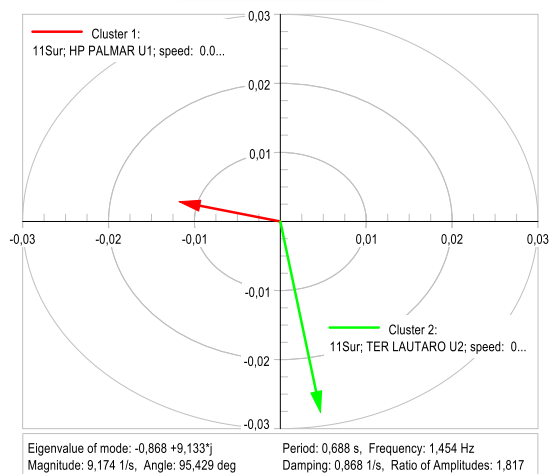
Mode 1657: Participation



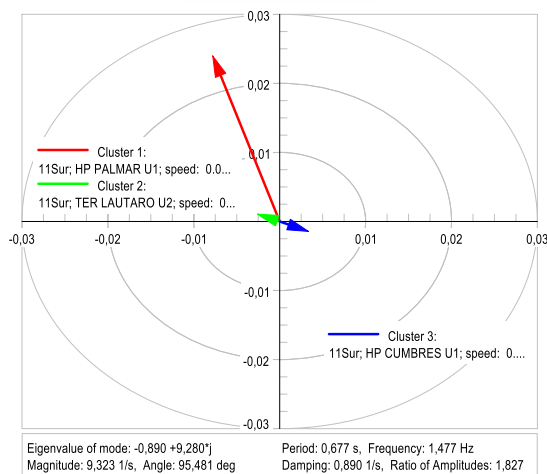
Mode 1909: Participation



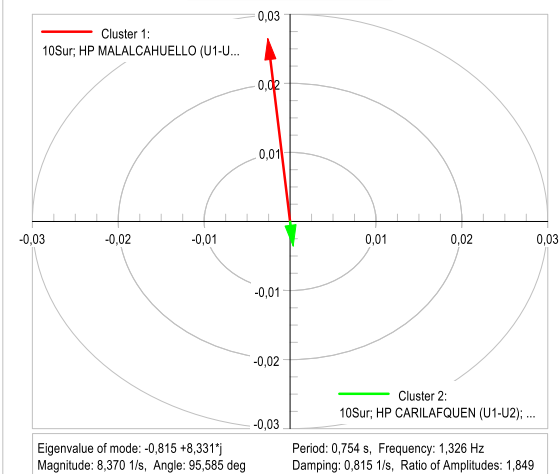
Mode 1858: Observability



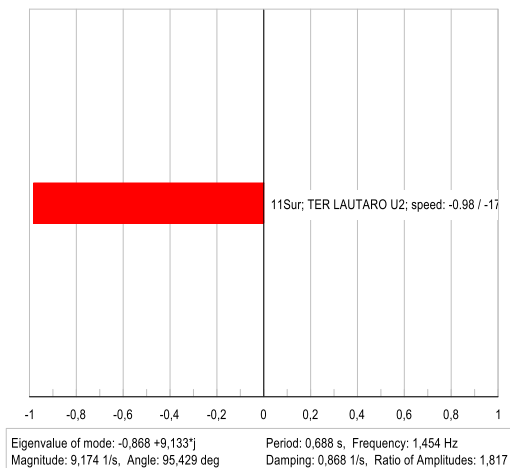
Mode 1882: Observability



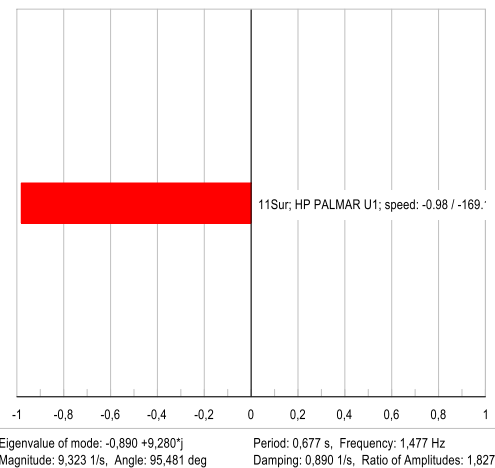
Mode 1802: Observability



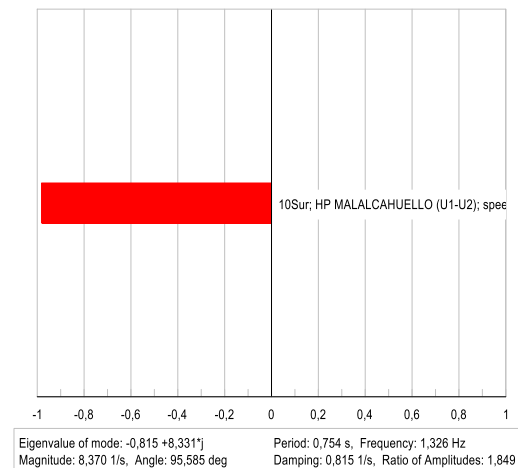
Mode 1858: Participation



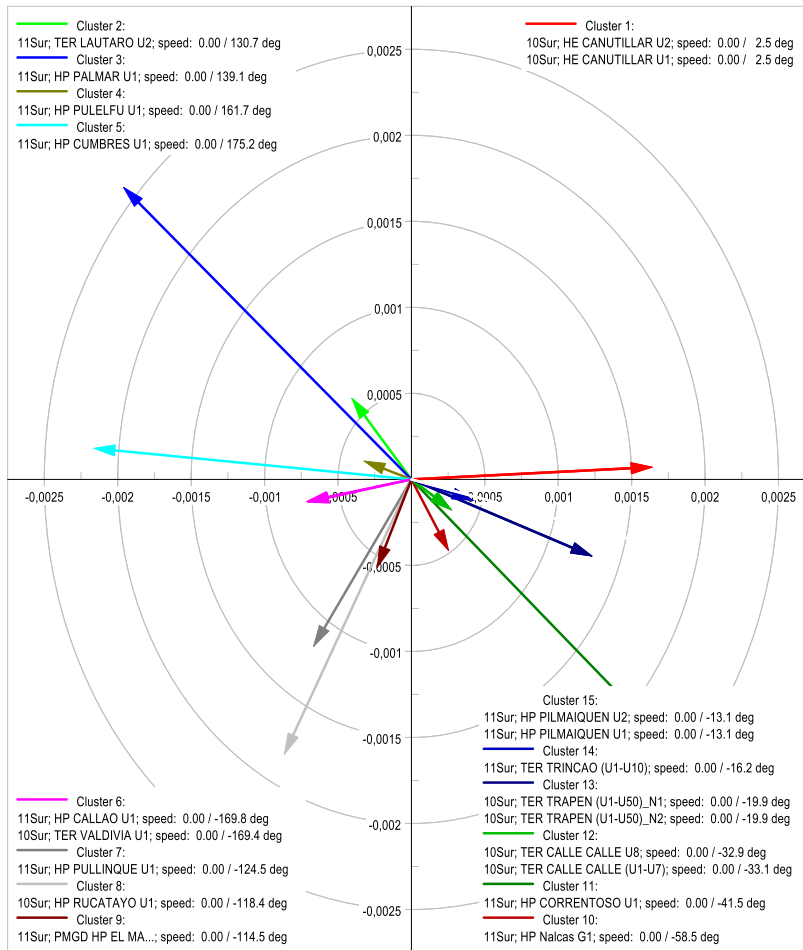
Mode 1882: Participation



Mode 1802: Participation



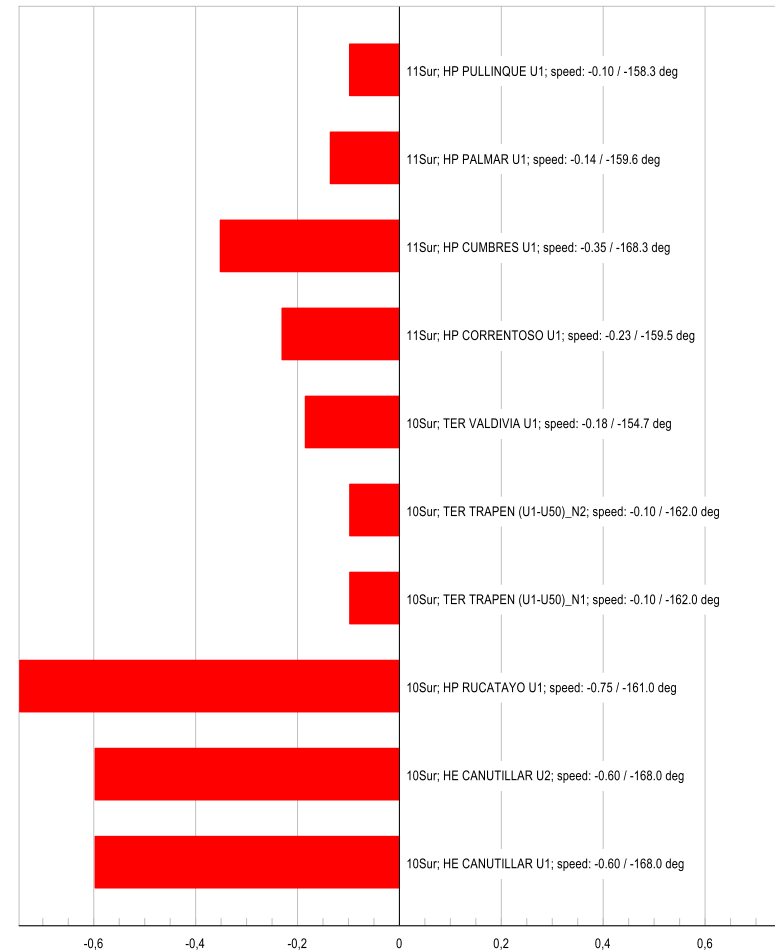
Mode 1911: Observability



Eigenvalue of mode: $-0.968 + 9.883j$
Magnitude: 9.930 1/s, Angle: 95.595 deg

Period: 0.636 s, Frequency: 1.573 Hz
Damping: 0.968 1/s, Ratio of Amplitudes: 1.851

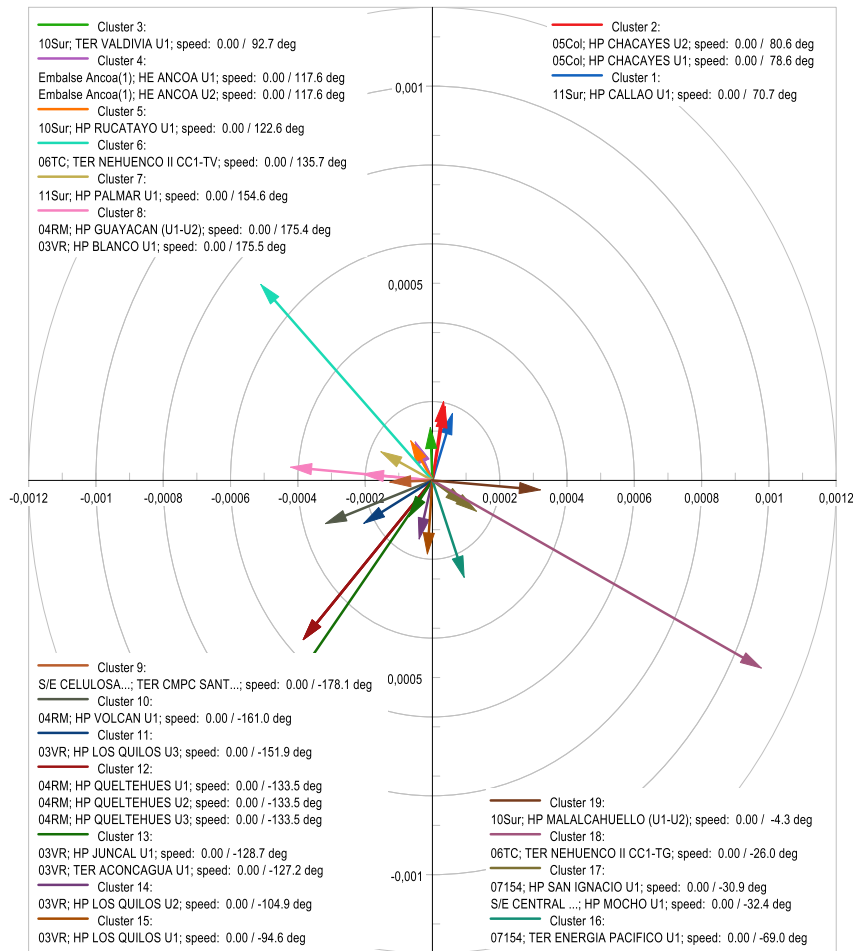
Mode 1911: Participation



Eigenvalue of mode: $-0.968 + 9.883j$
Magnitude: 9.930 1/s, Angle: 95.595 deg

Period: 0.636 s, Frequency: 1.573 Hz
Damping: 0.968 1/s, Ratio of Amplitudes: 1.851

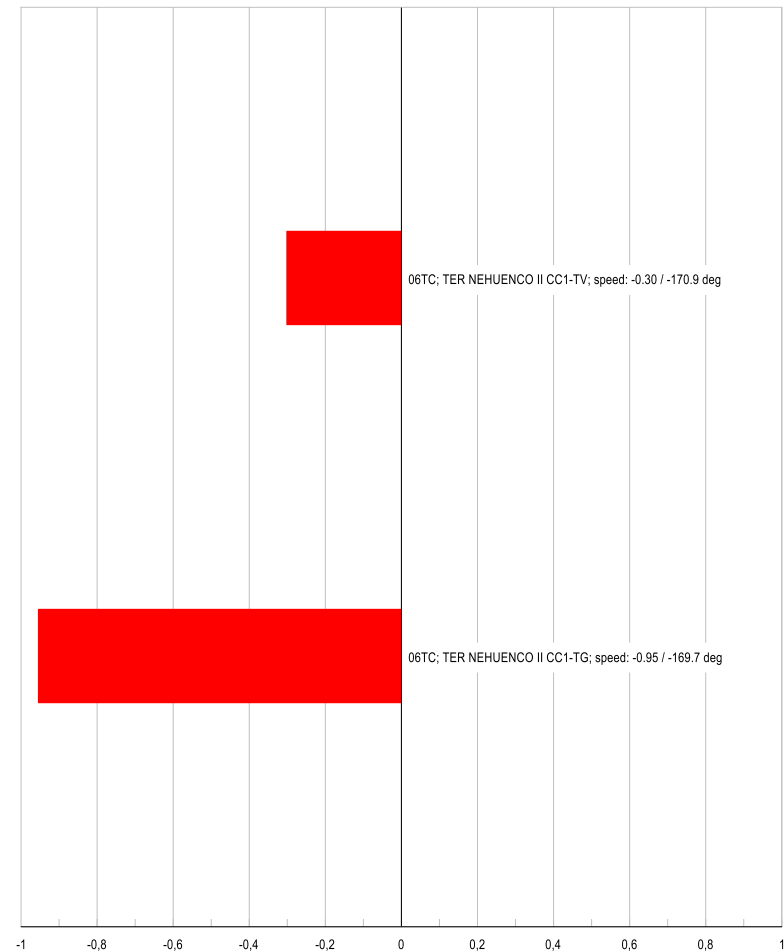
Mode 1810: Observability



Eigenvalue of mode: -0.825 +8.423j
Magnitude: 8.463 1/s, Angle: 95.596 deg

Period: 0.746 s, Frequency: 1.341 Hz
Damping: 0.825 1/s, Ratio of Amplitudes: 1.851

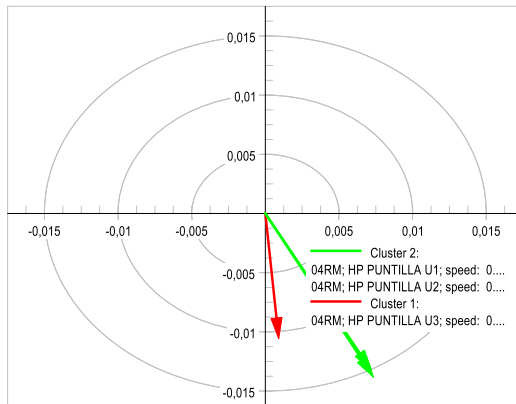
Mode 1810: Participation



Eigenvalue of mode: -0.825 +8.423j
Magnitude: 8.463 1/s, Angle: 95.596 deg

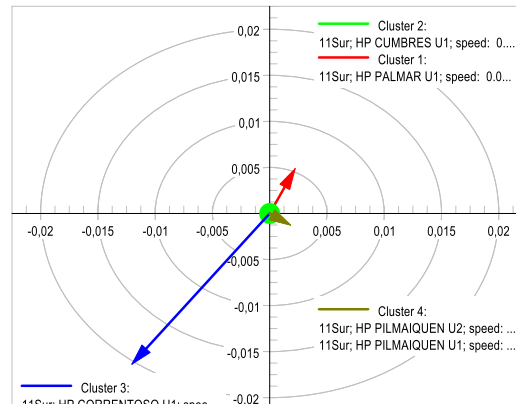
Period: 0.746 s, Frequency: 1.341 Hz
Damping: 0.825 1/s, Ratio of Amplitudes: 1.851

Mode 2108: Observability



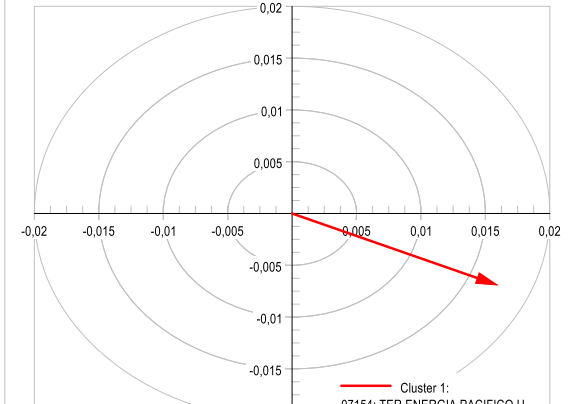
Eigenvalue of mode: $-1.089 + 11.113j$
Magnitude: 11,167 1/s, Angle: 95,598 deg
Period: 0.565 s, Frequency: 1,769 Hz
Damping: 1,089 1/s, Ratio of Amplitudes: 1,851

Mode 2083: Observability



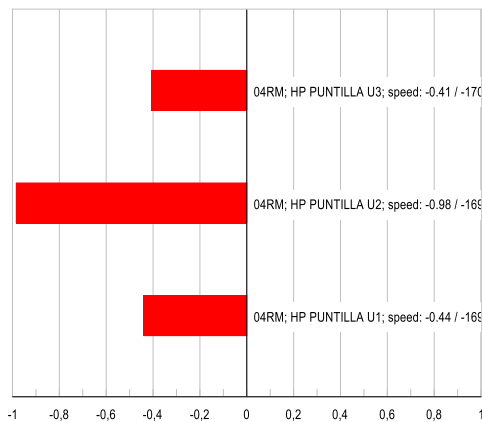
Eigenvalue of mode: $-1.022 + 10.399j$
Magnitude: 10,449 1/s, Angle: 95,612 deg
Period: 0,604 s, Frequency: 1,655 Hz
Damping: 1,022 1/s, Ratio of Amplitudes: 1,854

Mode 1853: Observability



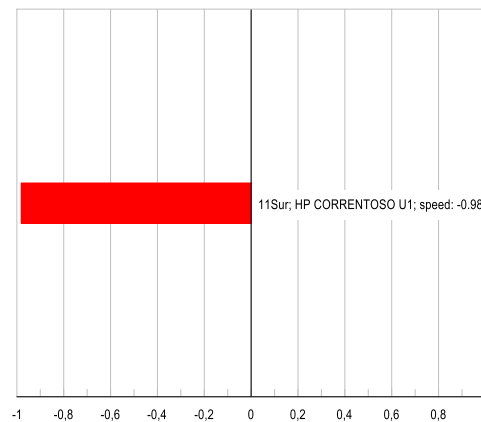
Eigenvalue of mode: $-0.865 + 8.793j$
Magnitude: 8,835 1/s, Angle: 95,620 deg
Period: 0,715 s, Frequency: 1,399 Hz
Damping: 0,865 1/s, Ratio of Amplitudes: 1,856

Mode 2108: Participation



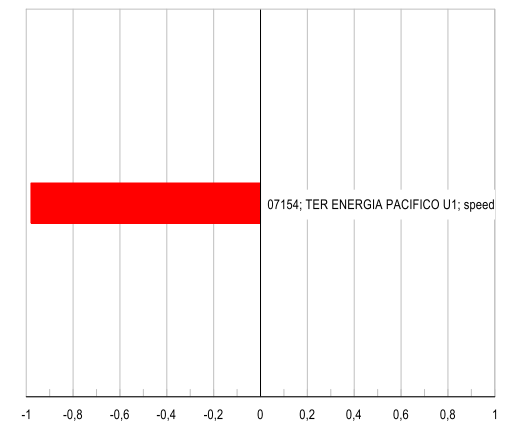
Eigenvalue of mode: $-1.089 + 11.113j$
Magnitude: 11,167 1/s, Angle: 95,598 deg
Period: 0.565 s, Frequency: 1,769 Hz
Damping: 1,089 1/s, Ratio of Amplitudes: 1,851

Mode 2083: Participation



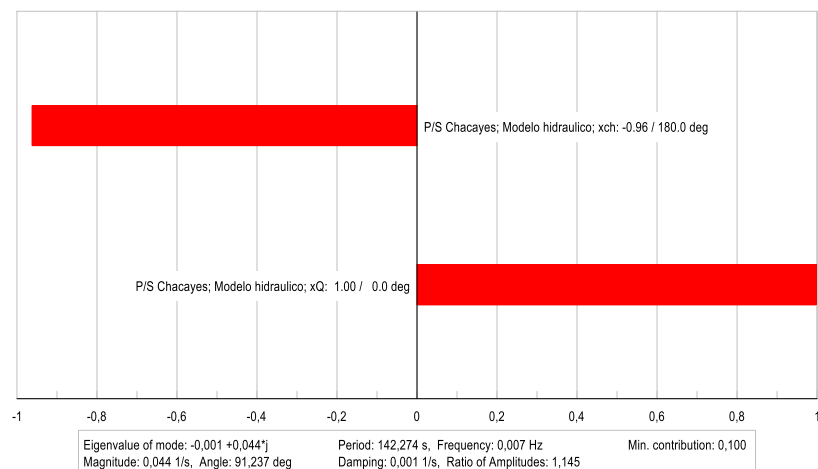
Eigenvalue of mode: $-1.022 + 10.399j$
Magnitude: 10,449 1/s, Angle: 95,612 deg
Period: 0,604 s, Frequency: 1,655 Hz
Damping: 1,022 1/s, Ratio of Amplitudes: 1,854

Mode 1853: Participation

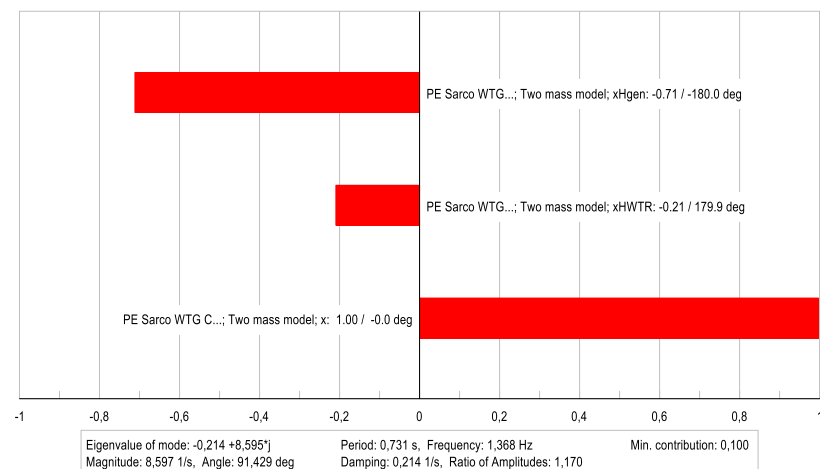


Eigenvalue of mode: $-0.865 + 8.793j$
Magnitude: 8,835 1/s, Angle: 95,620 deg
Period: 0,715 s, Frequency: 1,399 Hz
Damping: 0,865 1/s, Ratio of Amplitudes: 1,856

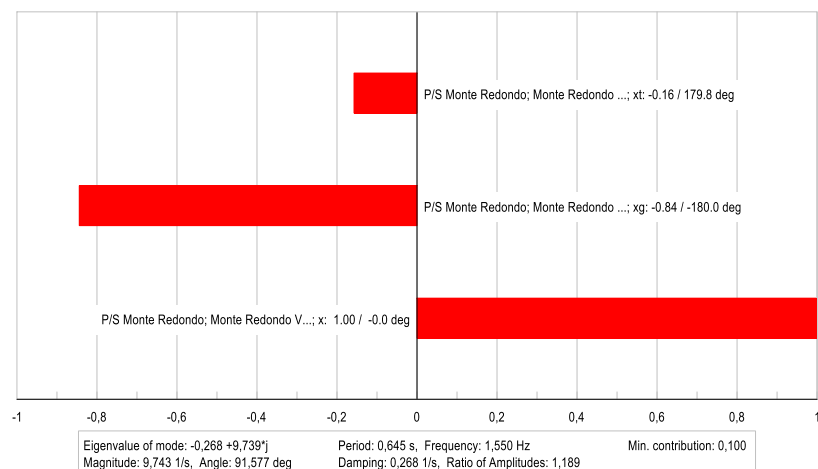
Mode 1003: Participation



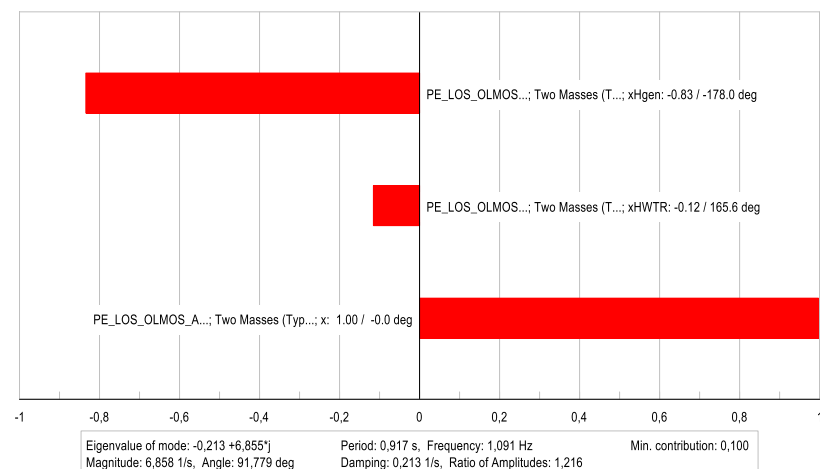
Mode 1383: Participation



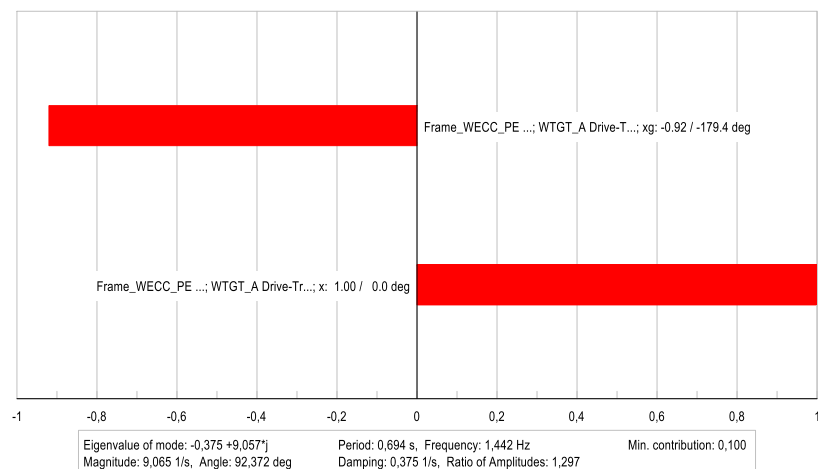
Mode 1434: Participation



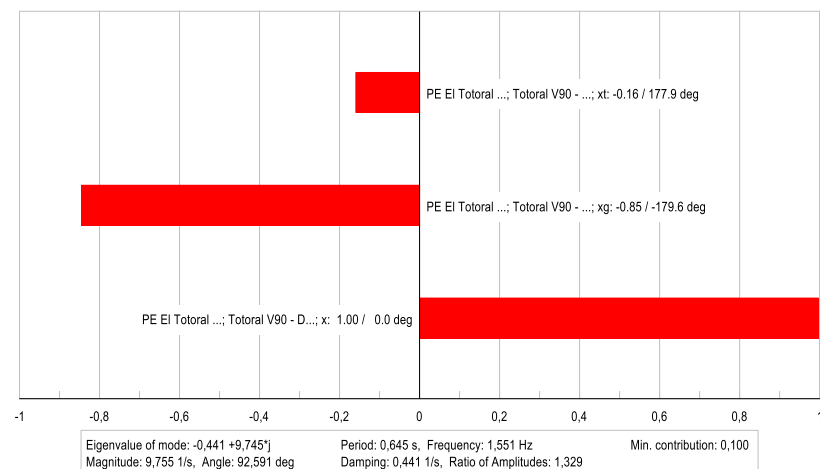
Mode 1381: Participation



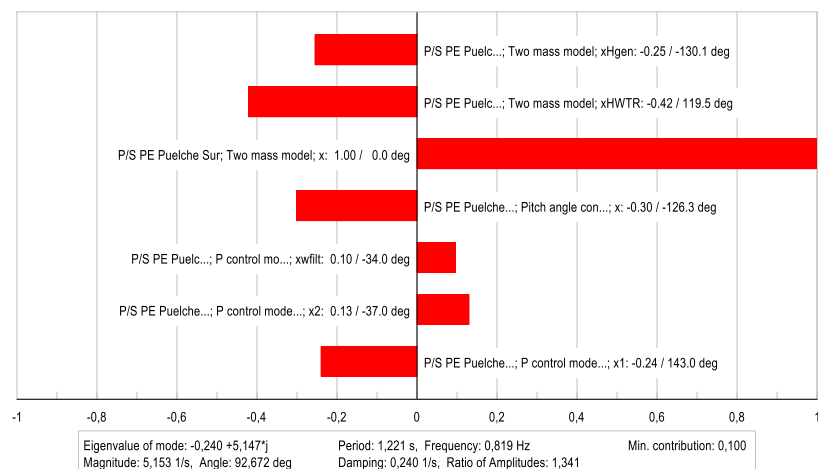
Mode 1497: Participation



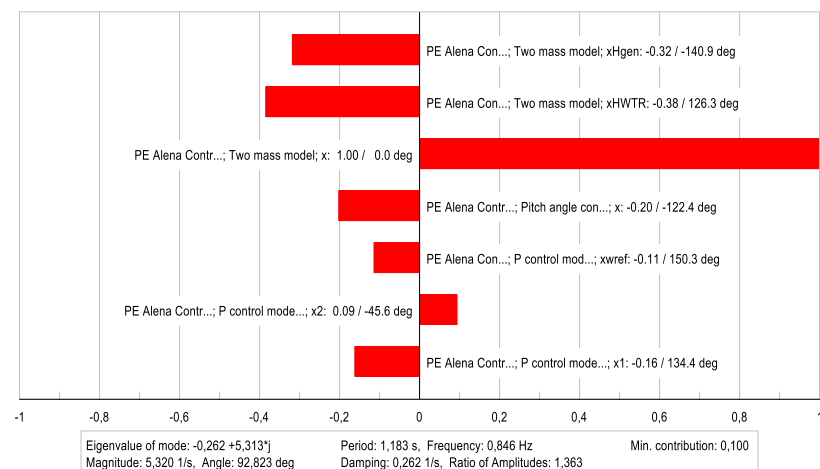
Mode 1532: Participation



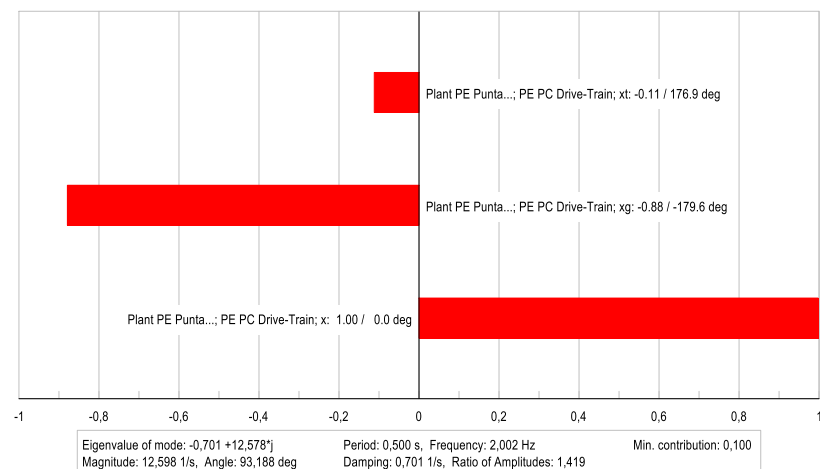
Mode 1397: Participation



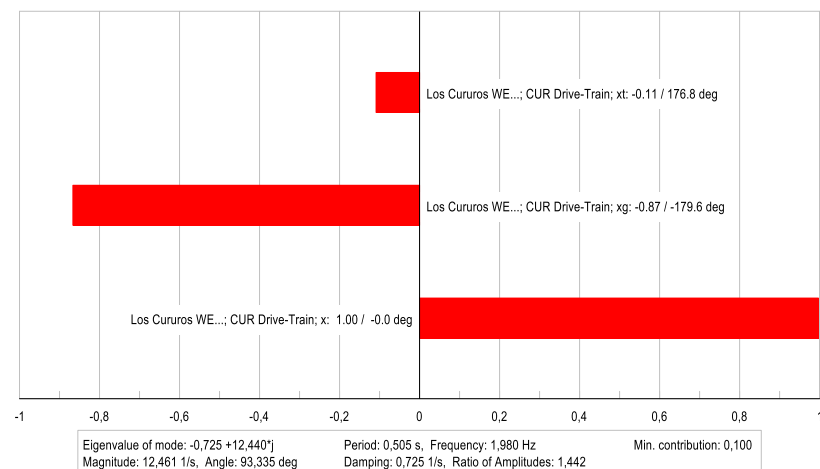
Mode 1429: Participation



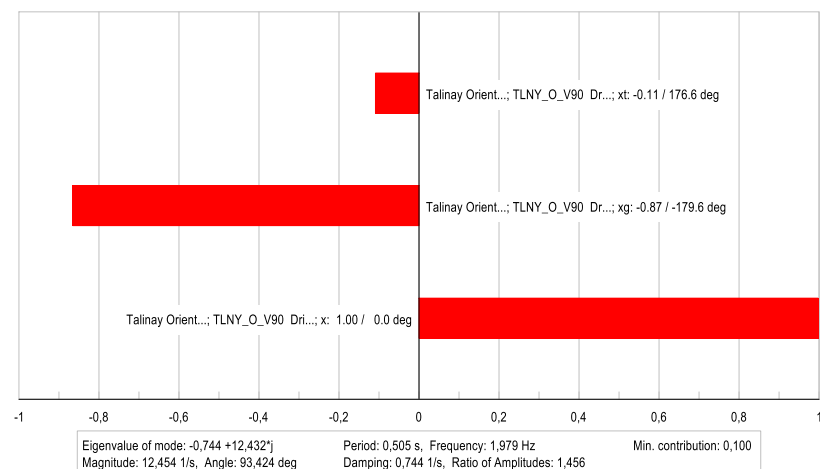
Mode 1756: Participation



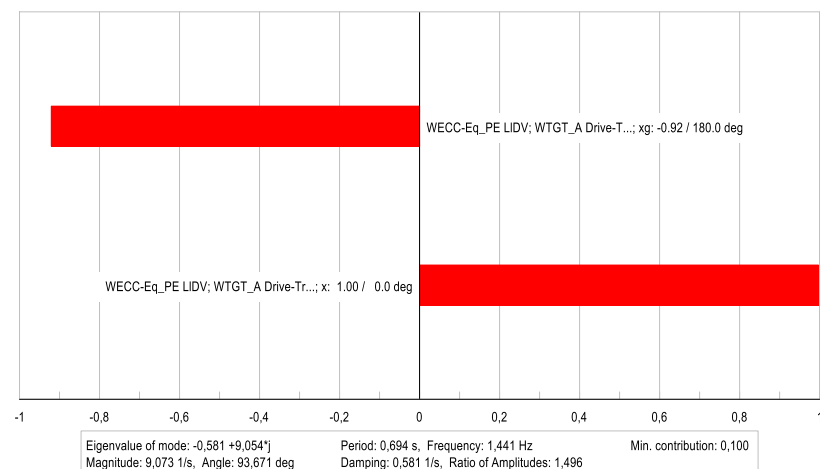
Mode 1772: Participation



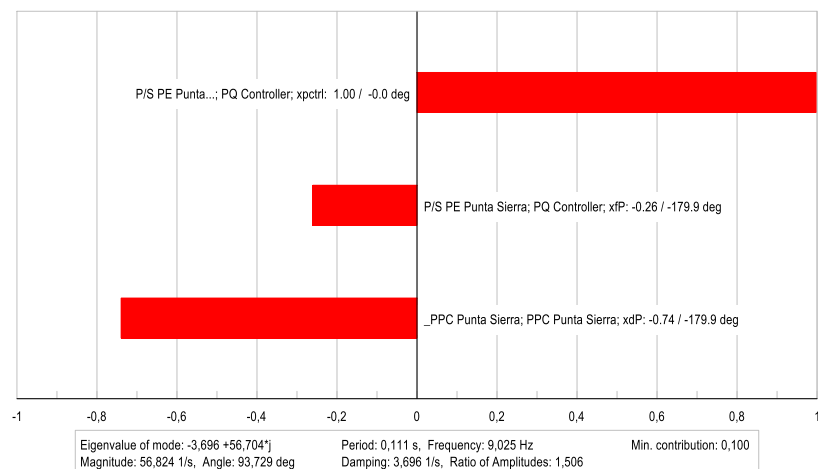
Mode 1776: Participation



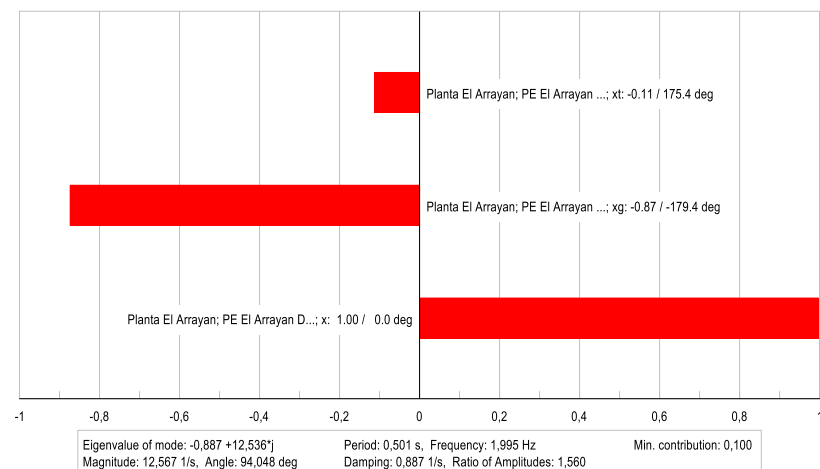
Mode 1695: Participation



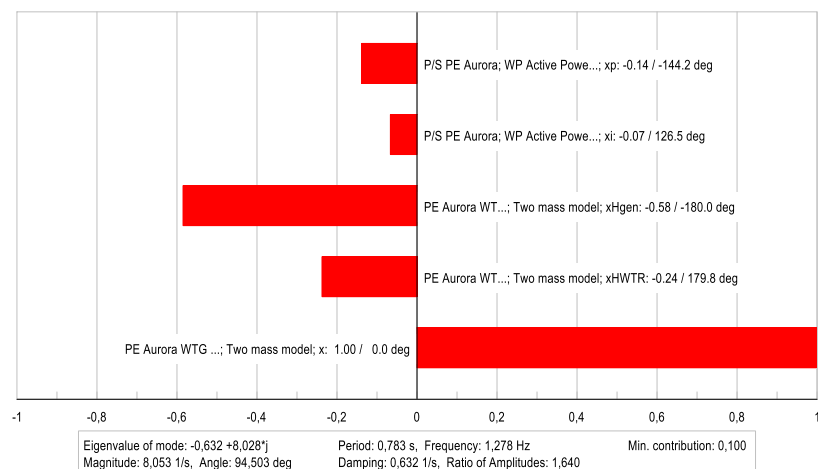
Mode 2588: Participation



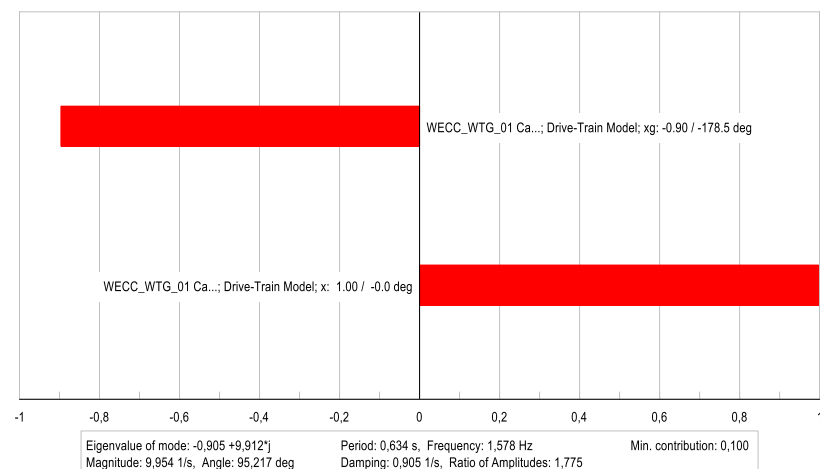
Mode 1875: Participation



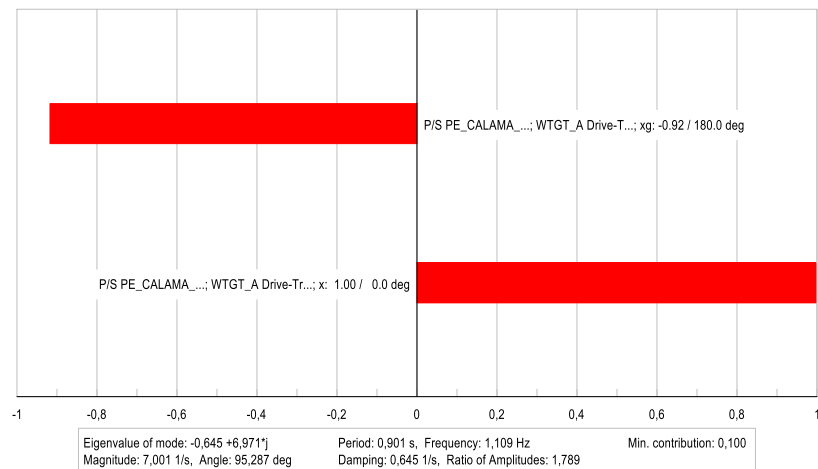
Mode 1723: Participation



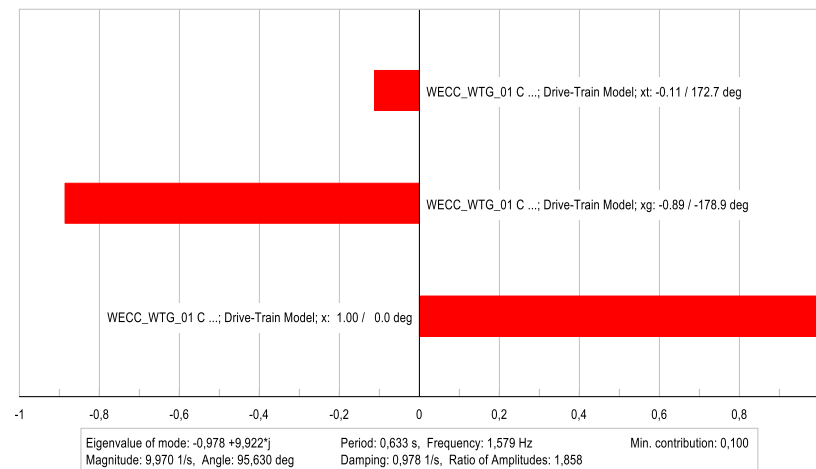
Mode 1888: Participation



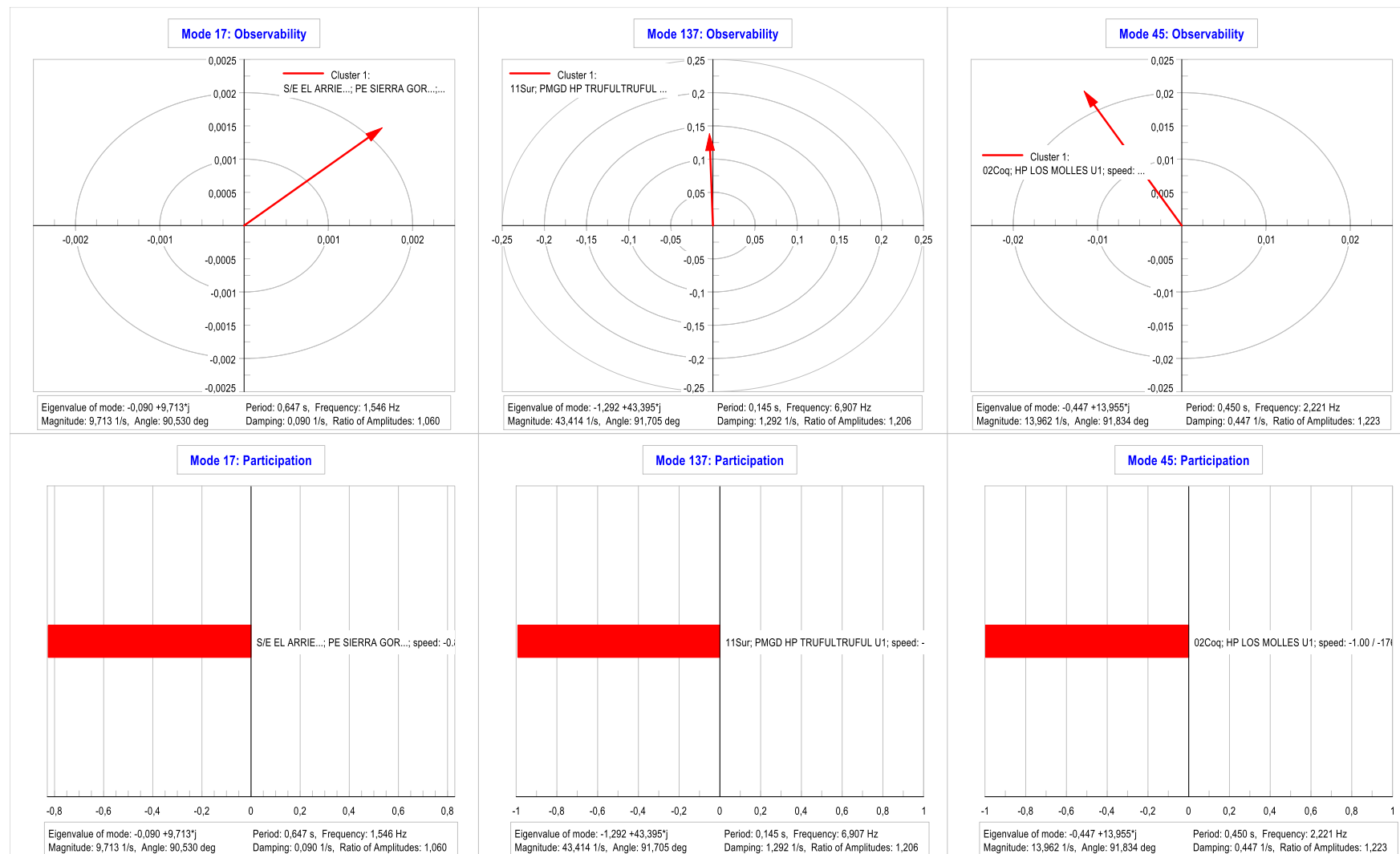
Mode 1727: Participation



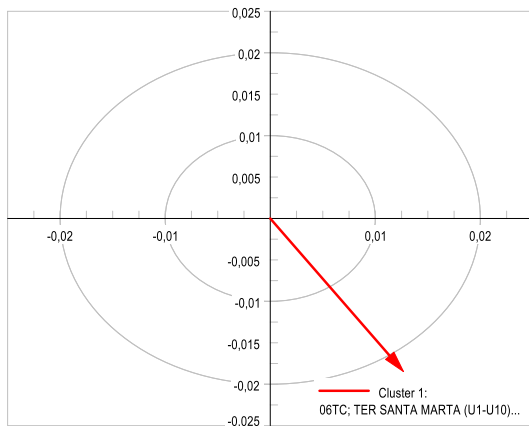
Mode 1921: Participation



15.1.2 Red N-1 Caso 1.- Changos Cumbres 500 kV

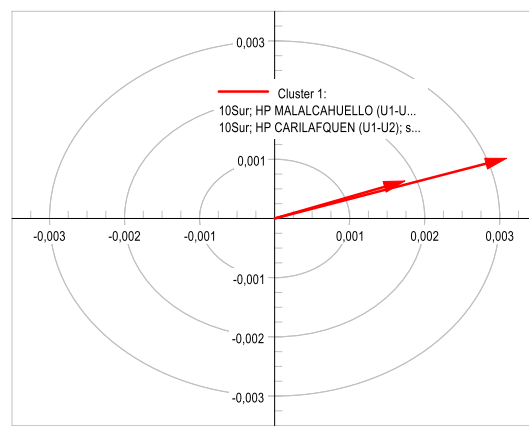


Mode 35: Observability



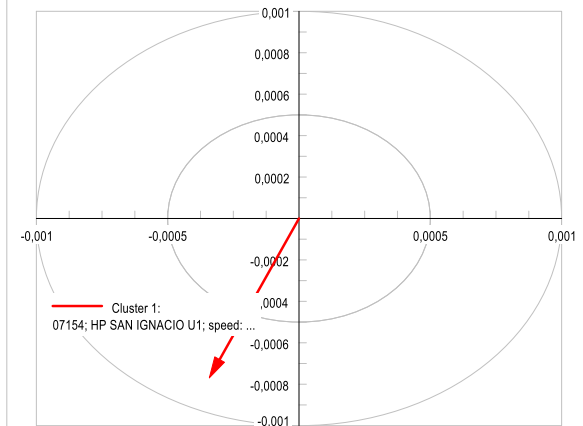
Eigenvalue of mode: $-0.271 + 7.045j$ Period: 0.892 s, Frequency: 1.121 Hz
Magnitude: 7.051 1/s, Angle: 92.206 deg Damping: 0.271 1/s, Ratio of Amplitudes: 1.274

Mode 29: Observability



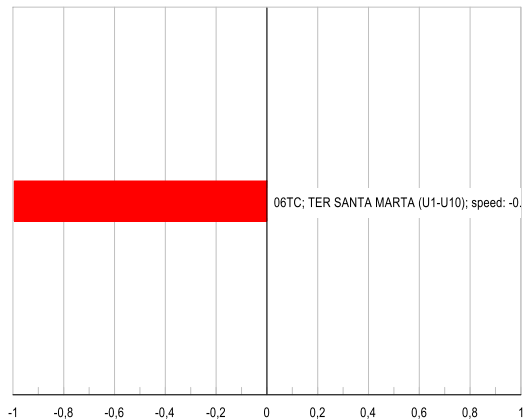
Eigenvalue of mode: $-0.256 + 5.432j$ Period: 1.157 s, Frequency: 0.864 Hz
Magnitude: 5.438 1/s, Angle: 92.698 deg Damping: 0.256 1/s, Ratio of Amplitudes: 1.345

Mode 47: Observability



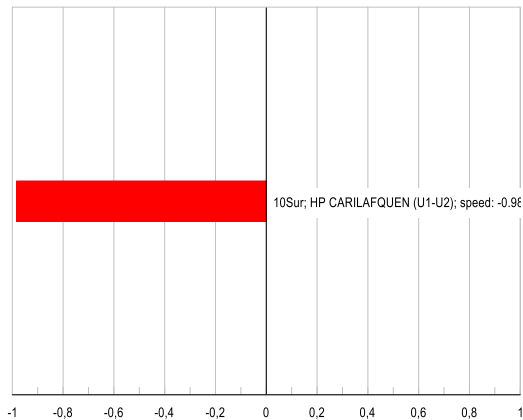
Eigenvalue of mode: $-0.450 + 8.693j$ Period: 0.723 s, Frequency: 1.383 Hz
Magnitude: 8.704 1/s, Angle: 92.965 deg Damping: 0.450 1/s, Ratio of Amplitudes: 1.385

Mode 35: Participation



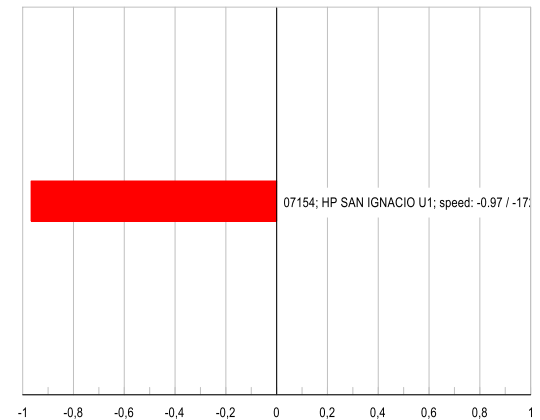
Eigenvalue of mode: $-0.271 + 7.045j$ Period: 0.892 s, Frequency: 1.121 Hz
Magnitude: 7.051 1/s, Angle: 92.206 deg Damping: 0.271 1/s, Ratio of Amplitudes: 1.274

Mode 29: Participation



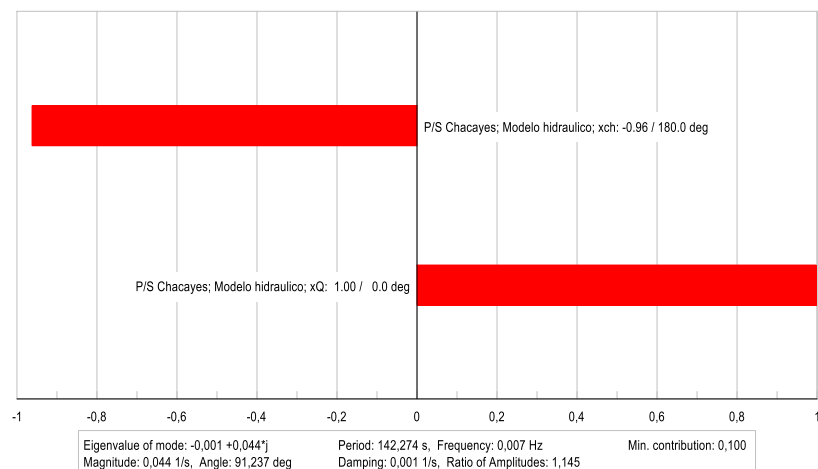
Eigenvalue of mode: $-0.256 + 5.432j$ Period: 1.157 s, Frequency: 0.864 Hz
Magnitude: 5.438 1/s, Angle: 92.698 deg Damping: 0.256 1/s, Ratio of Amplitudes: 1.345

Mode 47: Participation

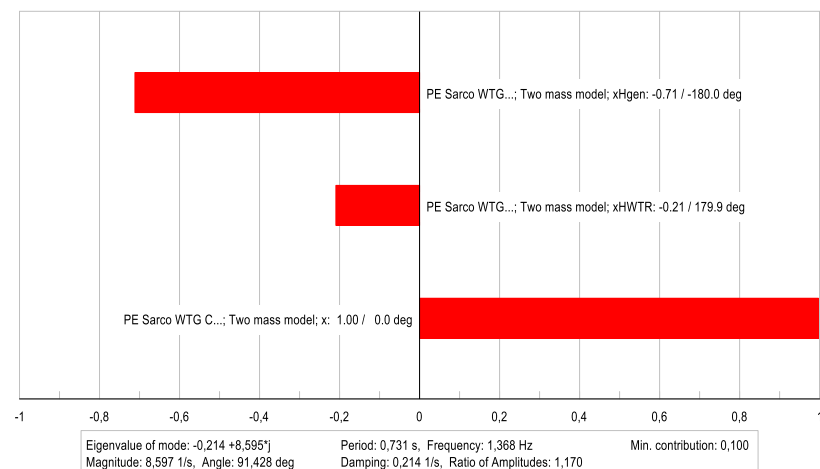


Eigenvalue of mode: $-0.450 + 8.693j$ Period: 0.723 s, Frequency: 1.383 Hz
Magnitude: 8.704 1/s, Angle: 92.965 deg Damping: 0.450 1/s, Ratio of Amplitudes: 1.385

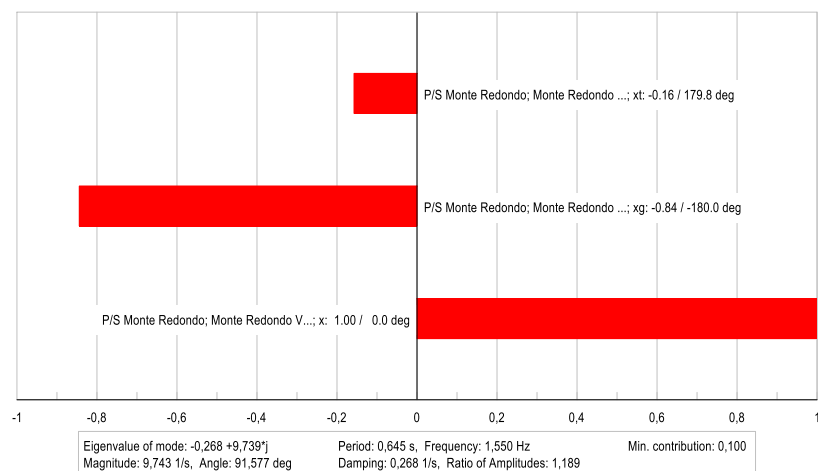
Mode 15: Participation



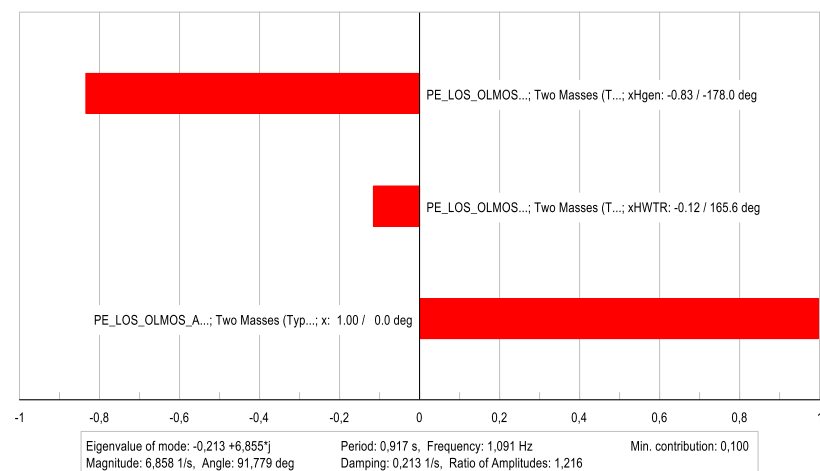
Mode 25: Participation



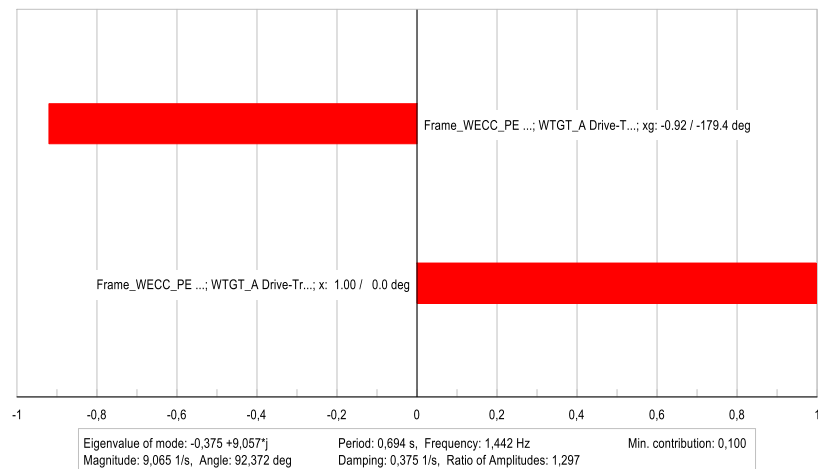
Mode 33: Participation



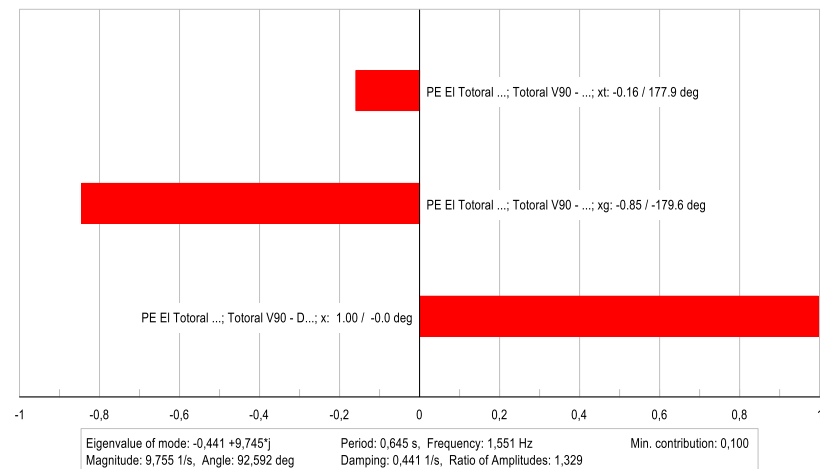
Mode 23: Participation



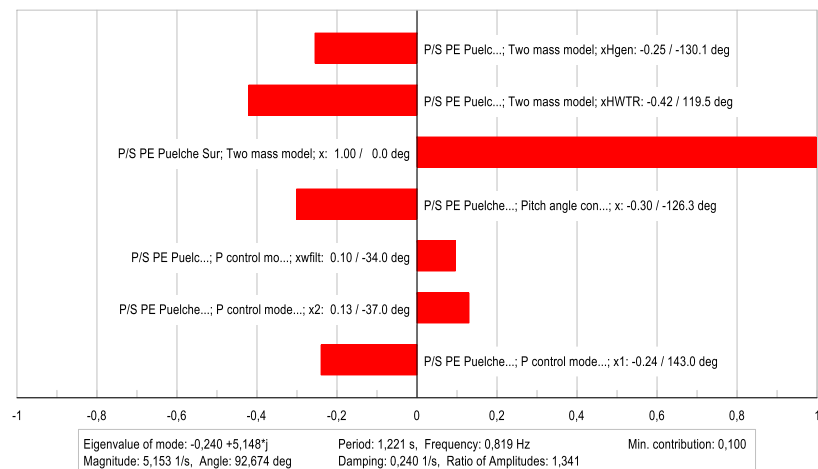
Mode 41: Participation



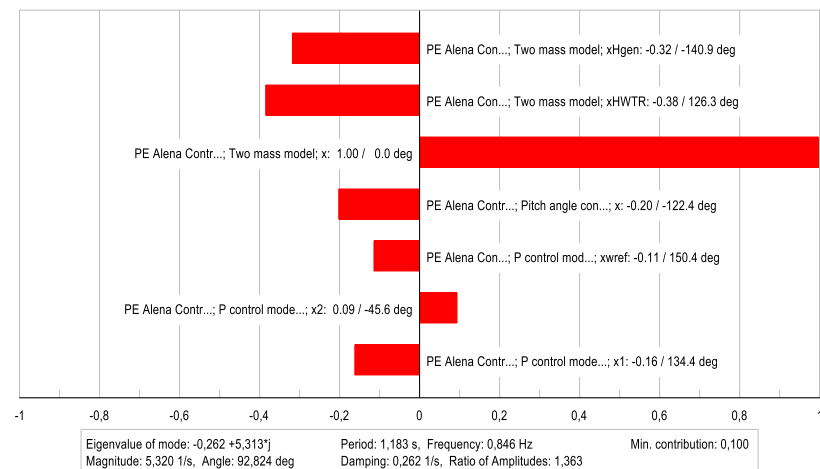
Mode 43: Participation

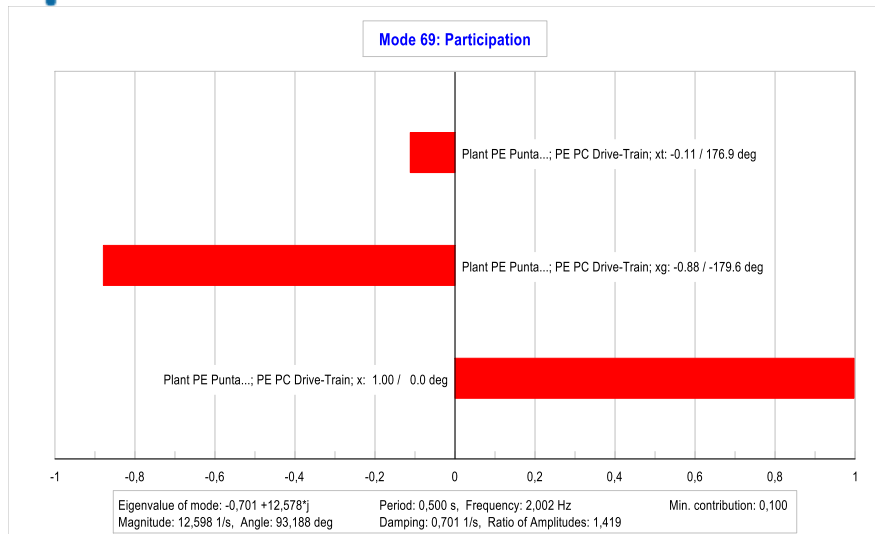


Mode 27: Participation

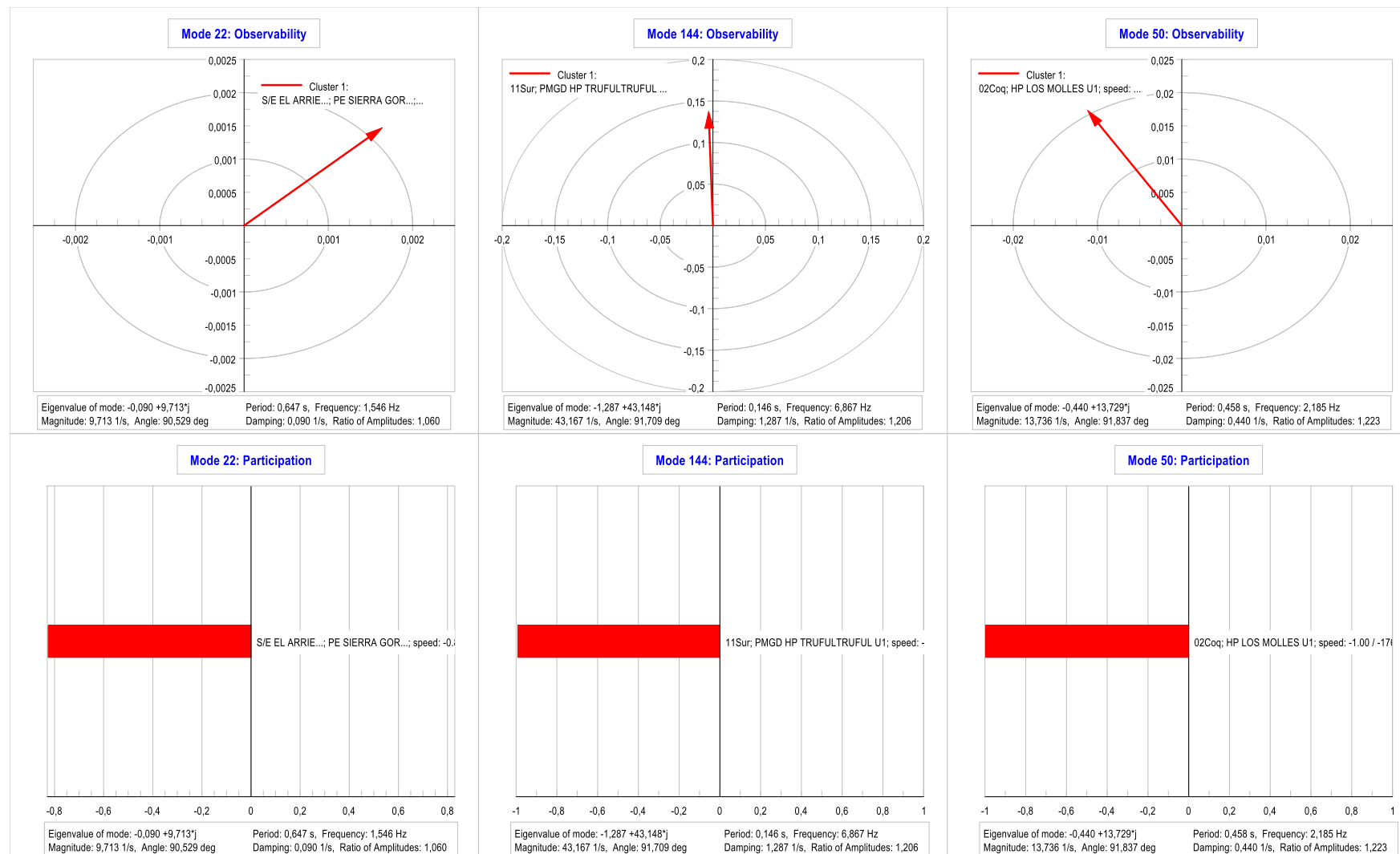


Mode 31: Participation

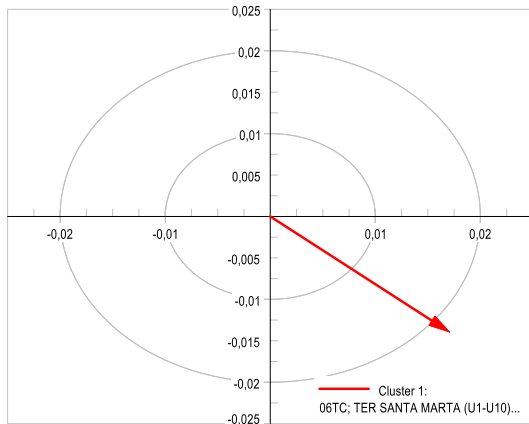




15.1.3 Red N-1 Caso 2.- Nueva Pan de Azúcar - Polpaico 500kV

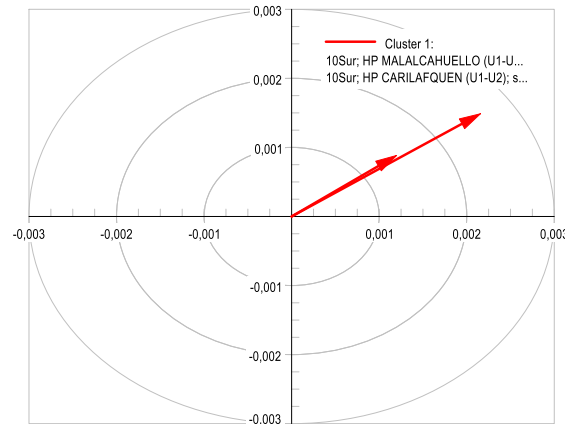


Mode 38: Observability



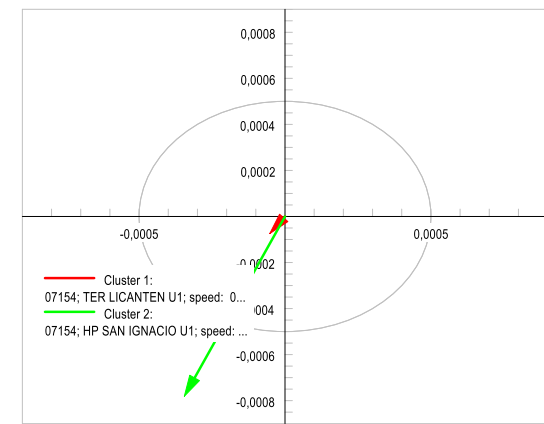
Eigenvalue of mode: $-0,264 + 6,929j$ Period: 0,907 s, Frequency: 1,103 Hz
Magnitude: 6,934 1/s, Angle: 92,185 deg Damping: 0,264 1/s, Ratio of Amplitudes: 1,271

Mode 34: Observability



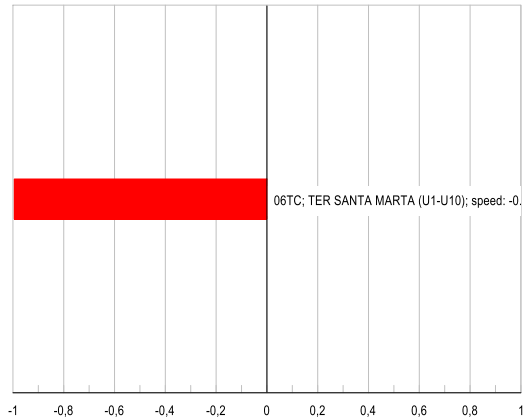
Eigenvalue of mode: $-0,254 + 5,432j$ Period: 1,157 s, Frequency: 0,865 Hz
Magnitude: 5,438 1/s, Angle: 92,673 deg Damping: 0,254 1/s, Ratio of Amplitudes: 1,341

Mode 48: Observability



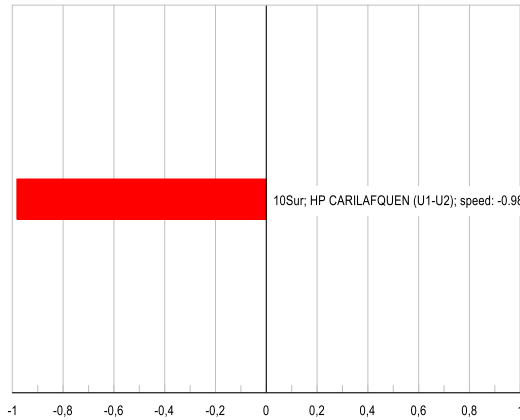
Eigenvalue of mode: $-0,432 + 8,778j$ Period: 0,716 s, Frequency: 1,397 Hz
Magnitude: 8,789 1/s, Angle: 92,817 deg Damping: 0,432 1/s, Ratio of Amplitudes: 1,362

Mode 38: Participation



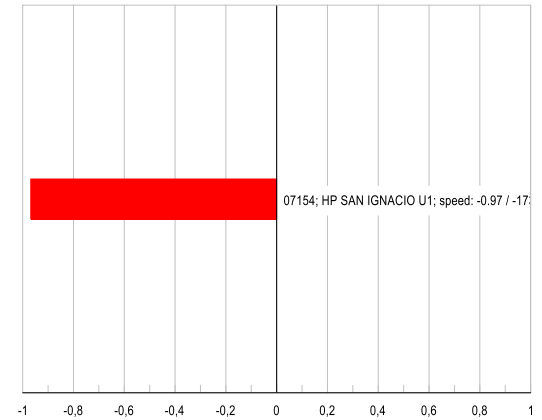
Eigenvalue of mode: $-0,264 + 6,929j$ Period: 0,907 s, Frequency: 1,103 Hz
Magnitude: 6,934 1/s, Angle: 92,185 deg Damping: 0,264 1/s, Ratio of Amplitudes: 1,271

Mode 34: Participation



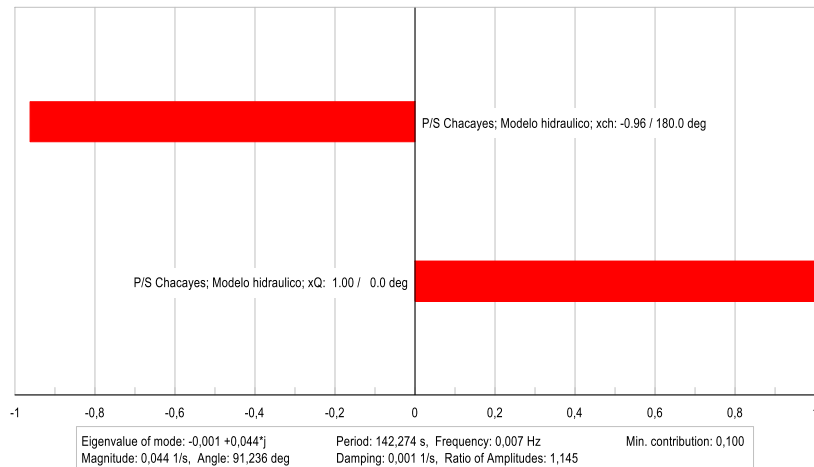
Eigenvalue of mode: $-0,254 + 5,432j$ Period: 1,157 s, Frequency: 0,865 Hz
Magnitude: 5,438 1/s, Angle: 92,673 deg Damping: 0,254 1/s, Ratio of Amplitudes: 1,341

Mode 48: Participation

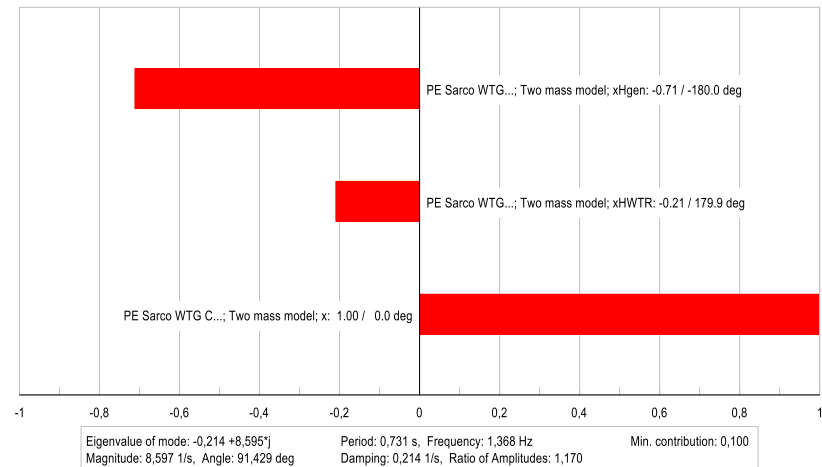


Eigenvalue of mode: $-0,432 + 8,778j$ Period: 0,716 s, Frequency: 1,397 Hz
Magnitude: 8,789 1/s, Angle: 92,817 deg Damping: 0,432 1/s, Ratio of Amplitudes: 1,362

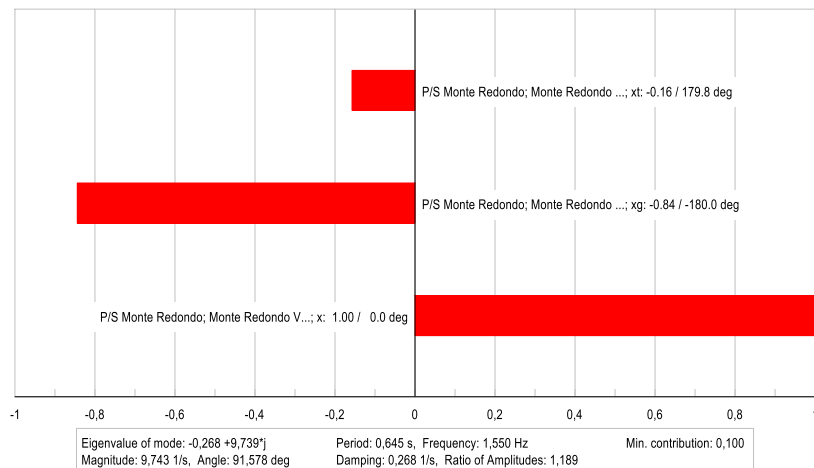
Mode 20: Participation



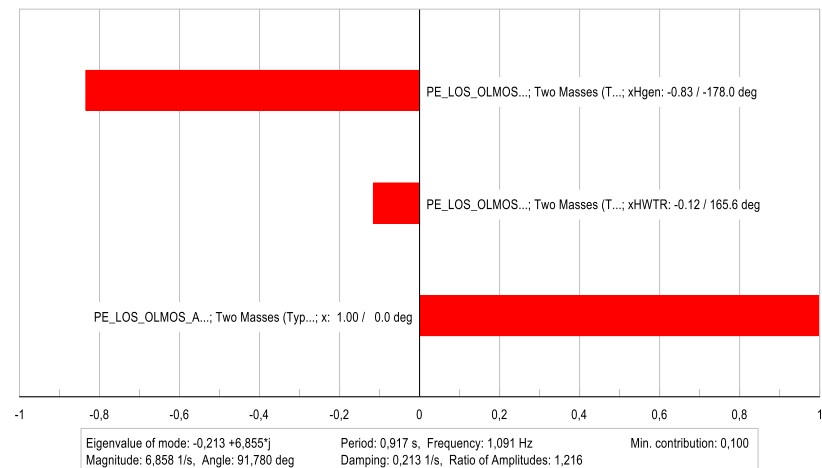
Mode 30: Participation



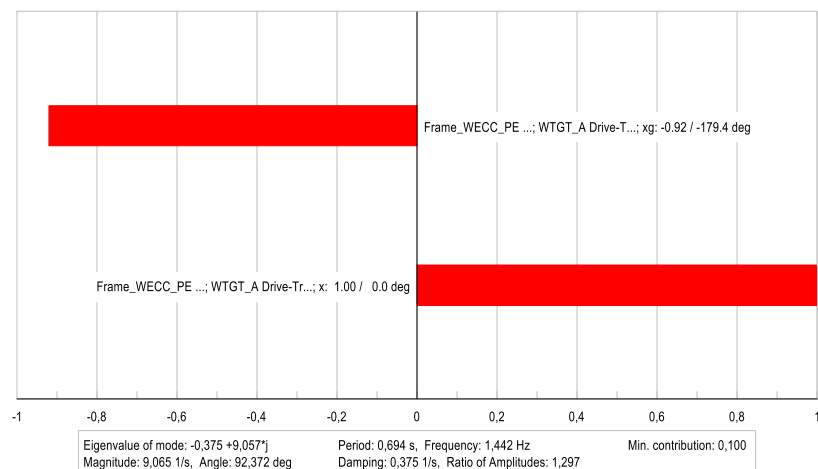
Mode 40: Participation



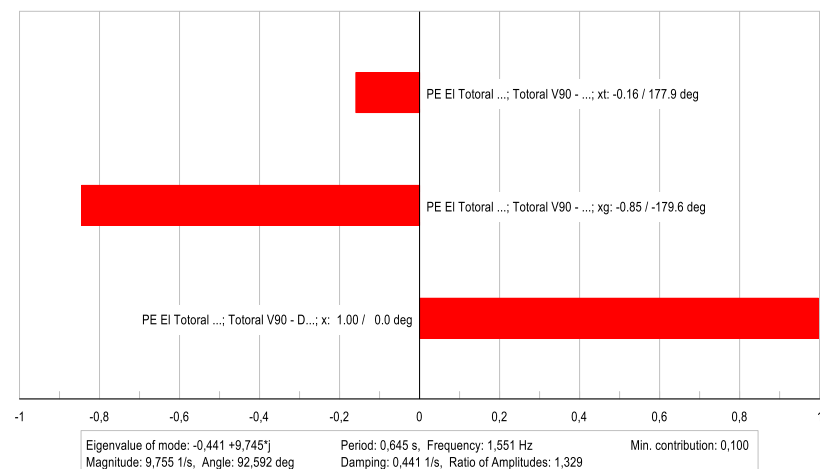
Mode 28: Participation



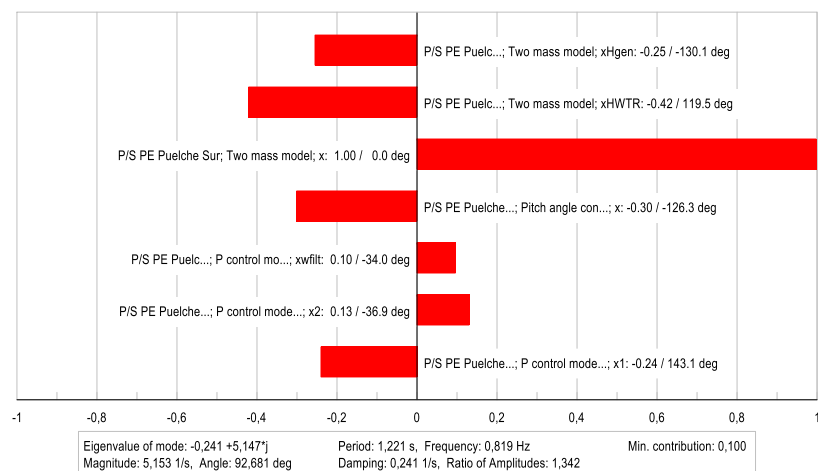
Mode 44: Participation



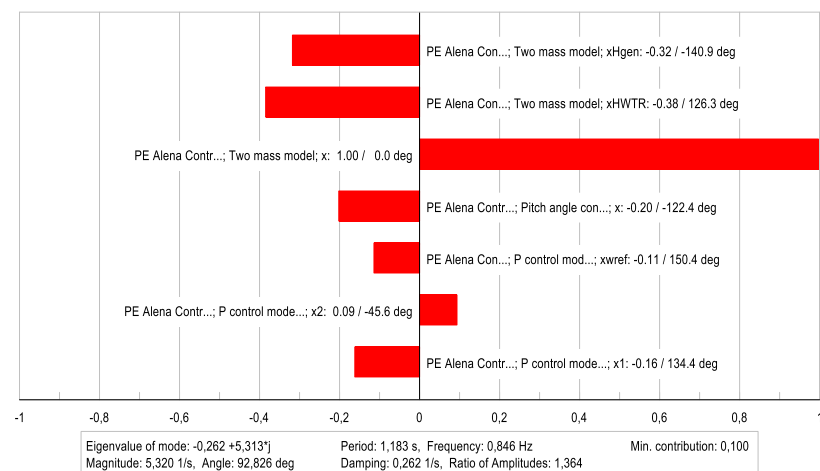
Mode 52: Participation



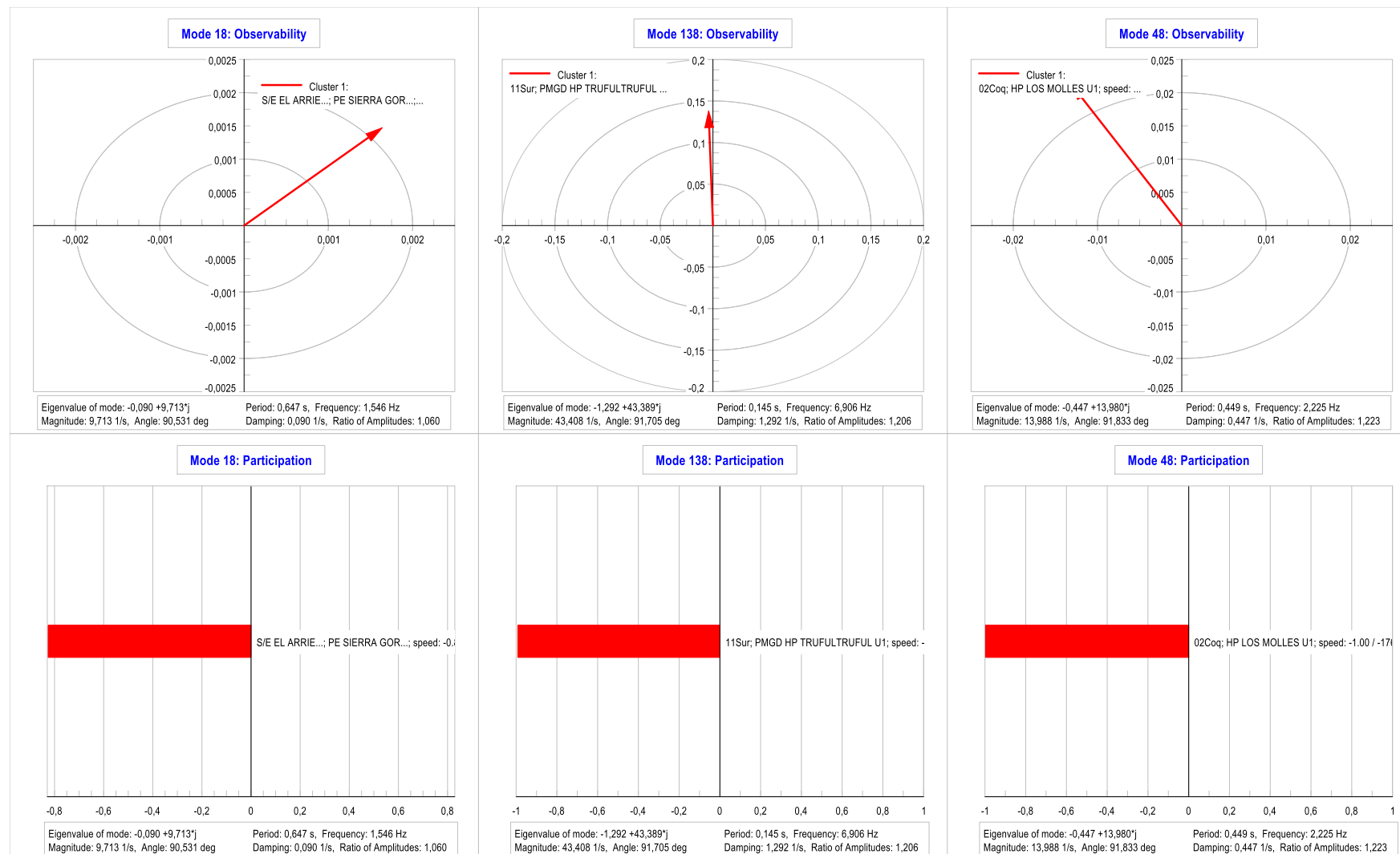
Mode 32: Participation



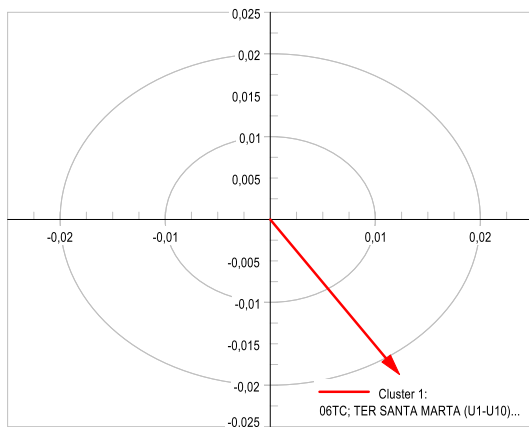
Mode 36: Participation



15.1.4 Red N-1 Caso 3.- Charrúa - Ancoa 500kV

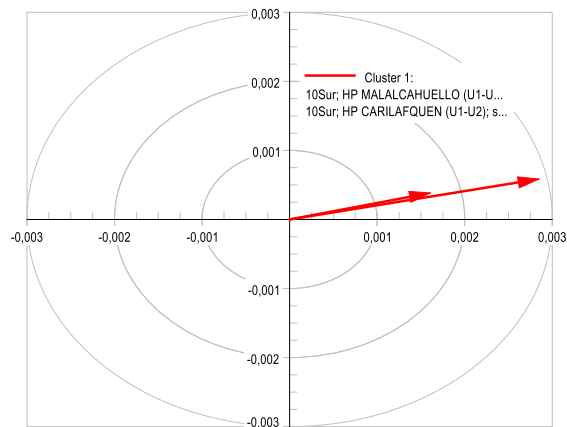


Mode 36: Observability



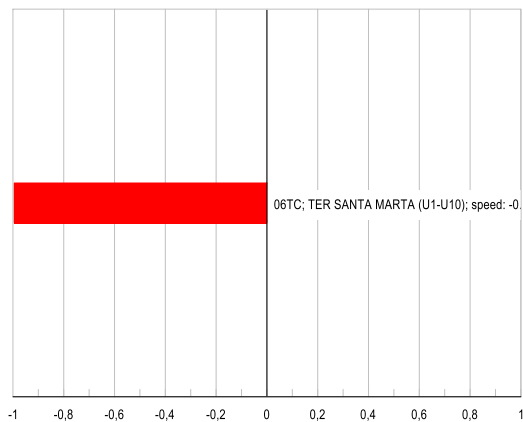
Eigenvalue of mode: $-0,271 + 7,042j$ Period: 0,892 s, Frequency: 1,121 Hz
Magnitude: 7,048 1/s, Angle: 92,204 deg Damping: 0,271 1/s, Ratio of Amplitudes: 1,274

Mode 30: Observability



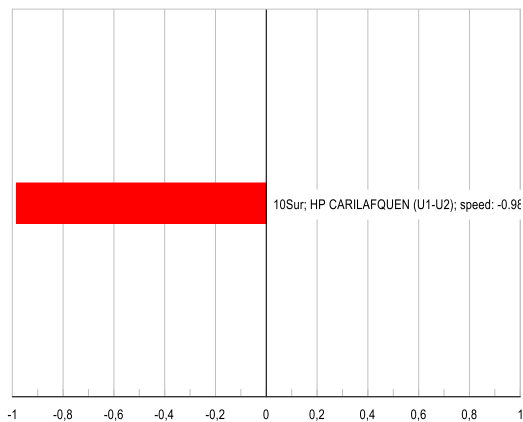
Eigenvalue of mode: $-0,258 + 5,429j$ Period: 1,157 s, Frequency: 0,864 Hz
Magnitude: 5,435 1/s, Angle: 92,716 deg Damping: 0,258 1/s, Ratio of Amplitudes: 1,347

Mode 36: Participation



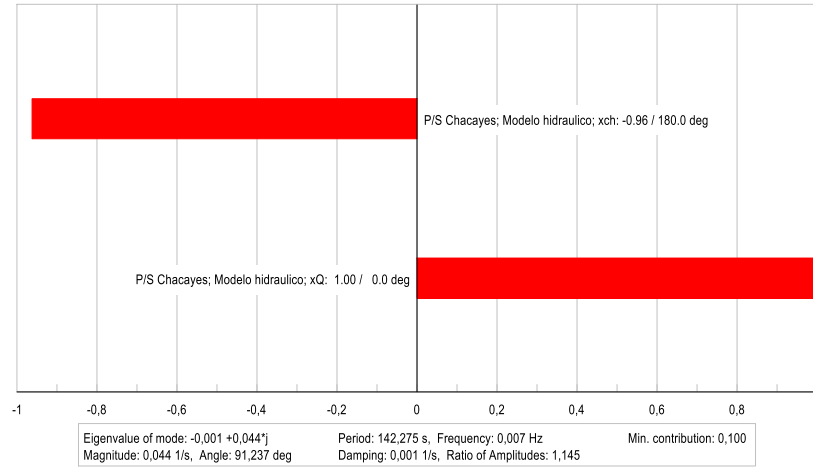
Eigenvalue of mode: $-0,271 + 7,042j$ Period: 0,892 s, Frequency: 1,121 Hz
Magnitude: 7,048 1/s, Angle: 92,204 deg Damping: 0,271 1/s, Ratio of Amplitudes: 1,274

Mode 30: Participation

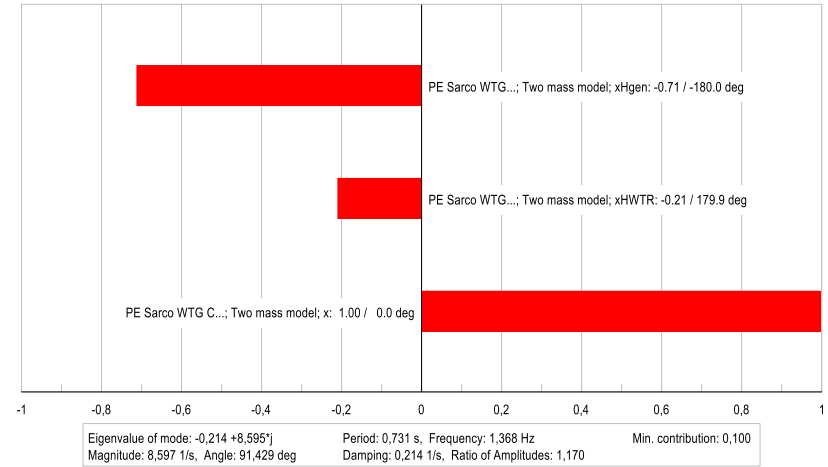


Eigenvalue of mode: $-0,258 + 5,429j$ Period: 1,157 s, Frequency: 0,864 Hz
Magnitude: 5,435 1/s, Angle: 92,716 deg Damping: 0,258 1/s, Ratio of Amplitudes: 1,347

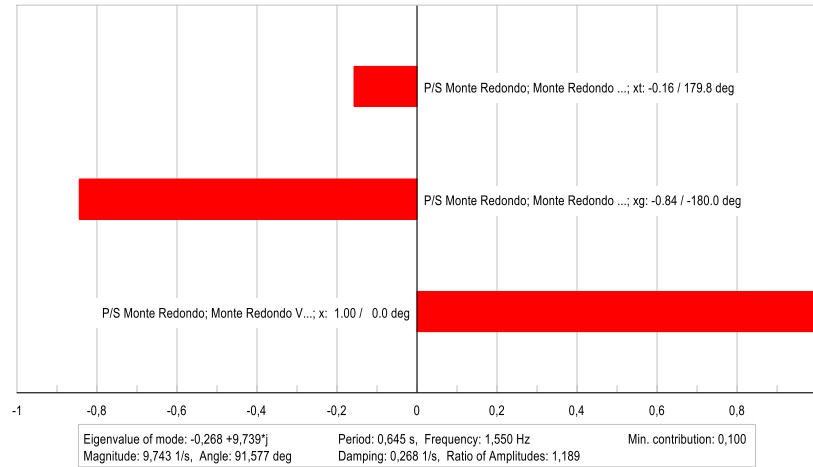
Mode 16: Participation



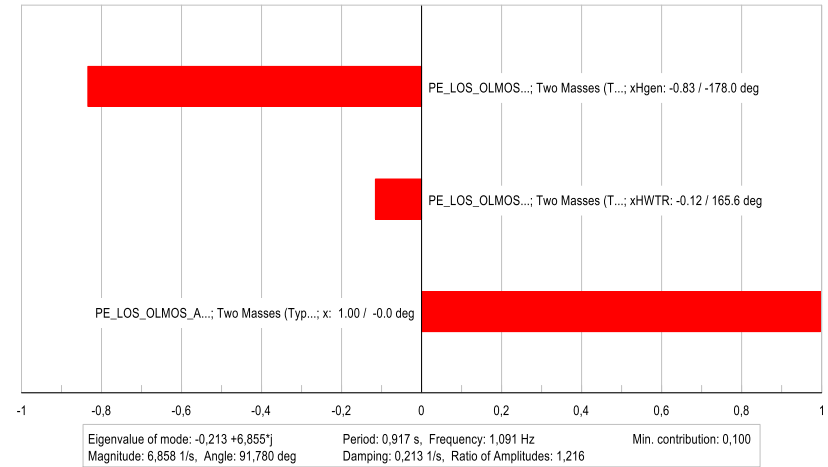
Mode 26: Participation



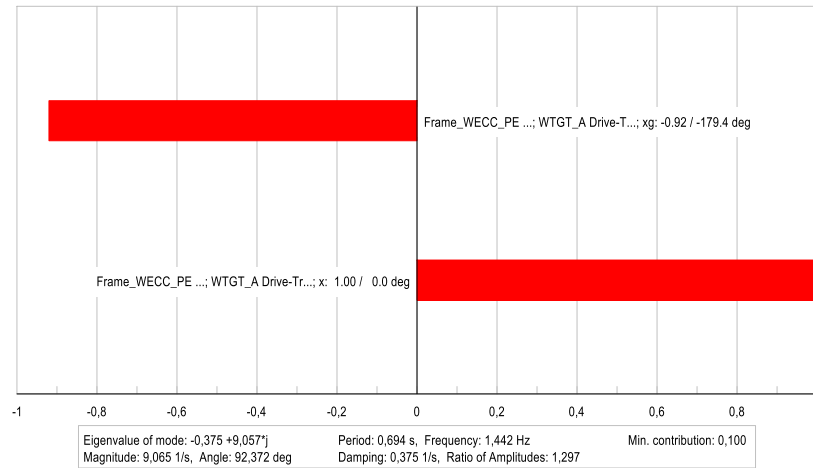
Mode 34: Participation



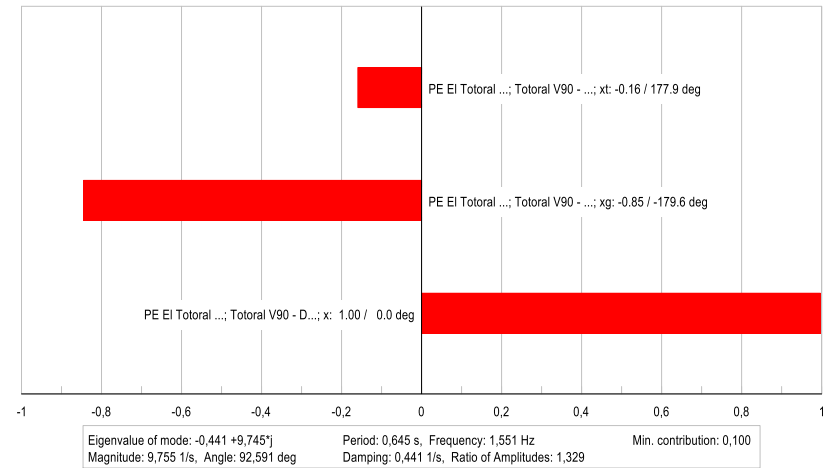
Mode 24: Participation



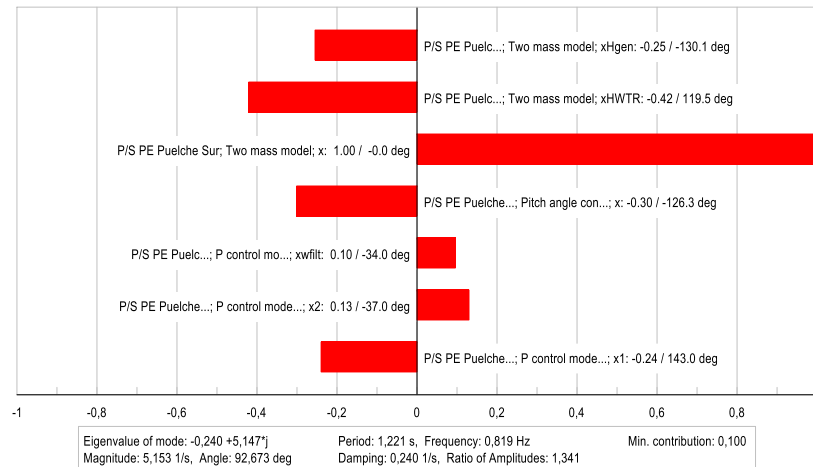
Mode 42: Participation



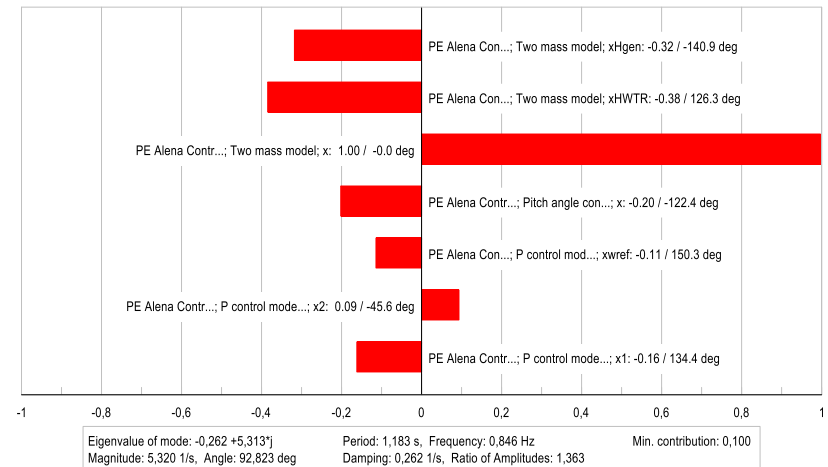
Mode 44: Participation



Mode 28: Participation

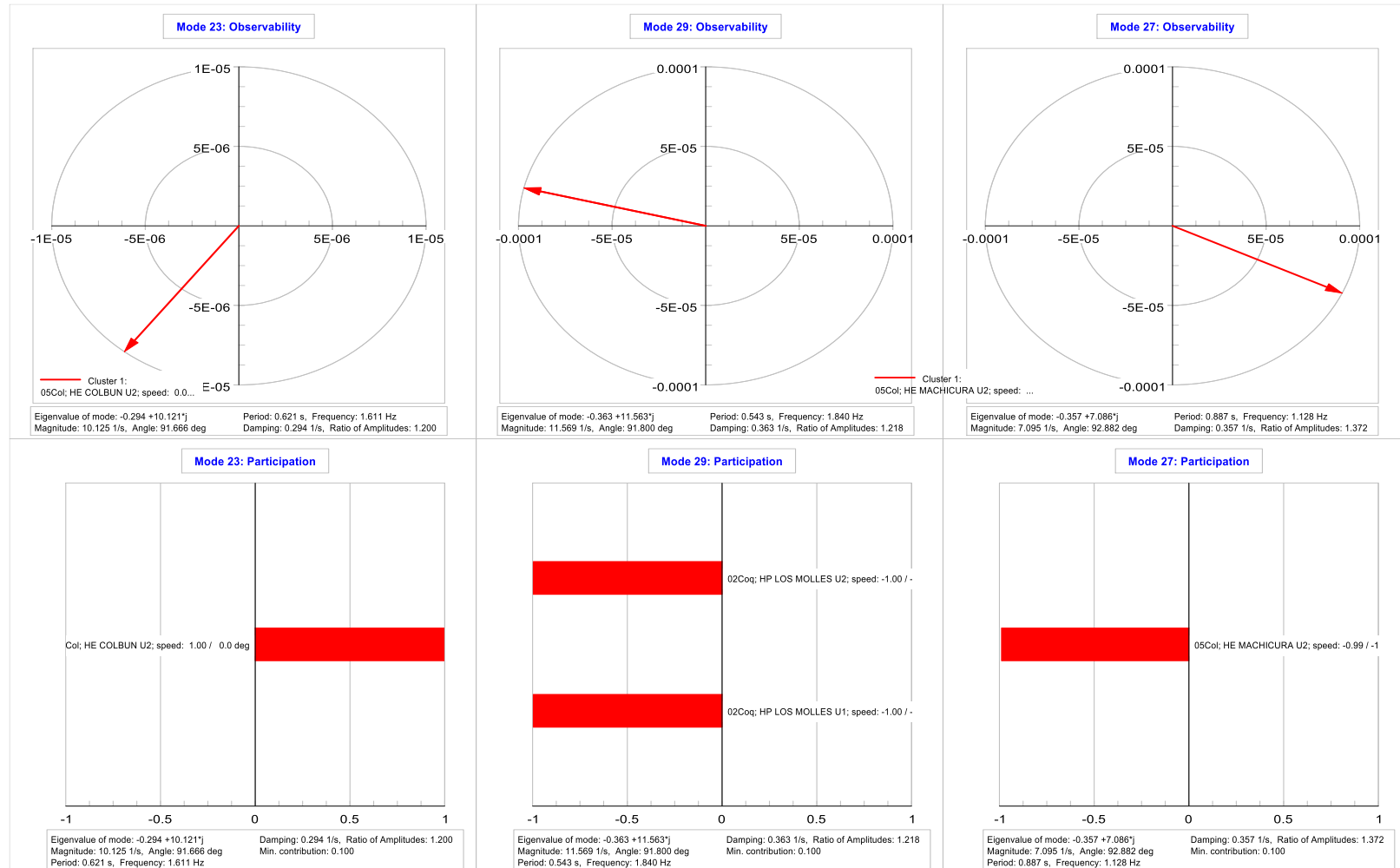


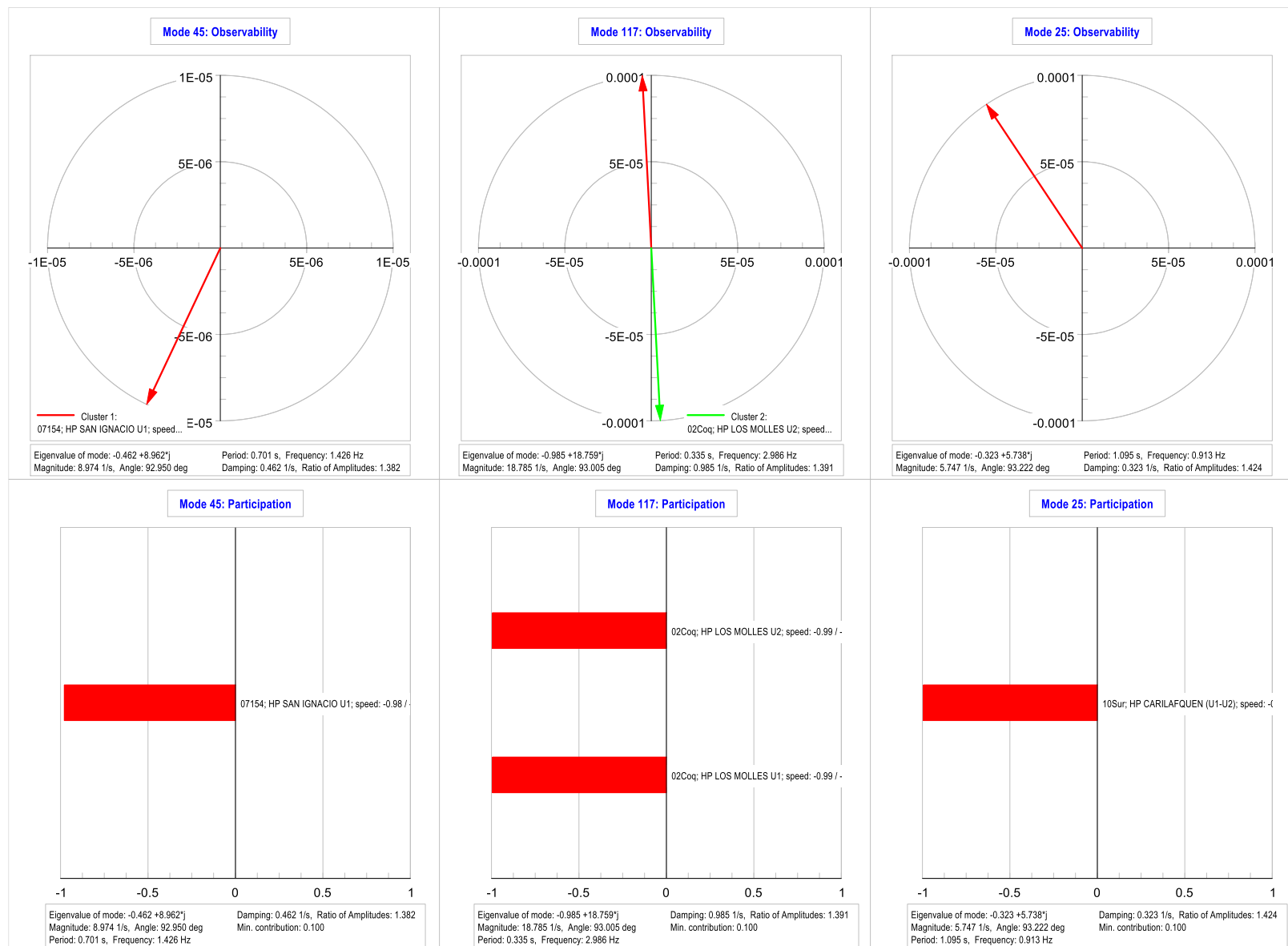
Mode 32: Participation



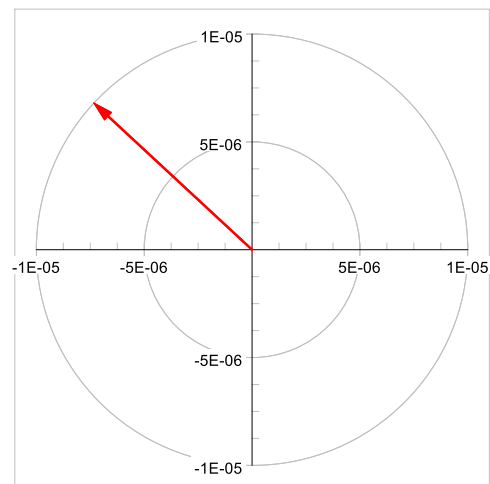
15.2 Escenario E2 DA noche Dic2024

15.2.1 Red N



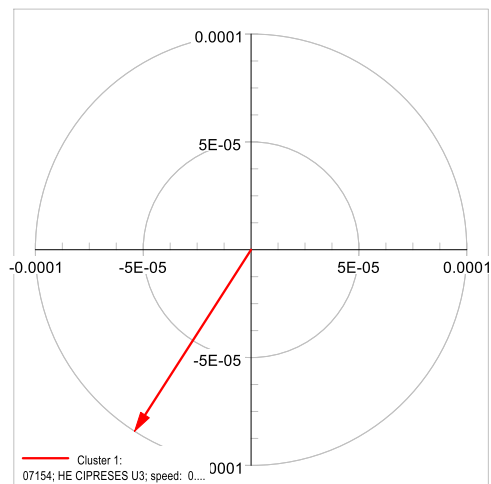


Mode 135: Observability



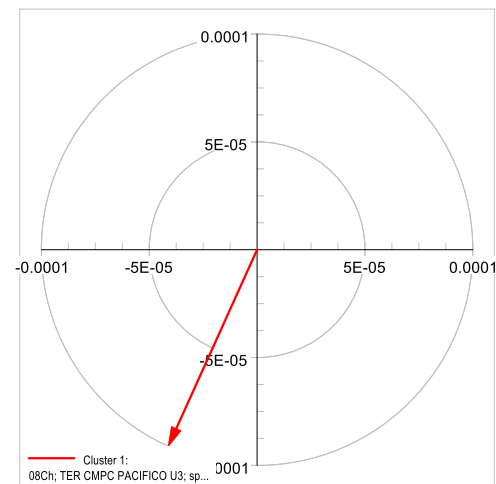
Eigenvalue of mode: $-1.032 + 15.719j$ Period: 0.400 s, Frequency: 2.502 Hz
Magnitude: 15.752 1/s, Angle: 93.756 deg Damping: 1.032 1/s, Ratio of Amplitudes: 1.511

Mode 57: Observability



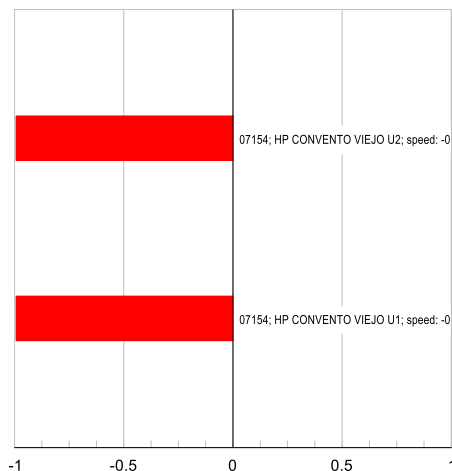
Eigenvalue of mode: $-0.554 + 8.344j$ Period: 0.753 s, Frequency: 1.328 Hz
Magnitude: 8.362 1/s, Angle: 93.796 deg Damping: 0.554 1/s, Ratio of Amplitudes: 1.517

Mode 73: Observability



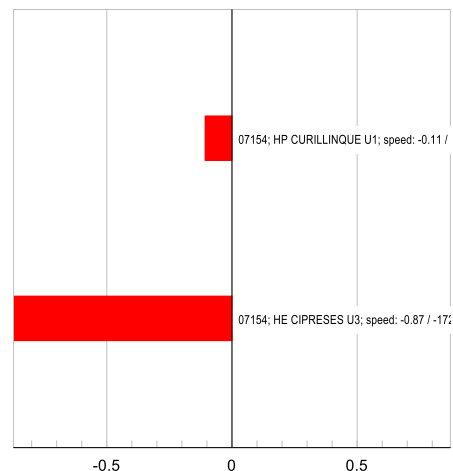
Eigenvalue of mode: $-0.727 + 10.726j$ Period: 0.586 s, Frequency: 1.707 Hz
Magnitude: 10.751 1/s, Angle: 93.876 deg Damping: 0.727 1/s, Ratio of Amplitudes: 1.531

Mode 135: Participation



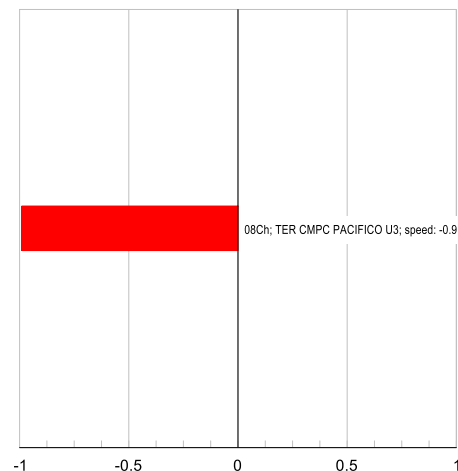
Eigenvalue of mode: $-1.032 + 15.719j$ Damping: 1.032 1/s, Ratio of Amplitudes: 1.511
Magnitude: 15.752 1/s, Angle: 93.756 deg Min. contribution: 0.100
Period: 0.400 s, Frequency: 2.502 Hz

Mode 57: Participation



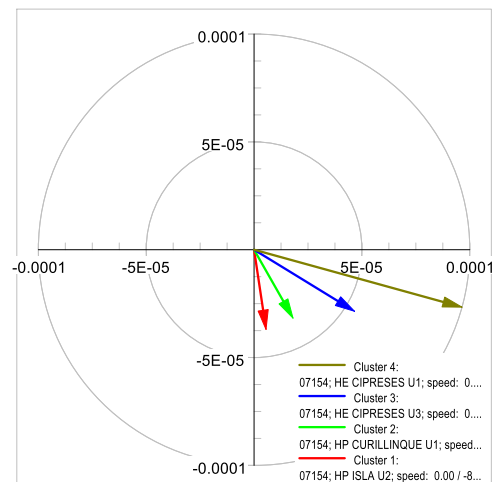
Eigenvalue of mode: $-0.554 + 8.344j$ Damping: 0.554 1/s, Ratio of Amplitudes: 1.517
Magnitude: 8.362 1/s, Angle: 93.796 deg Min. contribution: 0.100
Period: 0.753 s, Frequency: 1.328 Hz

Mode 73: Participation



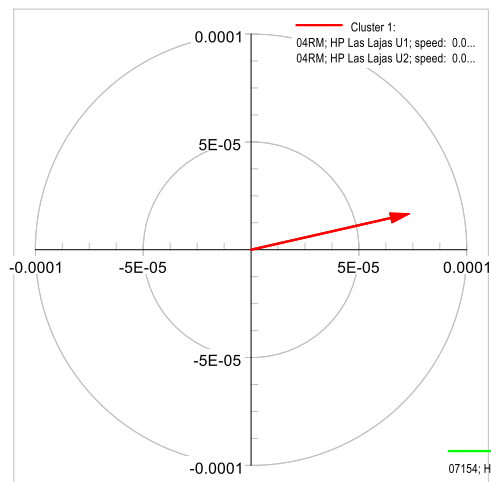
Eigenvalue of mode: $-0.727 + 10.726j$ Damping: 0.727 1/s, Ratio of Amplitudes: 1.531
Magnitude: 10.751 1/s, Angle: 93.876 deg Min. contribution: 0.100
Period: 0.586 s, Frequency: 1.707 Hz

Mode 49: Observability



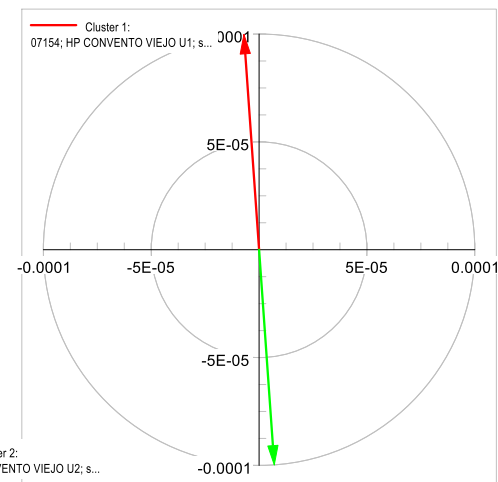
Eigenvalue of mode: $-0.492 + 7.151j$ Period: 0.879 s, Frequency: 1.138 Hz
Magnitude: 7.168 1/s, Angle: 93.933 deg Damping: 0.492 1/s, Ratio of Amplitudes: 1.540

Mode 31: Observability



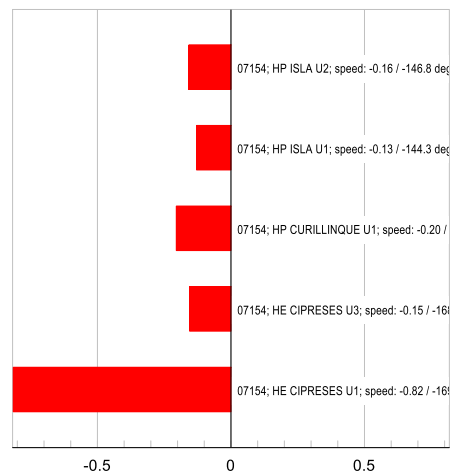
Eigenvalue of mode: $-0.369 + 5.281j$ Period: 1.190 s, Frequency: 0.840 Hz
Magnitude: 5.294 1/s, Angle: 93.998 deg Damping: 0.369 1/s, Ratio of Amplitudes: 1.551

Mode 165: Observability



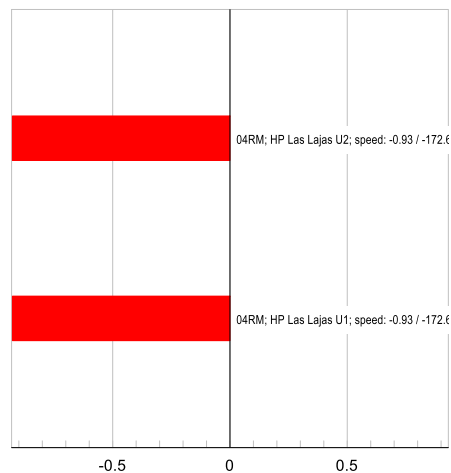
Eigenvalue of mode: $-1.212 + 17.192j$ Period: 0.365 s, Frequency: 2.736 Hz
Magnitude: 17.235 1/s, Angle: 94.034 deg Damping: 1.212 1/s, Ratio of Amplitudes: 1.558

Mode 49: Participation



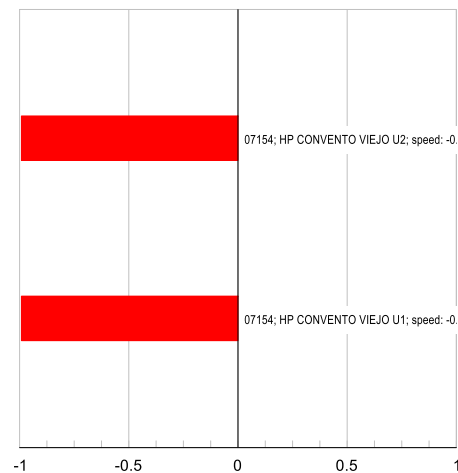
Eigenvalue of mode: $-0.492 + 7.151j$ Damping: 0.492 1/s, Ratio of Amplitudes: 1.540
Magnitude: 7.168 1/s, Angle: 93.933 deg Min. contribution: 0.100
Period: 0.879 s, Frequency: 1.138 Hz

Mode 31: Participation

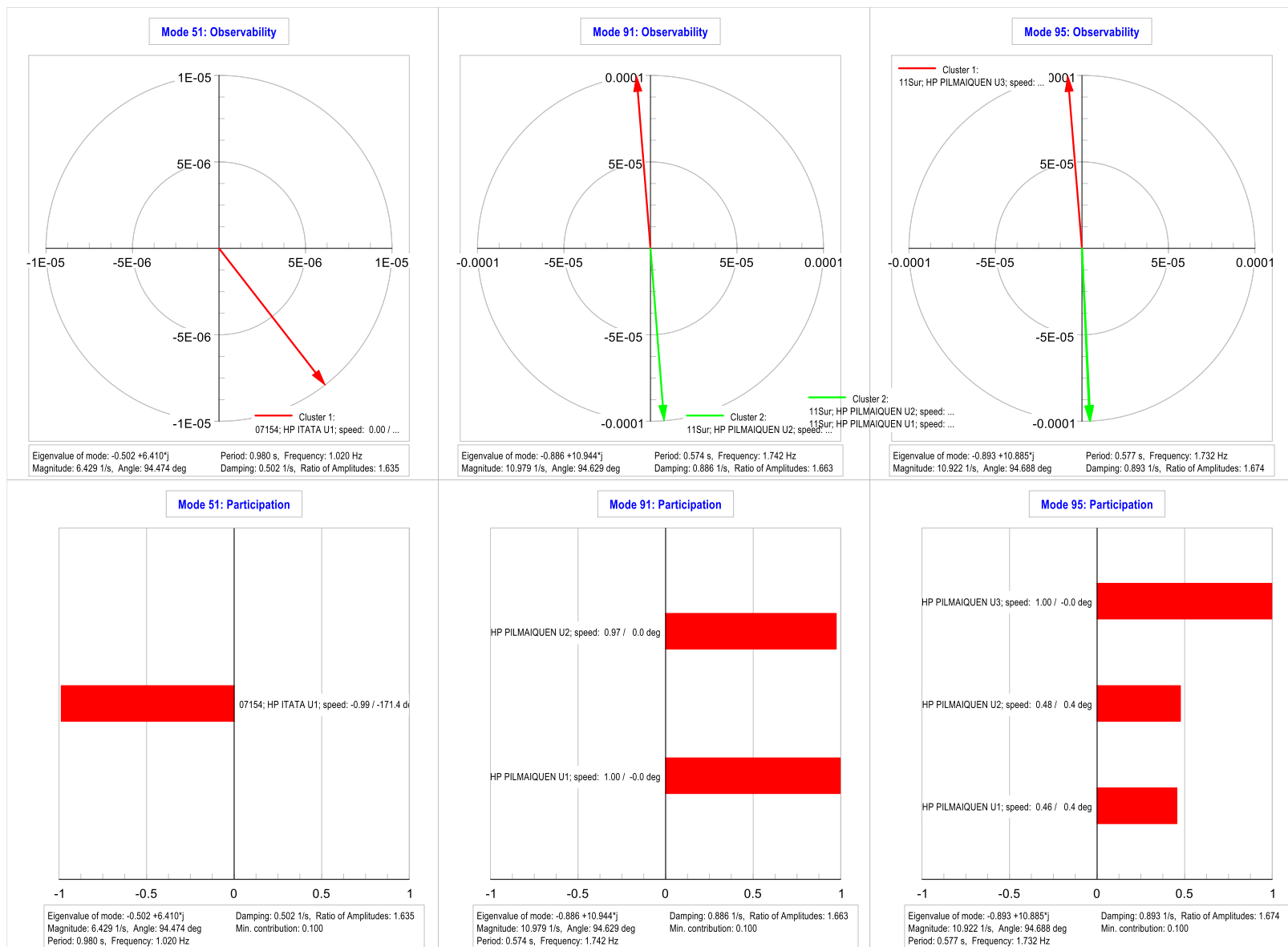


Eigenvalue of mode: $-0.369 + 5.281j$ Damping: 0.369 1/s, Ratio of Amplitudes: 1.551
Magnitude: 5.294 1/s, Angle: 93.998 deg Min. contribution: 0.100
Period: 1.190 s, Frequency: 0.840 Hz

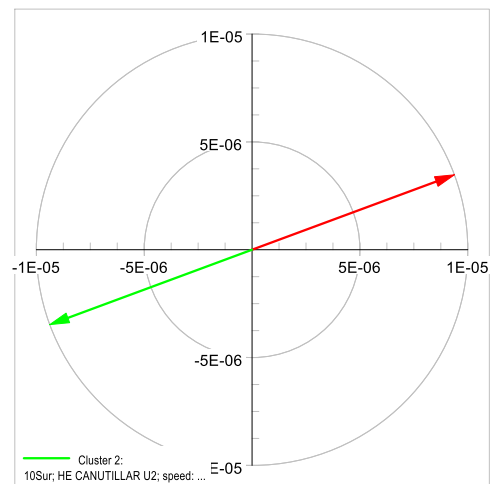
Mode 165: Participation



Eigenvalue of mode: $-1.212 + 17.192j$ Damping: 1.212 1/s, Ratio of Amplitudes: 1.558
Magnitude: 17.235 1/s, Angle: 94.034 deg Min. contribution: 0.100
Period: 0.365 s, Frequency: 2.736 Hz

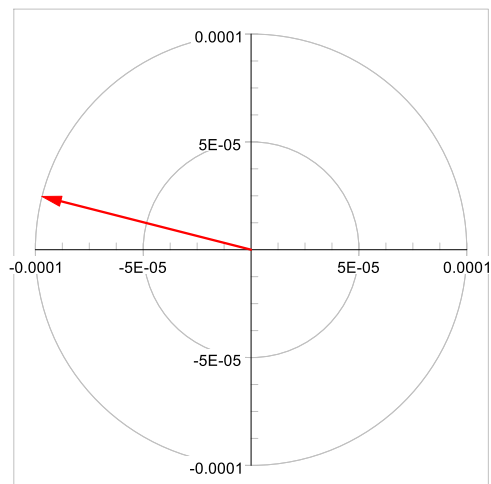


Mode 101: Observability



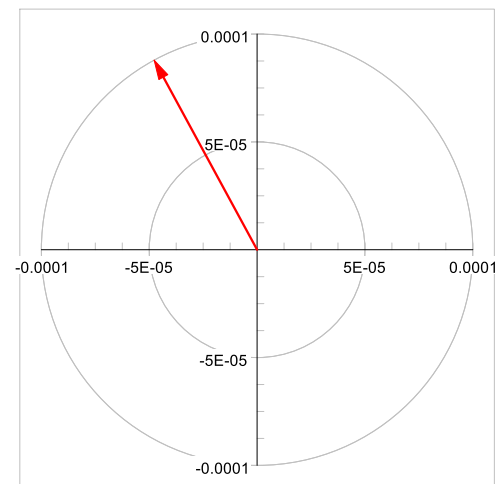
Eigenvalue of mode: $-0.932 + 11.362j$ Period: 0.553 s, Frequency: 1.808 Hz
Magnitude: 11.400 1/s, Angle: 94.688 deg Damping: 0.932 1/s, Ratio of Amplitudes: 1.674

Mode 141: Observability



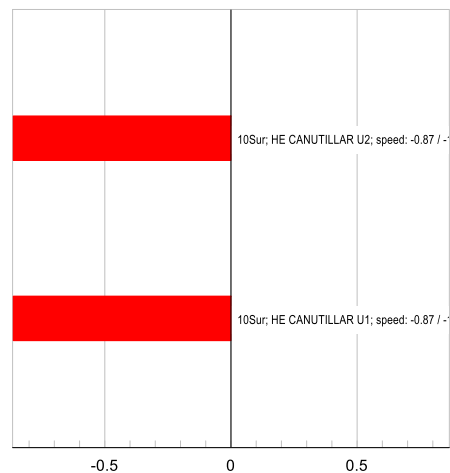
Eigenvalue of mode: $-1.067 + 12.965j$ Period: 0.485 s, Frequency: 2.063 Hz
Magnitude: 13.009 1/s, Angle: 94.703 deg Damping: 1.067 1/s, Ratio of Amplitudes: 1.677

Mode 93: Observability



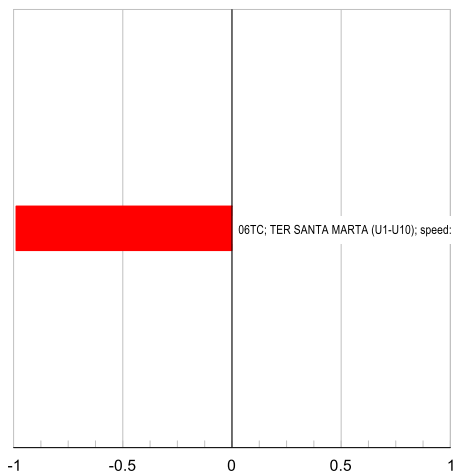
Eigenvalue of mode: $-0.887 + 10.634j$ Period: 0.591 s, Frequency: 1.692 Hz
Magnitude: 10.671 1/s, Angle: 94.769 deg Damping: 0.887 1/s, Ratio of Amplitudes: 1.689

Mode 101: Participation



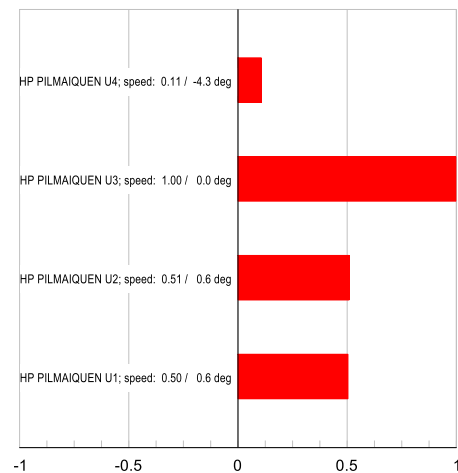
Eigenvalue of mode: $-0.932 + 11.362j$ Damping: 0.932 1/s, Ratio of Amplitudes: 1.674
Magnitude: 11.400 1/s, Angle: 94.688 deg Min. contribution: 0.100
Period: 0.553 s, Frequency: 1.808 Hz

Mode 141: Participation



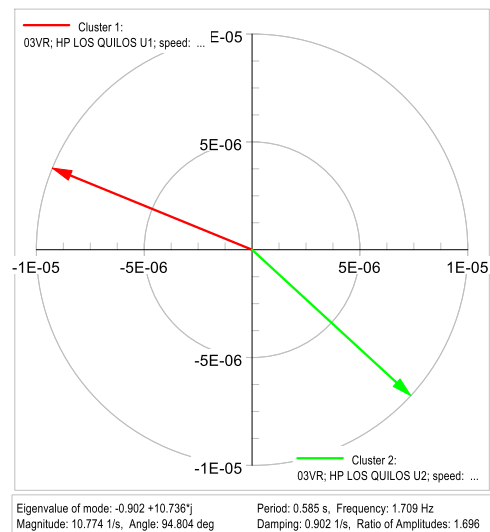
Eigenvalue of mode: $-1.067 + 12.965j$ Damping: 1.067 1/s, Ratio of Amplitudes: 1.677
Magnitude: 13.009 1/s, Angle: 94.703 deg Min. contribution: 0.100
Period: 0.485 s, Frequency: 2.063 Hz

Mode 93: Participation

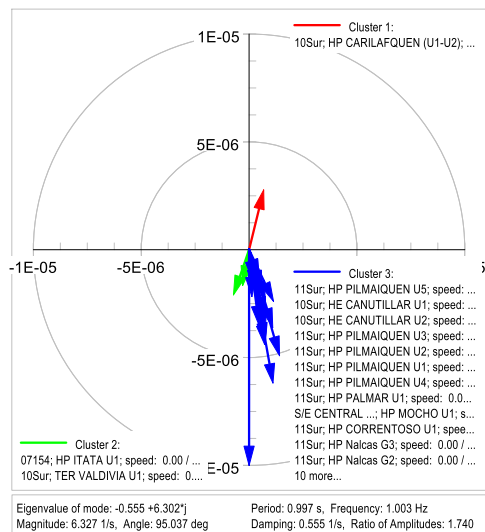


Eigenvalue of mode: $-0.887 + 10.634j$ Damping: 0.887 1/s, Ratio of Amplitudes: 1.689
Magnitude: 10.671 1/s, Angle: 94.769 deg Min. contribution: 0.100
Period: 0.591 s, Frequency: 1.692 Hz

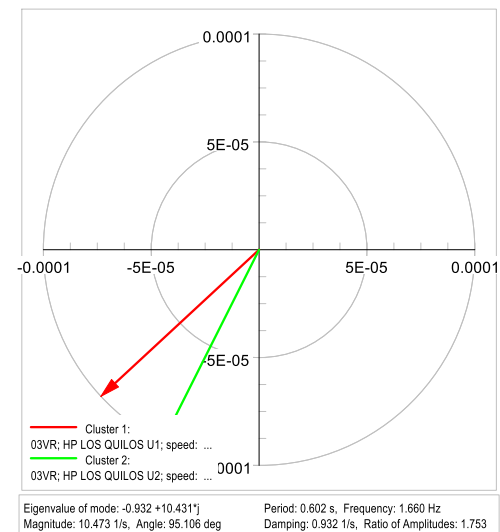
Mode 97: Observability



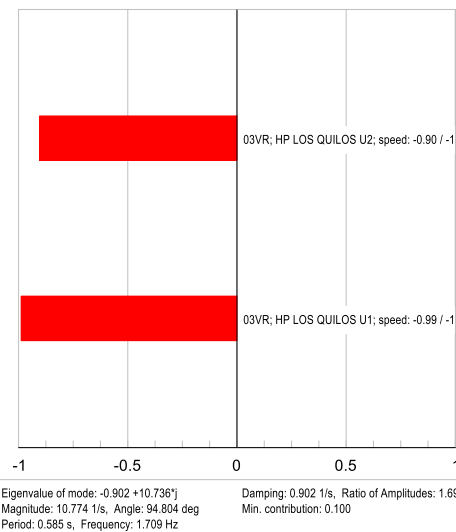
Mode 59: Observability



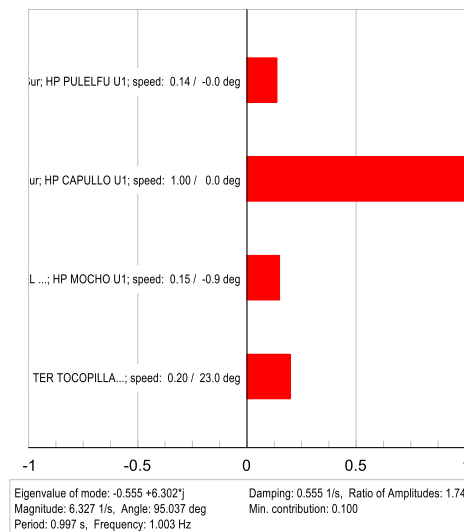
Mode 103: Observability



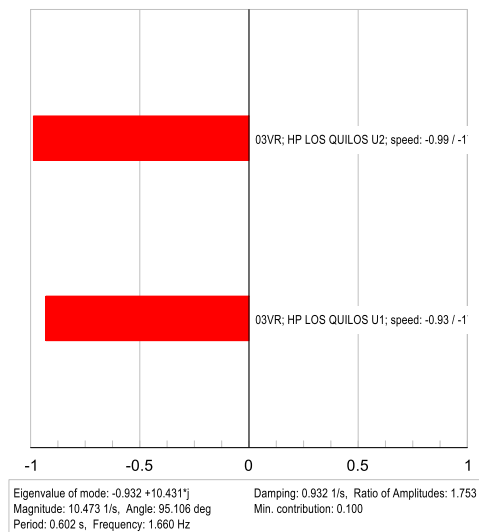
Mode 97: Participation

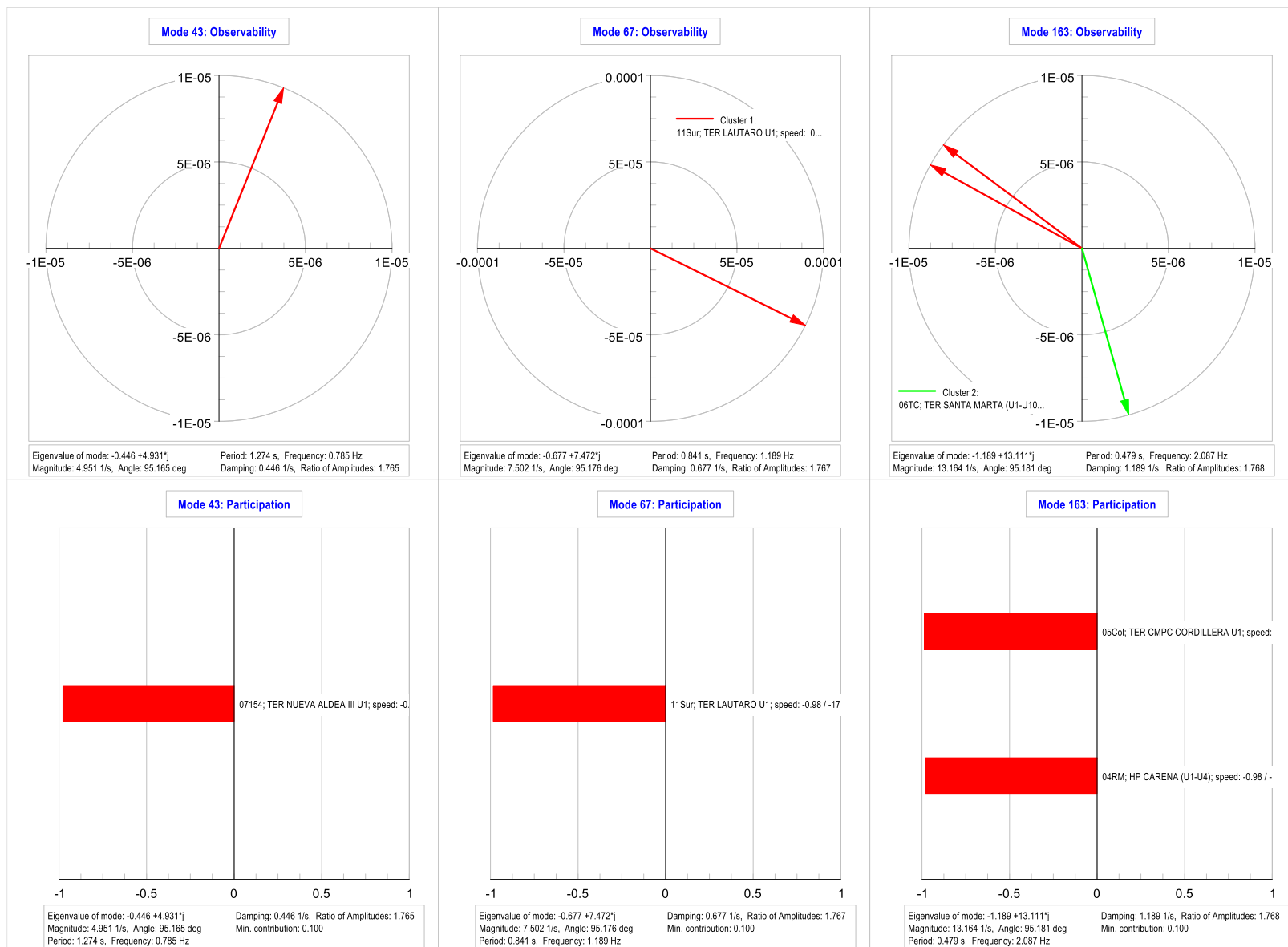


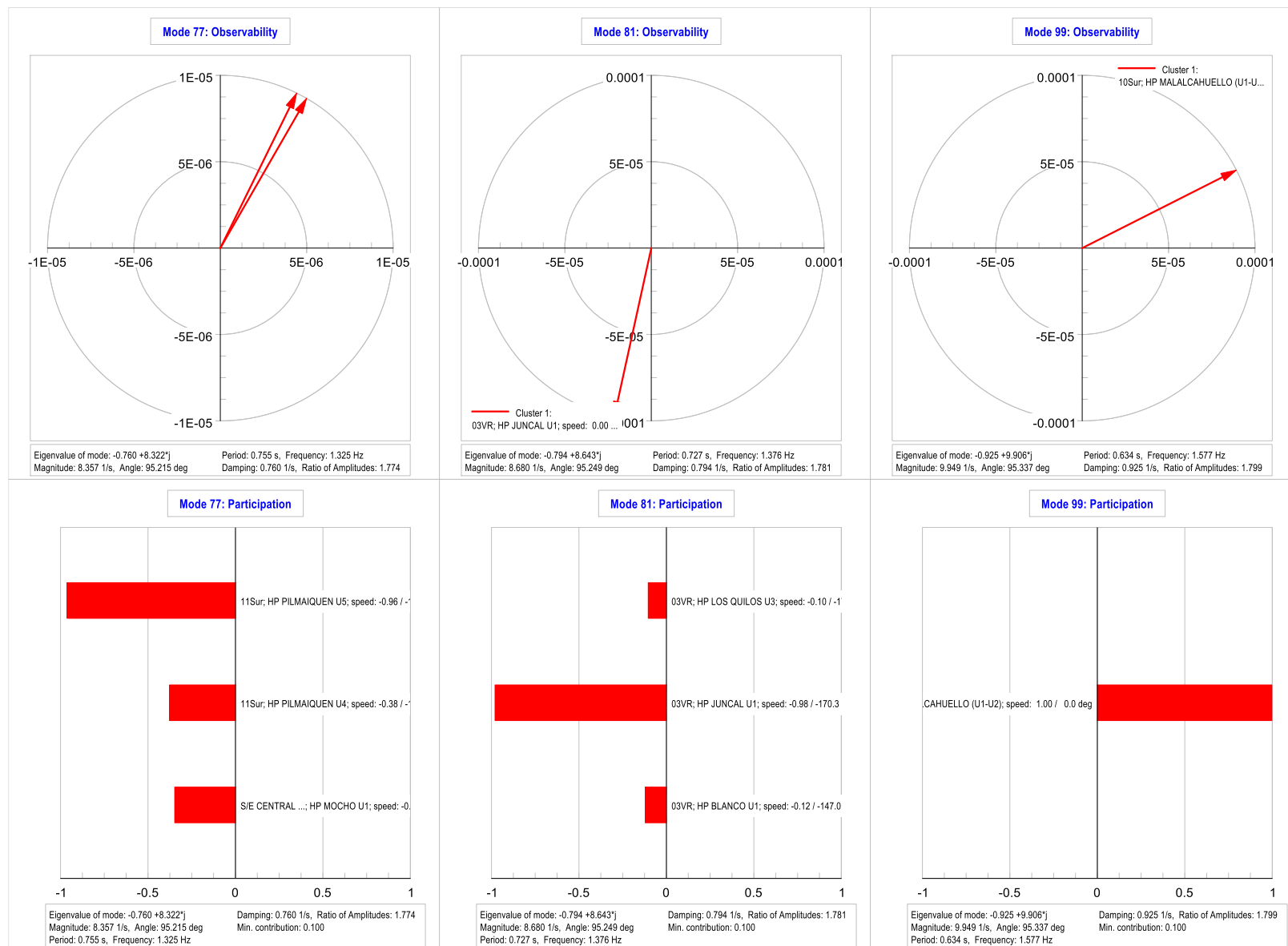
Mode 59: Participation



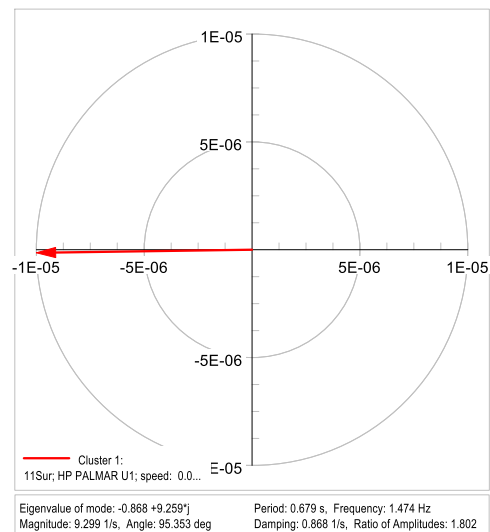
Mode 103: Participation



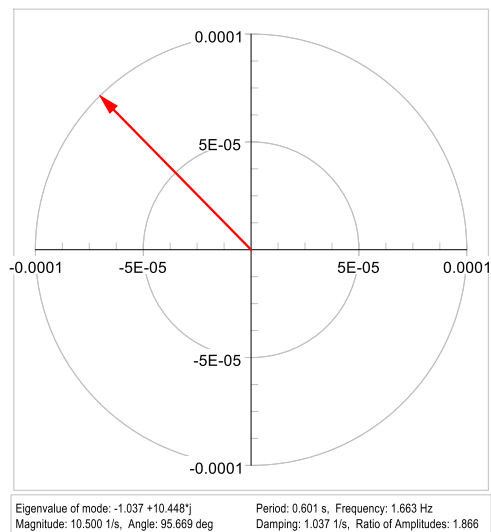




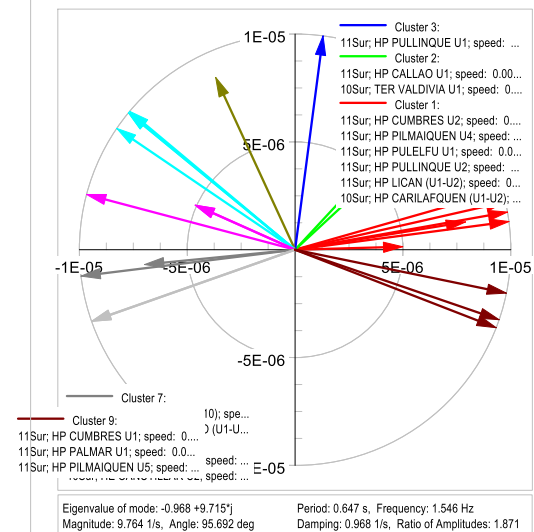
Mode 87: Observability



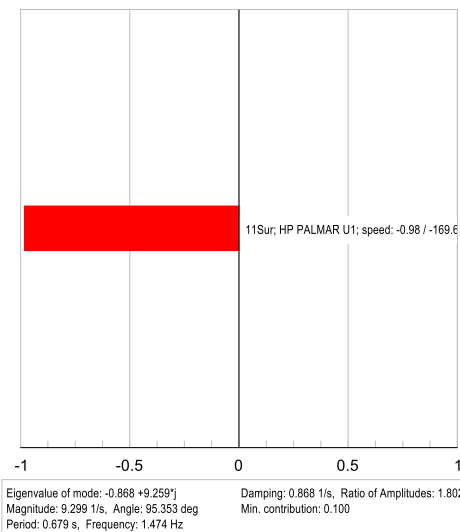
Mode 139: Observability



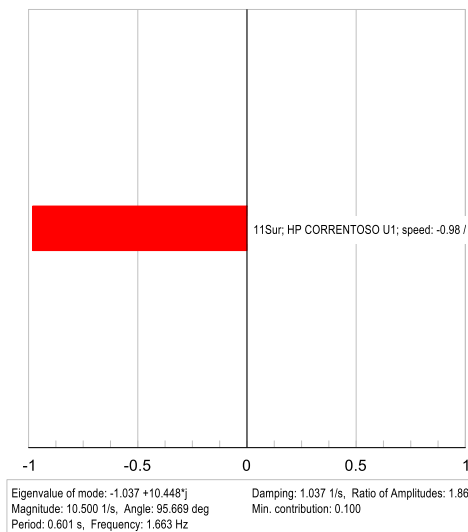
Mode 111: Observability



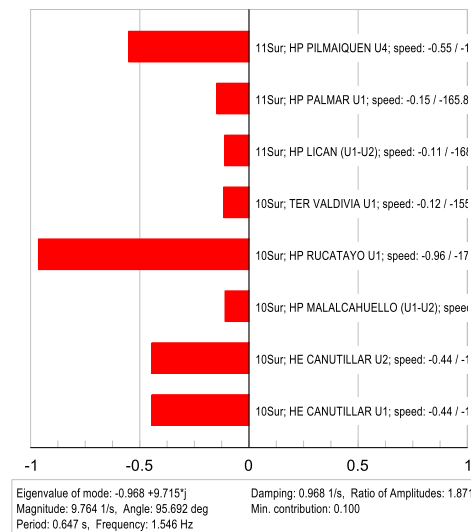
Mode 87: Participation



Mode 139: Participation

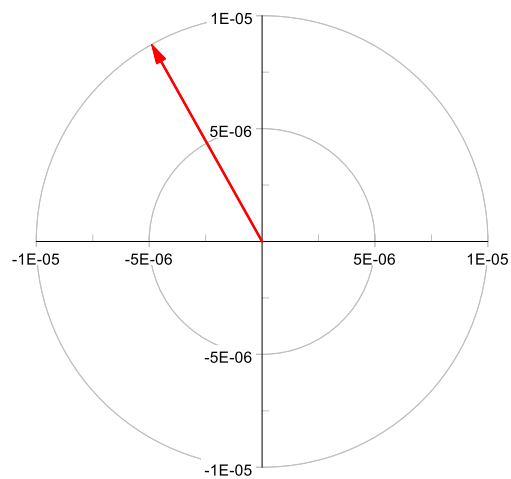


Mode 111: Participation



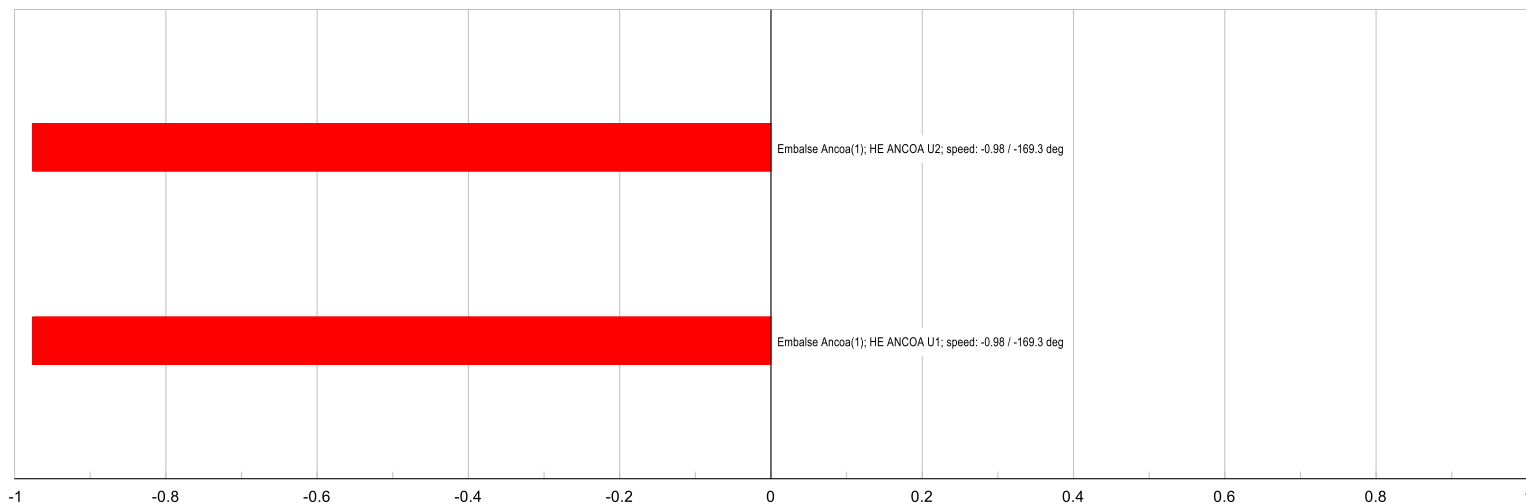
Mode 83: Observability

Cluster 1:
Embalse Ancoa(1); HE ANCOA U2; speed: 0.00 / 119.3 deg
Embalse Ancoa(1); HE ANCOA U1; speed: 0.00 / 119.3 deg

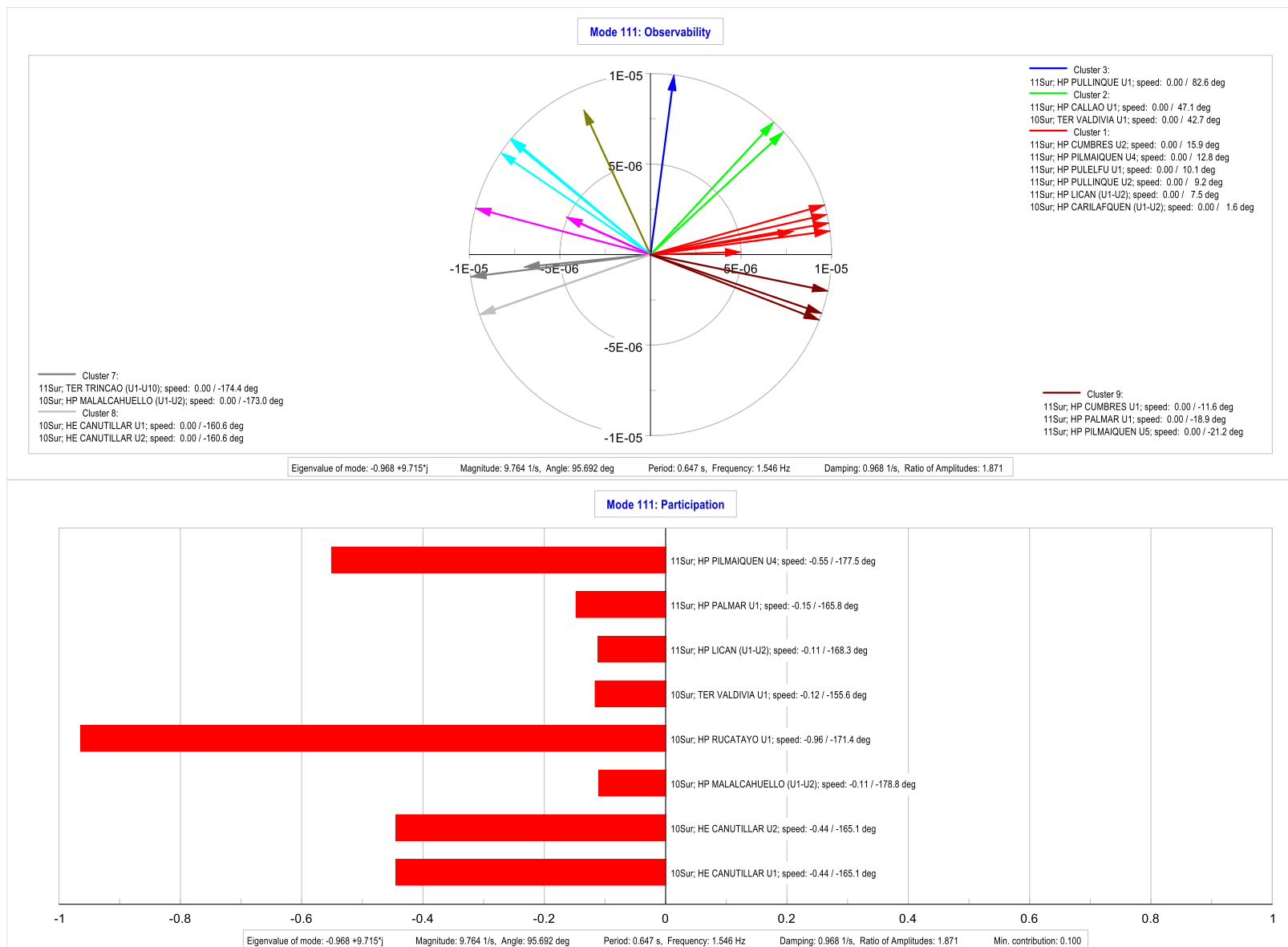


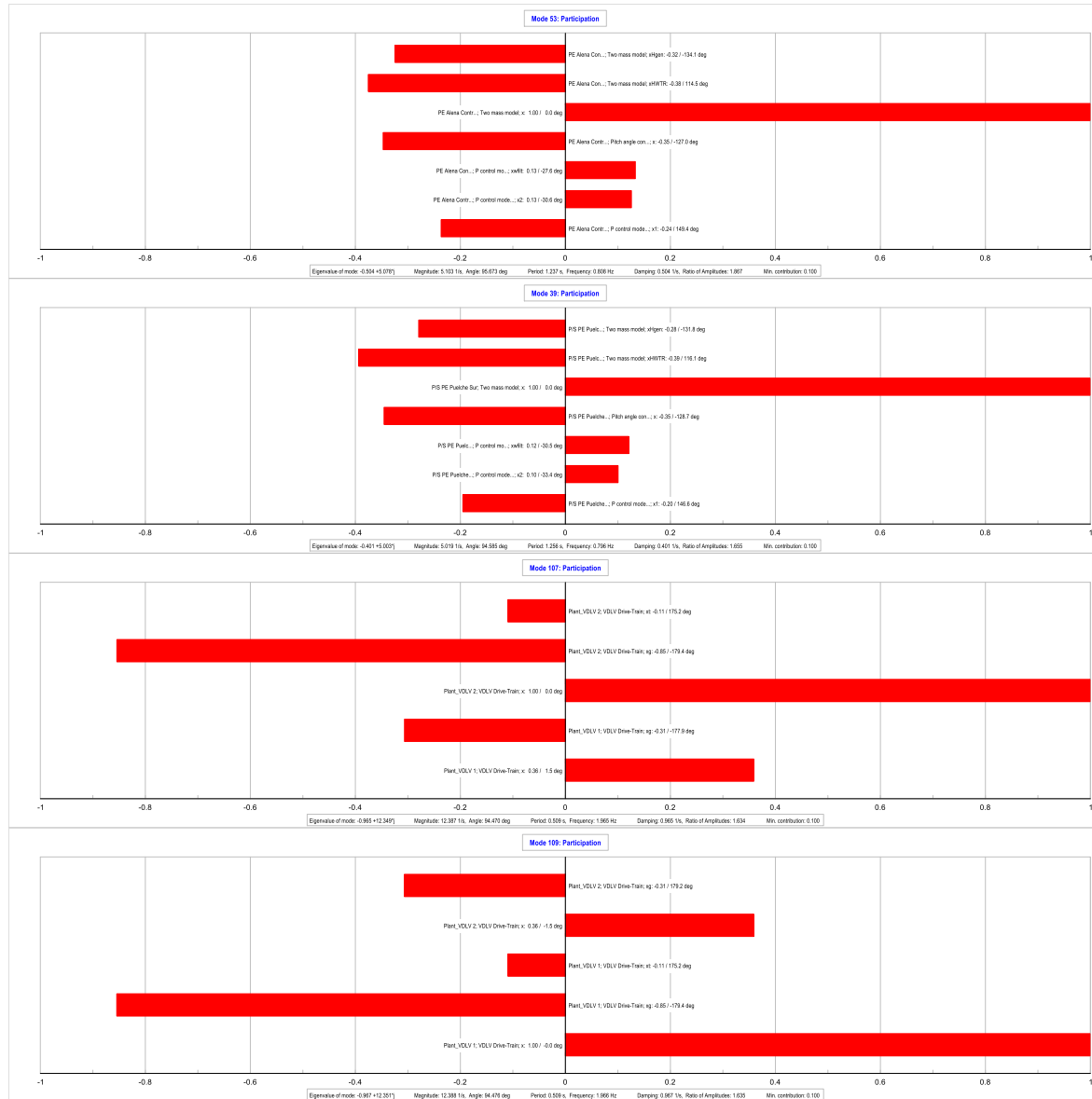
Eigenvalue of mode: $-0.817 + 8.177j$ Magnitude: 8.218 1/s, Angle: 95.706 deg Period: 0.768 s, Frequency: 1.301 Hz Damping: 0.817 1/s, Ratio of Amplitudes: 1.873

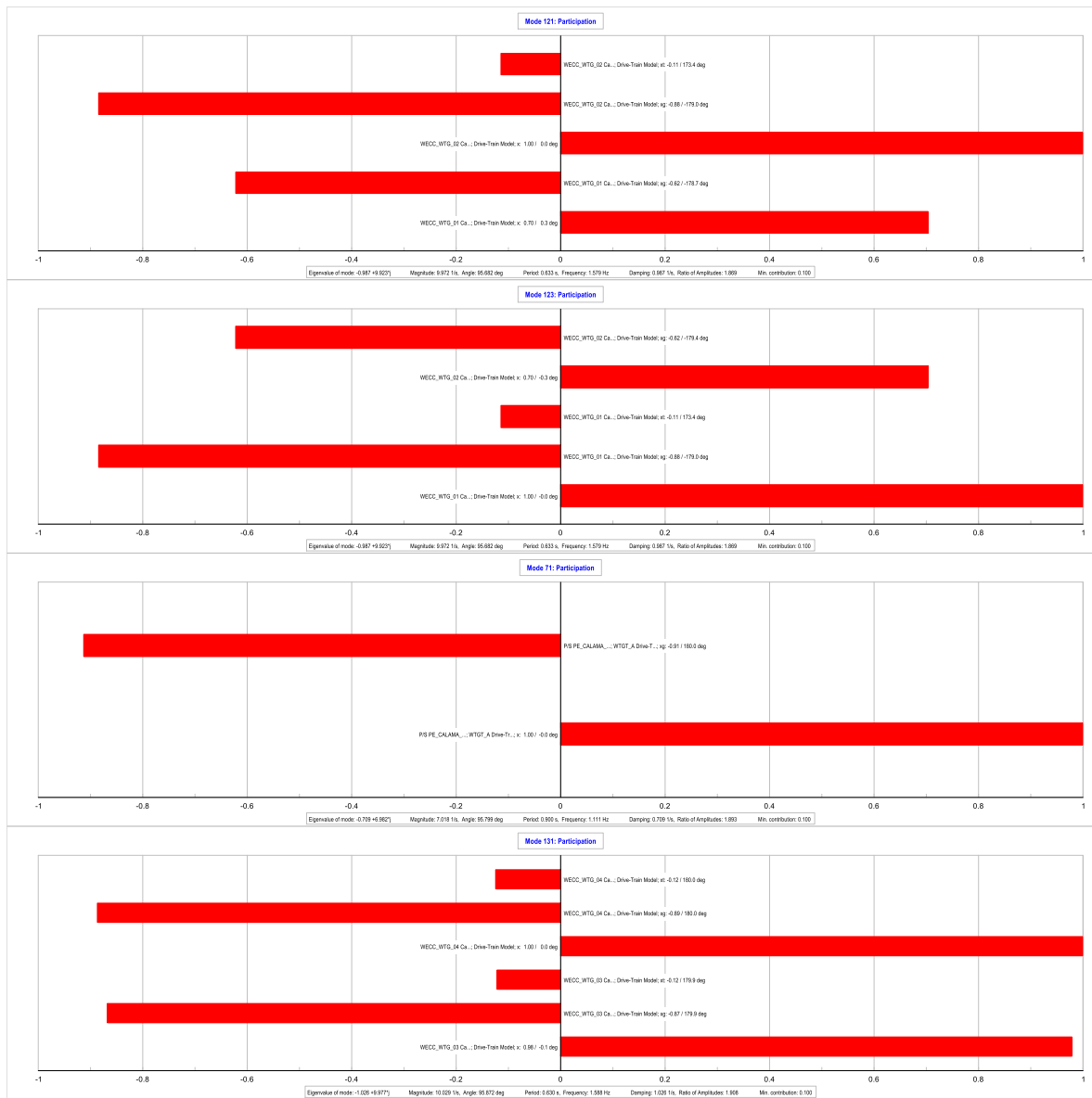
Mode 83: Participation

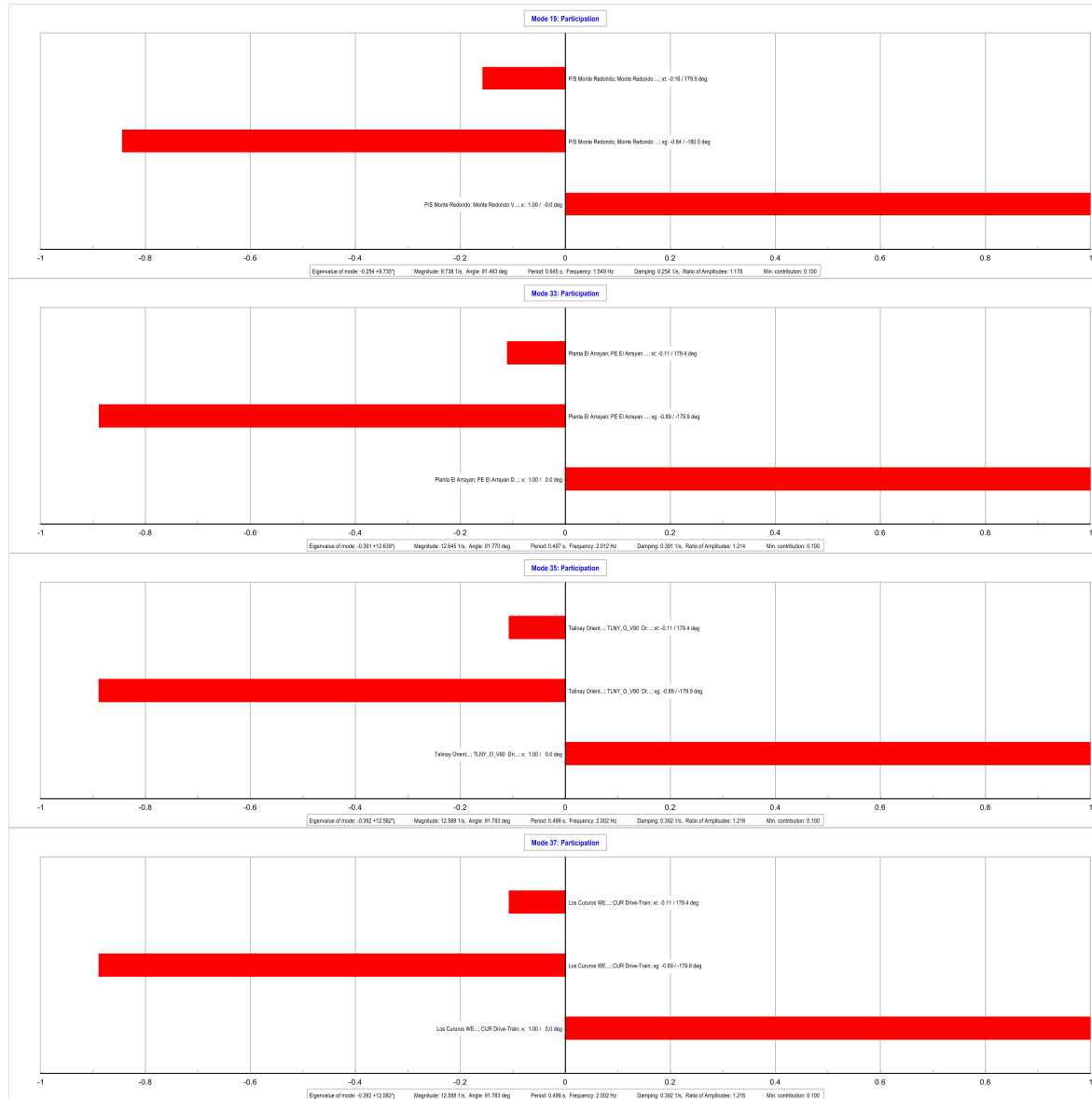


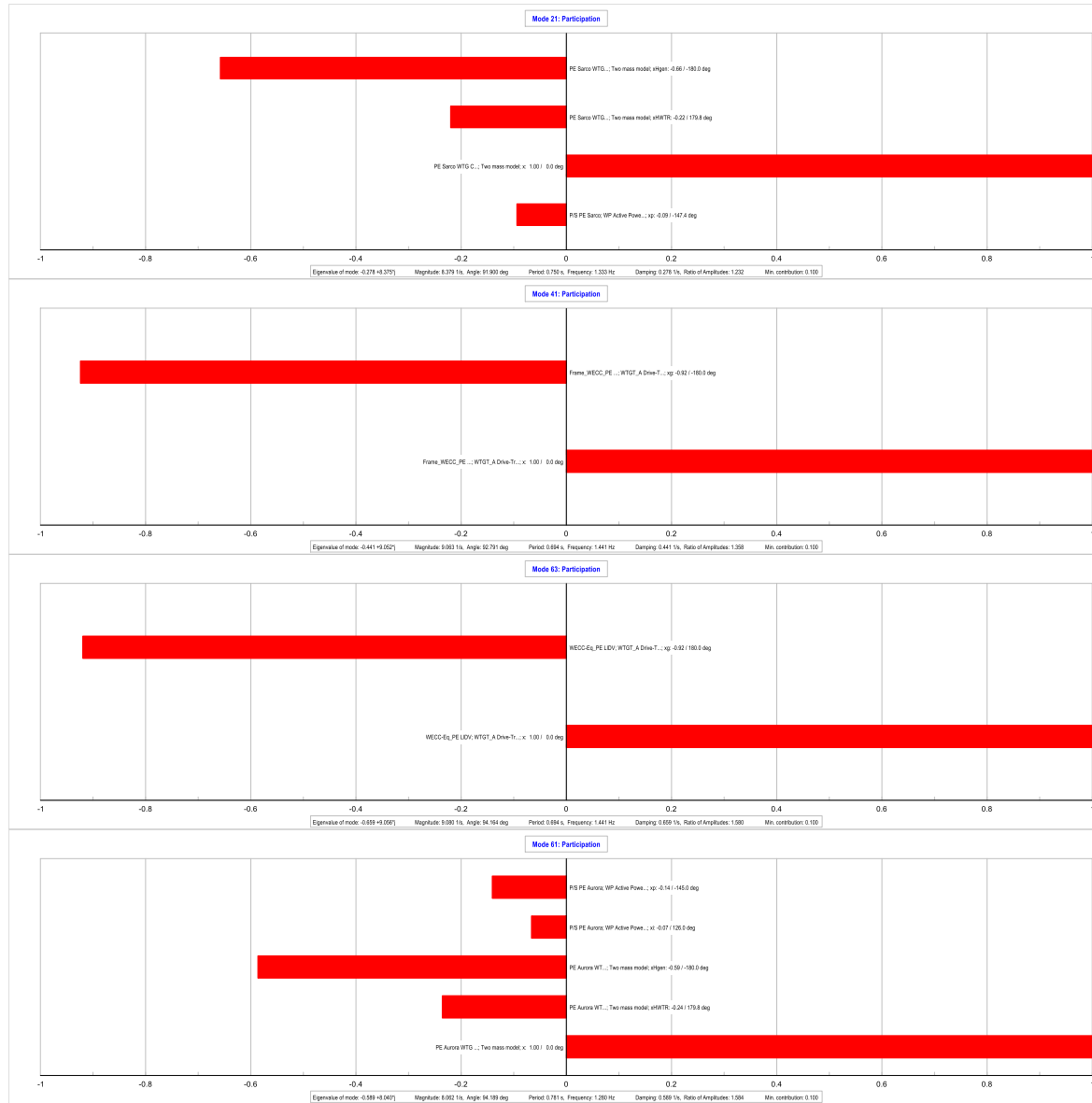
Eigenvalue of mode: $-0.817 + 8.177j$ Magnitude: 8.218 1/s, Angle: 95.706 deg Period: 0.768 s, Frequency: 1.301 Hz Damping: 0.817 1/s, Ratio of Amplitudes: 1.873 Min. contribution: 0.100



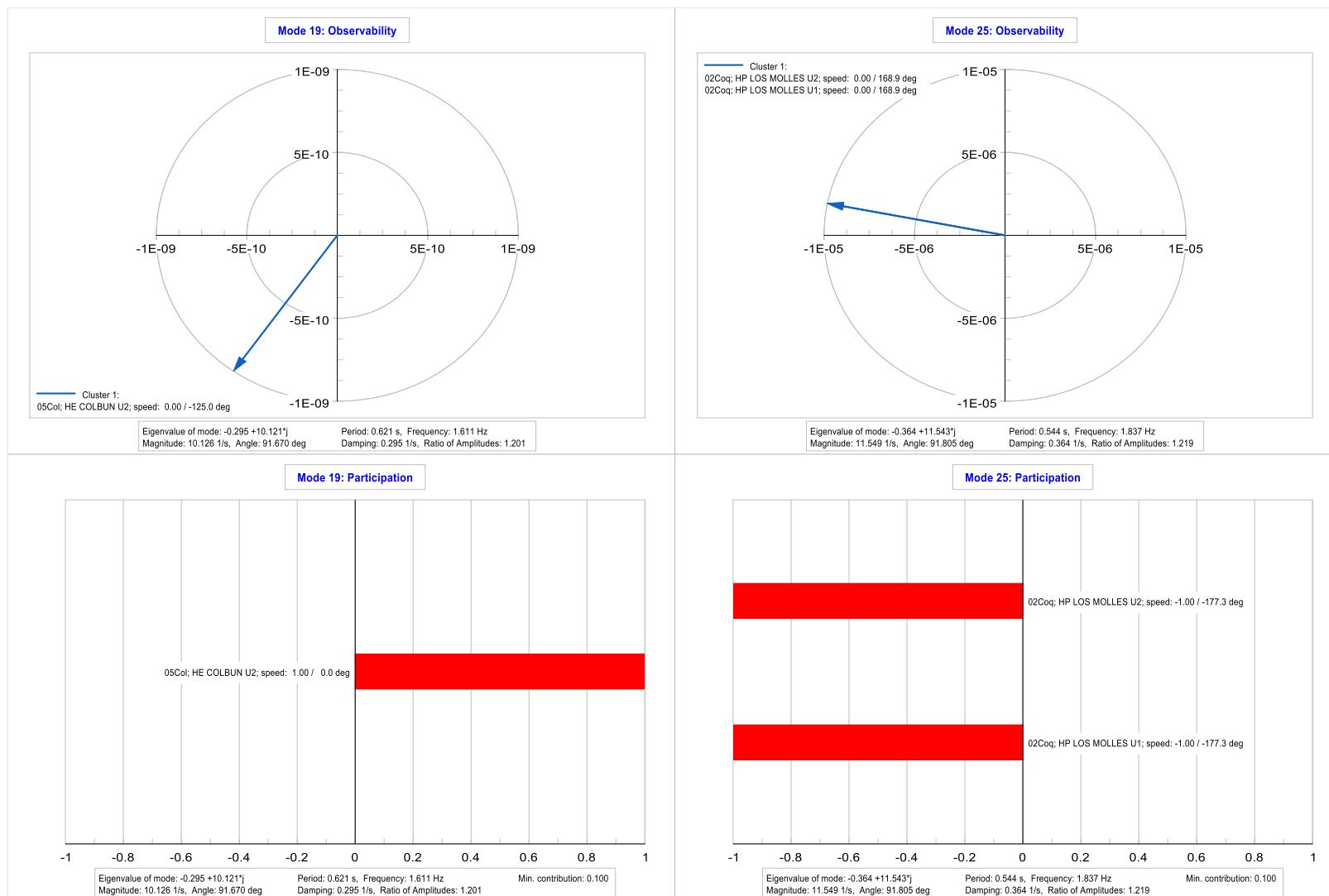


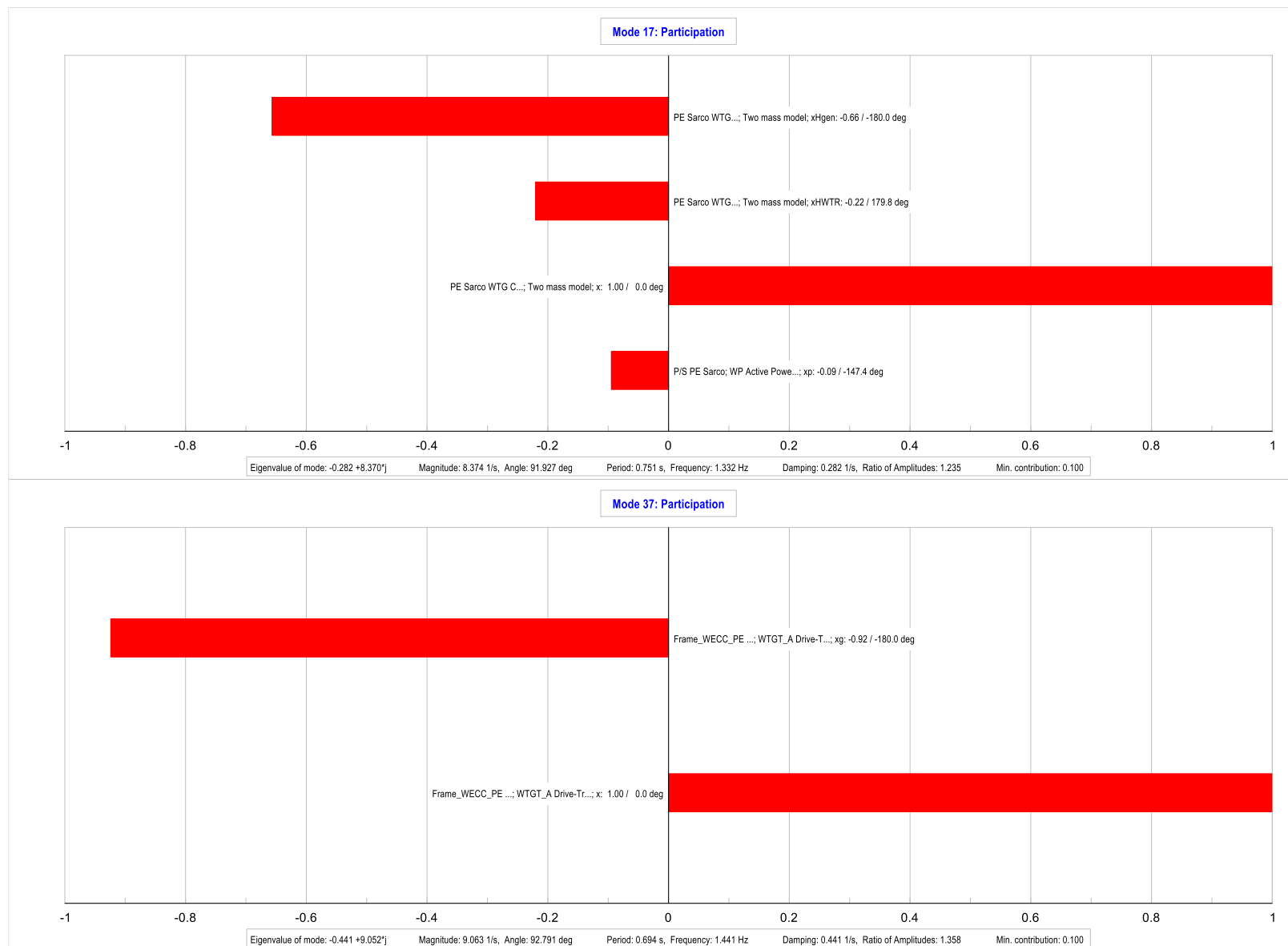


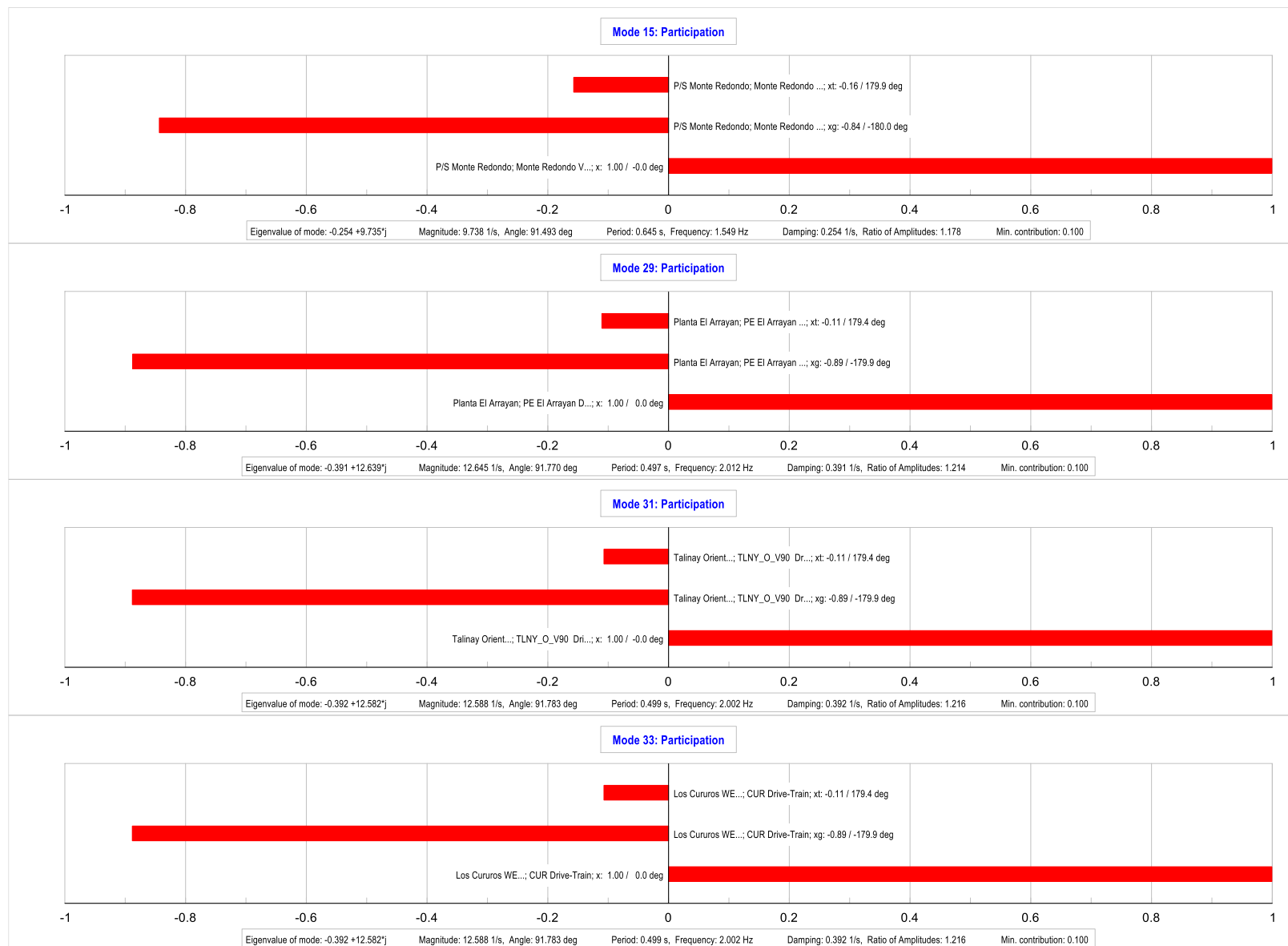




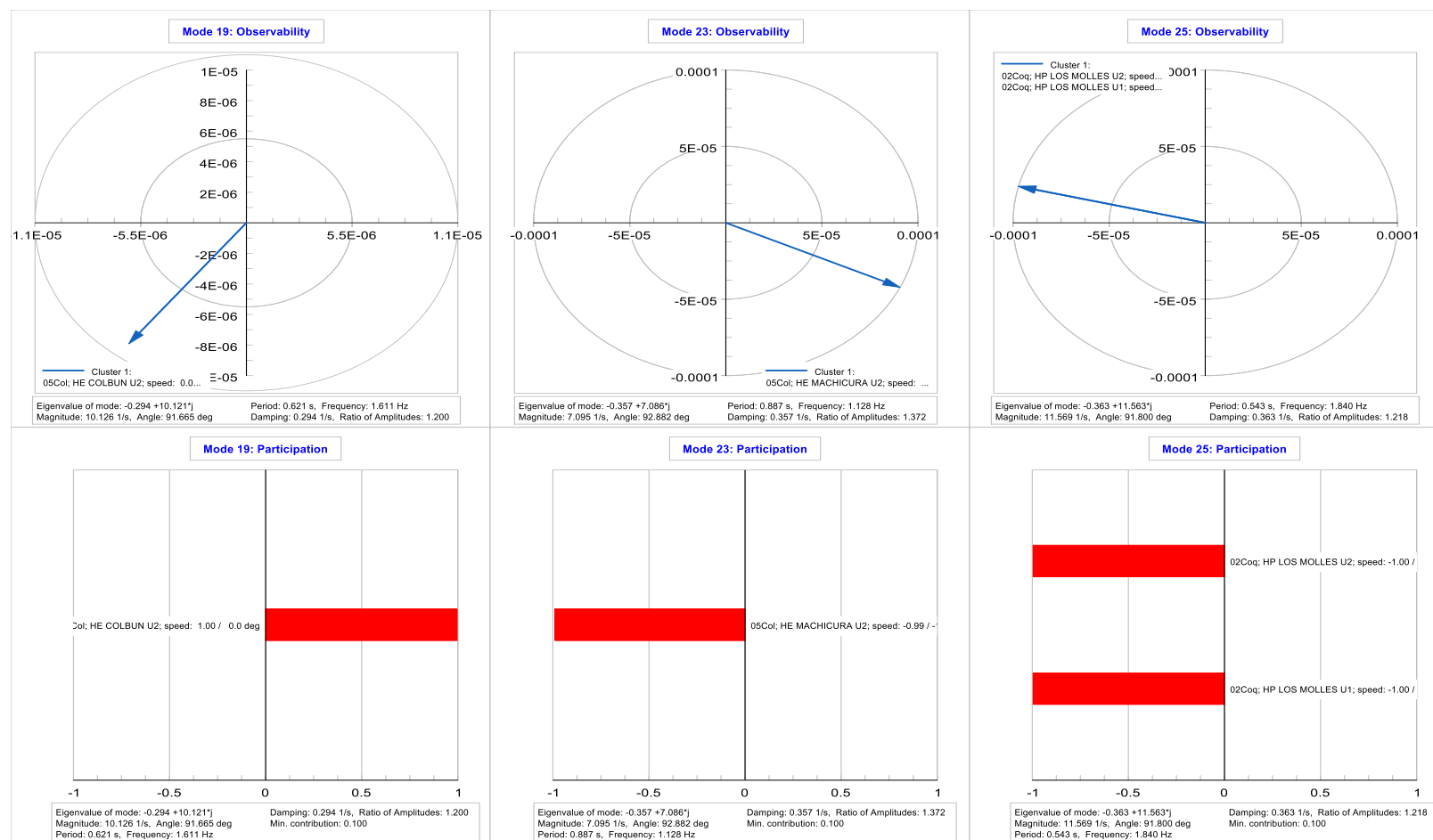
15.2.2 Red N-1 Caso 1.- Cambios – Parinas 500kV

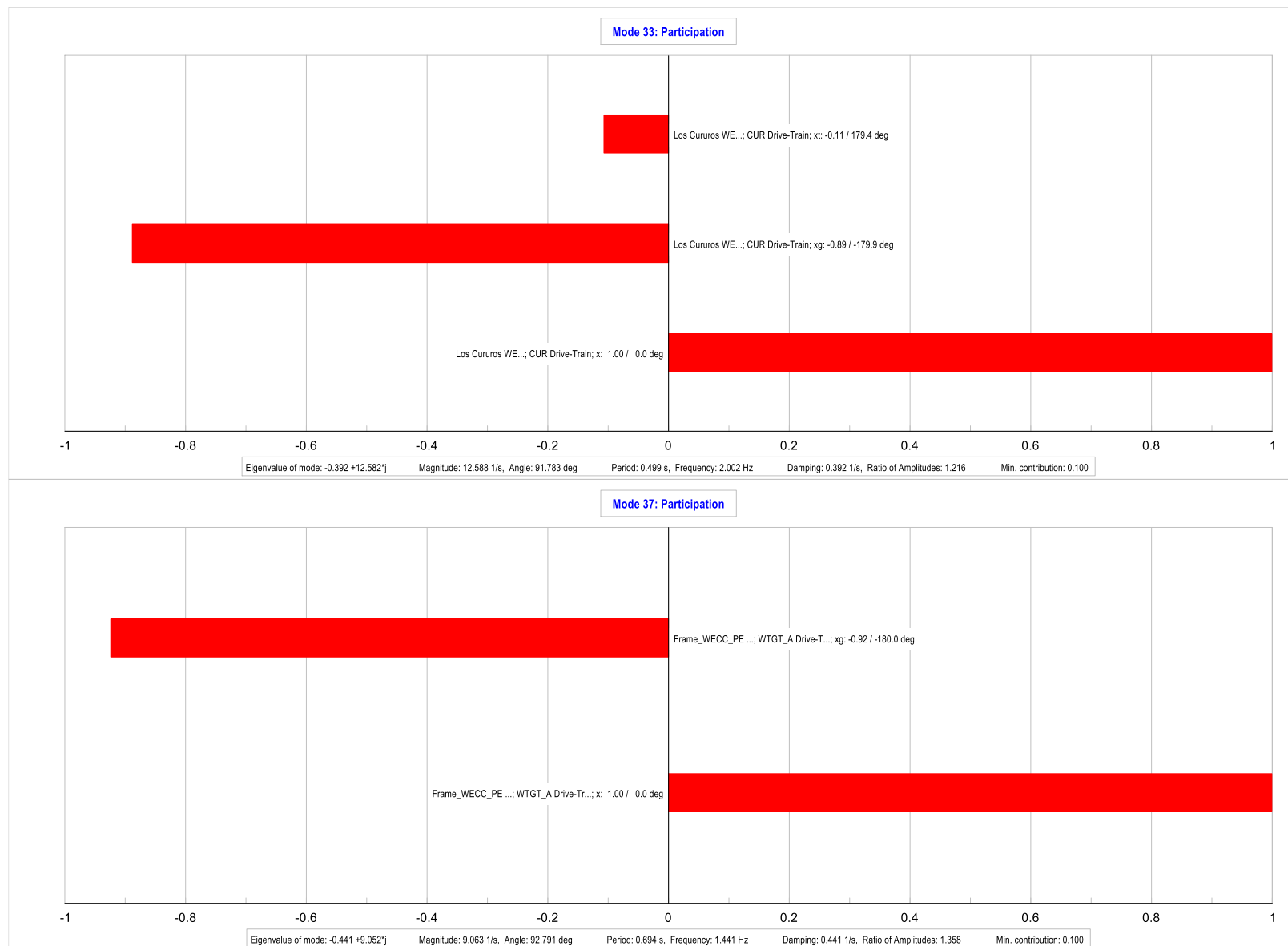


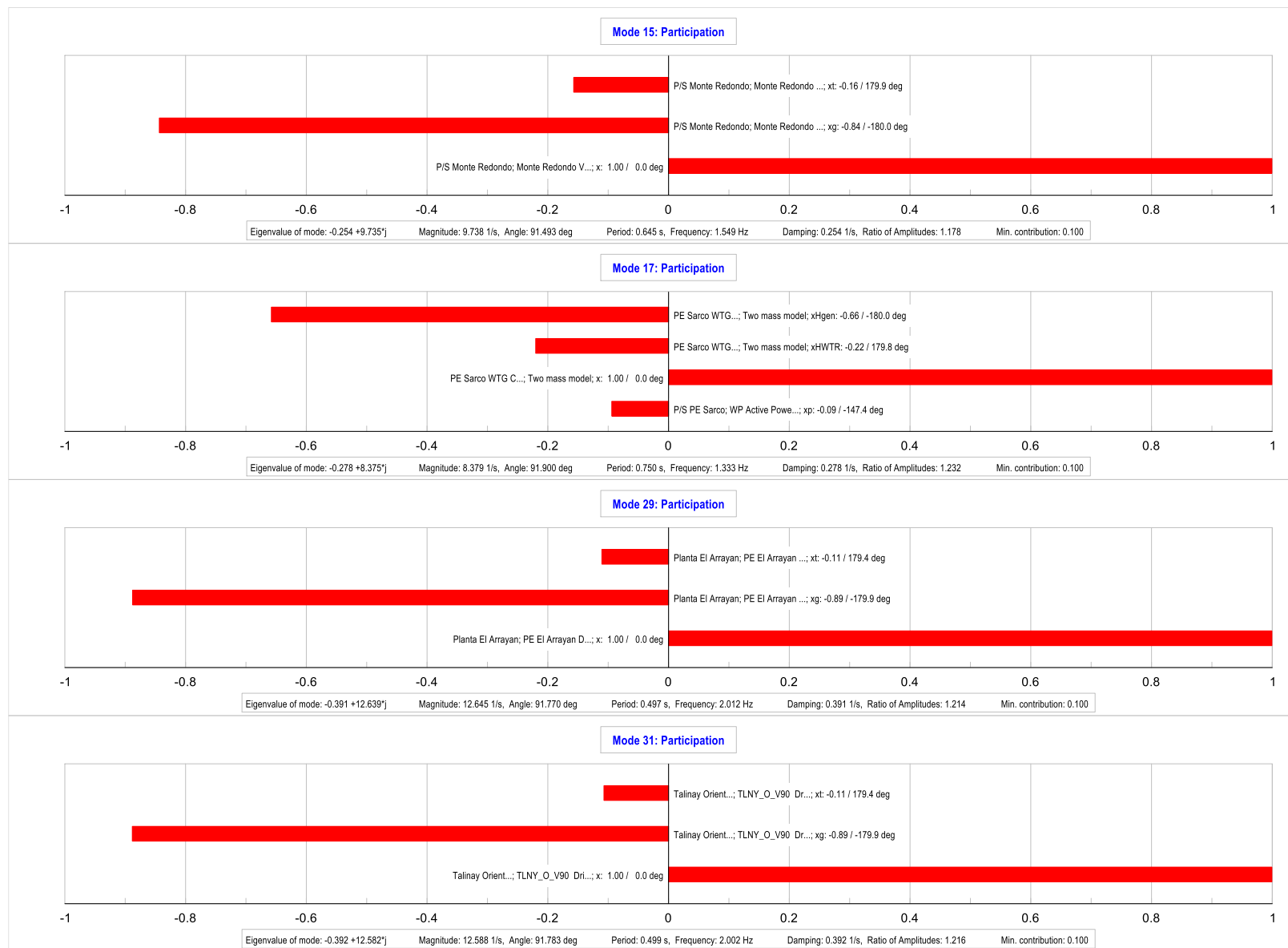




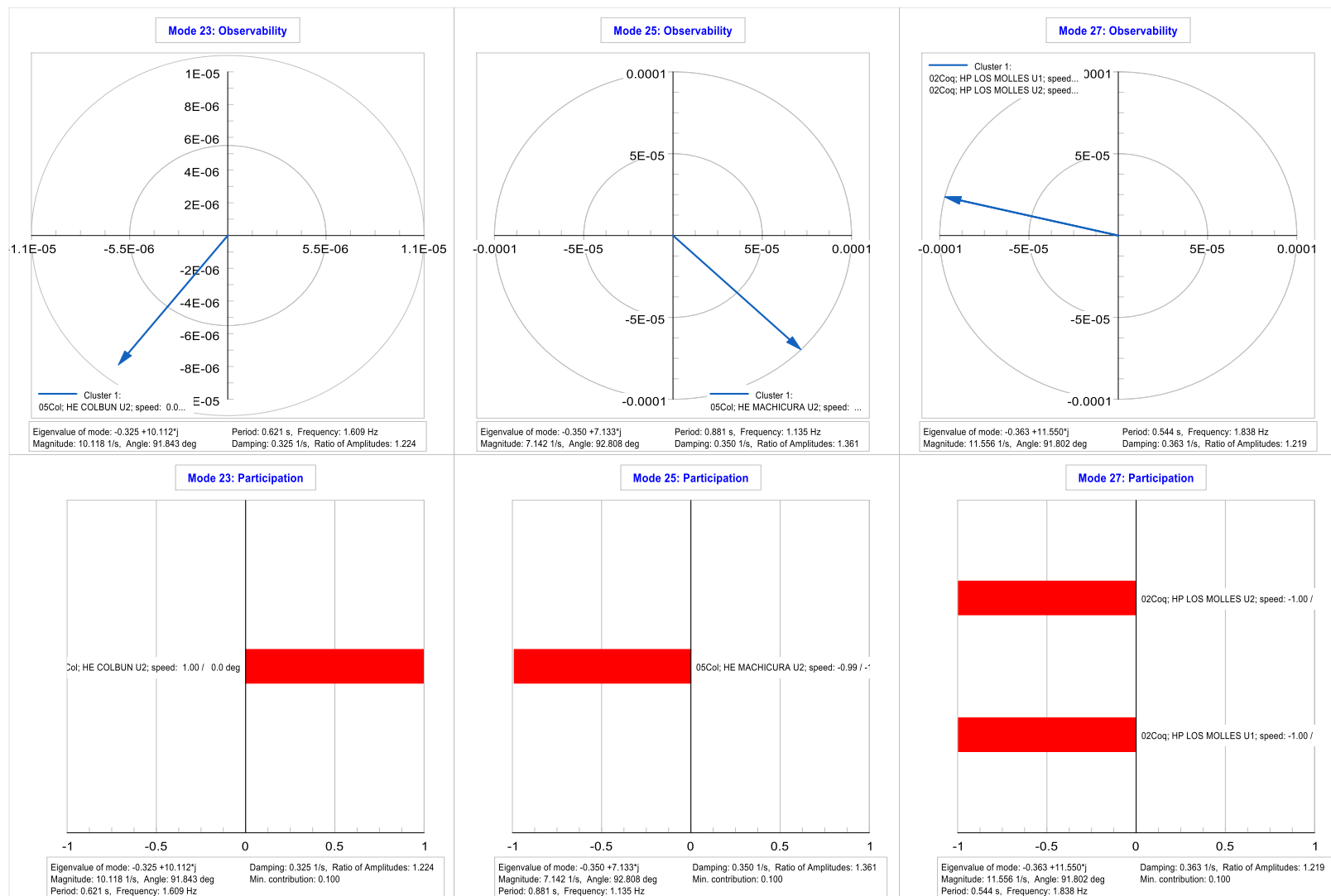
15.2.3 Red N-1 Caso 2:- Nueva Pan de Azúcar – Polpaico 500kV

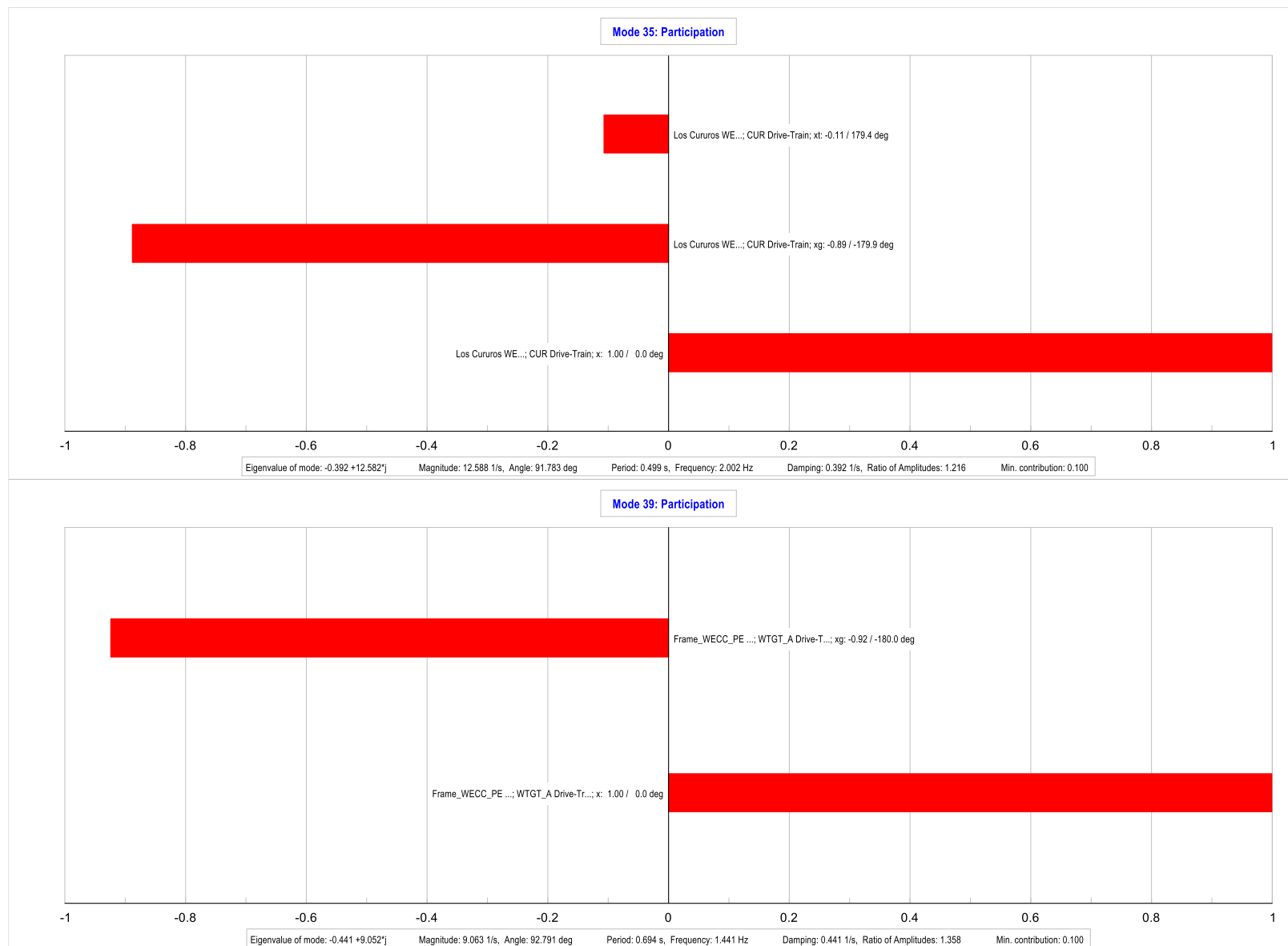


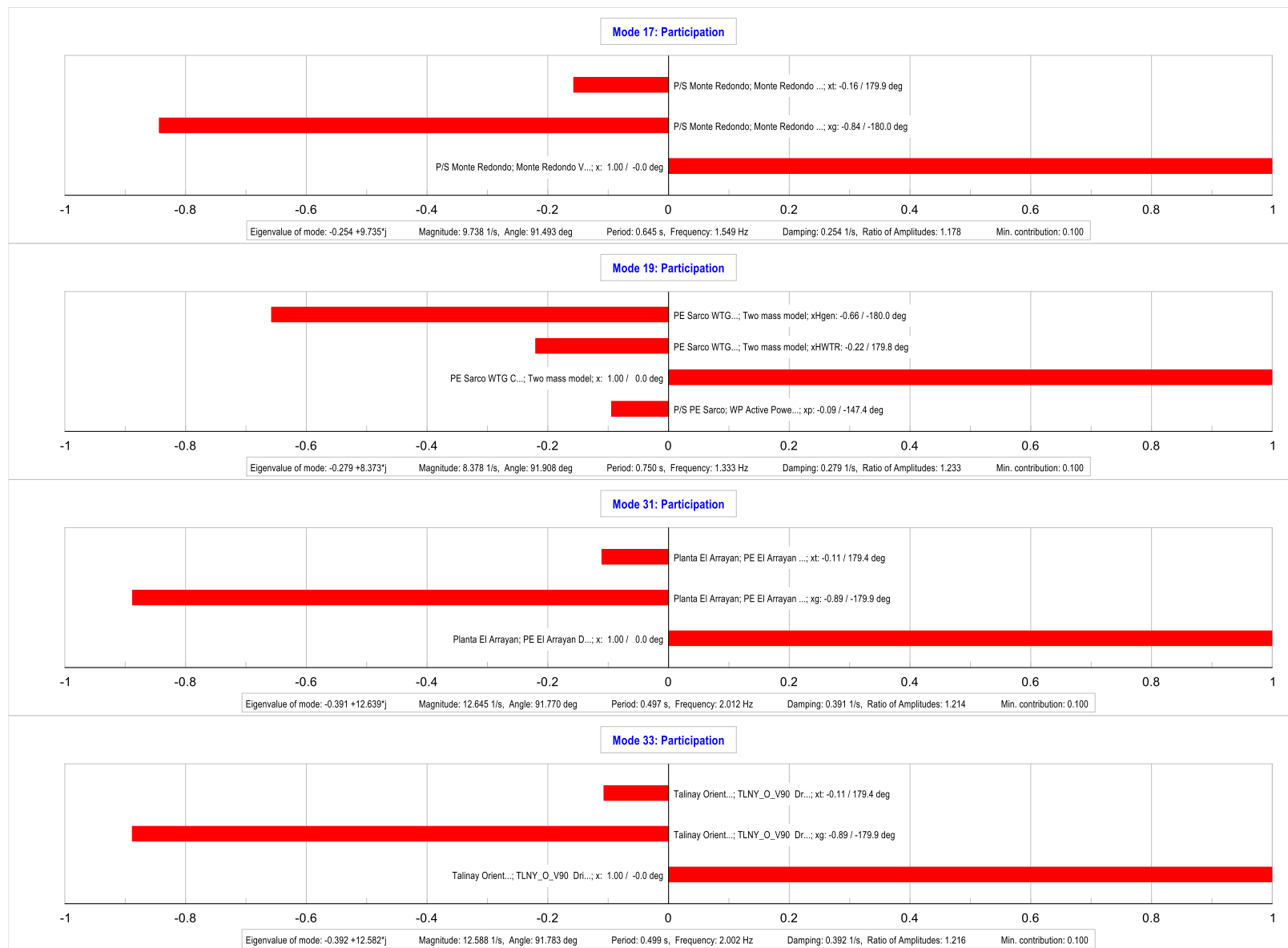




15.2.4 Red N-1 Caso 3.- Charrúa – Ancoa 500kV

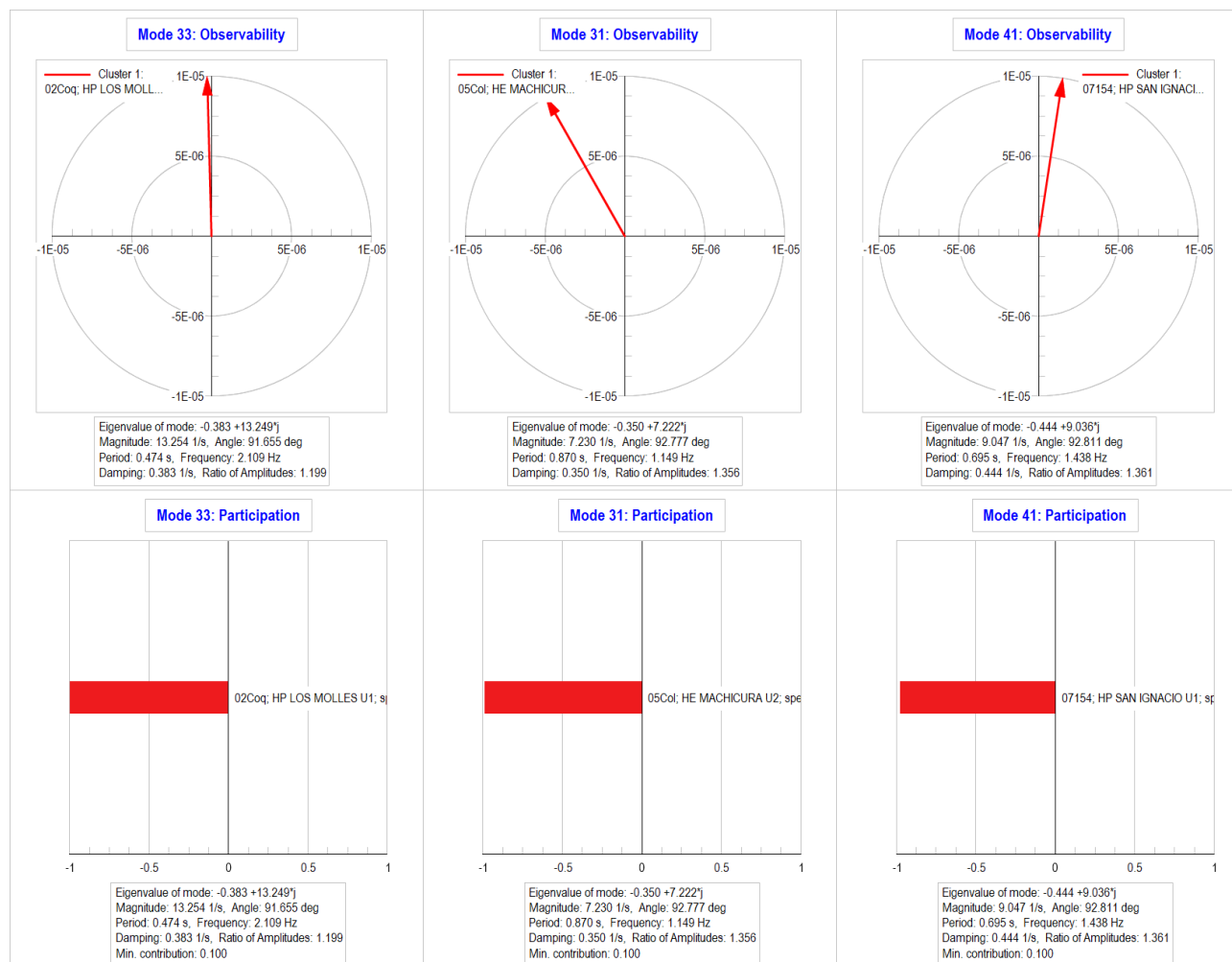




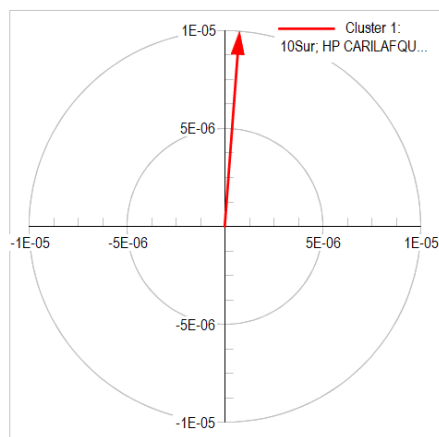


15.3 Escenario E3 DB día Abr2024

15.3.1 Red N

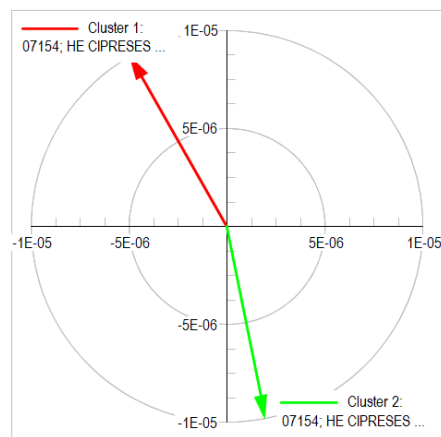


Mode 19: Observability



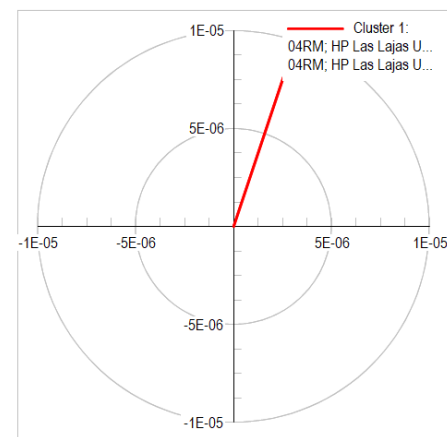
Eigenvalue of mode: $-0.264 + 5.360j$
Magnitude: 5.367 1/s, Angle: 92.821 deg
Period: 1.172 s, Frequency: 0.853 Hz
Damping: 0.264 1/s, Ratio of Amplitudes: 1.363

Mode 35: Observability



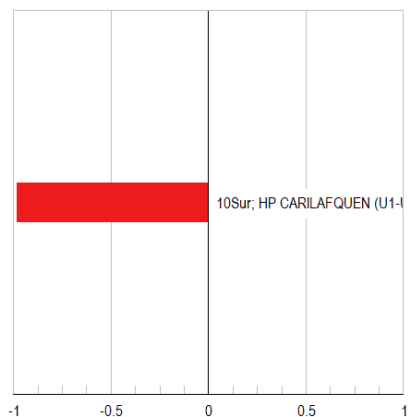
Eigenvalue of mode: $-0.401 + 7.845j$
Magnitude: 7.855 1/s, Angle: 92.926 deg
Period: 0.801 s, Frequency: 1.248 Hz
Damping: 0.401 1/s, Ratio of Amplitudes: 1.379

Mode 29: Observability



Eigenvalue of mode: $-0.310 + 5.188j$
Magnitude: 5.197 1/s, Angle: 93.420 deg
Period: 1.211 s, Frequency: 0.826 Hz
Damping: 0.310 1/s, Ratio of Amplitudes: 1.456

Mode 19: Participation



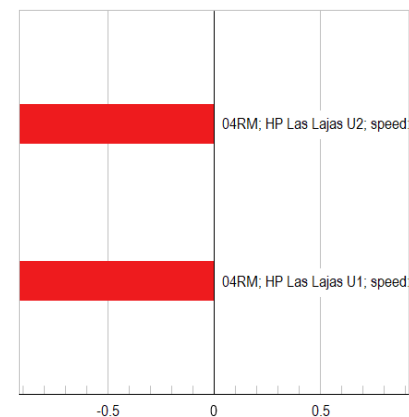
Eigenvalue of mode: $-0.264 + 5.360j$
Magnitude: 5.367 1/s, Angle: 92.821 deg
Period: 1.172 s, Frequency: 0.853 Hz
Damping: 0.264 1/s, Ratio of Amplitudes: 1.363
Min. contribution: 0.100

Mode 35: Participation



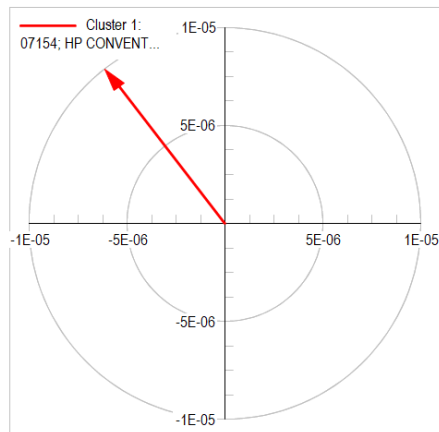
Eigenvalue of mode: $-0.401 + 7.845j$
Magnitude: 7.855 1/s, Angle: 92.926 deg
Period: 0.801 s, Frequency: 1.248 Hz
Damping: 0.401 1/s, Ratio of Amplitudes: 1.379
Min. contribution: 0.100

Mode 29: Participation



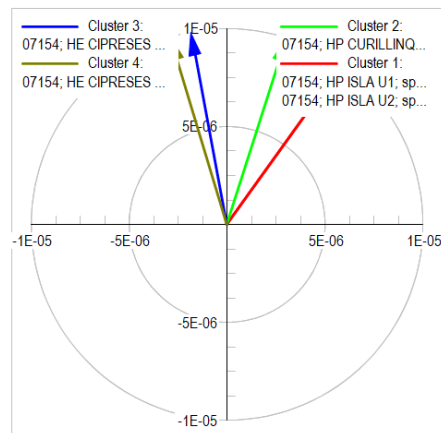
Eigenvalue of mode: $-0.310 + 5.188j$
Magnitude: 5.197 1/s, Angle: 93.420 deg
Period: 1.211 s, Frequency: 0.826 Hz
Damping: 0.310 1/s, Ratio of Amplitudes: 1.456
Min. contribution: 0.100

Mode 107: Observability



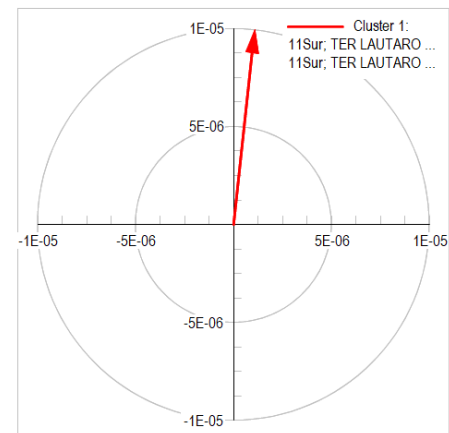
Eigenvalue of mode: $-1.079 + 16.261j$
Magnitude: 16.297 1/s, Angle: 93.796 deg
Period: 0.386 s, Frequency: 2.588 Hz
Damping: 1.079 1/s, Ratio of Amplitudes: 1.517

Mode 45: Observability



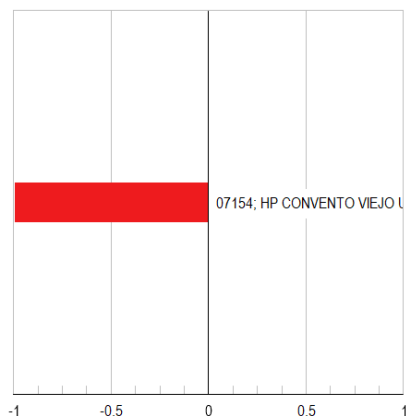
Eigenvalue of mode: $-0.469 + 6.953j$
Magnitude: 6.969 1/s, Angle: 93.858 deg
Period: 0.904 s, Frequency: 1.107 Hz
Damping: 0.469 1/s, Ratio of Amplitudes: 1.528

Mode 65: Observability



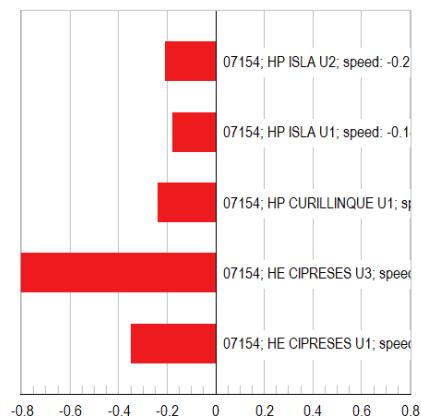
Eigenvalue of mode: $-0.743 + 10.280j$
Magnitude: 10.307 1/s, Angle: 94.136 deg
Period: 0.611 s, Frequency: 1.636 Hz
Damping: 0.743 1/s, Ratio of Amplitudes: 1.575

Mode 107: Participation



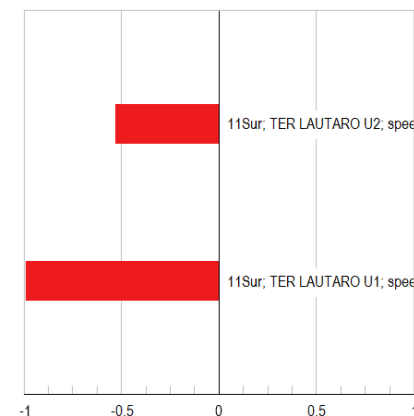
Eigenvalue of mode: $-1.079 + 16.261j$
Magnitude: 16.297 1/s, Angle: 93.796 deg
Period: 0.386 s, Frequency: 2.588 Hz
Damping: 1.079 1/s, Ratio of Amplitudes: 1.517
Min. contribution: 0.100

Mode 45: Participation



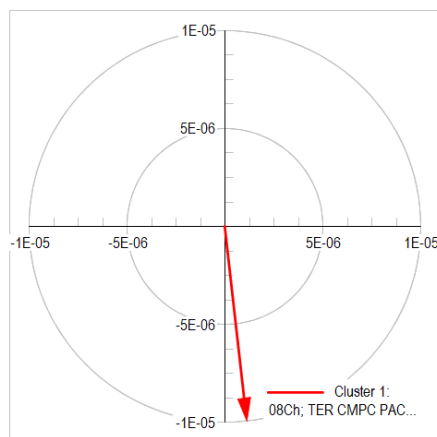
Eigenvalue of mode: $-0.469 + 6.953j$
Magnitude: 6.969 1/s, Angle: 93.858 deg
Period: 0.904 s, Frequency: 1.107 Hz
Damping: 0.469 1/s, Ratio of Amplitudes: 1.528
Min. contribution: 0.100

Mode 65: Participation



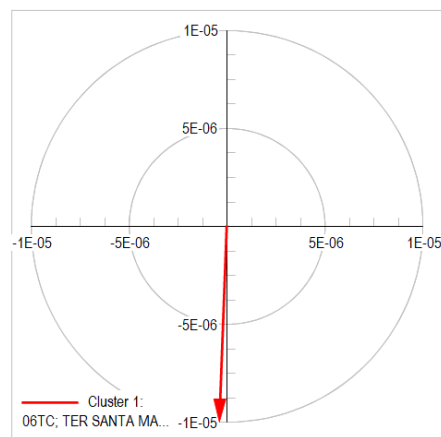
Eigenvalue of mode: $-0.743 + 10.280j$
Magnitude: 10.307 1/s, Angle: 94.136 deg
Period: 0.611 s, Frequency: 1.636 Hz
Damping: 0.743 1/s, Ratio of Amplitudes: 1.575
Min. contribution: 0.100

Mode 67: Observability



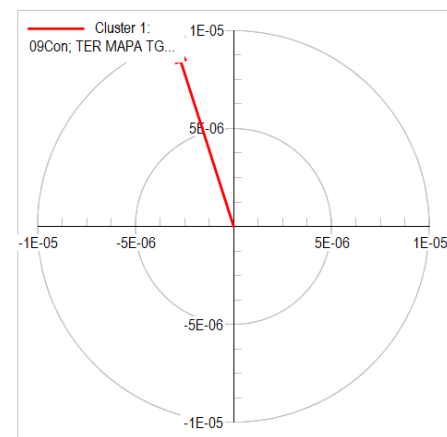
Eigenvalue of mode: $-0.744 + 9.160j$
Magnitude: 9.190 1/s, Angle: 94.642 deg
Period: 0.686 s, Frequency: 1.458 Hz
Damping: 0.744 1/s, Ratio of Amplitudes: 1.666

Mode 101: Observability



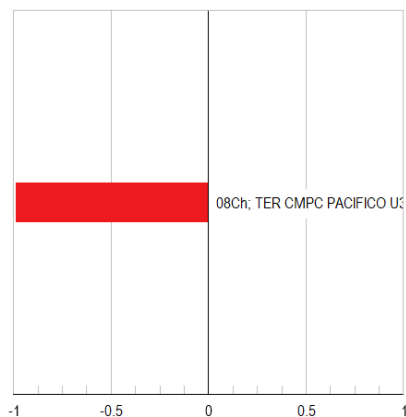
Eigenvalue of mode: $-1.065 + 12.999j$
Magnitude: 13.043 1/s, Angle: 94.685 deg
Period: 0.483 s, Frequency: 2.069 Hz
Damping: 1.065 1/s, Ratio of Amplitudes: 1.673

Mode 155: Observability



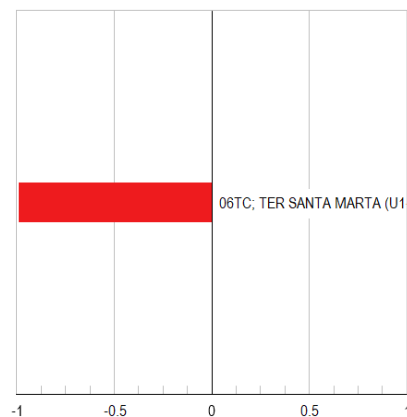
Eigenvalue of mode: $-1.442 + 17.120j$
Magnitude: 17.181 1/s, Angle: 94.815 deg
Period: 0.367 s, Frequency: 2.725 Hz
Damping: 1.442 1/s, Ratio of Amplitudes: 1.698

Mode 67: Participation



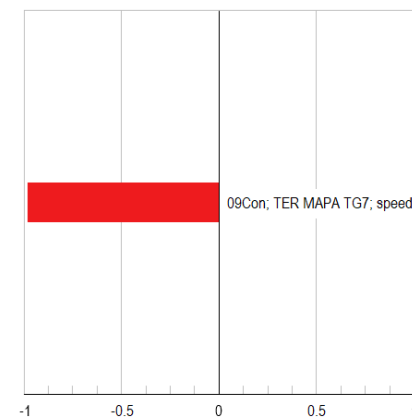
Eigenvalue of mode: $-0.744 + 9.160j$
Magnitude: 9.190 1/s, Angle: 94.642 deg
Period: 0.686 s, Frequency: 1.458 Hz
Damping: 0.744 1/s, Ratio of Amplitudes: 1.666
Min. contribution: 0.100

Mode 101: Participation



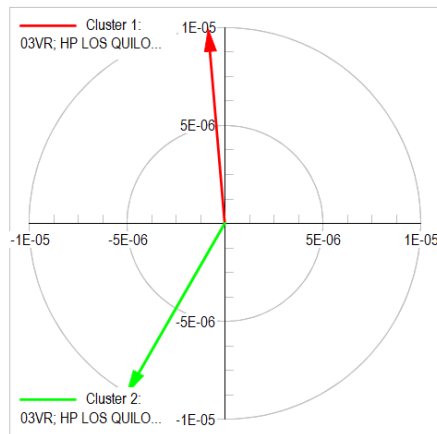
Eigenvalue of mode: $-1.065 + 12.999j$
Magnitude: 13.043 1/s, Angle: 94.685 deg
Period: 0.483 s, Frequency: 2.069 Hz
Damping: 1.065 1/s, Ratio of Amplitudes: 1.673
Min. contribution: 0.100

Mode 155: Participation



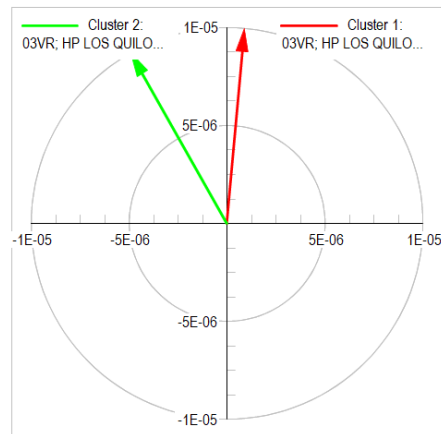
Eigenvalue of mode: $-1.442 + 17.120j$
Magnitude: 17.181 1/s, Angle: 94.815 deg
Period: 0.367 s, Frequency: 2.725 Hz
Damping: 1.442 1/s, Ratio of Amplitudes: 1.698
Min. contribution: 0.100

Mode 83: Observability



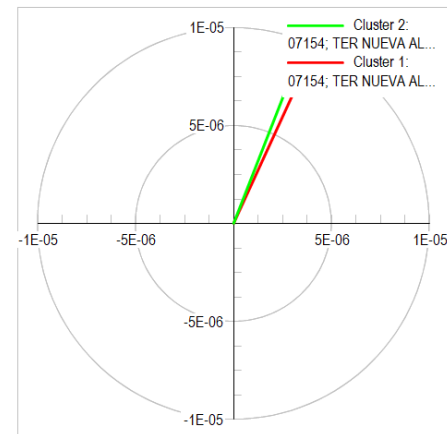
Eigenvalue of mode: $-0.874 + 10.332j$
Magnitude: 10.369 1/s, Angle: 94.836 deg
Period: 0.608 s, Frequency: 1.644 Hz
Damping: 0.874 1/s, Ratio of Amplitudes: 1.702

Mode 81: Observability



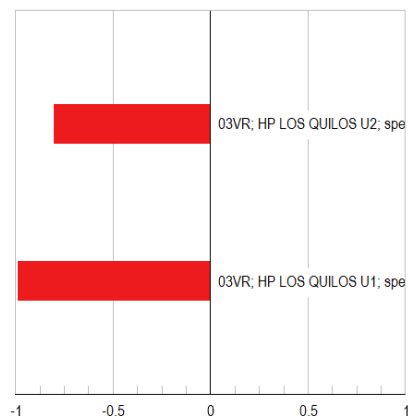
Eigenvalue of mode: $-0.868 + 10.153j$
Magnitude: 10.190 1/s, Angle: 94.888 deg
Period: 0.619 s, Frequency: 1.616 Hz
Damping: 0.868 1/s, Ratio of Amplitudes: 1.711

Mode 37: Observability



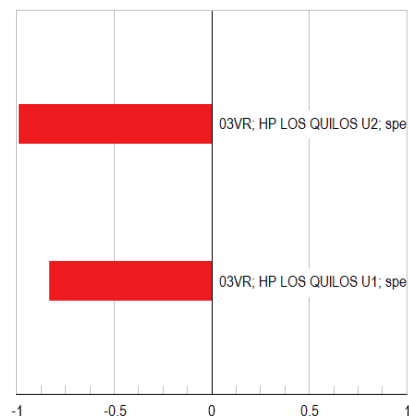
Eigenvalue of mode: $-0.422 + 4.828j$
Magnitude: 4.847 1/s, Angle: 94.992 deg
Period: 1.301 s, Frequency: 0.768 Hz
Damping: 0.422 1/s, Ratio of Amplitudes: 1.731

Mode 83: Participation



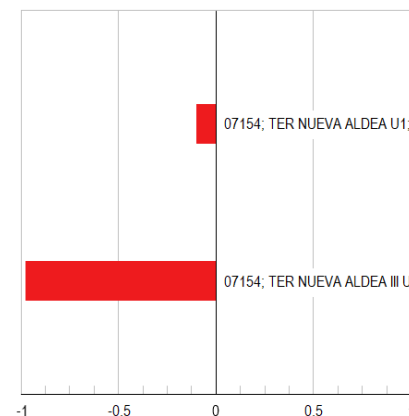
Eigenvalue of mode: $-0.874 + 10.332j$
Magnitude: 10.369 1/s, Angle: 94.836 deg
Period: 0.608 s, Frequency: 1.644 Hz
Damping: 0.874 1/s, Ratio of Amplitudes: 1.702
Min. contribution: 0.100

Mode 81: Participation



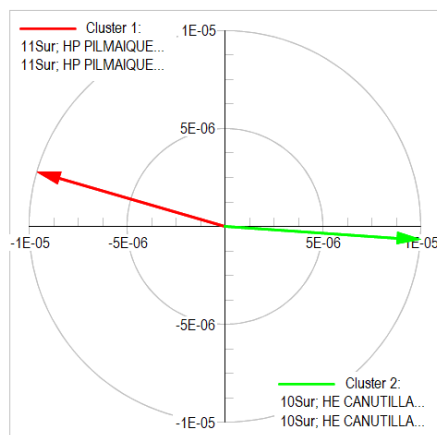
Eigenvalue of mode: $-0.868 + 10.153j$
Magnitude: 10.190 1/s, Angle: 94.888 deg
Period: 0.619 s, Frequency: 1.616 Hz
Damping: 0.868 1/s, Ratio of Amplitudes: 1.711
Min. contribution: 0.100

Mode 37: Participation



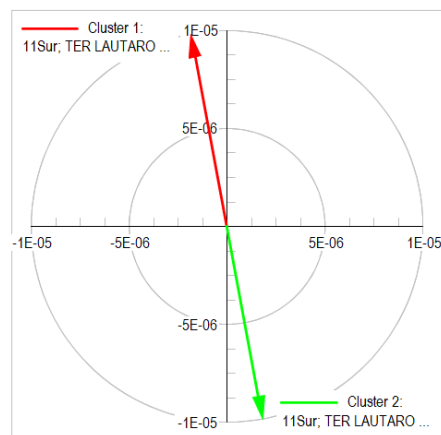
Eigenvalue of mode: $-0.422 + 4.828j$
Magnitude: 4.847 1/s, Angle: 94.992 deg
Period: 1.301 s, Frequency: 0.768 Hz
Damping: 0.422 1/s, Ratio of Amplitudes: 1.731
Min. contribution: 0.100

Mode 85: Observability



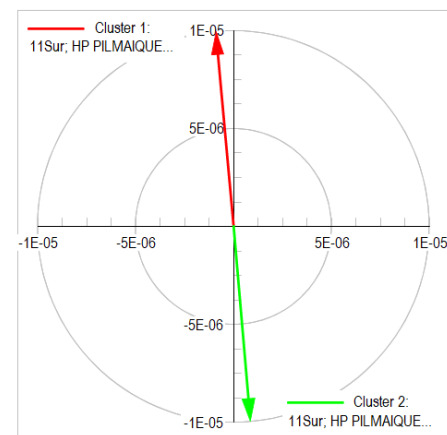
Eigenvalue of mode: $-0.894 + 10.209j$
Magnitude: 10.248 1/s, Angle: 95.005 deg
Period: 0.615 s, Frequency: 1.625 Hz
Damping: 0.894 1/s, Ratio of Amplitudes: 1.734

Mode 99: Observability



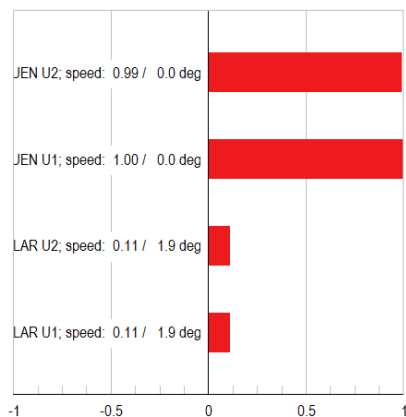
Eigenvalue of mode: $-1.061 + 12.007j$
Magnitude: 12.054 1/s, Angle: 95.051 deg
Period: 0.523 s, Frequency: 1.911 Hz
Damping: 1.061 1/s, Ratio of Amplitudes: 1.743

Mode 89: Observability



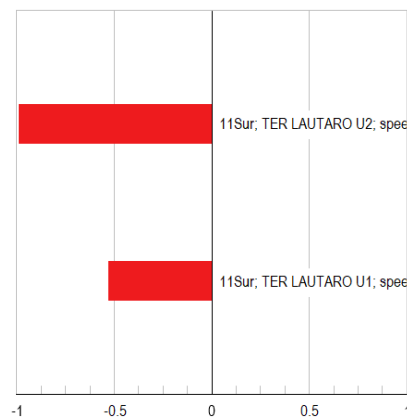
Eigenvalue of mode: $-0.939 + 10.387j$
Magnitude: 10.429 1/s, Angle: 95.165 deg
Period: 0.605 s, Frequency: 1.653 Hz
Damping: 0.939 1/s, Ratio of Amplitudes: 1.765

Mode 85: Participation



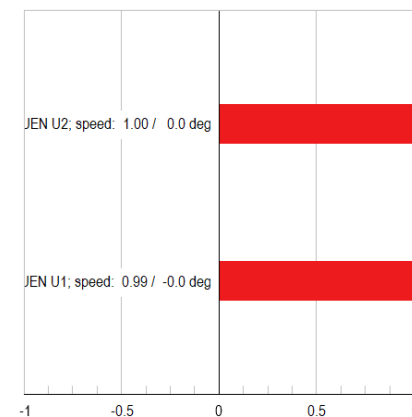
Eigenvalue of mode: $-0.894 + 10.209j$
Magnitude: 10.248 1/s, Angle: 95.005 deg
Period: 0.615 s, Frequency: 1.625 Hz
Damping: 0.894 1/s, Ratio of Amplitudes: 1.734
Min. contribution: 0.100

Mode 99: Participation



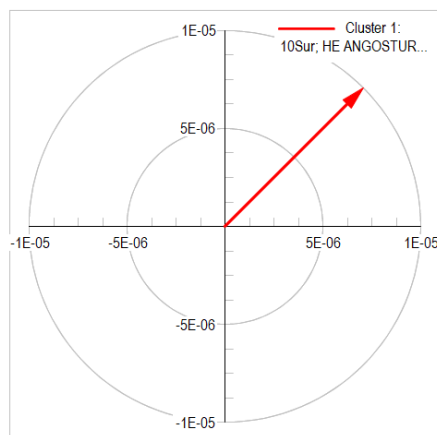
Eigenvalue of mode: $-1.061 + 12.007j$
Magnitude: 12.054 1/s, Angle: 95.051 deg
Period: 0.523 s, Frequency: 1.911 Hz
Damping: 1.061 1/s, Ratio of Amplitudes: 1.743
Min. contribution: 0.100

Mode 89: Participation



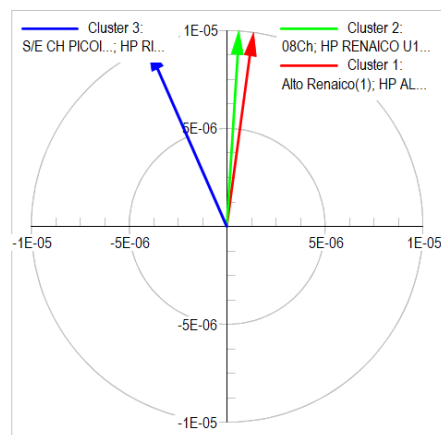
Eigenvalue of mode: $-0.939 + 10.387j$
Magnitude: 10.429 1/s, Angle: 95.165 deg
Period: 0.605 s, Frequency: 1.653 Hz
Damping: 0.939 1/s, Ratio of Amplitudes: 1.765
Min. contribution: 0.100

Mode 39: Observability



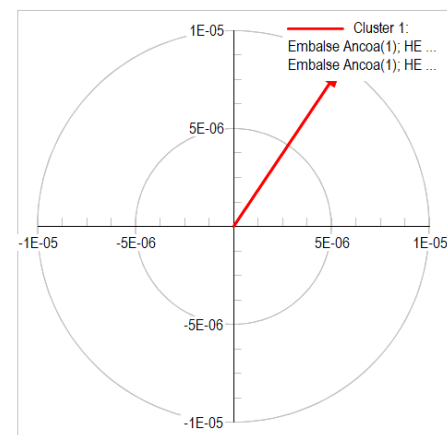
Eigenvalue of mode: $-0.432 + 4.759j$
Magnitude: 4.778 1/s, Angle: 95.184 deg
Period: 1.320 s, Frequency: 0.757 Hz
Damping: 0.432 1/s, Ratio of Amplitudes: 1.768

Mode 181: Observability



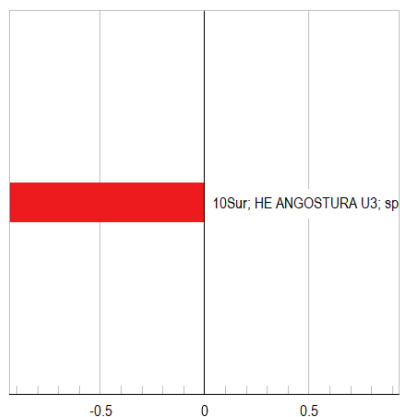
Eigenvalue of mode: $-1.691 + 18.018j$
Magnitude: 18.098 1/s, Angle: 95.363 deg
Period: 0.349 s, Frequency: 2.868 Hz
Damping: 1.691 1/s, Ratio of Amplitudes: 1.804

Mode 63: Observability



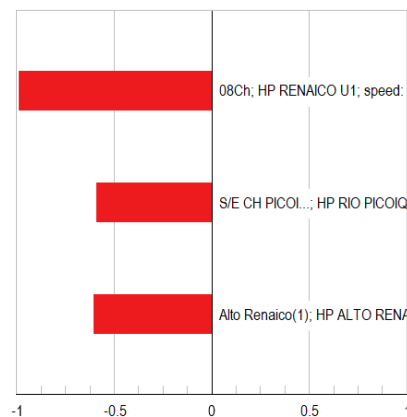
Eigenvalue of mode: $-0.740 + 7.801j$
Magnitude: 7.836 1/s, Angle: 95.422 deg
Period: 0.805 s, Frequency: 1.242 Hz
Damping: 0.740 1/s, Ratio of Amplitudes: 1.816

Mode 39: Participation



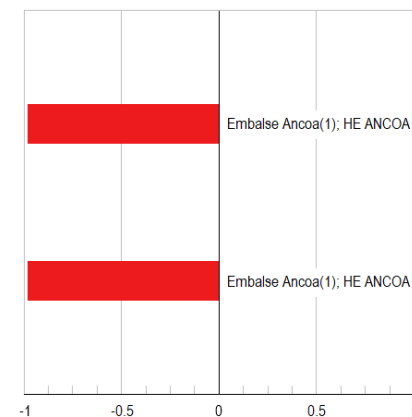
Eigenvalue of mode: $-0.432 + 4.759j$
Magnitude: 4.778 1/s, Angle: 95.184 deg
Period: 1.320 s, Frequency: 0.757 Hz
Damping: 0.432 1/s, Ratio of Amplitudes: 1.768
Min. contribution: 0.100

Mode 181: Participation



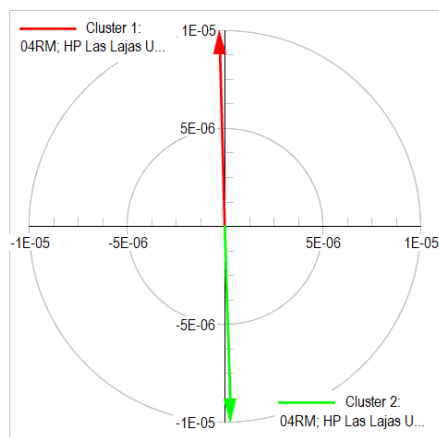
Eigenvalue of mode: $-1.691 + 18.018j$
Magnitude: 18.098 1/s, Angle: 95.363 deg
Period: 0.349 s, Frequency: 2.868 Hz
Damping: 1.691 1/s, Ratio of Amplitudes: 1.804
Min. contribution: 0.100

Mode 63: Participation



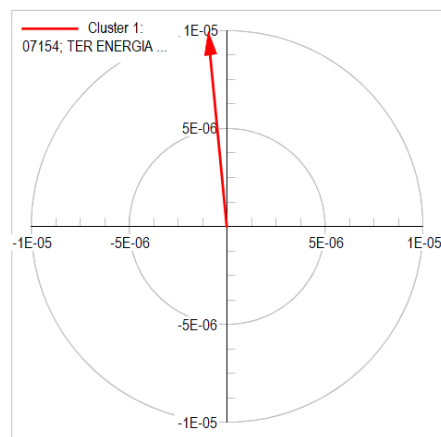
Eigenvalue of mode: $-0.740 + 7.801j$
Magnitude: 7.836 1/s, Angle: 95.422 deg
Period: 0.805 s, Frequency: 1.242 Hz
Damping: 0.740 1/s, Ratio of Amplitudes: 1.816
Min. contribution: 0.100

Mode 43: Observability



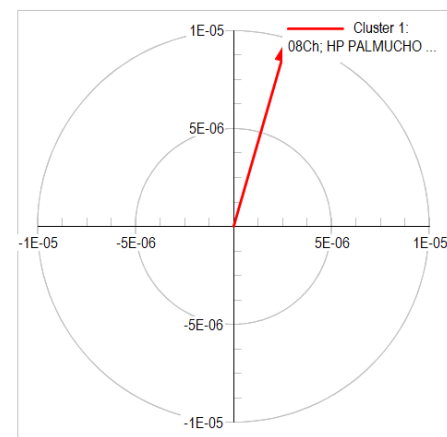
Eigenvalue of mode: $-0.463 + 4.819j$
Magnitude: 4.841 1/s, Angle: 95.491 deg
Period: 1.304 s, Frequency: 0.767 Hz
Damping: 0.463 1/s, Ratio of Amplitudes: 1.829

Mode 75: Observability



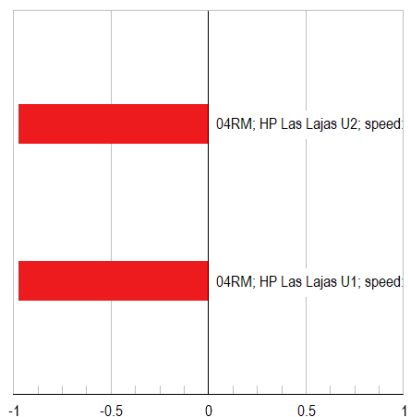
Eigenvalue of mode: $-0.838 + 8.703j$
Magnitude: 8.743 1/s, Angle: 95.501 deg
Period: 0.722 s, Frequency: 1.385 Hz
Damping: 0.838 1/s, Ratio of Amplitudes: 1.831

Mode 125: Observability



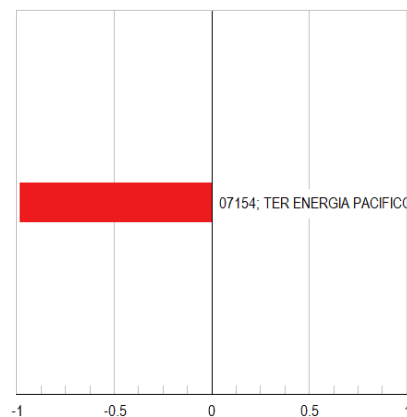
Eigenvalue of mode: $-1.180 + 11.954j$
Magnitude: 12.012 1/s, Angle: 95.638 deg
Period: 0.526 s, Frequency: 1.902 Hz
Damping: 1.180 1/s, Ratio of Amplitudes: 1.859

Mode 43: Participation



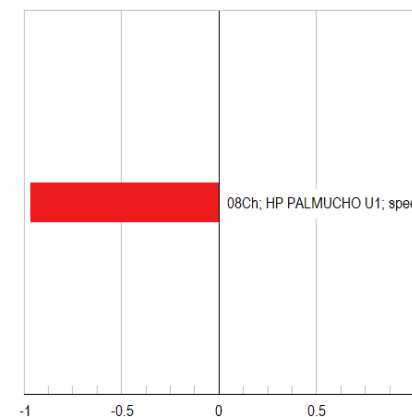
Eigenvalue of mode: $-0.463 + 4.819j$
Magnitude: 4.841 1/s, Angle: 95.491 deg
Period: 1.304 s, Frequency: 0.767 Hz
Damping: 0.463 1/s, Ratio of Amplitudes: 1.829
Min. contribution: 0.100

Mode 75: Participation



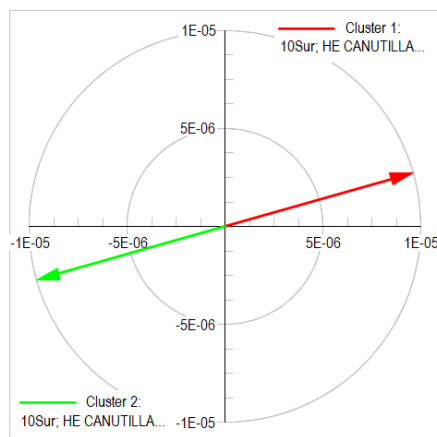
Eigenvalue of mode: $-0.838 + 8.703j$
Magnitude: 8.743 1/s, Angle: 95.501 deg
Period: 0.722 s, Frequency: 1.385 Hz
Damping: 0.838 1/s, Ratio of Amplitudes: 1.831
Min. contribution: 0.100

Mode 125: Participation



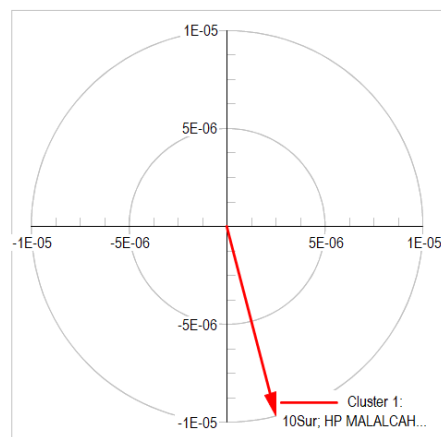
Eigenvalue of mode: $-1.180 + 11.954j$
Magnitude: 12.012 1/s, Angle: 95.638 deg
Period: 0.526 s, Frequency: 1.902 Hz
Damping: 1.180 1/s, Ratio of Amplitudes: 1.859
Min. contribution: 0.100

Mode 113: Observability



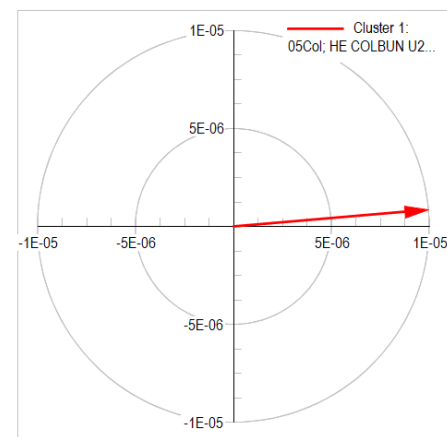
Eigenvalue of mode: $-1.116 + 11.300j$
Magnitude: 11.355 1/s, Angle: 95.642 deg
Period: 0.556 s, Frequency: 1.798 Hz
Damping: 1.116 1/s, Ratio of Amplitudes: 1.860

Mode 77: Observability



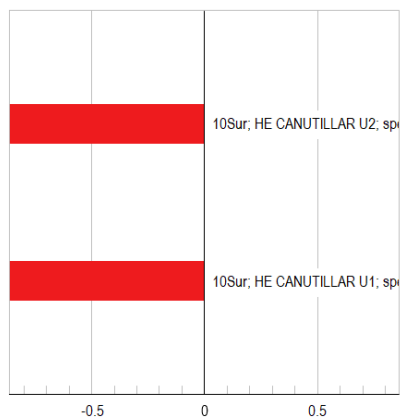
Eigenvalue of mode: $-0.841 + 8.500j$
Magnitude: 8.542 1/s, Angle: 95.652 deg
Period: 0.739 s, Frequency: 1.353 Hz
Damping: 0.841 1/s, Ratio of Amplitudes: 1.862

Mode 91: Observability



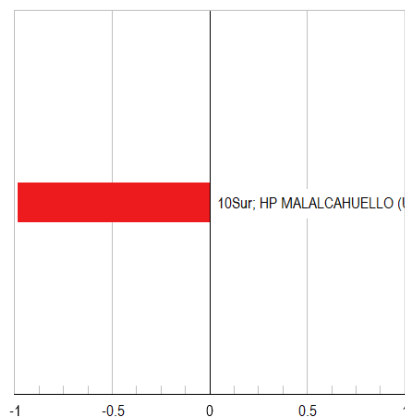
Eigenvalue of mode: $-0.957 + 9.663j$
Magnitude: 9.710 1/s, Angle: 95.658 deg
Period: 0.650 s, Frequency: 1.538 Hz
Damping: 0.957 1/s, Ratio of Amplitudes: 1.864

Mode 113: Participation



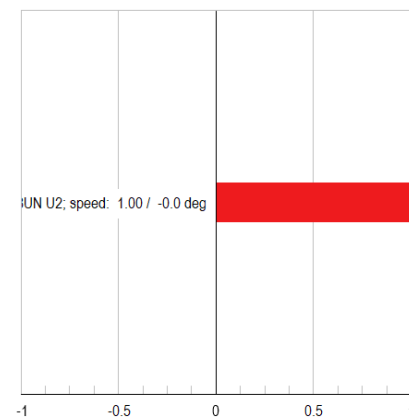
Eigenvalue of mode: $-1.116 + 11.300j$
Magnitude: 11.355 1/s, Angle: 95.642 deg
Period: 0.556 s, Frequency: 1.798 Hz
Damping: 1.116 1/s, Ratio of Amplitudes: 1.860
Min. contribution: 0.100

Mode 77: Participation



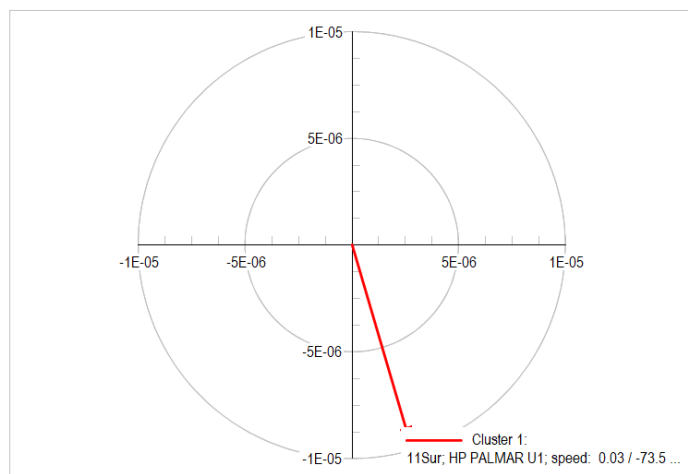
Eigenvalue of mode: $-0.841 + 8.500j$
Magnitude: 8.542 1/s, Angle: 95.652 deg
Period: 0.739 s, Frequency: 1.353 Hz
Damping: 0.841 1/s, Ratio of Amplitudes: 1.862
Min. contribution: 0.100

Mode 91: Participation



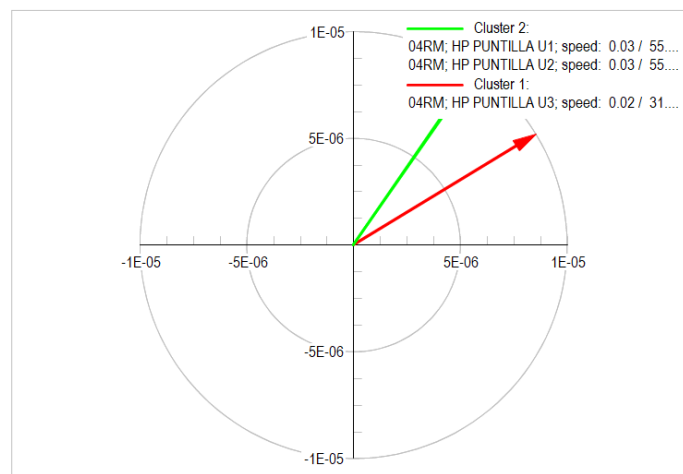
Eigenvalue of mode: $-0.957 + 9.663j$
Magnitude: 9.710 1/s, Angle: 95.658 deg
Period: 0.650 s, Frequency: 1.538 Hz
Damping: 0.957 1/s, Ratio of Amplitudes: 1.864
Min. contribution: 0.100

Mode 87: Observability



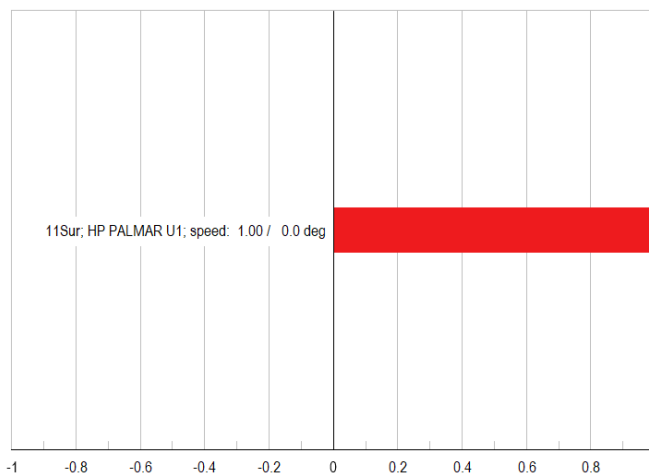
Eigenvalue of mode: $-0.903 + 9.024j$ Period: 0.696 s, Frequency: 1.436 Hz
Magnitude: 9.069 1/s, Angle: 95.713 deg Damping: 0.903 1/s, Ratio of Amplitudes: 1.875

Mode 119: Observability



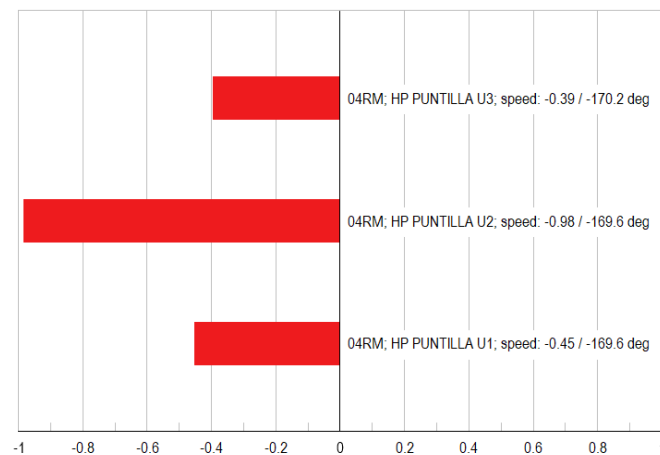
Eigenvalue of mode: $-1.141 + 11.355j$ Period: 0.553 s, Frequency: 1.807 Hz
Magnitude: 11.412 1/s, Angle: 95.737 deg Damping: 1.141 1/s, Ratio of Amplitudes: 1.880

Mode 87: Participation



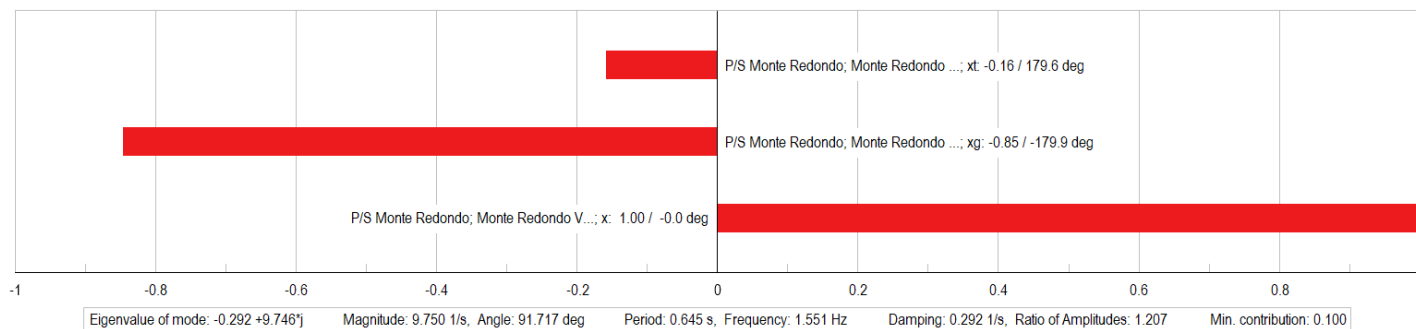
Eigenvalue of mode: $-0.903 + 9.024j$ Period: 0.696 s, Frequency: 1.436 Hz Min. contribution: 0.100
Magnitude: 9.069 1/s, Angle: 95.713 deg Damping: 0.903 1/s, Ratio of Amplitudes: 1.875

Mode 119: Participation

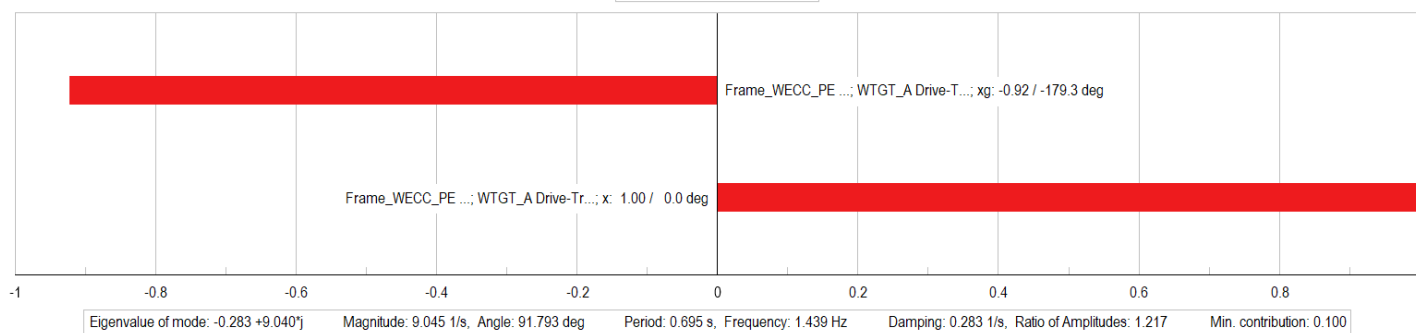


Eigenvalue of mode: $-1.141 + 11.355j$ Damping: 1.141 1/s, Ratio of Amplitudes: 1.880
Magnitude: 11.412 1/s, Angle: 95.737 deg Min. contribution: 0.100
Period: 0.553 s, Frequency: 1.807 Hz

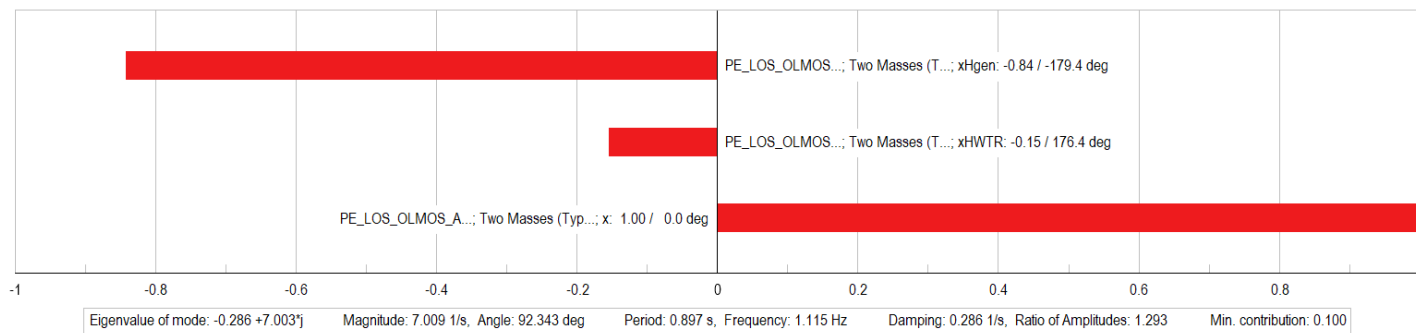
Mode 27: Participation

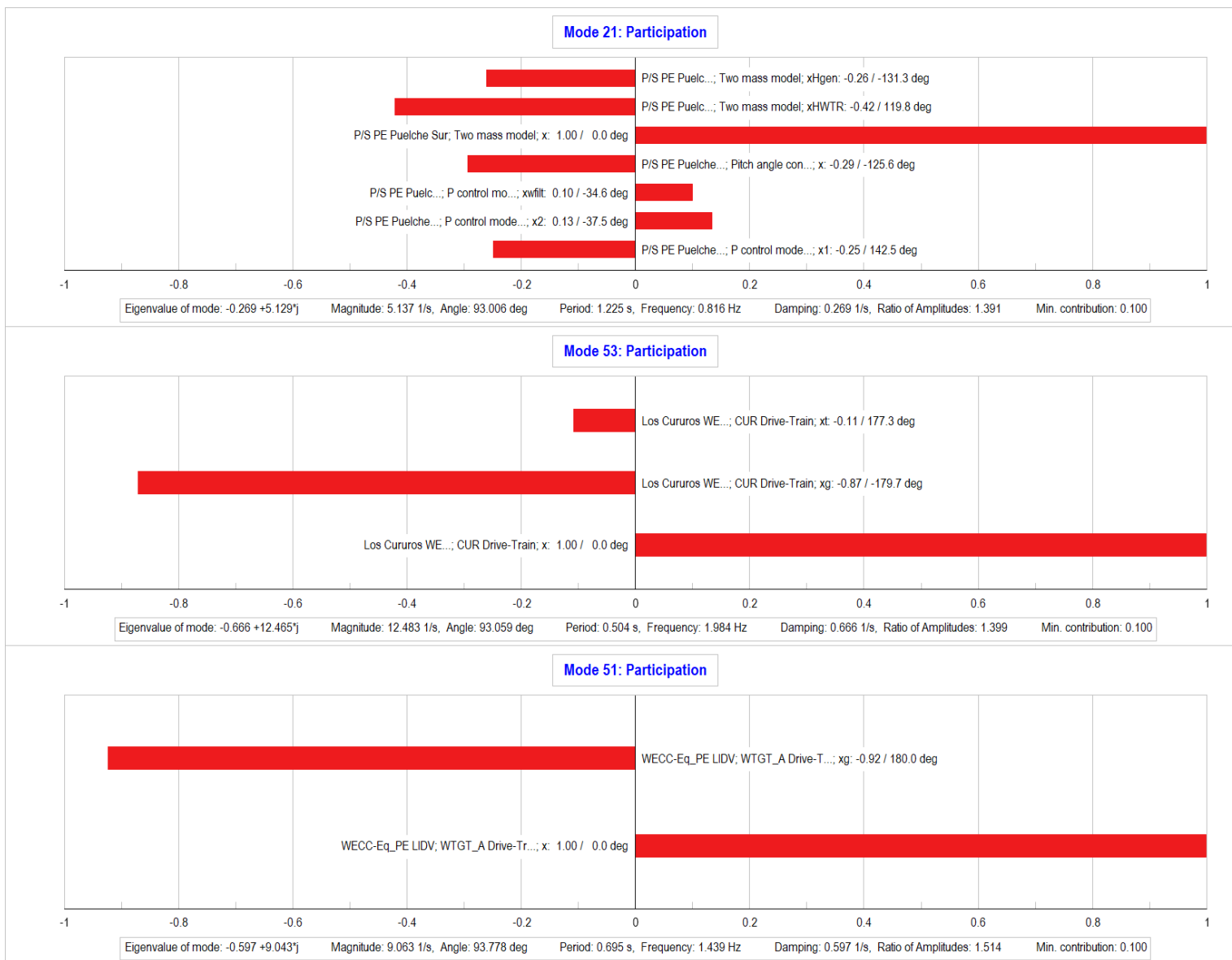


Mode 23: Participation

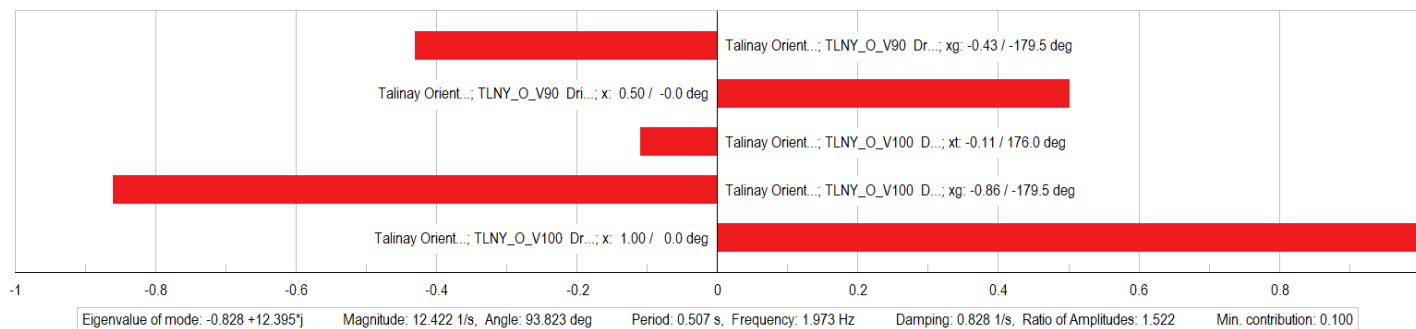


Mode 25: Participation

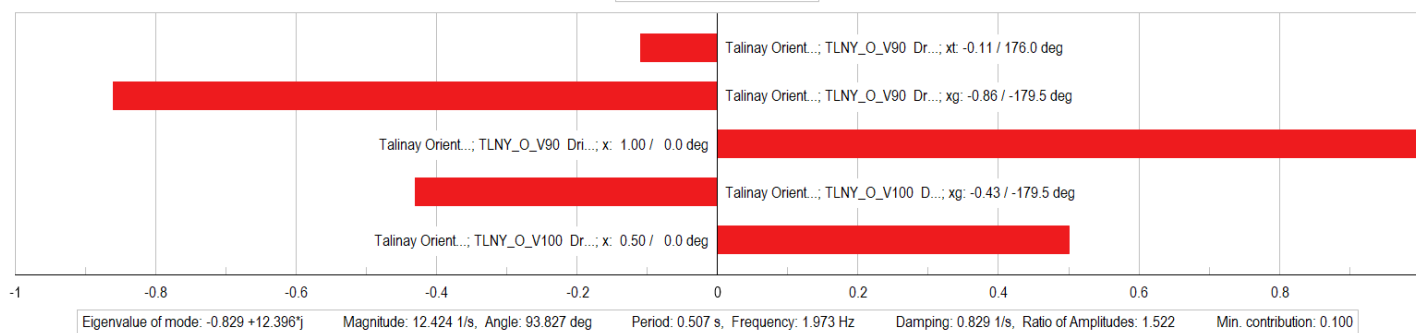




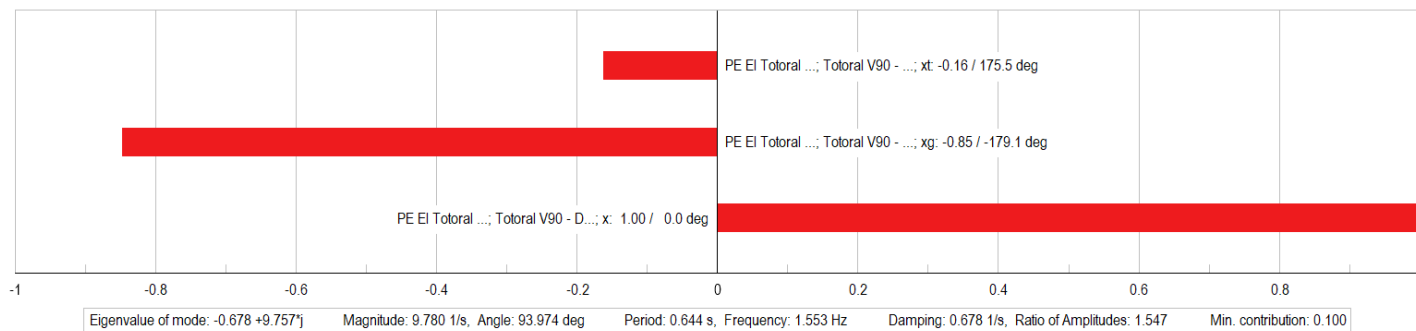
Mode 69: Participation



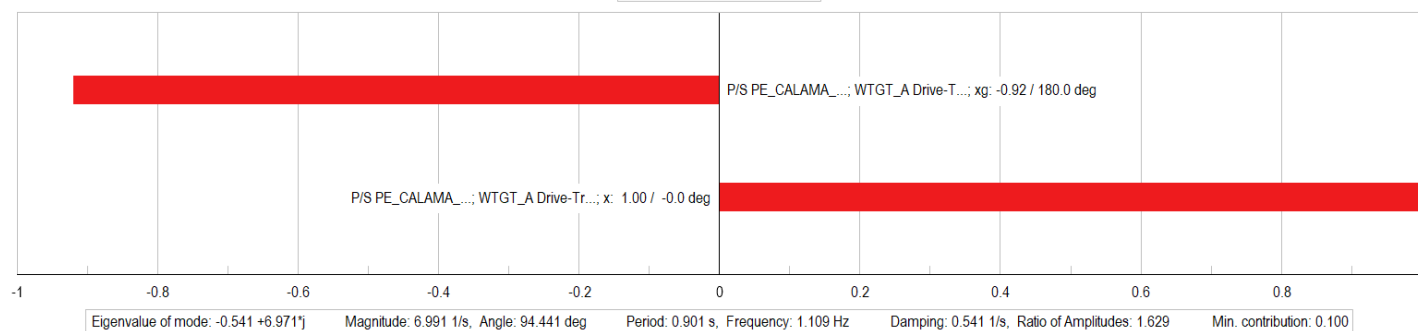
Mode 71: Participation



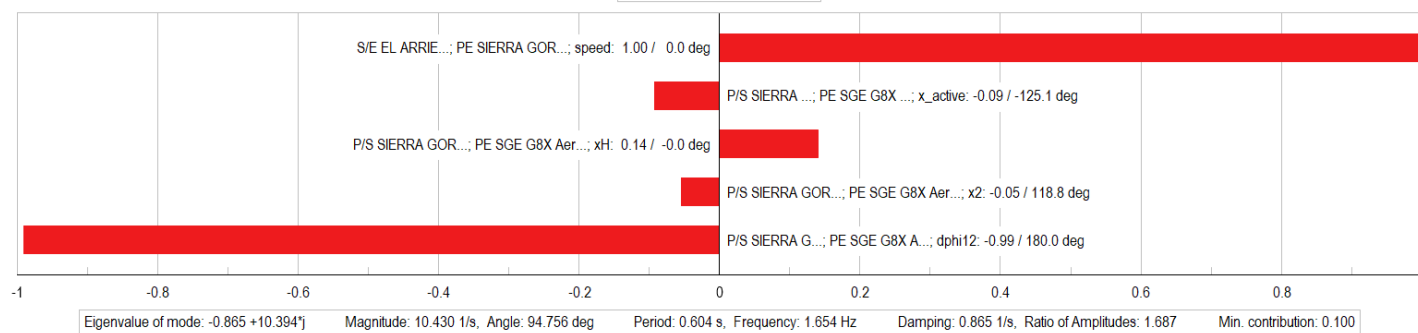
Mode 55: Participation



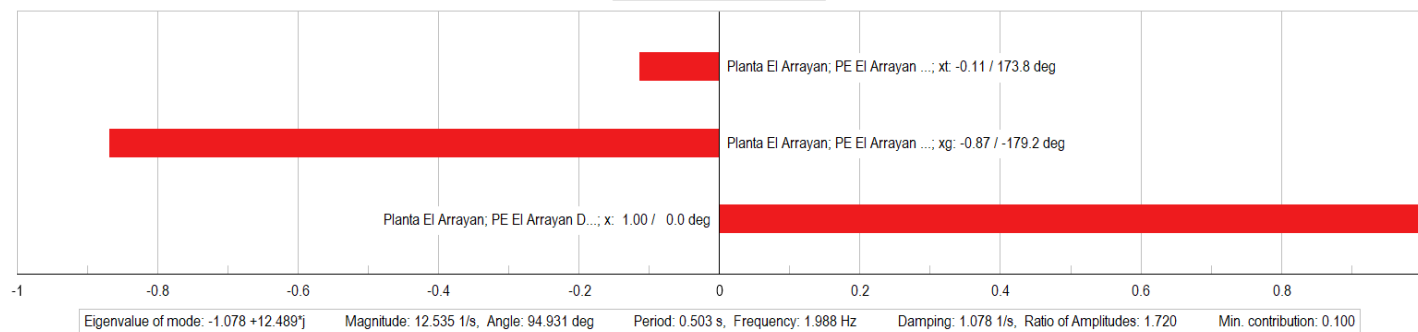
Mode 47: Participation



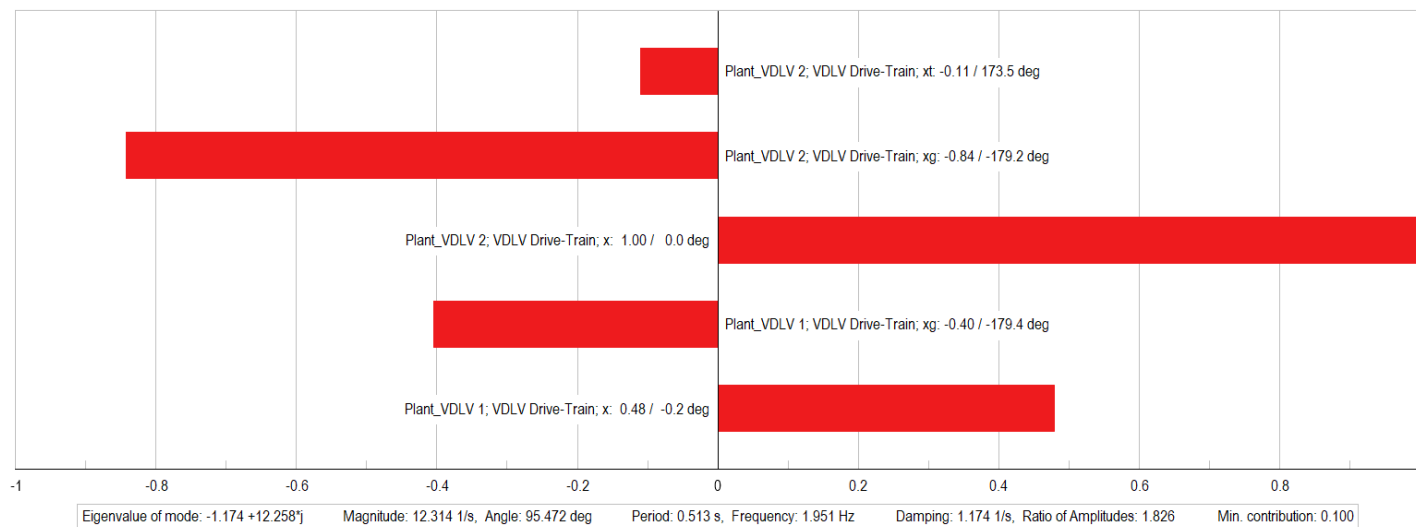
Mode 79: Participation



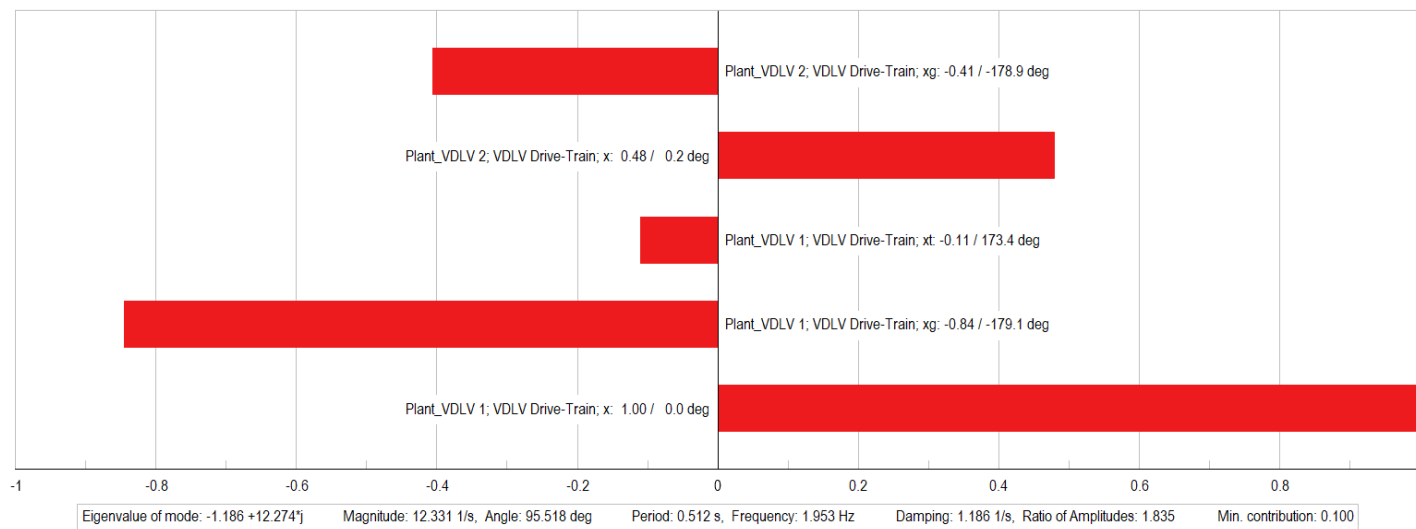
Mode 105: Participation



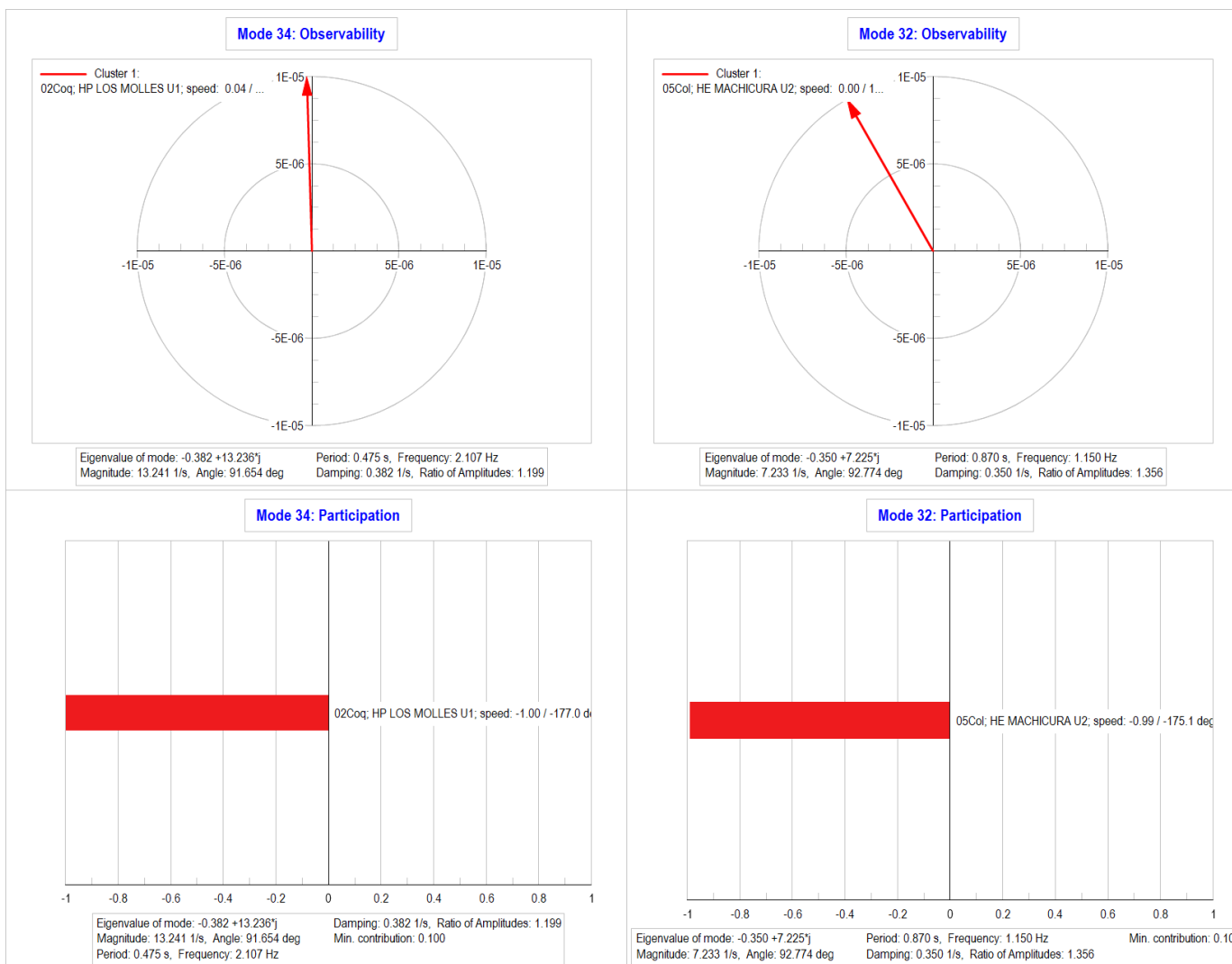
Mode 123: Participation



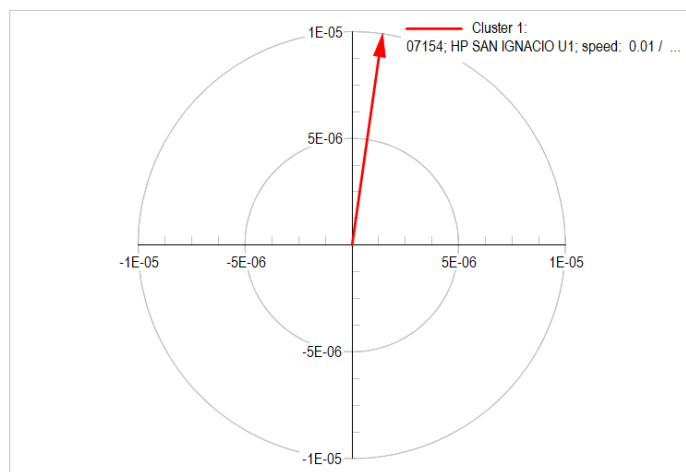
Mode 127: Participation



15.3.2 Red N-1 Caso 1.- Cambios – Parinas 500 kV

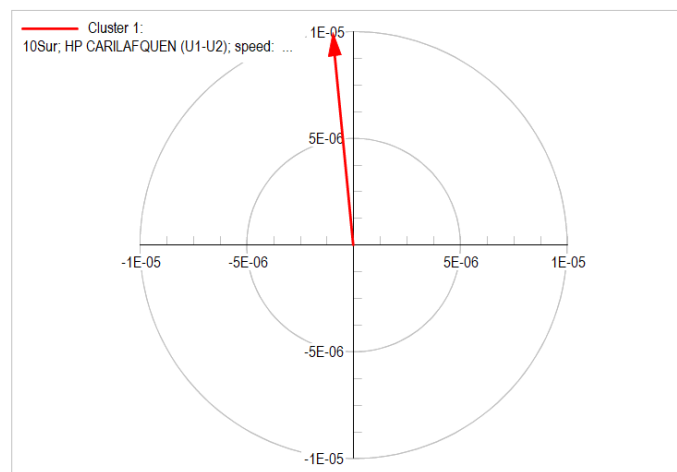


Mode 42: Observability



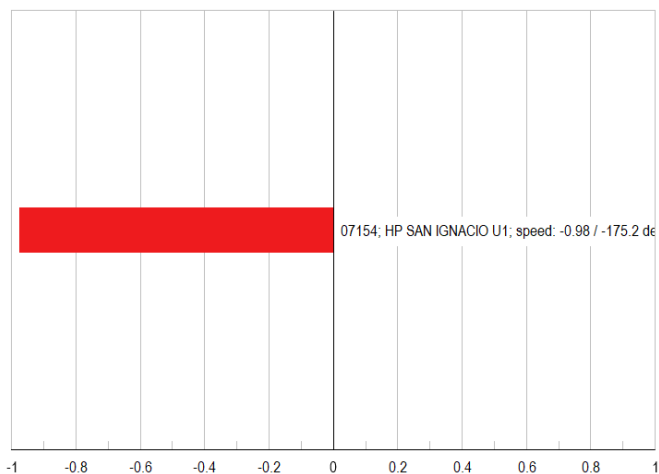
Eigenvalue of mode: $-0.443 + 9.036j$ Period: 0.695 s, Frequency: 1.438 Hz
Magnitude: 9.047 1/s, Angle: 92.809 deg Damping: 0.443 1/s, Ratio of Amplitudes: 1.361

Mode 20: Observability



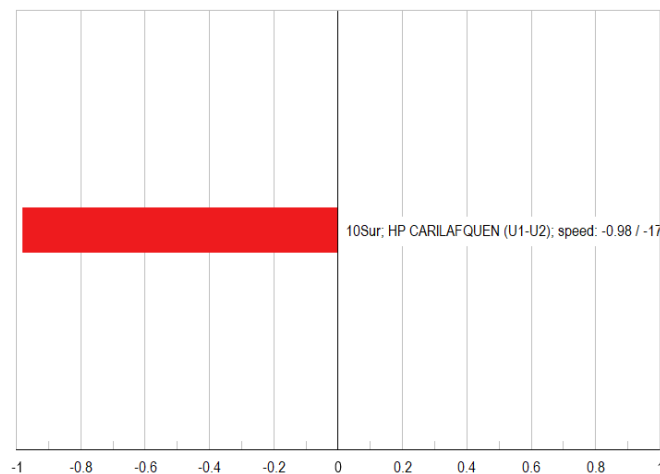
Eigenvalue of mode: $-0.266 + 5.361j$ Period: 1.172 s, Frequency: 0.853 Hz
Magnitude: 5.368 1/s, Angle: 92.835 deg Damping: 0.266 1/s, Ratio of Amplitudes: 1.365

Mode 42: Participation



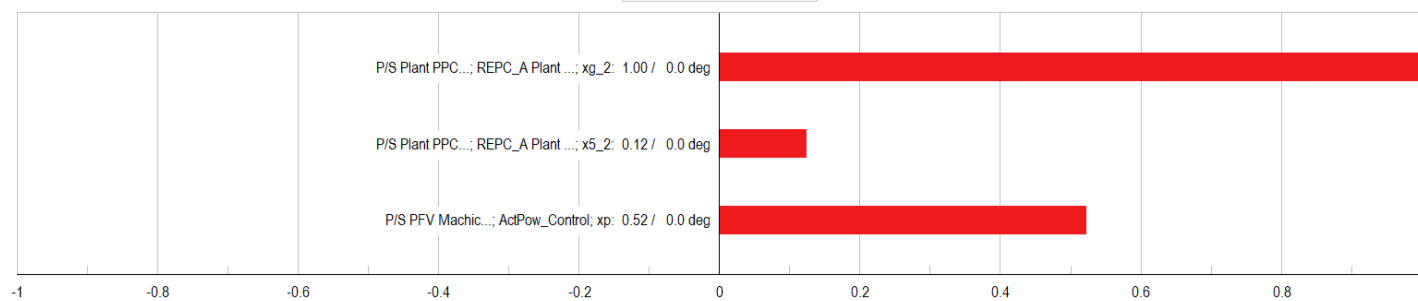
Eigenvalue of mode: $-0.443 + 9.036j$ Period: 0.695 s, Frequency: 1.438 Hz Min. contribution: 0.100
Magnitude: 9.047 1/s, Angle: 92.809 deg Damping: 0.443 1/s, Ratio of Amplitudes: 1.361

Mode 20: Participation



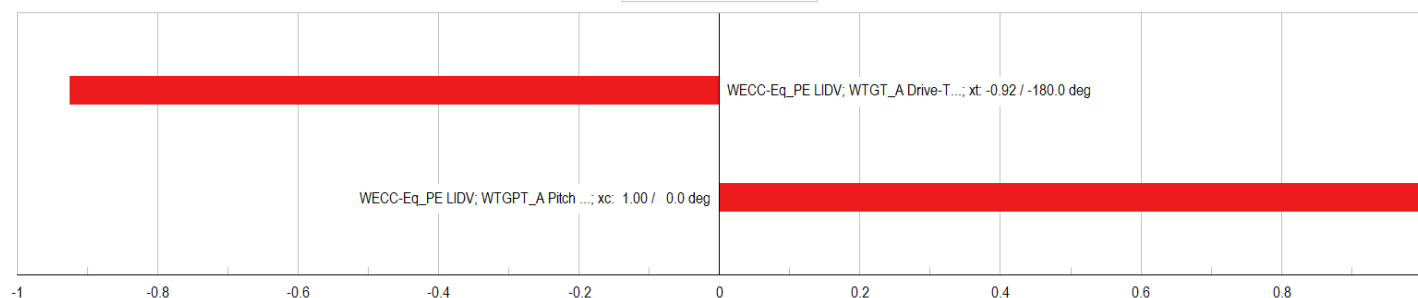
Eigenvalue of mode: $-0.266 + 5.361j$ Period: 1.172 s, Frequency: 0.853 Hz Min. contribution: 0.100
Magnitude: 5.368 1/s, Angle: 92.835 deg Damping: 0.266 1/s, Ratio of Amplitudes: 1.365

Mode 1: Participation



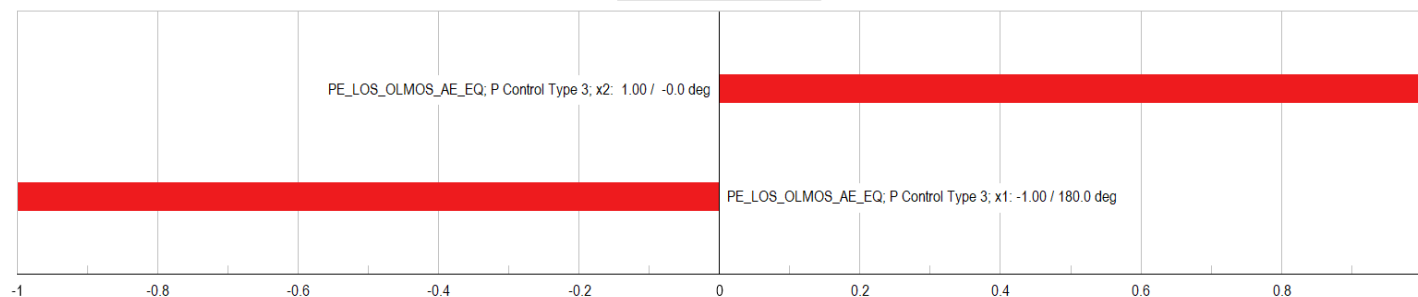
Eigenvalue of mode: $+0.571 + 0.000j$ Magnitude: 0.571 1/s, Angle: 0.000 deg Period: nan s, Frequency: 0.000 Hz Damping: -0.571 1/s, Ratio of Amplitudes: nan Min. contribution: 0.100

Mode 2: Participation



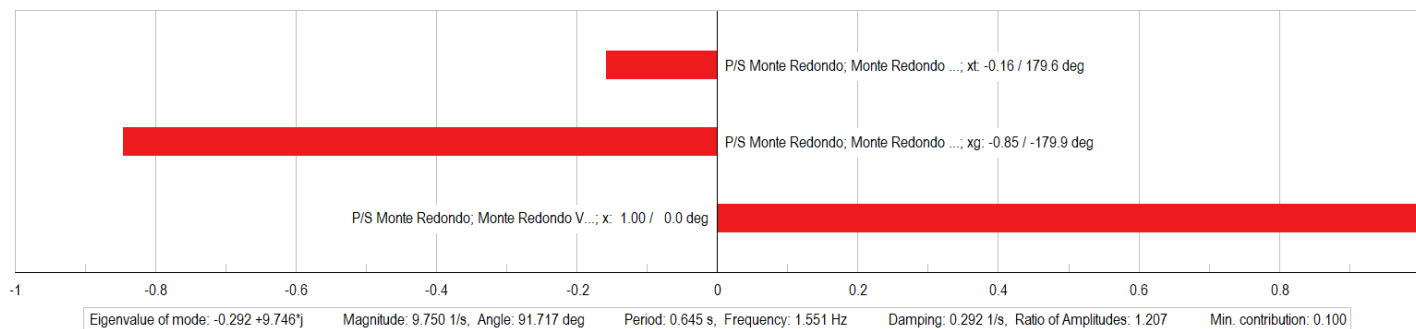
Eigenvalue of mode: $+0.000 + 0.000j$ Magnitude: 0.000 1/s, Angle: 89.475 deg Period: 180689.440 s, Frequency: 0.000 Hz Damping: -0.000 1/s, Ratio of Amplitudes: 0.944 Min. contribution: 0.100

Mode 14: Participation

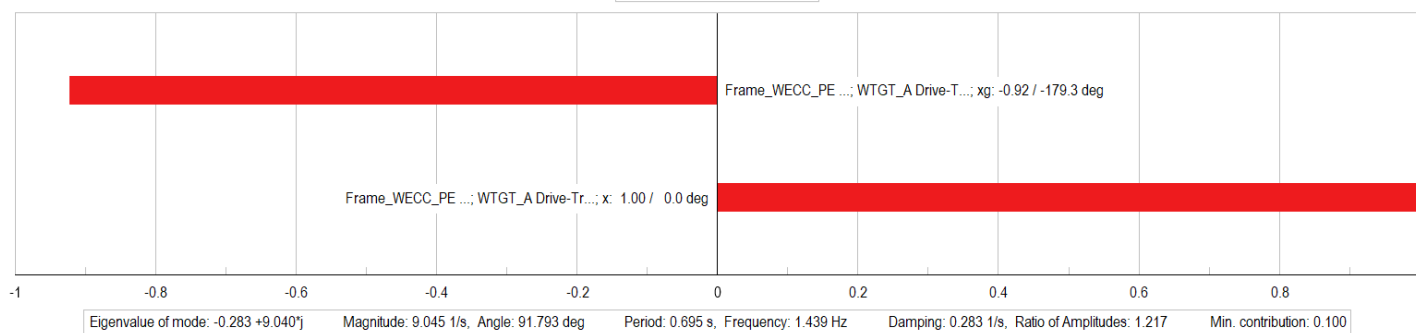


Eigenvalue of mode: $+0.000 + 1.000j$ Magnitude: 1.000 1/s, Angle: 90.000 deg Period: 6.283 s, Frequency: 0.159 Hz Damping: -0.000 1/s, Ratio of Amplitudes: 1.000 Min. contribution: 0.100

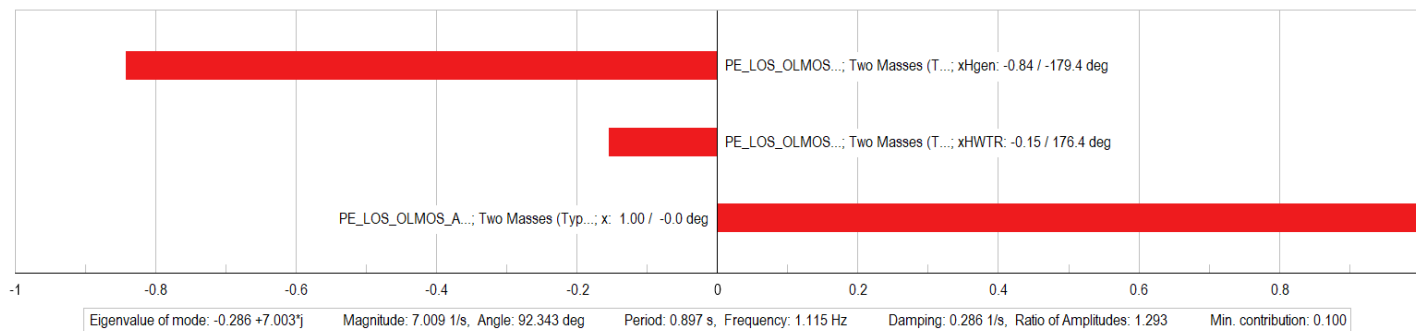
Mode 28: Participation



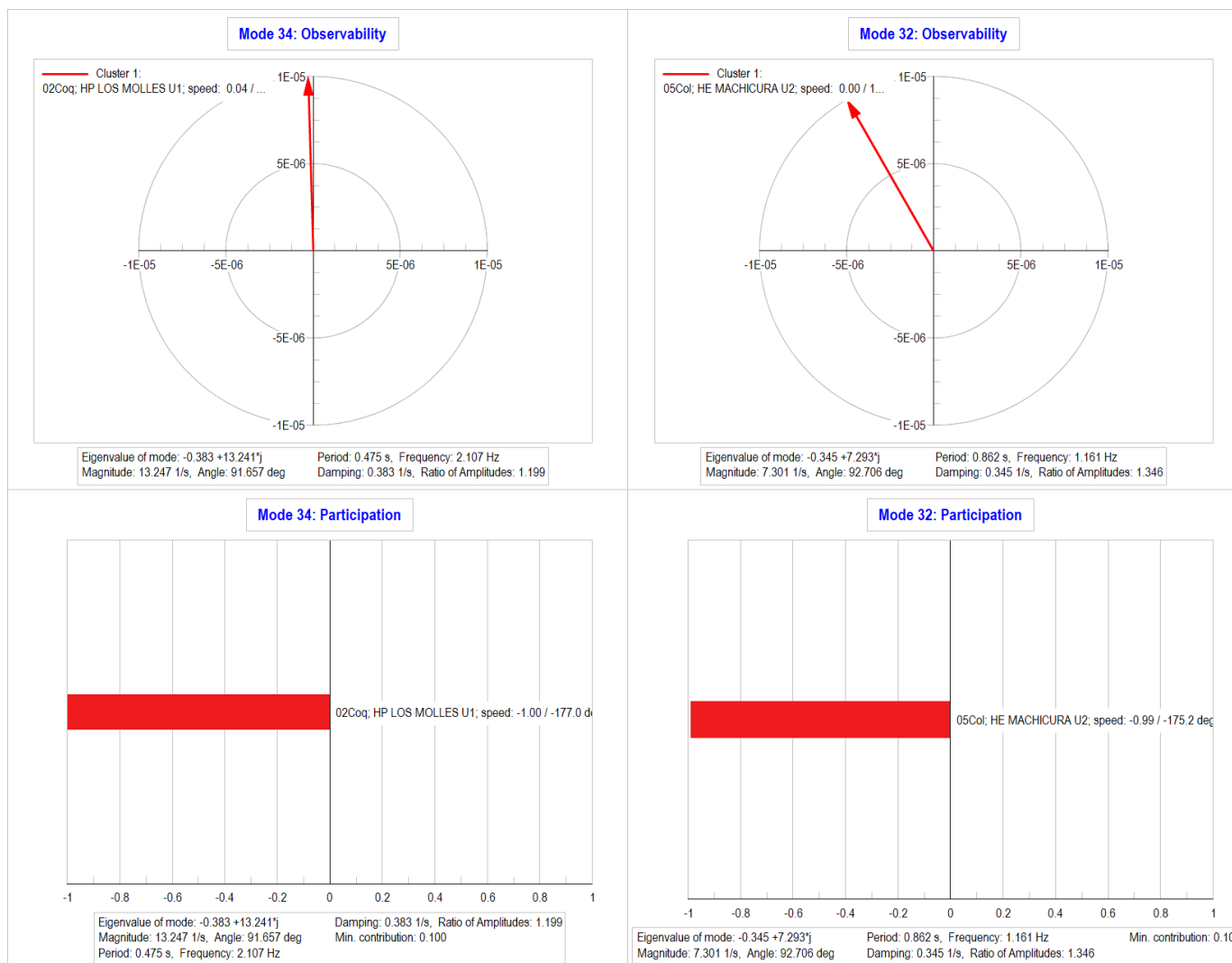
Mode 24: Participation



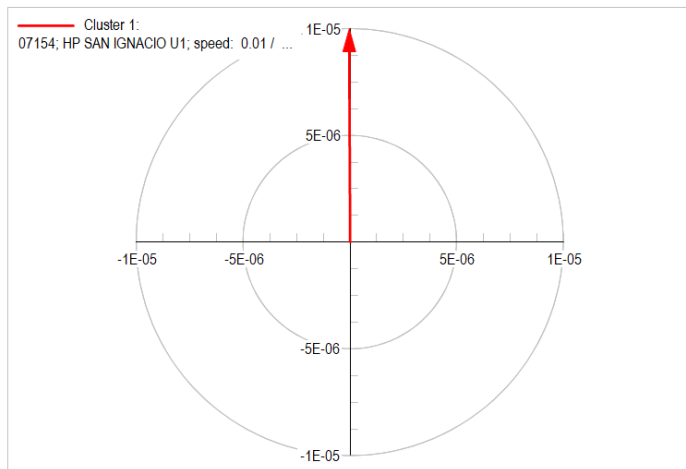
Mode 26: Participation



15.3.3 Red N-1 Caso 2.- Nueva Pan de Azúcar - Polpaico 500 kV

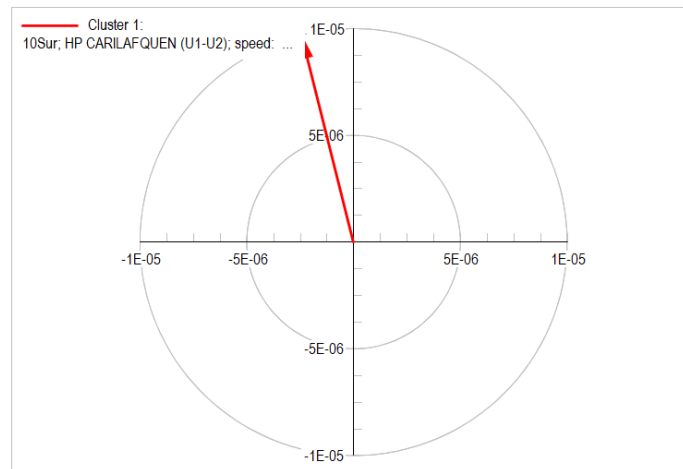


Mode 40: Observability



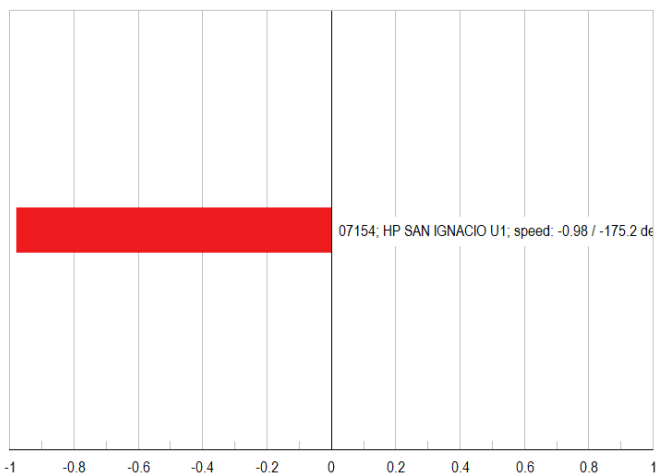
Eigenvalue of mode: $-0.439 + 9.044j$ Period: 0.695 s, Frequency: 1.439 Hz
Magnitude: 9.055 1/s, Angle: 92.777 deg Damping: 0.439 1/s, Ratio of Amplitudes: 1.356

Mode 20: Observability



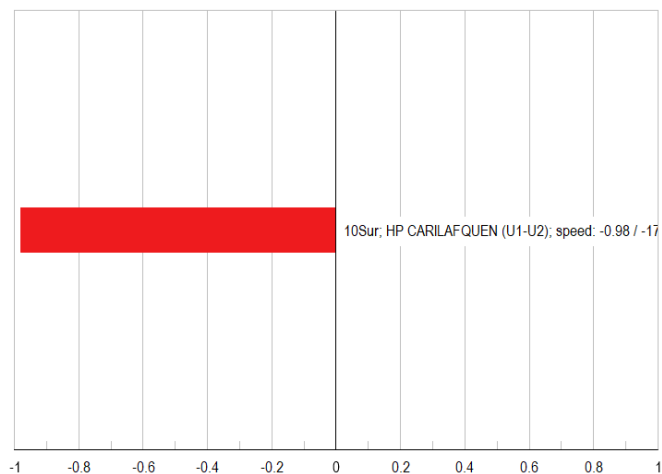
Eigenvalue of mode: $-0.266 + 5.362j$ Period: 1.172 s, Frequency: 0.853 Hz
Magnitude: 5.368 1/s, Angle: 92.843 deg Damping: 0.266 1/s, Ratio of Amplitudes: 1.366

Mode 40: Participation



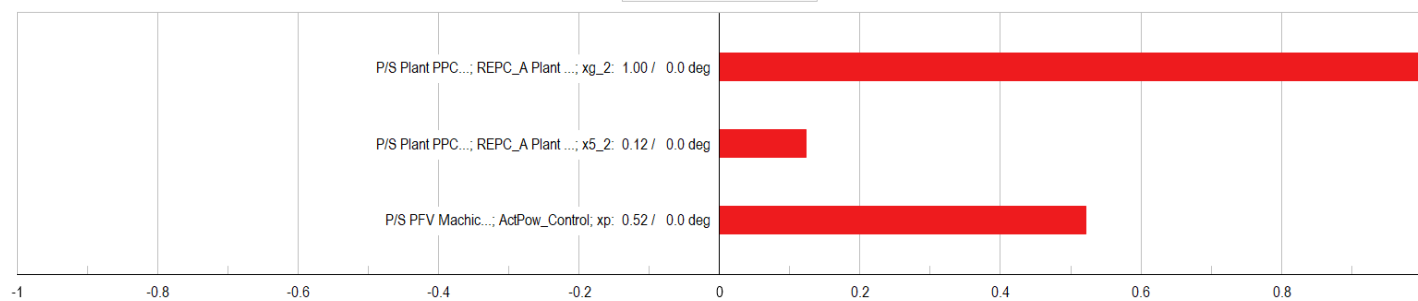
Eigenvalue of mode: $-0.439 + 9.044j$ Period: 0.695 s, Frequency: 1.439 Hz Min. contribution: 0.100
Magnitude: 9.055 1/s, Angle: 92.777 deg Damping: 0.439 1/s, Ratio of Amplitudes: 1.356

Mode 20: Participation



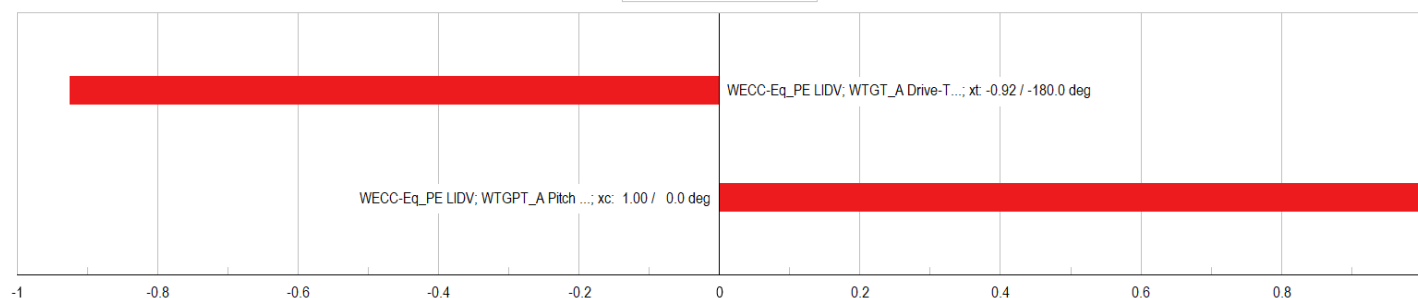
Eigenvalue of mode: $-0.266 + 5.362j$ Period: 1.172 s, Frequency: 0.853 Hz Min. contribution: 0.100
Magnitude: 5.368 1/s, Angle: 92.843 deg Damping: 0.266 1/s, Ratio of Amplitudes: 1.366

Mode 1: Participation



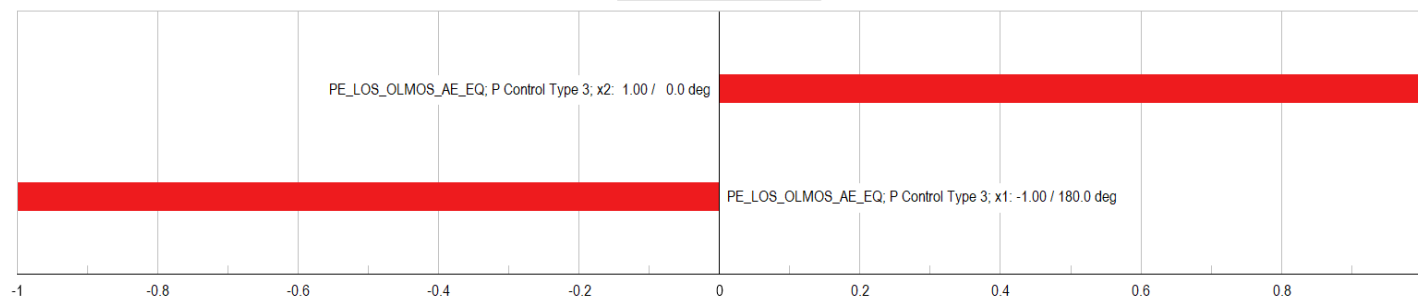
Eigenvalue of mode: $+0.571 + 0.000j$ Magnitude: 0.571 1/s, Angle: 0.000 deg Period: nan s, Frequency: 0.000 Hz Damping: -0.571 1/s, Ratio of Amplitudes: nan Min. contribution: 0.100

Mode 2: Participation



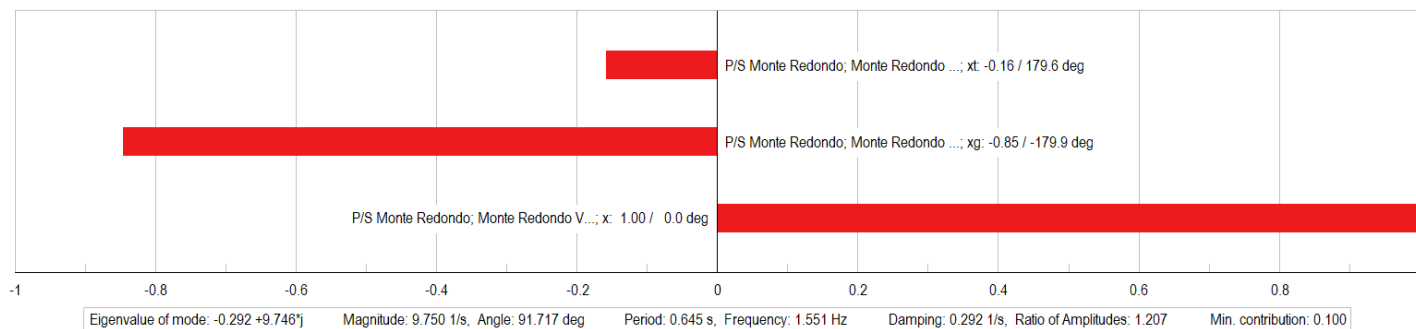
Eigenvalue of mode: $+0.000 + 0.000j$ Magnitude: 0.000 1/s, Angle: 89.458 deg Period: 175082.984 s, Frequency: 0.000 Hz Damping: -0.000 1/s, Ratio of Amplitudes: 0.942 Min. contribution: 0.100

Mode 15: Participation

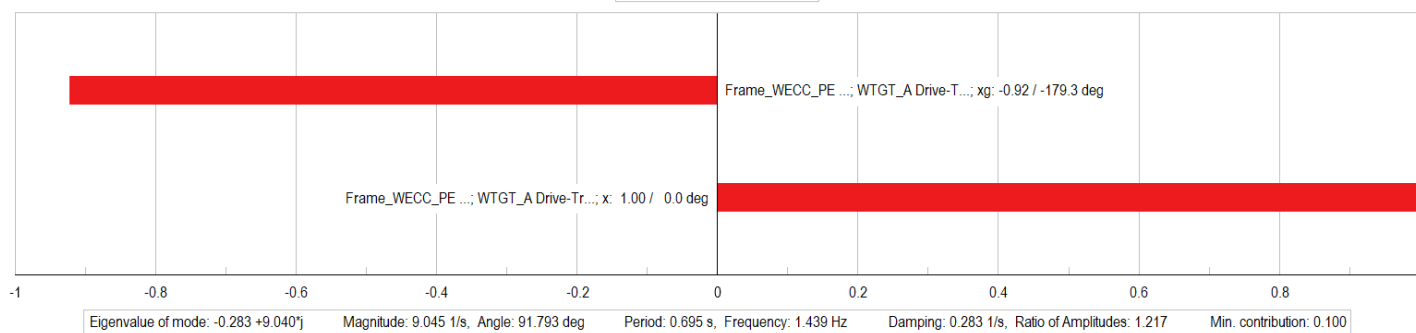


Eigenvalue of mode: $+0.000 + 1.000j$ Magnitude: 1.000 1/s, Angle: 90.000 deg Period: 6.283 s, Frequency: 0.159 Hz Damping: -0.000 1/s, Ratio of Amplitudes: 1.000 Min. contribution: 0.100

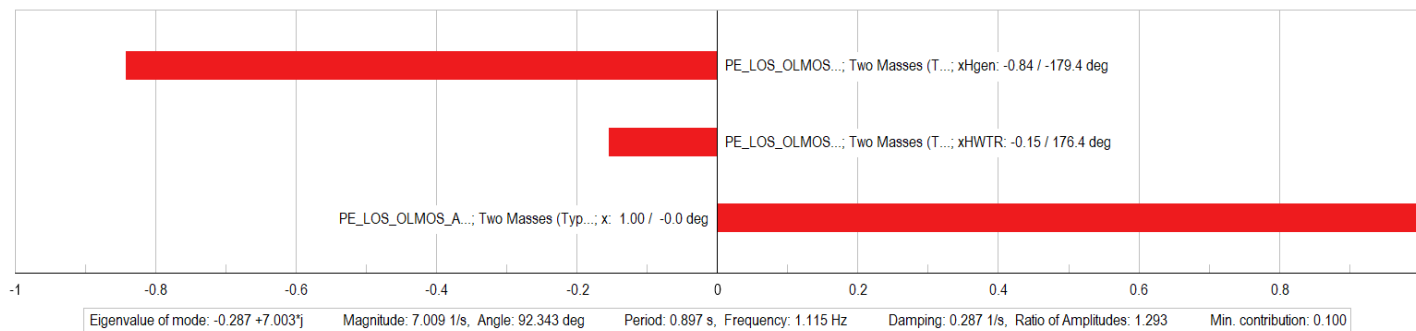
Mode 28: Participation



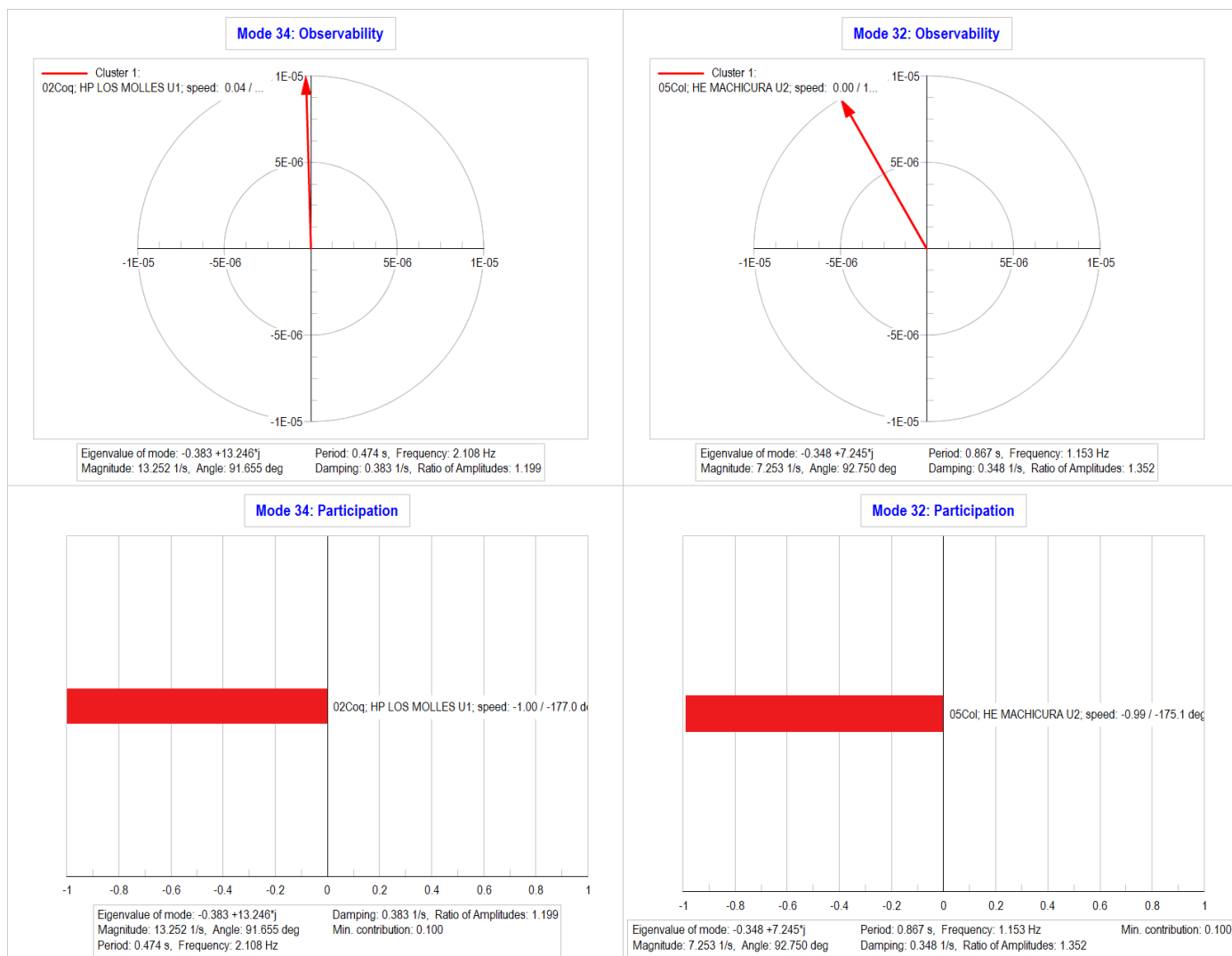
Mode 24: Participation



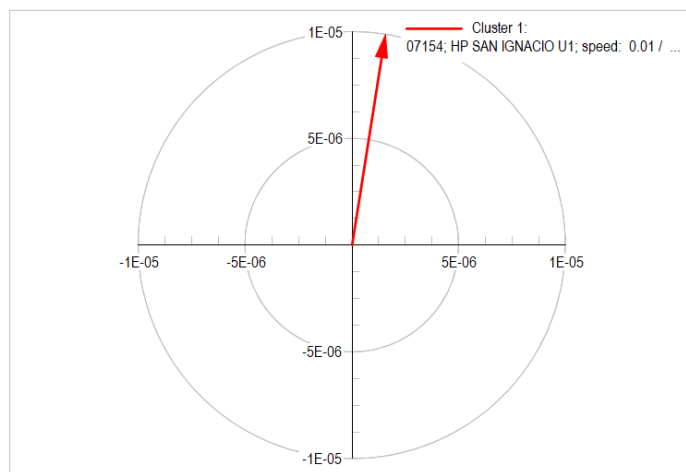
Mode 26: Participation



15.3.4 Red N-1 Caso 3.- Charrúa - Ancoa 500 kV

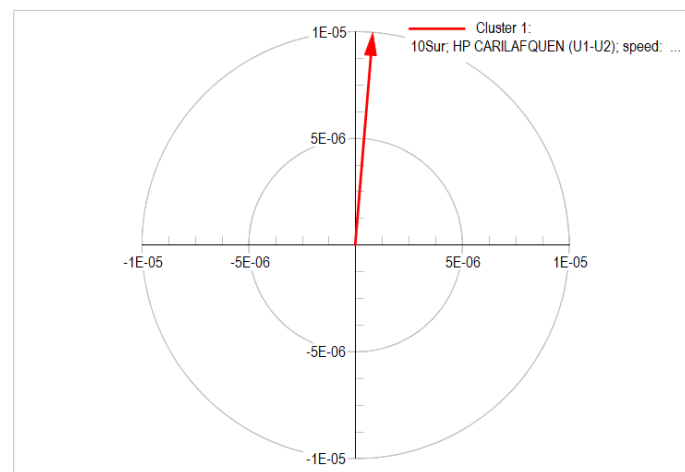


Mode 42: Observability



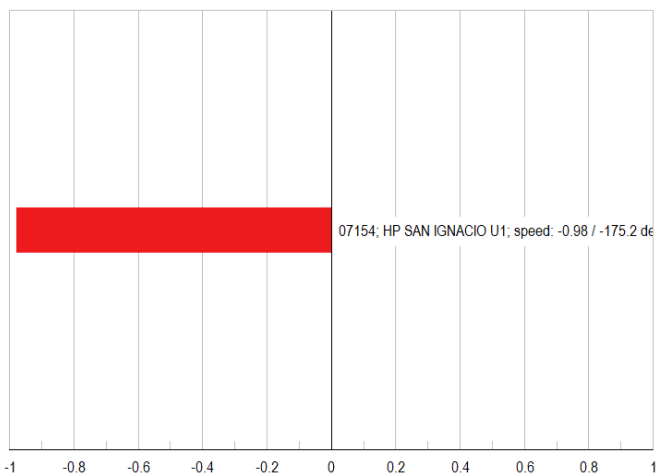
Eigenvalue of mode: $-0.442 + 9.038j$ Period: 0.695 s, Frequency: 1.438 Hz
Magnitude: 9.049 1/s, Angle: 92.801 deg Damping: 0.442 1/s, Ratio of Amplitudes: 1.360

Mode 20: Observability



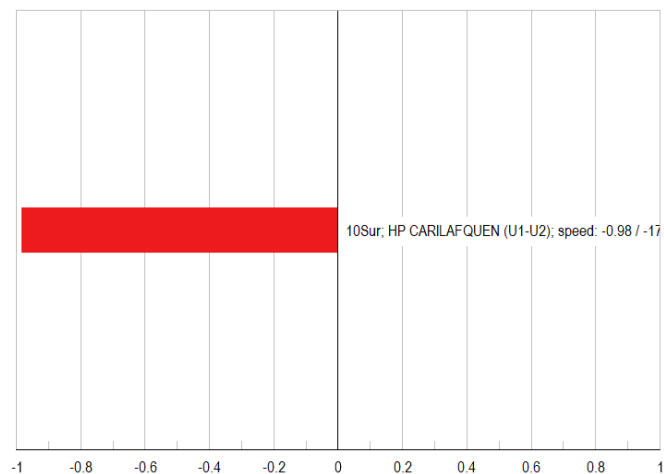
Eigenvalue of mode: $-0.264 + 5.359j$ Period: 1.172 s, Frequency: 0.853 Hz
Magnitude: 5.366 1/s, Angle: 92.824 deg Damping: 0.264 1/s, Ratio of Amplitudes: 1.363

Mode 42: Participation



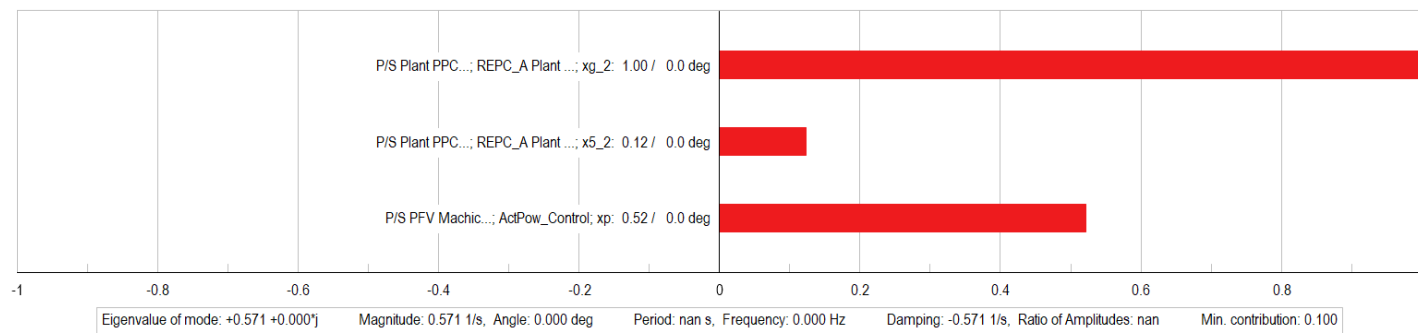
Eigenvalue of mode: $-0.442 + 9.038j$ Period: 0.695 s, Frequency: 1.438 Hz Min. contribution: 0.100
Magnitude: 9.049 1/s, Angle: 92.801 deg Damping: 0.442 1/s, Ratio of Amplitudes: 1.360

Mode 20: Participation

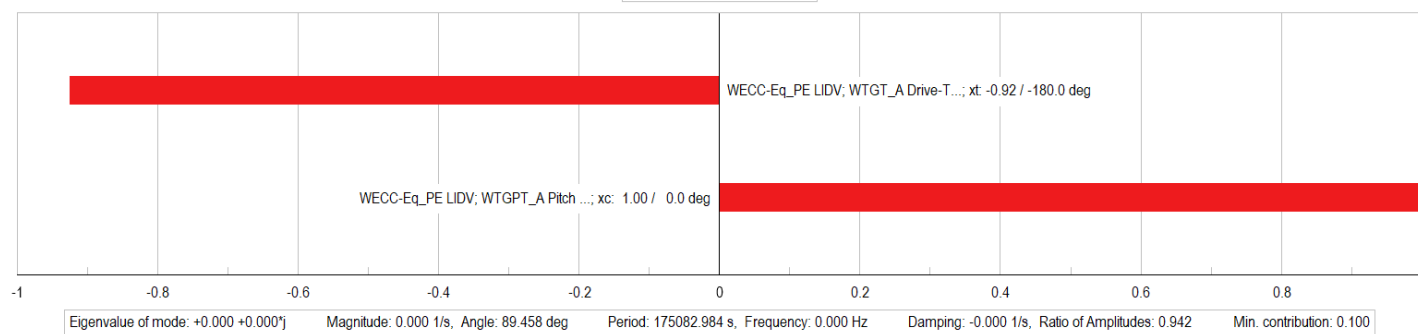


Eigenvalue of mode: $-0.264 + 5.359j$ Period: 1.172 s, Frequency: 0.853 Hz Min. contribution: 0.100
Magnitude: 5.366 1/s, Angle: 92.824 deg Damping: 0.264 1/s, Ratio of Amplitudes: 1.363

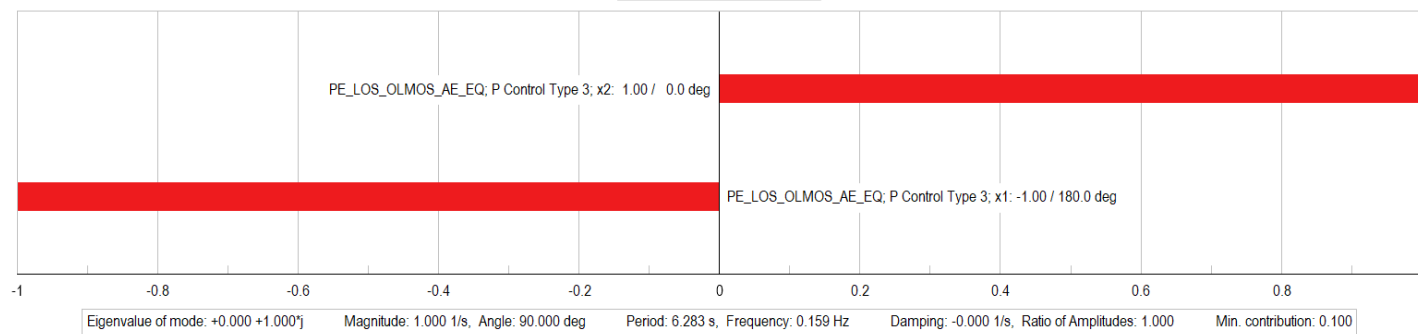
Mode 1: Participation



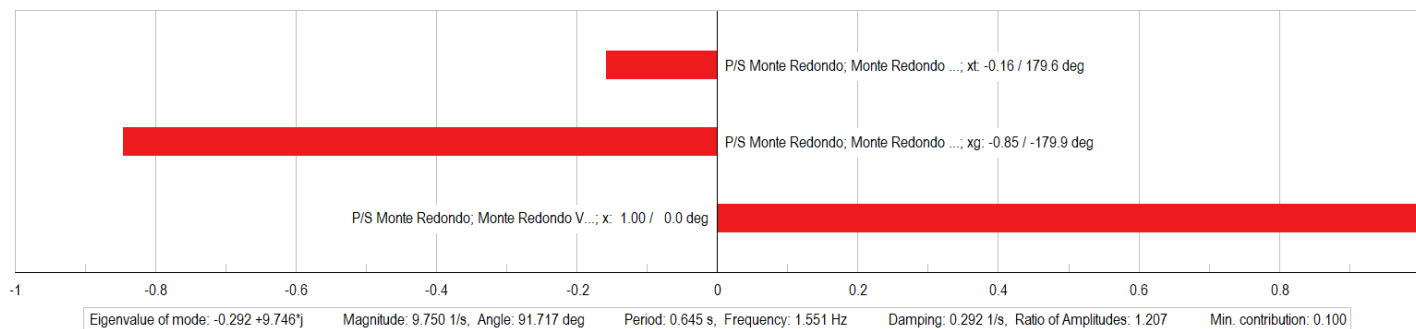
Mode 2: Participation



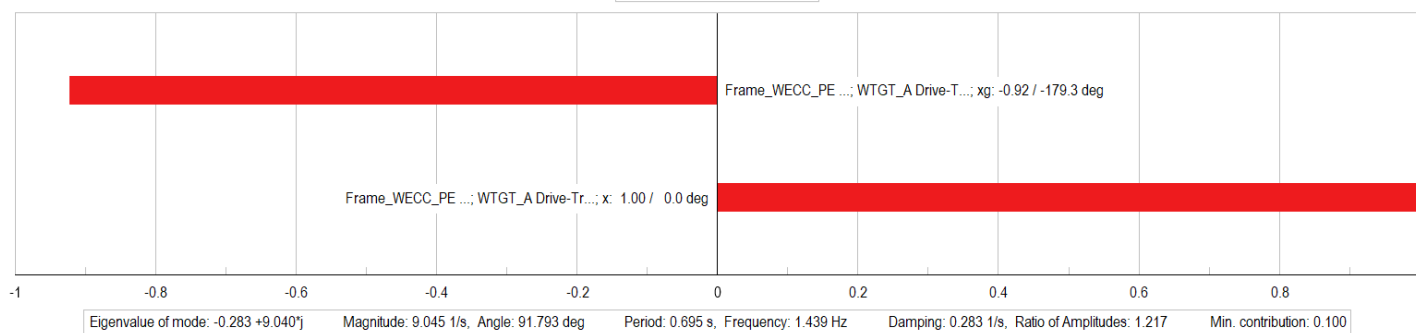
Mode 15: Participation



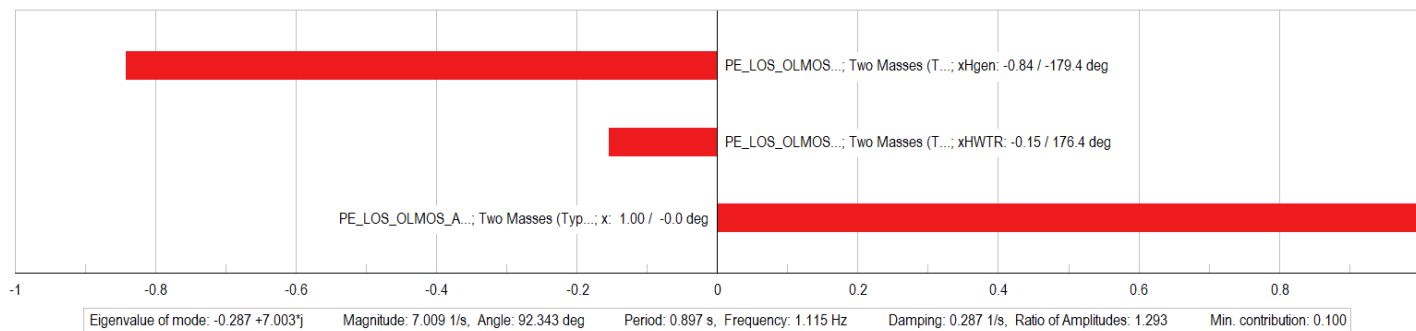
Mode 28: Participation



Mode 24: Participation

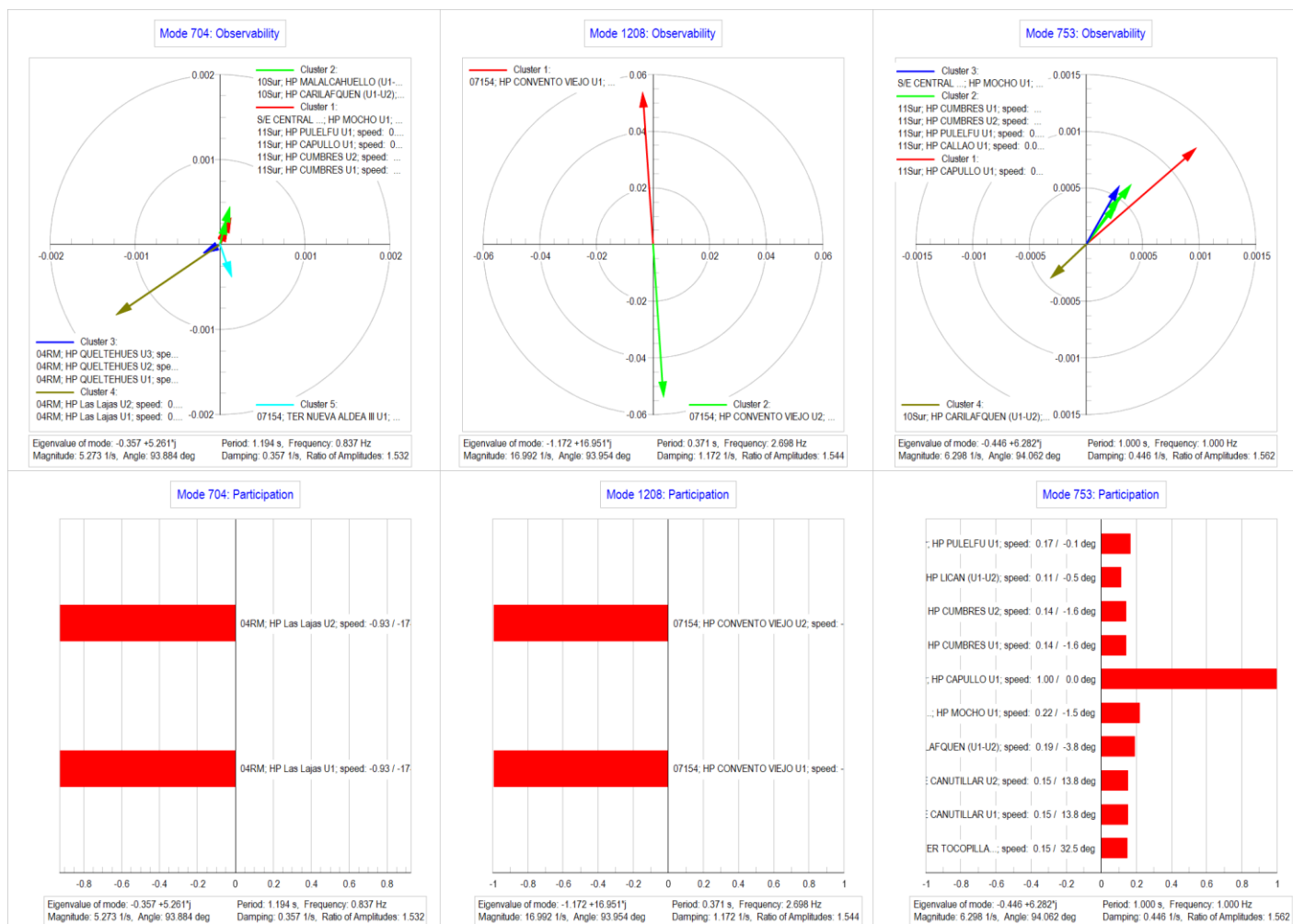


Mode 26: Participation

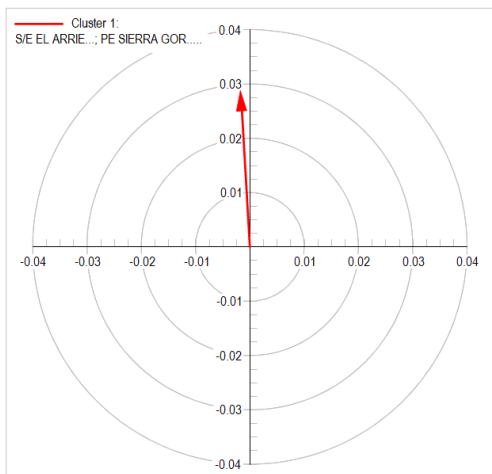


15.4 Escenario E4 DB noche Dic2024

15.4.1 Red N

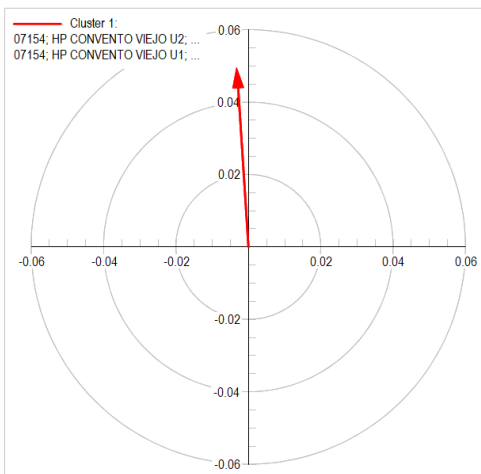


Mode 935: Observability



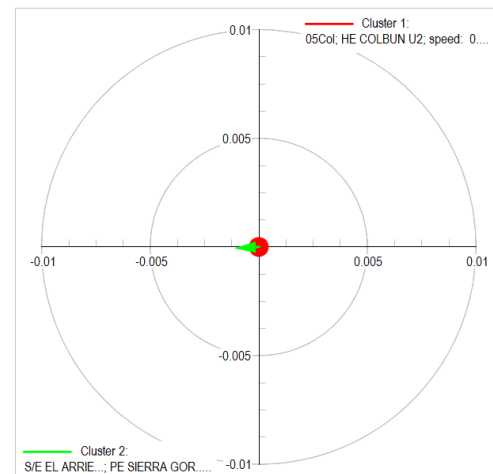
Eigenvalue of mode: $-0.594 + 9.795j$ Period: 0.641 s, Frequency: 1.559 Hz
Magnitude: 9.813 1/s, Angle: 93.468 deg Damping: 0.594 1/s, Ratio of Amplitudes: 1.463

Mode 1087: Observability



Eigenvalue of mode: $-0.997 + 15.534j$ Period: 0.404 s, Frequency: 2.472 Hz
Magnitude: 15.566 1/s, Angle: 93.672 deg Damping: 0.997 1/s, Ratio of Amplitudes: 1.497

Mode 960: Observability



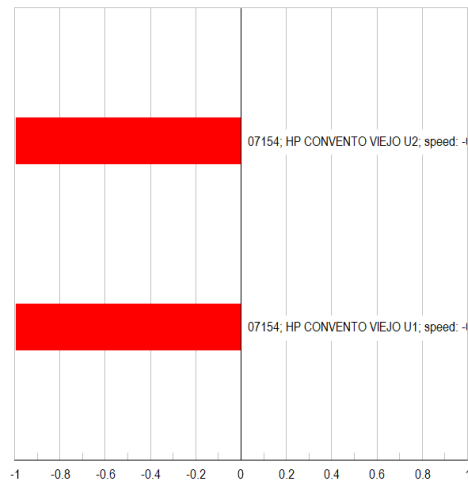
Eigenvalue of mode: $-0.662 + 9.931j$ Period: 0.633 s, Frequency: 1.581 Hz
Magnitude: 9.953 1/s, Angle: 93.811 deg Damping: 0.662 1/s, Ratio of Amplitudes: 1.520

Mode 935: Participation



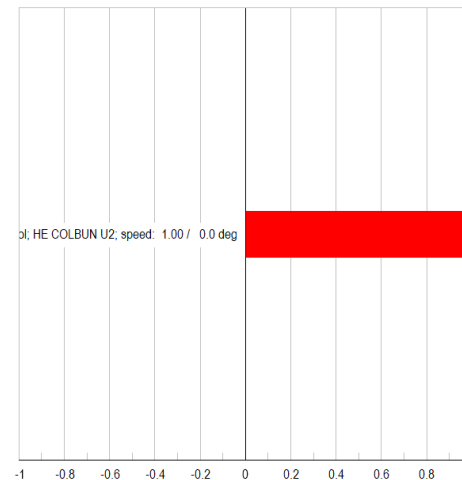
Eigenvalue of mode: $-0.594 + 9.795j$ Period: 0.641 s, Frequency: 1.559 Hz
Magnitude: 9.813 1/s, Angle: 93.468 deg Damping: 0.594 1/s, Ratio of Amplitudes: 1.463

Mode 1087: Participation



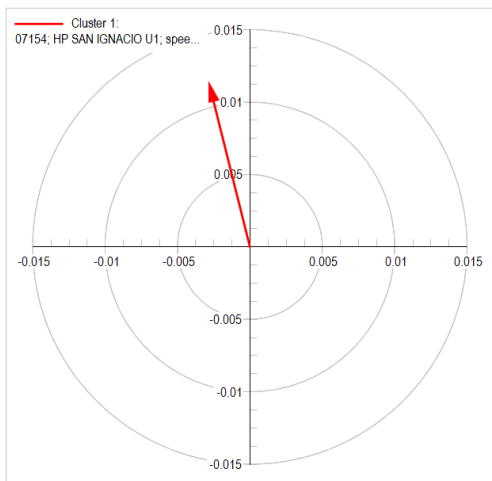
Eigenvalue of mode: $-0.997 + 15.534j$ Period: 0.404 s, Frequency: 2.472 Hz
Magnitude: 15.566 1/s, Angle: 93.672 deg Damping: 0.997 1/s, Ratio of Amplitudes: 1.497

Mode 960: Participation



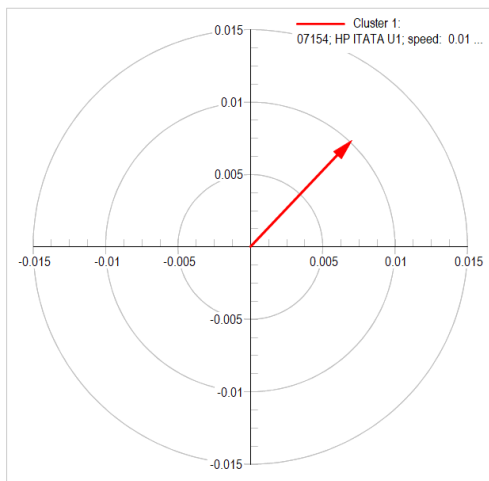
Eigenvalue of mode: $-0.662 + 9.931j$ Period: 0.633 s, Frequency: 1.581 Hz
Magnitude: 9.953 1/s, Angle: 93.811 deg Damping: 0.662 1/s, Ratio of Amplitudes: 1.520

Mode 954: Observability



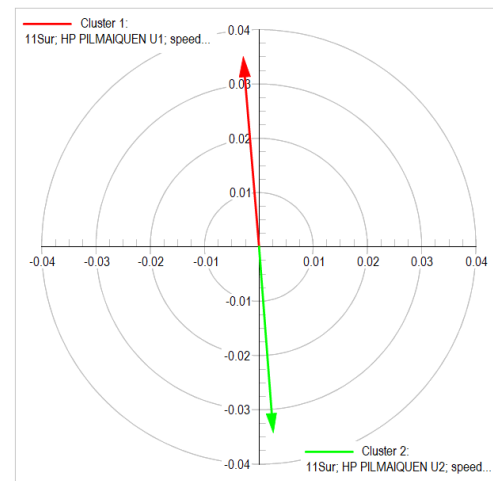
Eigenvalue of mode: $-0.637 + 8.615j$ Period: 0.729 s, Frequency: 1.371 Hz
Magnitude: 8.638 1/s, Angle: 94.230 deg Damping: 0.637 1/s, Ratio of Amplitudes: 1.592

Mode 885: Observability



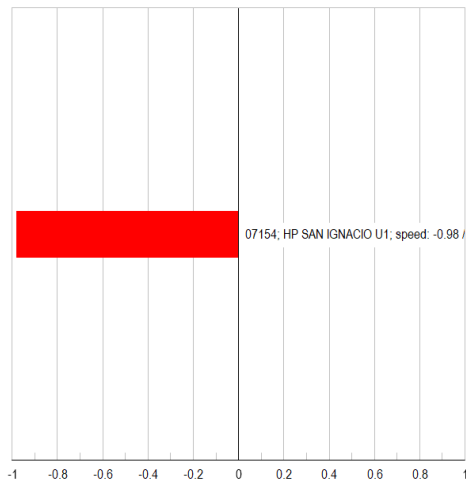
Eigenvalue of mode: $-0.504 + 6.394j$ Period: 0.983 s, Frequency: 1.018 Hz
Magnitude: 6.414 1/s, Angle: 94.505 deg Damping: 0.504 1/s, Ratio of Amplitudes: 1.640

Mode 1042: Observability



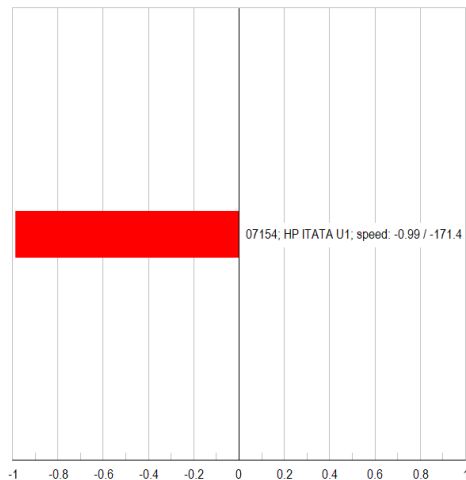
Eigenvalue of mode: $-0.898 + 11.009j$ Period: 0.571 s, Frequency: 1.752 Hz
Magnitude: 11.046 1/s, Angle: 94.665 deg Damping: 0.898 1/s, Ratio of Amplitudes: 1.670

Mode 954: Participation



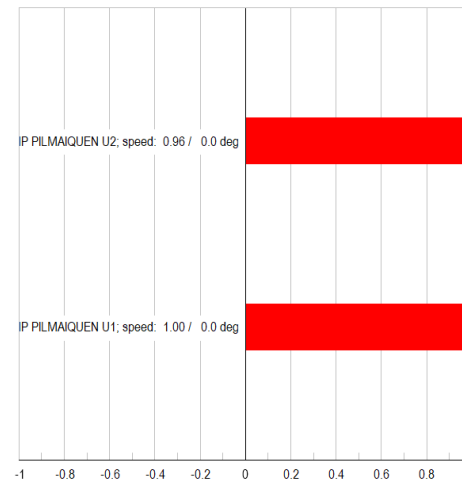
Eigenvalue of mode: $-0.637 + 8.615j$ Period: 0.729 s, Frequency: 1.371 Hz
Magnitude: 8.638 1/s, Angle: 94.230 deg Damping: 0.637 1/s, Ratio of Amplitudes: 1.592

Mode 885: Participation



Eigenvalue of mode: $-0.504 + 6.394j$ Period: 0.983 s, Frequency: 1.018 Hz
Magnitude: 6.414 1/s, Angle: 94.505 deg Damping: 0.504 1/s, Ratio of Amplitudes: 1.640

Mode 1042: Participation



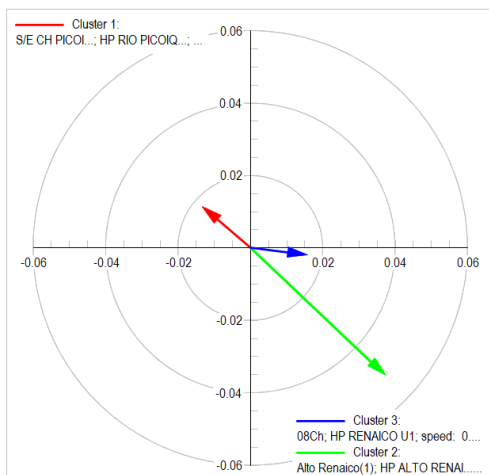
Eigenvalue of mode: $-0.898 + 11.009j$ Period: 0.571 s, Frequency: 1.752 Hz
Magnitude: 11.046 1/s, Angle: 94.665 deg Damping: 0.898 1/s, Ratio of Amplitudes: 1.670

Mode 962: Observability



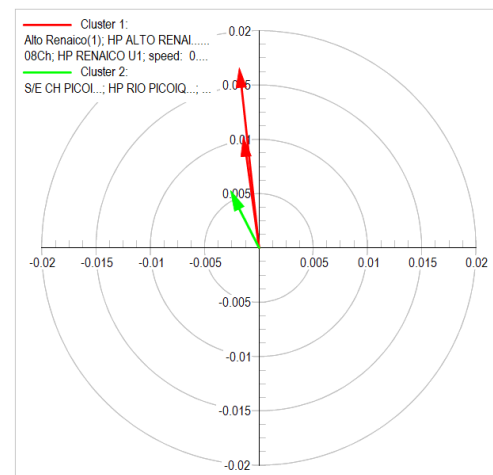
Eigenvalue of mode: $-0.662 + 7.423j$ Period: 0.846 s, Frequency: 1.181 Hz
Magnitude: 7.453 1/s, Angle: 95.096 deg Damping: 0.662 1/s, Ratio of Amplitudes: 1.751

Mode 1366: Observability



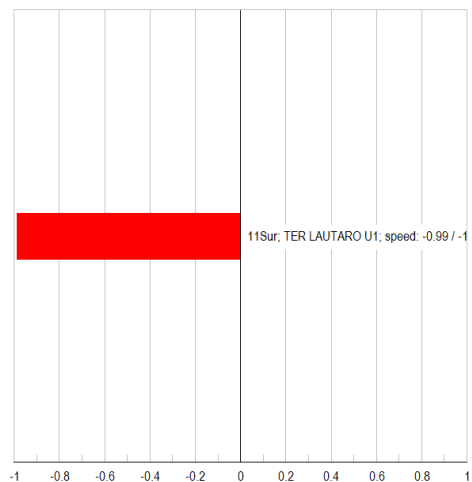
Eigenvalue of mode: $-1.855 + 20.760j$ Period: 0.303 s, Frequency: 3.304 Hz
Magnitude: 20.843 1/s, Angle: 95.105 deg Damping: 1.855 1/s, Ratio of Amplitudes: 1.753

Mode 1322: Observability



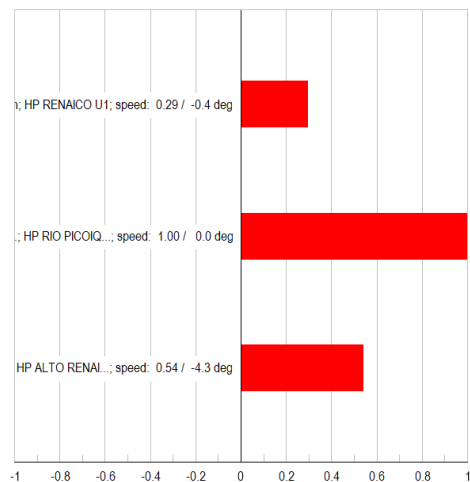
Eigenvalue of mode: $-1.577 + 17.068j$ Period: 0.368 s, Frequency: 2.716 Hz
Magnitude: 17.141 1/s, Angle: 95.280 deg Damping: 1.577 1/s, Ratio of Amplitudes: 1.787

Mode 962: Participation



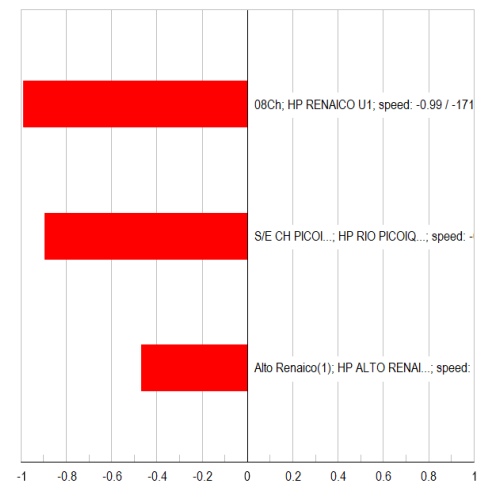
Eigenvalue of mode: $-0.662 + 7.423j$ Period: 0.846 s, Frequency: 1.181 Hz
Magnitude: 7.453 1/s, Angle: 95.096 deg Damping: 0.662 1/s, Ratio of Amplitudes: 1.751

Mode 1366: Participation



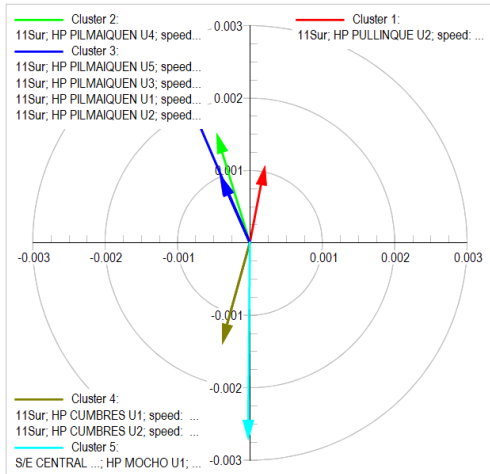
Eigenvalue of mode: $-1.855 + 20.760j$ Period: 0.303 s, Frequency: 3.304 Hz
Magnitude: 20.843 1/s, Angle: 95.105 deg Damping: 1.855 1/s, Ratio of Amplitudes: 1.753

Mode 1322: Participation



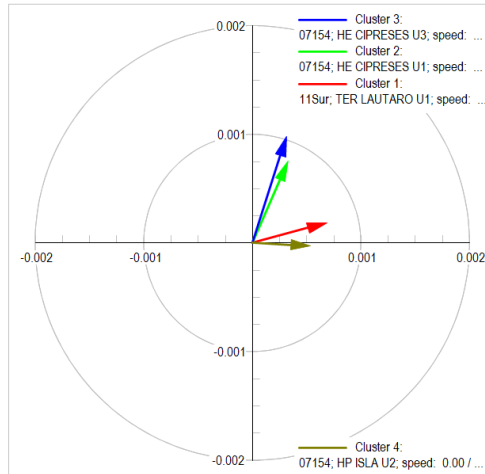
Eigenvalue of mode: $-1.577 + 17.068j$ Period: 0.368 s, Frequency: 2.716 Hz
Magnitude: 17.141 1/s, Angle: 95.280 deg Damping: 1.577 1/s, Ratio of Amplitudes: 1.787

Mode 998: Observability



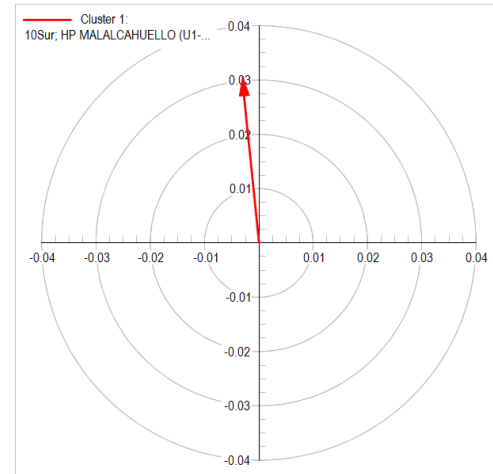
Eigenvalue of mode: $-0.766 + 8.141j$
Magnitude: 8.177 1/s, Angle: 95.378 deg
Period: 0.772 s, Frequency: 1.296 Hz
Damping: 0.766 1/s, Ratio of Amplitudes: 1.807

Mode 992: Observability



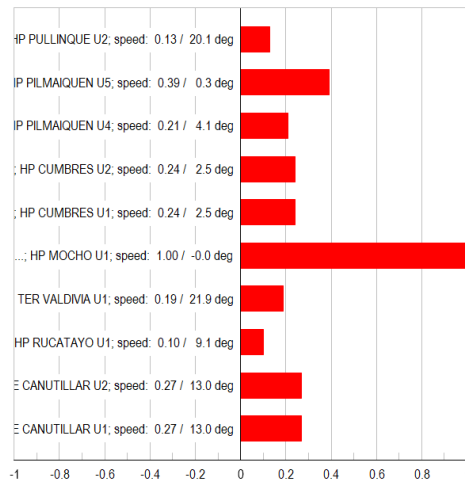
Eigenvalue of mode: $-0.742 + 7.460j$
Magnitude: 7.497 1/s, Angle: 95.682 deg
Period: 0.842 s, Frequency: 1.187 Hz
Damping: 0.742 1/s, Ratio of Amplitudes: 1.868

Mode 1073: Observability



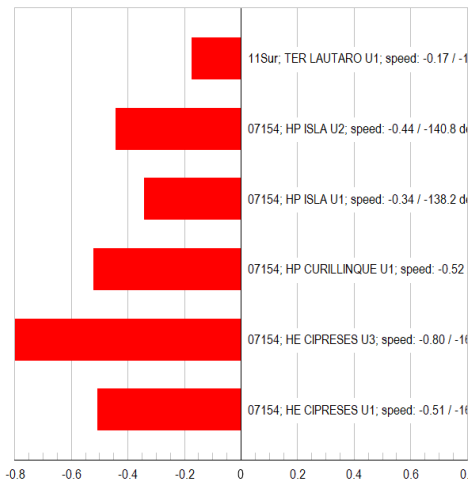
Eigenvalue of mode: $-0.962 + 9.663j$
Magnitude: 9.710 1/s, Angle: 95.684 deg
Period: 0.650 s, Frequency: 1.538 Hz
Damping: 0.962 1/s, Ratio of Amplitudes: 1.869

Mode 998: Participation



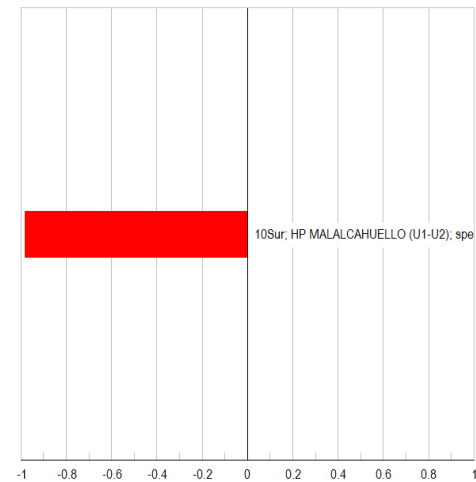
Eigenvalue of mode: $-0.766 + 8.141j$
Magnitude: 8.177 1/s, Angle: 95.378 deg
Period: 0.772 s, Frequency: 1.296 Hz
Damping: 0.766 1/s, Ratio of Amplitudes: 1.807

Mode 992: Participation



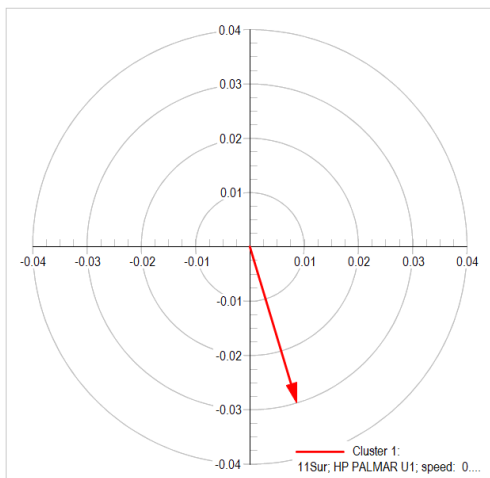
Eigenvalue of mode: $-0.742 + 7.460j$
Magnitude: 7.497 1/s, Angle: 95.682 deg
Period: 0.842 s, Frequency: 1.187 Hz
Damping: 0.742 1/s, Ratio of Amplitudes: 1.868

Mode 1073: Participation



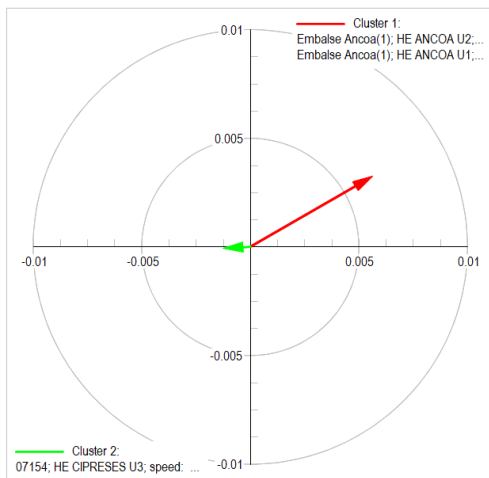
Eigenvalue of mode: $-0.962 + 9.663j$
Magnitude: 9.710 1/s, Angle: 95.684 deg
Period: 0.650 s, Frequency: 1.538 Hz
Damping: 0.962 1/s, Ratio of Amplitudes: 1.869

Mode 1037: Observability



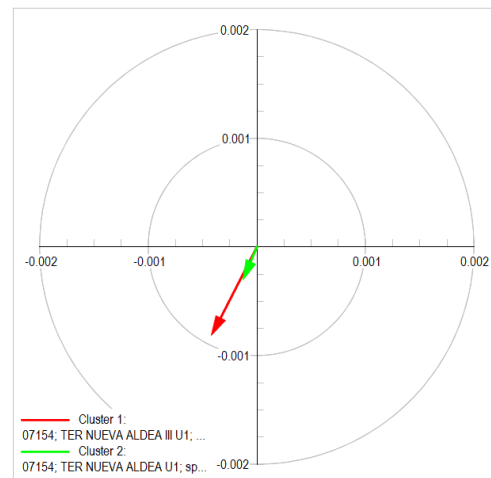
Eigenvalue of mode: $-0.867 + 9.384j$ Period: 0.670 s, Frequency: 1.493 Hz
Magnitude: 9.424 1/s, Angle: 95.281 deg Damping: 0.867 1/s, Ratio of Amplitudes: 1.787

Mode 994: Observability



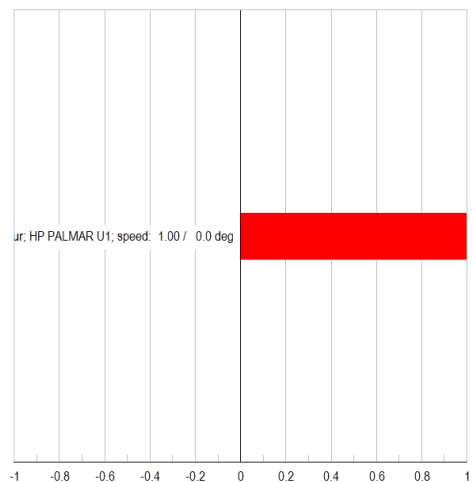
Eigenvalue of mode: $-0.750 + 8.026j$ Period: 0.783 s, Frequency: 1.277 Hz
Magnitude: 8.061 1/s, Angle: 95.336 deg Damping: 0.750 1/s, Ratio of Amplitudes: 1.798

Mode 771: Observability



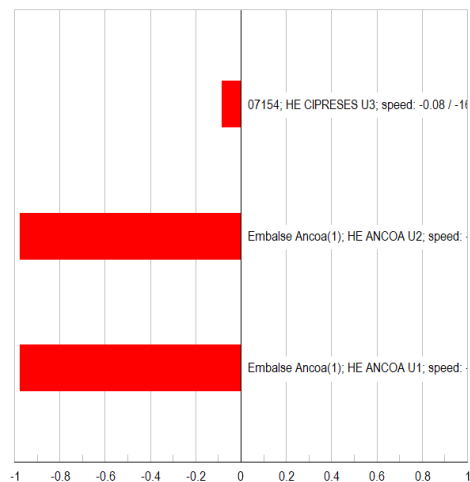
Eigenvalue of mode: $-0.467 + 4.978j$ Period: 1.262 s, Frequency: 0.792 Hz
Magnitude: 5.000 1/s, Angle: 95.362 deg Damping: 0.467 1/s, Ratio of Amplitudes: 1.803

Mode 1037: Participation



Eigenvalue of mode: $-0.867 + 9.384j$ Period: 0.670 s, Frequency: 1.493 Hz
Magnitude: 9.424 1/s, Angle: 95.281 deg Damping: 0.867 1/s, Ratio of Amplitudes: 1.787

Mode 994: Participation



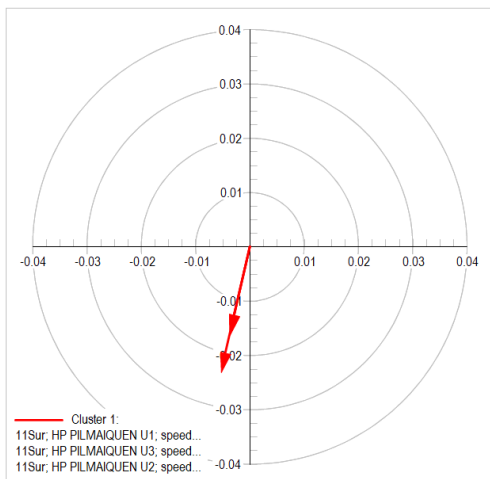
Eigenvalue of mode: $-0.750 + 8.026j$ Period: 0.783 s, Frequency: 1.277 Hz
Magnitude: 8.061 1/s, Angle: 95.336 deg Damping: 0.750 1/s, Ratio of Amplitudes: 1.798

Mode 771: Participation



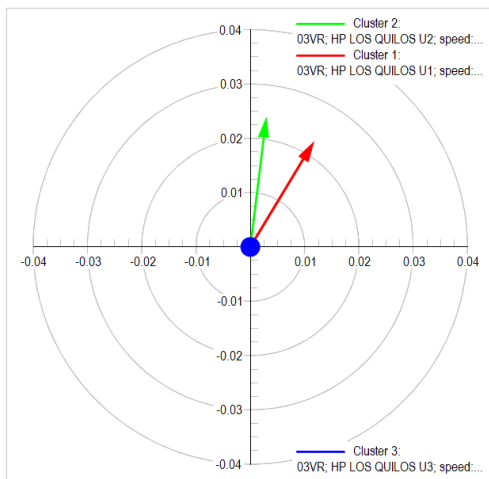
Eigenvalue of mode: $-0.467 + 4.978j$ Period: 1.262 s, Frequency: 0.792 Hz
Magnitude: 5.000 1/s, Angle: 95.362 deg Damping: 0.467 1/s, Ratio of Amplitudes: 1.803

Mode 1057: Observability



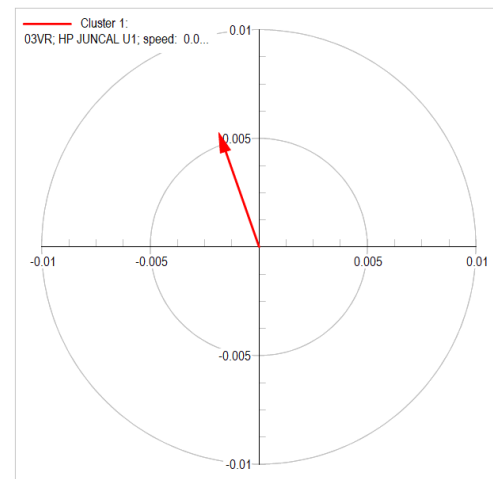
Eigenvalue of mode: $-0.928 + 10.689j$ Period: 0.588 s, Frequency: 1.701 Hz
Magnitude: 10.729 1/s, Angle: 94.962 deg Damping: 0.928 1/s, Ratio of Amplitudes: 1.726

Mode 1059: Observability



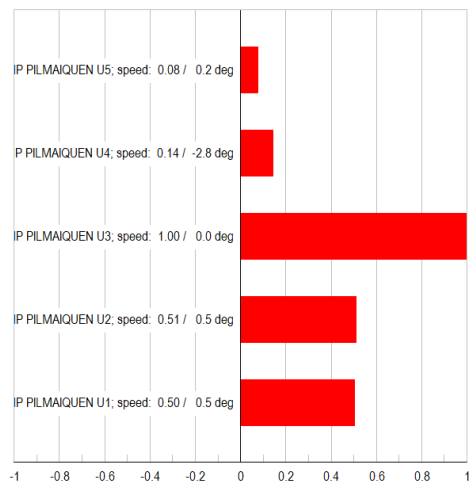
Eigenvalue of mode: $-0.928 + 10.657j$ Period: 0.590 s, Frequency: 1.696 Hz
Magnitude: 10.698 1/s, Angle: 94.978 deg Damping: 0.928 1/s, Ratio of Amplitudes: 1.729

Mode 1010: Observability



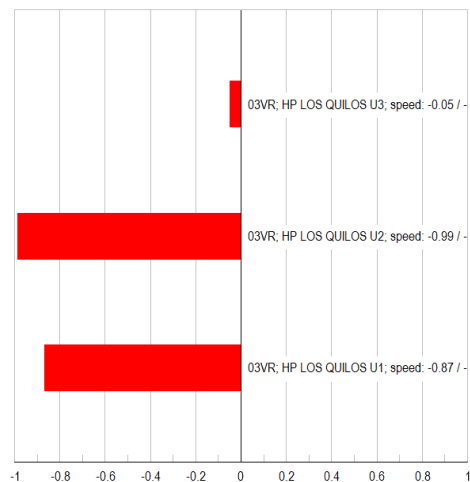
Eigenvalue of mode: $-0.789 + 9.032j$ Period: 0.696 s, Frequency: 1.437 Hz
Magnitude: 9.066 1/s, Angle: 94.995 deg Damping: 0.789 1/s, Ratio of Amplitudes: 1.732

Mode 1057: Participation



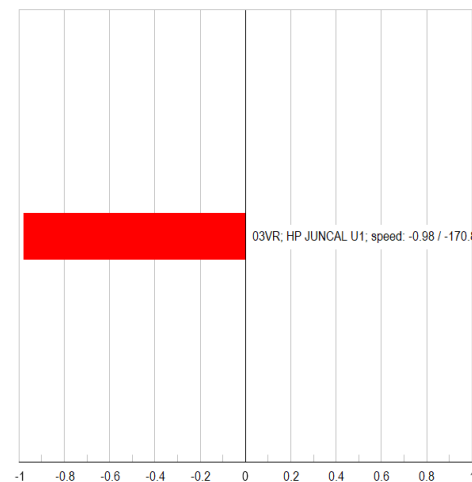
Eigenvalue of mode: $-0.928 + 10.689j$ Period: 0.588 s, Frequency: 1.701 Hz
Magnitude: 10.729 1/s, Angle: 94.962 deg Damping: 0.928 1/s, Ratio of Amplitudes: 1.726

Mode 1059: Participation



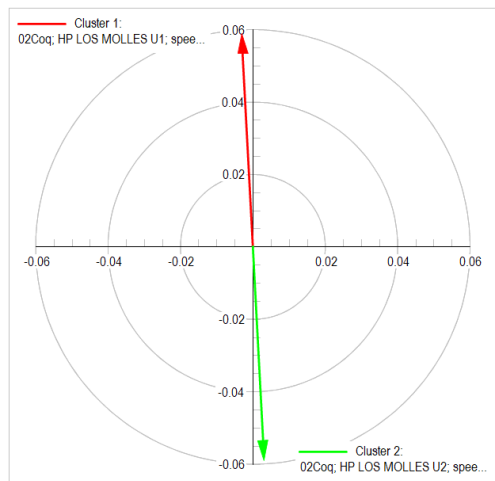
Eigenvalue of mode: $-0.928 + 10.657j$ Period: 0.590 s, Frequency: 1.696 Hz
Magnitude: 10.698 1/s, Angle: 94.978 deg Damping: 0.928 1/s, Ratio of Amplitudes: 1.729

Mode 1010: Participation



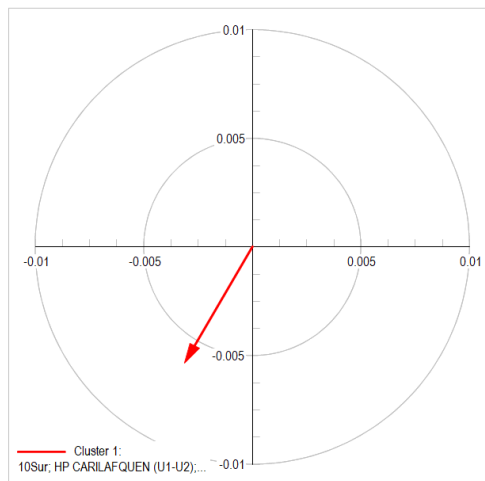
Eigenvalue of mode: $-0.789 + 9.032j$ Period: 0.696 s, Frequency: 1.437 Hz
Magnitude: 9.066 1/s, Angle: 94.995 deg Damping: 0.789 1/s, Ratio of Amplitudes: 1.732

Mode 1079: Observability



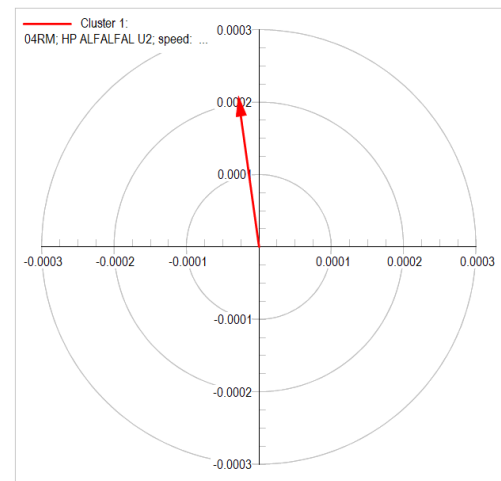
Eigenvalue of mode: $-0.974 + 18.519j$ Period: 0.339 s, Frequency: 2.947 Hz
Magnitude: 18.545 1/s, Angle: 93.010 deg Damping: 0.974 1/s, Ratio of Amplitudes: 1.392

Mode 677: Observability



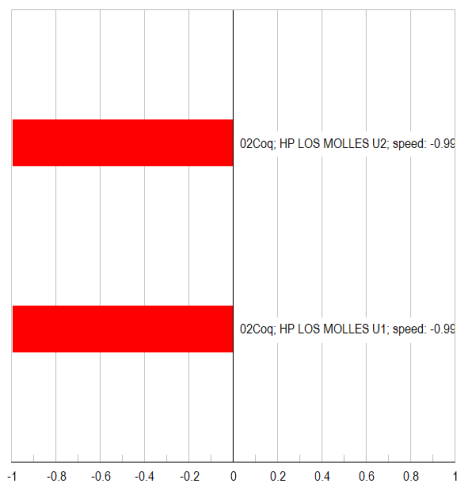
Eigenvalue of mode: $-0.314 + 5.792j$ Period: 1.085 s, Frequency: 0.922 Hz
Magnitude: 5.800 1/s, Angle: 93.102 deg Damping: 0.314 1/s, Ratio of Amplitudes: 1.406

Mode 905: Observability



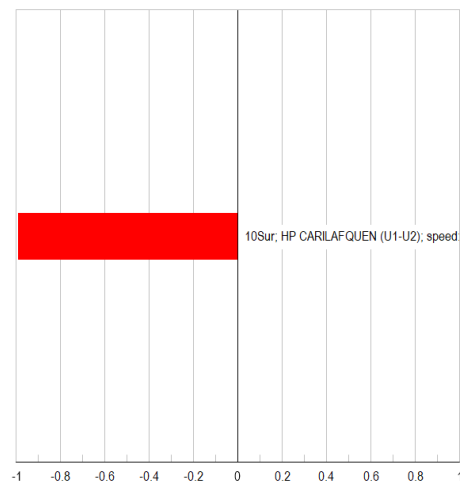
Eigenvalue of mode: $-0.544 + 9.519j$ Period: 0.660 s, Frequency: 1.515 Hz
Magnitude: 9.535 1/s, Angle: 93.270 deg Damping: 0.544 1/s, Ratio of Amplitudes: 1.432

Mode 1079: Participation



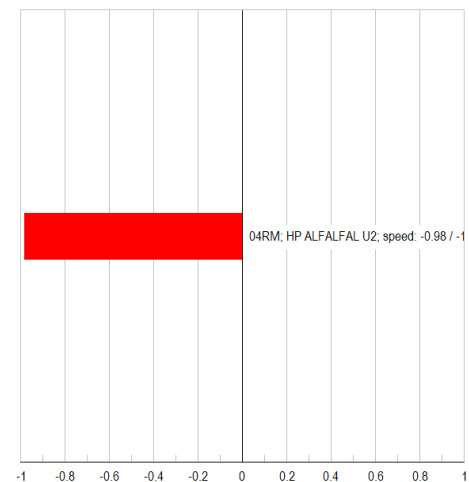
Eigenvalue of mode: $-0.974 + 18.519j$ Period: 0.339 s, Frequency: 2.947 Hz
Magnitude: 18.545 1/s, Angle: 93.010 deg Damping: 0.974 1/s, Ratio of Amplitudes: 1.392

Mode 677: Participation



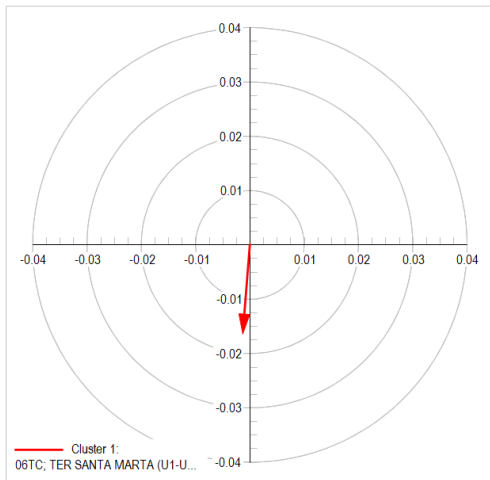
Eigenvalue of mode: $-0.314 + 5.792j$ Period: 1.085 s, Frequency: 0.922 Hz
Magnitude: 5.800 1/s, Angle: 93.102 deg Damping: 0.314 1/s, Ratio of Amplitudes: 1.406

Mode 905: Participation



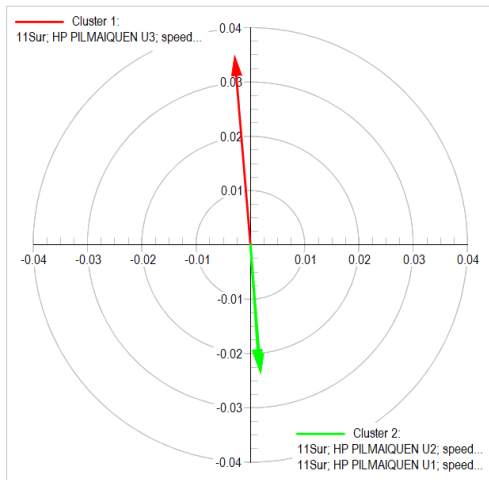
Eigenvalue of mode: $-0.544 + 9.519j$ Period: 0.660 s, Frequency: 1.515 Hz
Magnitude: 9.535 1/s, Angle: 93.270 deg Damping: 0.544 1/s, Ratio of Amplitudes: 1.432

Mode 1171: Observability



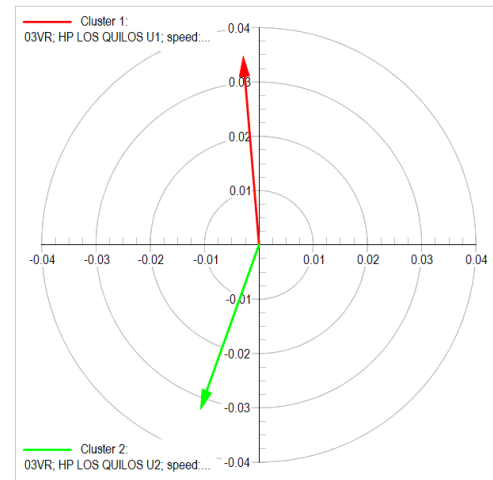
Eigenvalue of mode: $-1.058 + 12.907j$ Period: 0.487 s, Frequency: 2.054 Hz
Magnitude: 12.950 1/s, Angle: 94.685 deg Damping: 1.058 1/s, Ratio of Amplitudes: 1.673

Mode 1047: Observability



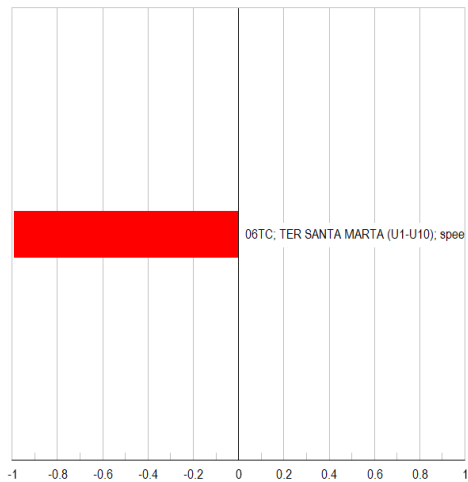
Eigenvalue of mode: $-0.906 + 10.949j$ Period: 0.574 s, Frequency: 1.743 Hz
Magnitude: 10.986 1/s, Angle: 94.729 deg Damping: 0.906 1/s, Ratio of Amplitudes: 1.682

Mode 1055: Observability



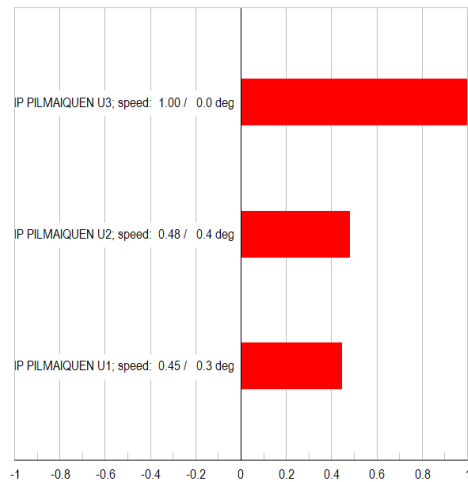
Eigenvalue of mode: $-0.922 + 10.917j$ Period: 0.576 s, Frequency: 1.738 Hz
Magnitude: 10.956 1/s, Angle: 94.830 deg Damping: 0.922 1/s, Ratio of Amplitudes: 1.700

Mode 1171: Participation



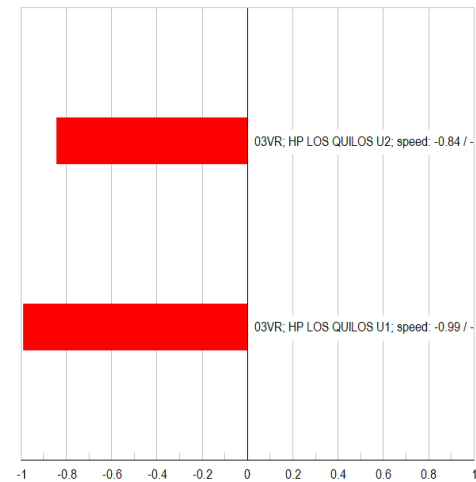
Eigenvalue of mode: $-1.058 + 12.907j$ Period: 0.487 s, Frequency: 2.054 Hz
Magnitude: 12.950 1/s, Angle: 94.685 deg Damping: 1.058 1/s, Ratio of Amplitudes: 1.673

Mode 1047: Participation



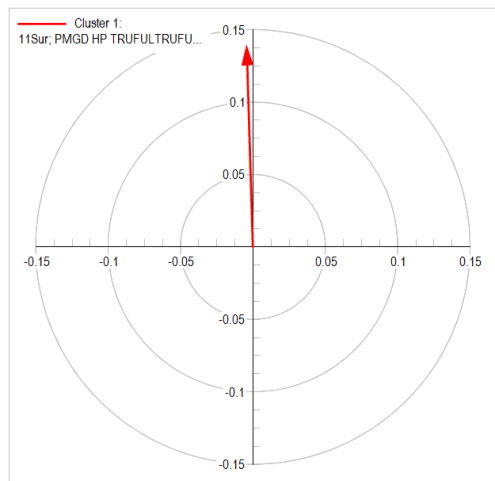
Eigenvalue of mode: $-0.906 + 10.949j$ Period: 0.574 s, Frequency: 1.743 Hz
Magnitude: 10.986 1/s, Angle: 94.729 deg Damping: 0.906 1/s, Ratio of Amplitudes: 1.682

Mode 1055: Participation



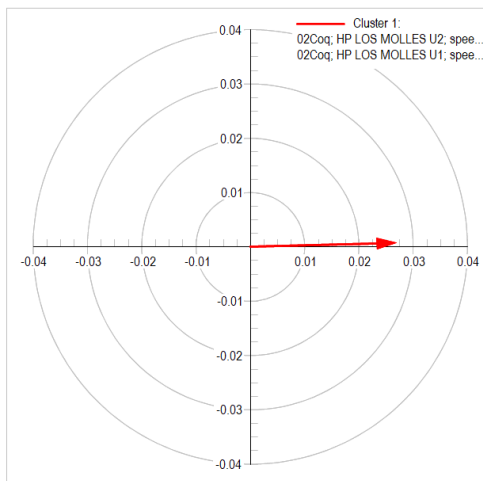
Eigenvalue of mode: $-0.922 + 10.917j$ Period: 0.576 s, Frequency: 1.738 Hz
Magnitude: 10.956 1/s, Angle: 94.830 deg Damping: 0.922 1/s, Ratio of Amplitudes: 1.700

Mode 1260: Observability



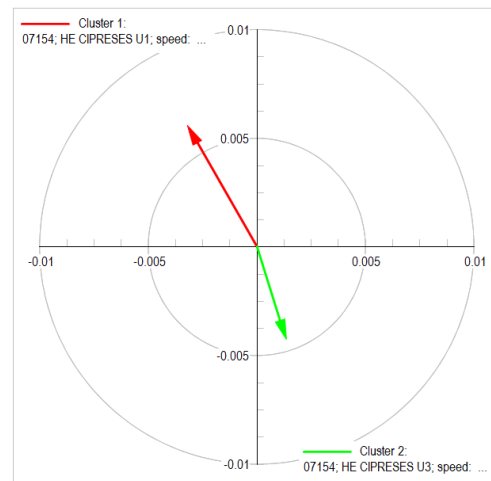
Eigenvalue of mode: $-1.340 + 43.785j$ Period: 0.144 s, Frequency: 6.969 Hz
Magnitude: 43.805 1/s, Angle: 91.753 deg Damping: 1.340 1/s, Ratio of Amplitudes: 1.212

Mode 700: Observability



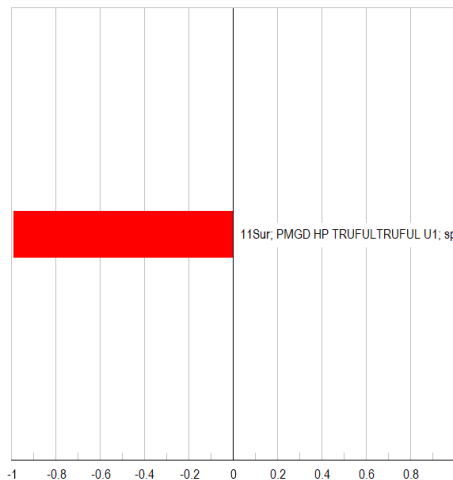
Eigenvalue of mode: $-0.346 + 11.174j$ Period: 0.562 s, Frequency: 1.778 Hz
Magnitude: 11.179 1/s, Angle: 91.772 deg Damping: 0.346 1/s, Ratio of Amplitudes: 1.215

Mode 744: Observability



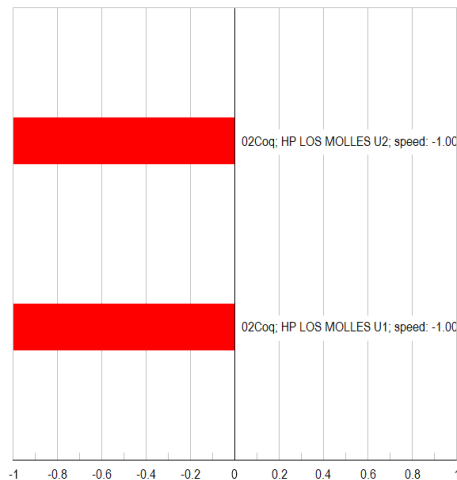
Eigenvalue of mode: $-0.432 + 8.389j$ Period: 0.749 s, Frequency: 1.335 Hz
Magnitude: 8.400 1/s, Angle: 92.945 deg Damping: 0.432 1/s, Ratio of Amplitudes: 1.382

Mode 1260: Participation



Eigenvalue of mode: $-1.340 + 43.785j$ Period: 0.144 s, Frequency: 6.969 Hz
Magnitude: 43.805 1/s, Angle: 91.753 deg Damping: 1.340 1/s, Ratio of Amplitudes: 1.212

Mode 700: Participation



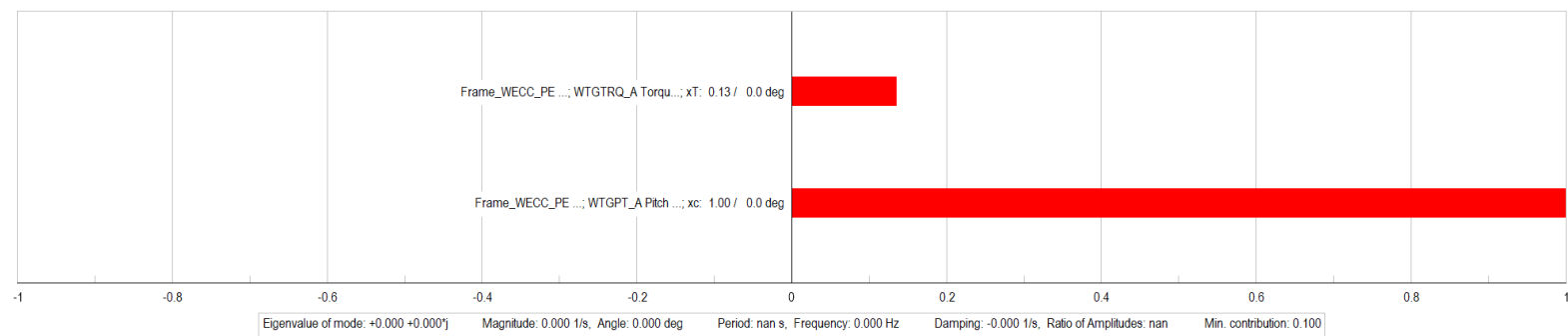
Eigenvalue of mode: $-0.346 + 11.174j$ Period: 0.562 s, Frequency: 1.778 Hz
Magnitude: 11.179 1/s, Angle: 91.772 deg Damping: 0.346 1/s, Ratio of Amplitudes: 1.215

Mode 744: Participation

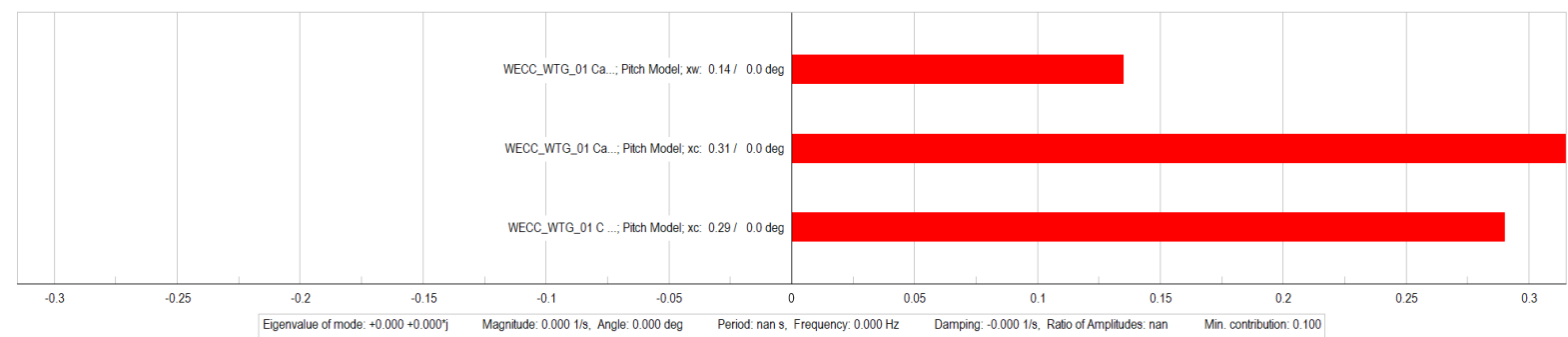


Eigenvalue of mode: $-0.432 + 8.389j$ Period: 0.749 s, Frequency: 1.335 Hz
Magnitude: 8.400 1/s, Angle: 92.945 deg Damping: 0.432 1/s, Ratio of Amplitudes: 1.382

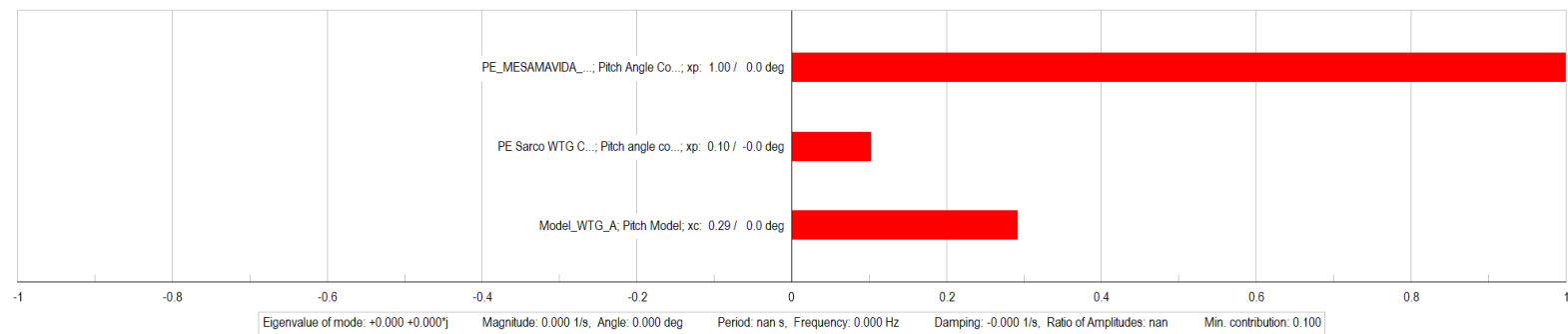
Mode 1: Participation



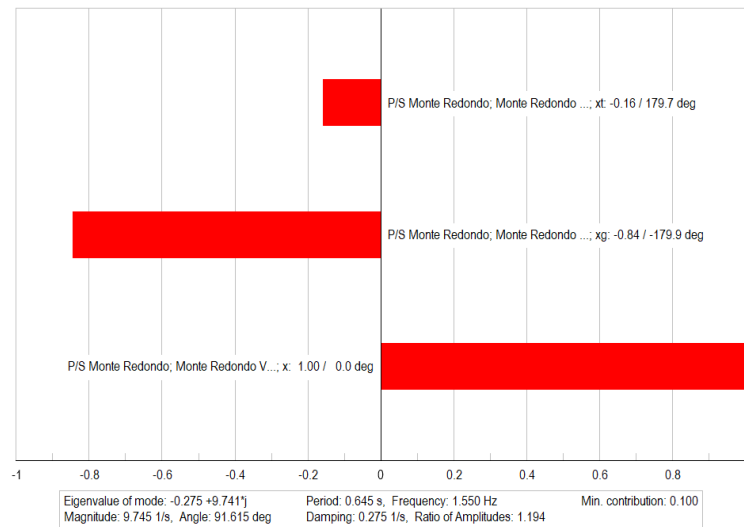
Mode 2: Participation



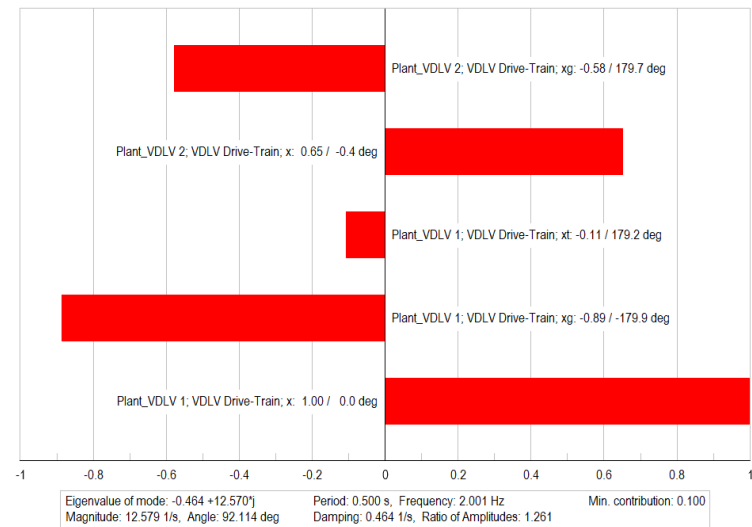
Mode 5: Participation



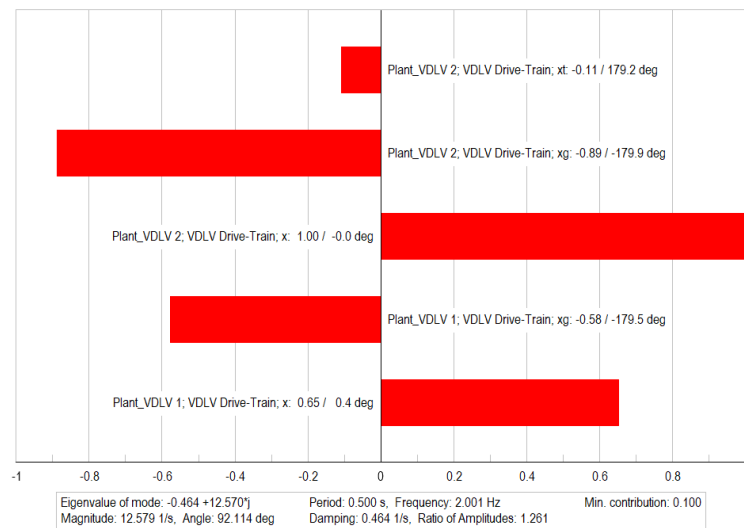
Mode 660: Participation



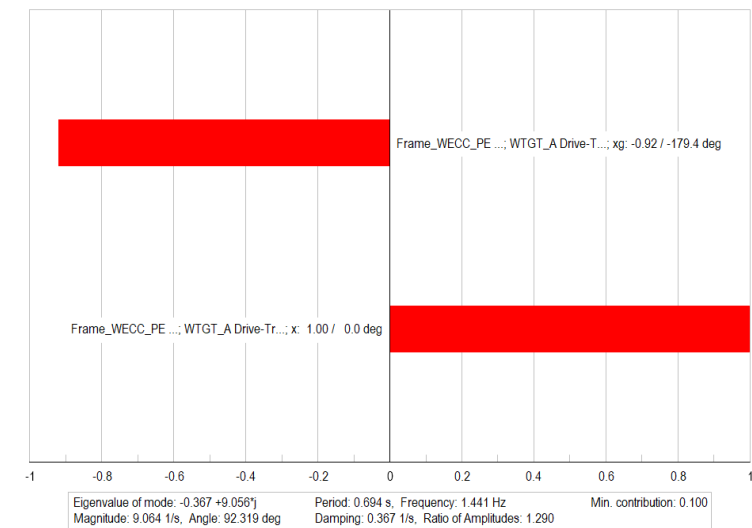
Mode 767: Participation



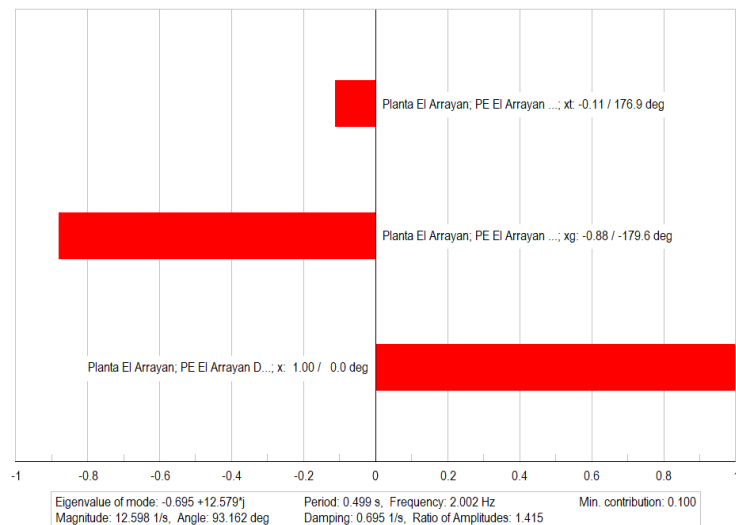
Mode 769: Participation



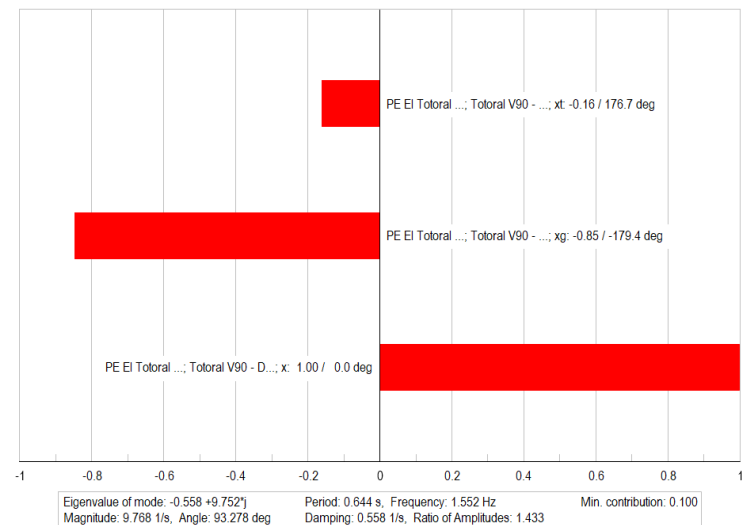
Mode 706: Participation



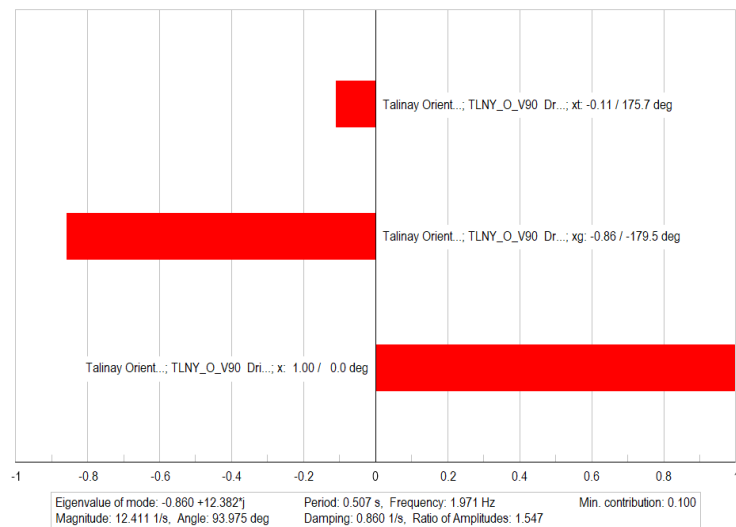
Mode 973: Participation



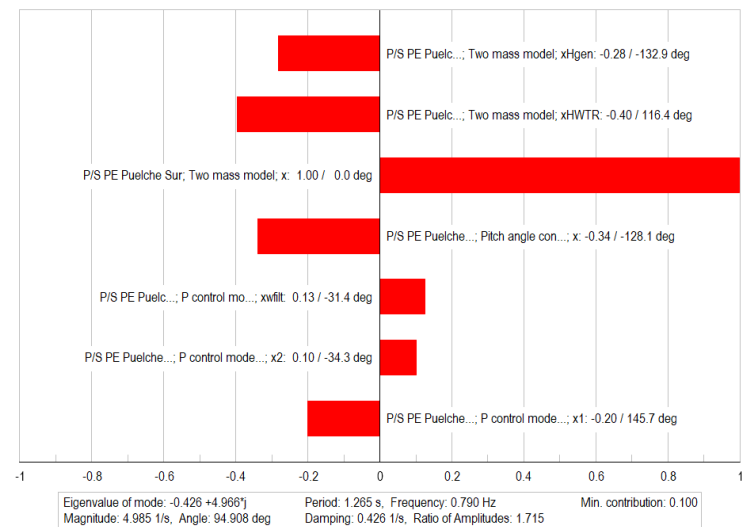
Mode 918: Participation



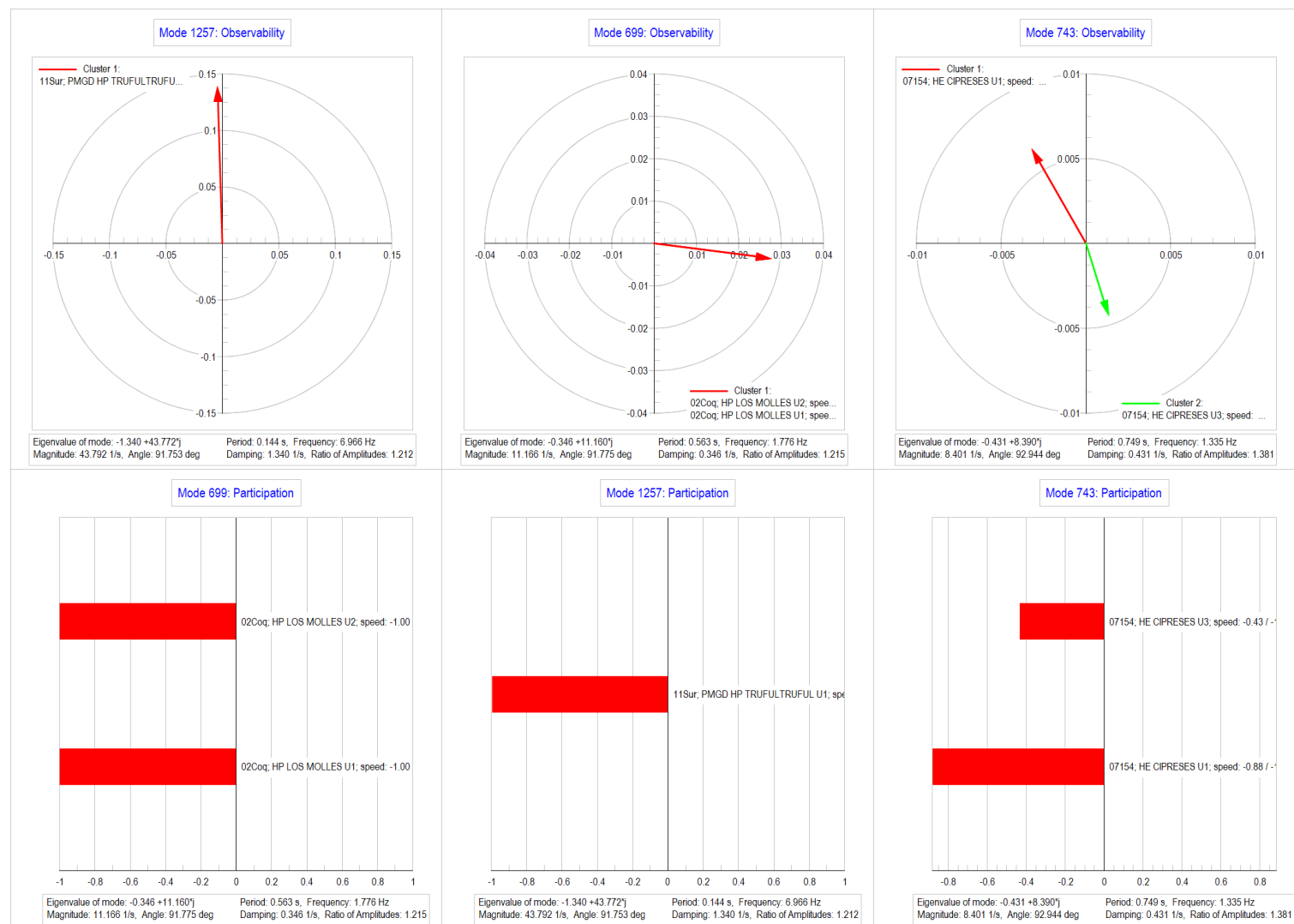
Mode 1034: Participation



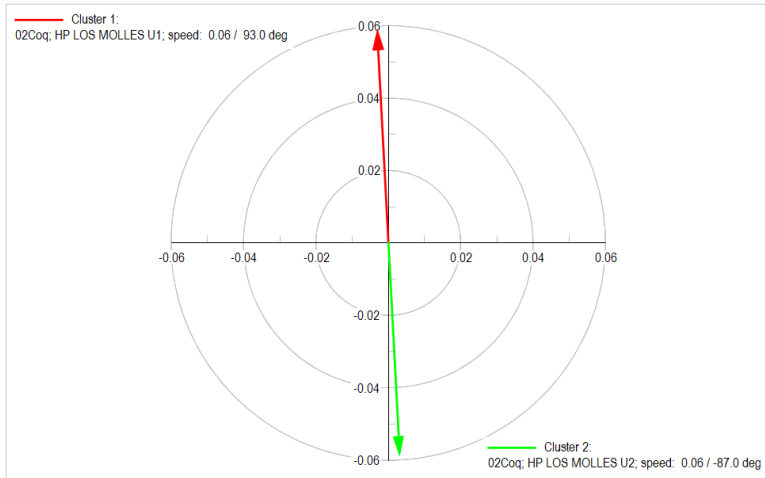
Mode 736: Participation



15.4.2 Red N-1 Caso 1.- Changos Cumbres 500 Kv

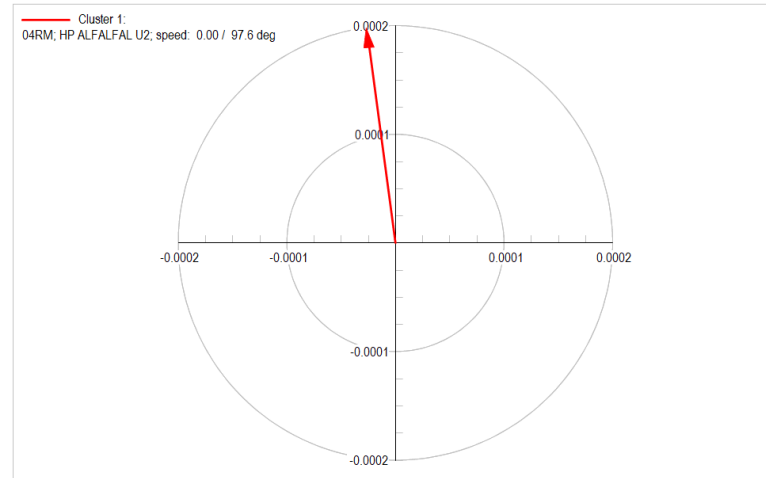


Mode 1078: Observability



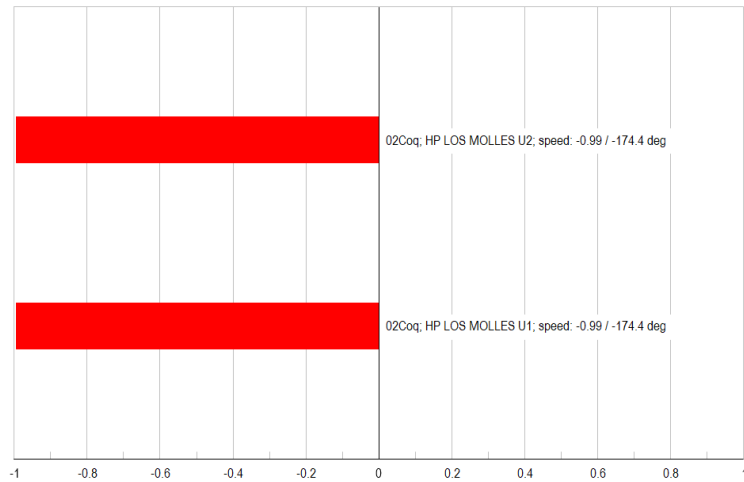
Eigenvalue of mode: $-0.973 + 18.499j$ Period: 0.340 s, Frequency: 2.944 Hz
Magnitude: 18.525 1/s, Angle: 93.011 deg Damping: 0.973 1/s, Ratio of Amplitudes: 1.392

Mode 904: Observability



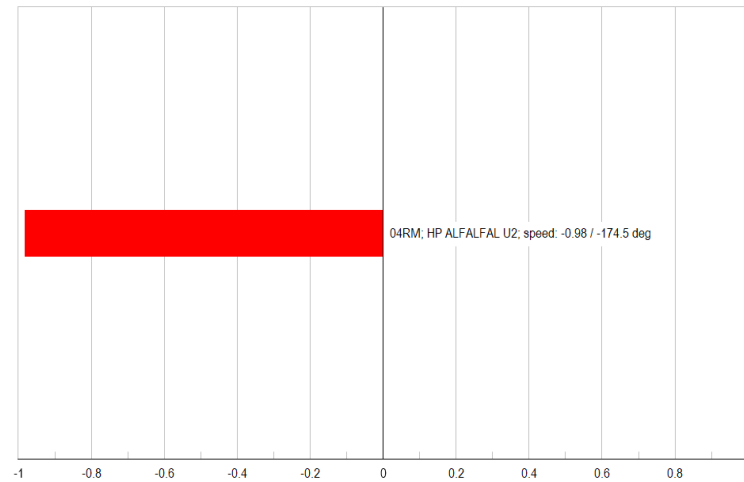
Eigenvalue of mode: $-0.544 + 9.520j$ Period: 0.660 s, Frequency: 1.515 Hz
Magnitude: 9.535 1/s, Angle: 93.269 deg Damping: 0.544 1/s, Ratio of Amplitudes: 1.432

Mode 1078: Participation



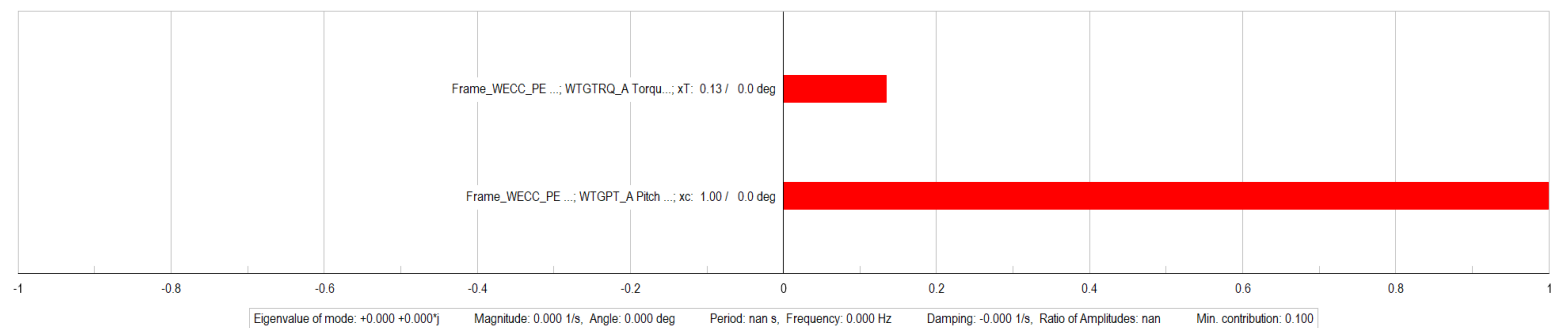
Eigenvalue of mode: $-0.973 + 18.499j$ Period: 0.340 s, Frequency: 2.944 Hz
Magnitude: 18.525 1/s, Angle: 93.011 deg Damping: 0.973 1/s, Ratio of Amplitudes: 1.392

Mode 904: Participation

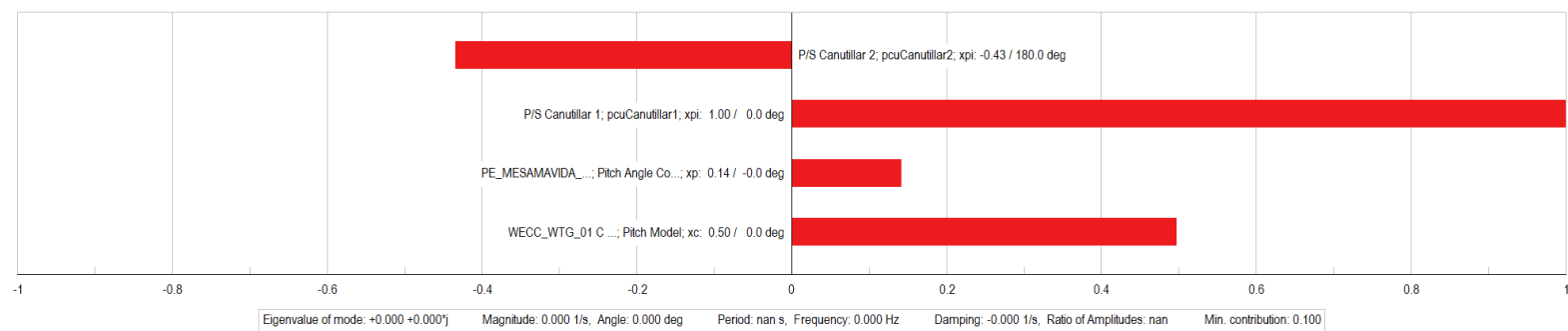


Eigenvalue of mode: $-0.544 + 9.520j$ Period: 0.660 s, Frequency: 1.515 Hz
Magnitude: 9.535 1/s, Angle: 93.269 deg Damping: 0.544 1/s, Ratio of Amplitudes: 1.432

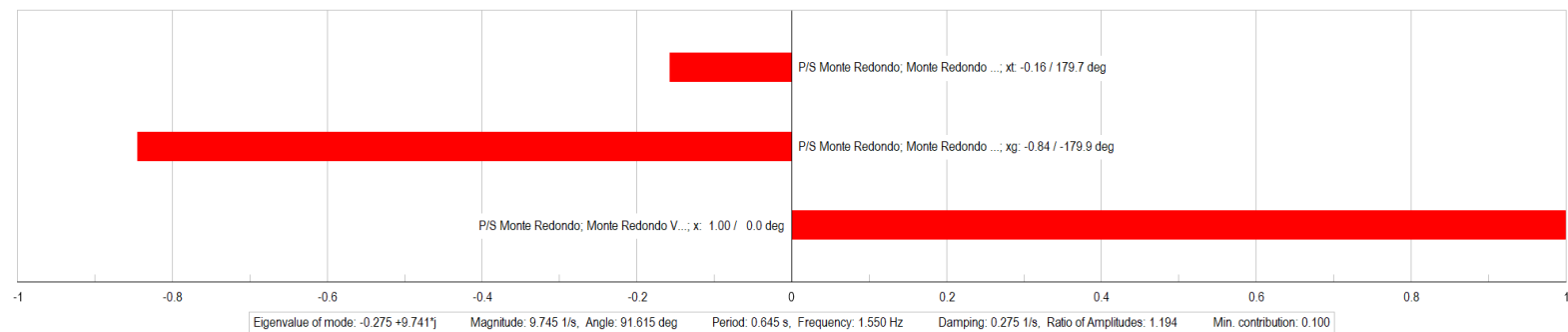
Mode 1: Participation



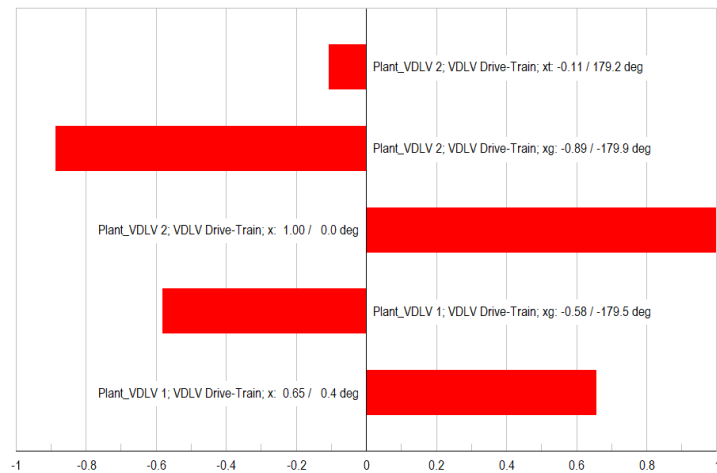
Mode 2: Participation



Mode 659: Participation

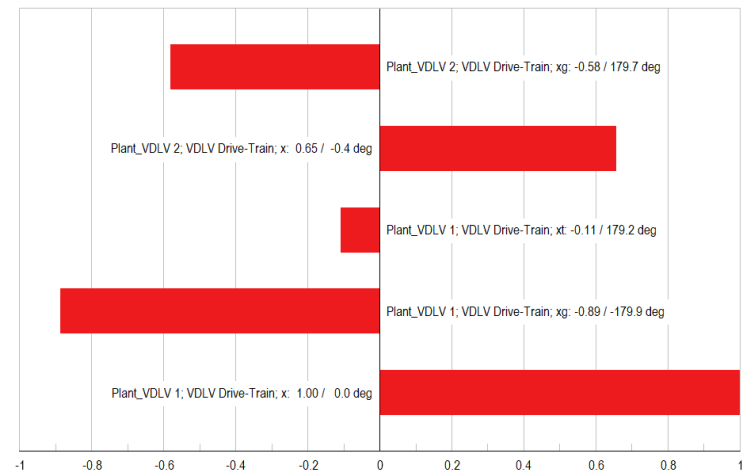


Mode 768: Participation



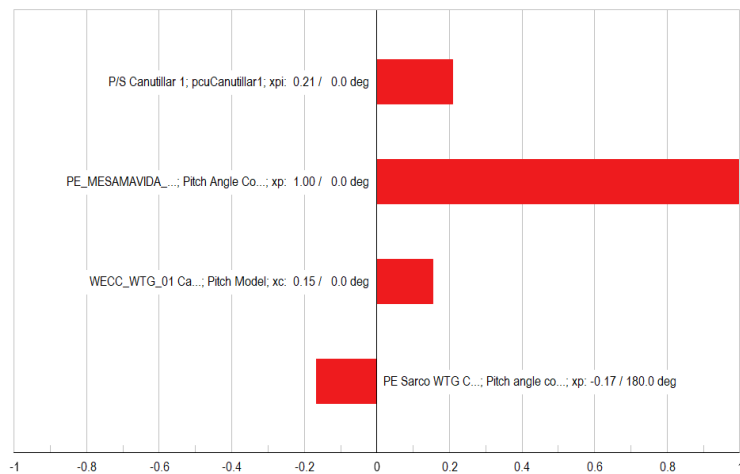
Eigenvalue of mode: $-0.464 + 12.570j$ Period: 0.500 s, Frequency: 2.001 Hz Min. contribution: 0.100
Magnitude: 12.579 1/s, Angle: 92.114 deg Damping: 0.464 1/s, Ratio of Amplitudes: 1.261

Mode 766: Participation



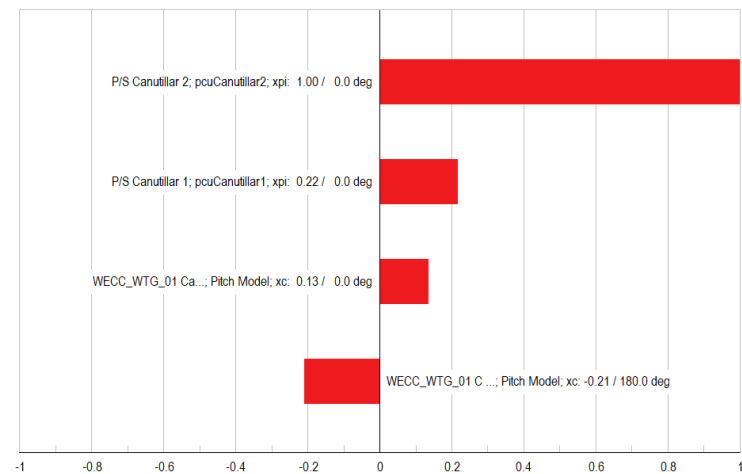
Eigenvalue of mode: $-0.464 + 12.570j$ Period: 0.500 s, Frequency: 2.001 Hz Min. contribution: 0.100
Magnitude: 12.579 1/s, Angle: 92.114 deg Damping: 0.464 1/s, Ratio of Amplitudes: 1.261

Mode 6: Participation



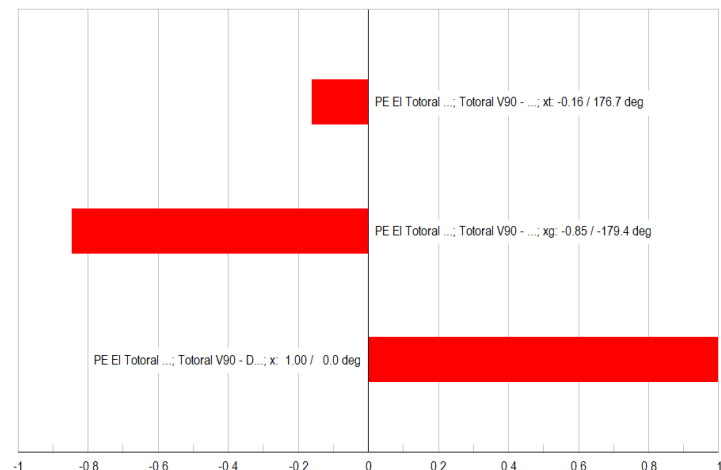
Eigenvalue of mode: $+0.000 + 0.000j$ Period: nan s, Frequency: 0.000 Hz Min. contribution: 0.100
Magnitude: 0.000 1/s, Angle: 0.000 deg Damping: -0.000 1/s, Ratio of Amplitudes: nan

Mode 3: Participation



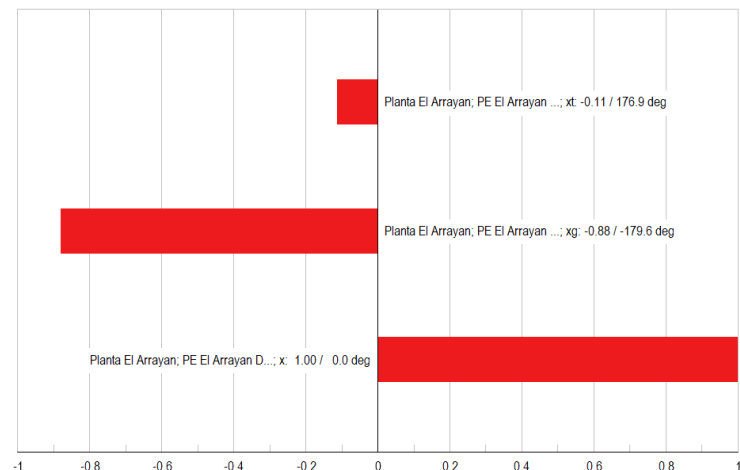
Eigenvalue of mode: $+0.000 + 0.000j$ Period: nan s, Frequency: 0.000 Hz Min. contribution: 0.100
Magnitude: 0.000 1/s, Angle: 0.000 deg Damping: -0.000 1/s, Ratio of Amplitudes: nan

Mode 916: Participation



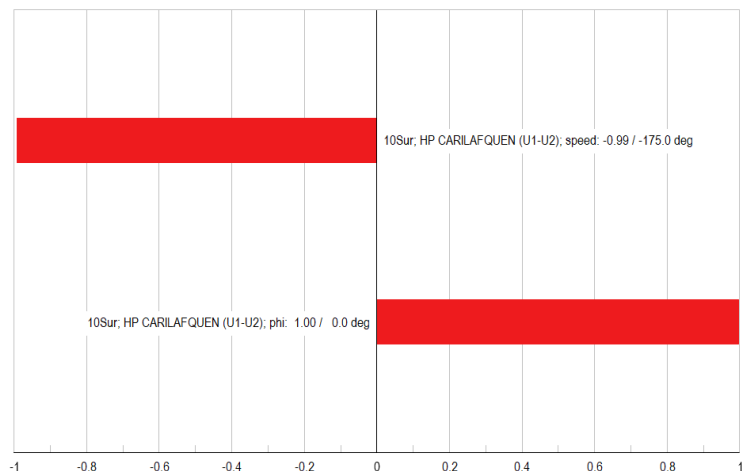
Eigenvalue of mode: $-0.558 + 9.752j$ Period: 0.644 s, Frequency: 1.552 Hz Min. contribution: 0.100
Magnitude: 9.768 1/s, Angle: 93.277 deg Damping: 0.558 1/s, Ratio of Amplitudes: 1.433

Mode 970: Participation



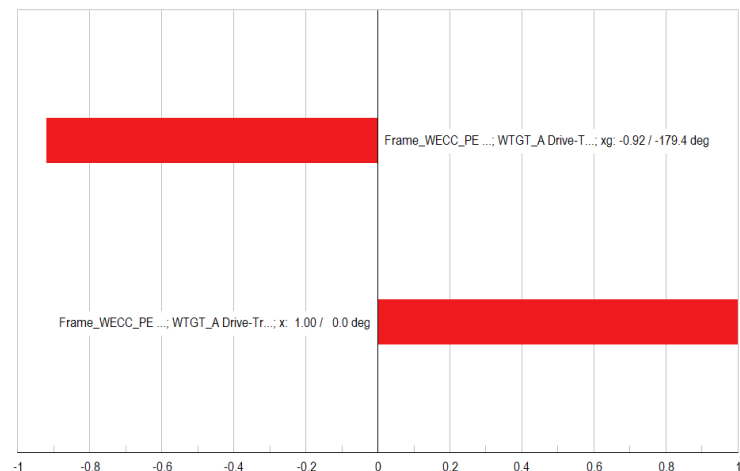
Eigenvalue of mode: $-0.695 + 12.579j$ Period: 0.499 s, Frequency: 2.002 Hz Min. contribution: 0.100
Magnitude: 12.598 1/s, Angle: 93.162 deg Damping: 0.695 1/s, Ratio of Amplitudes: 1.415

Mode 677: Participation



Eigenvalue of mode: $-0.312 + 5.789j$ Period: 1.085 s, Frequency: 0.921 Hz Min. contribution: 0.100
Magnitude: 5.797 1/s, Angle: 93.089 deg Damping: 0.312 1/s, Ratio of Amplitudes: 1.404

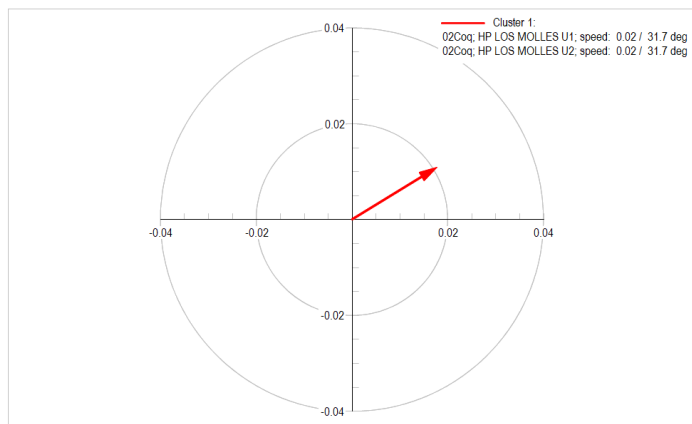
Mode 705: Participation



Eigenvalue of mode: $-0.367 + 9.056j$ Period: 0.694 s, Frequency: 1.441 Hz Min. contribution: 0.100
Magnitude: 9.064 1/s, Angle: 92.319 deg Damping: 0.367 1/s, Ratio of Amplitudes: 1.290

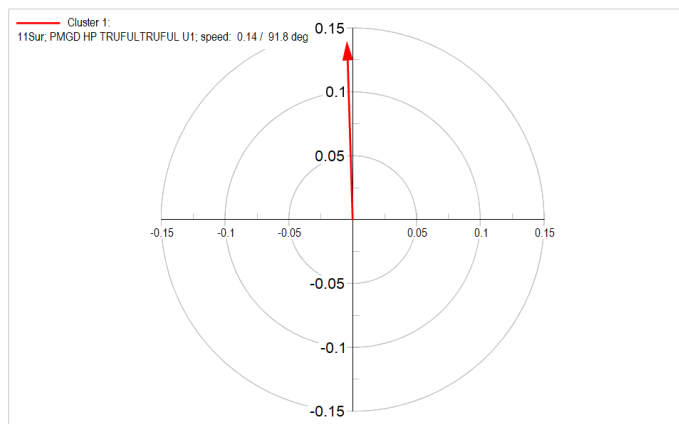
15.4.3 Red N-1 Caso 2.- Nueva Pan de Azúcar - Polpaico 500 kV

Mode 702: Observability



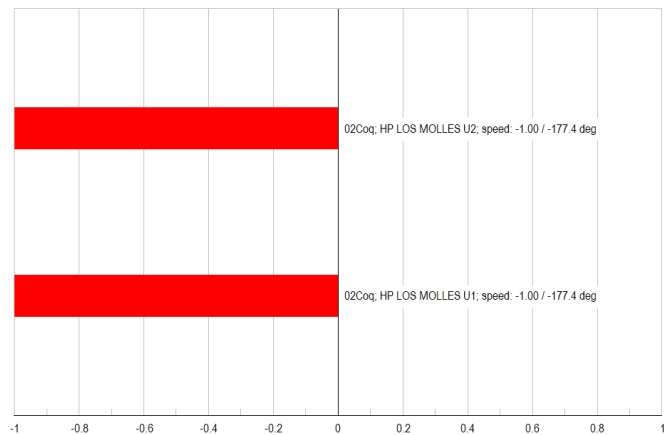
Eigenvalue of mode: $-0.346 + 11.138j$ Period: 0.564 s, Frequency: 1.773 Hz
Magnitude: 11.144 1/s, Angle: 91.780 deg Damping: 0.346 1/s, Ratio of Amplitudes: 1.216

Mode 1262: Observability



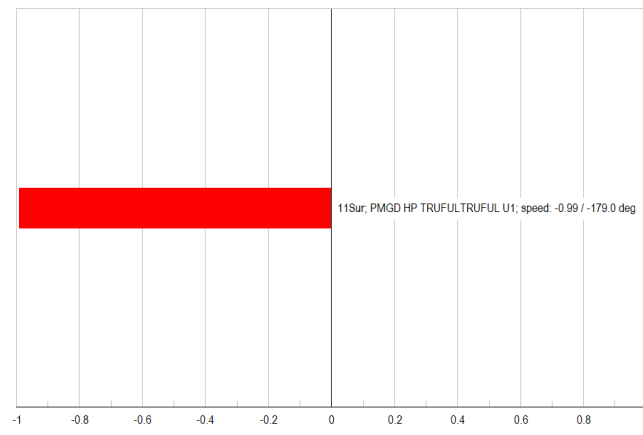
Eigenvalue of mode: $-1.338 + 43.669j$ Period: 0.144 s, Frequency: 6.950 Hz
Magnitude: 43.689 1/s, Angle: 91.755 deg Damping: 1.338 1/s, Ratio of Amplitudes: 1.212

Mode 702: Participation



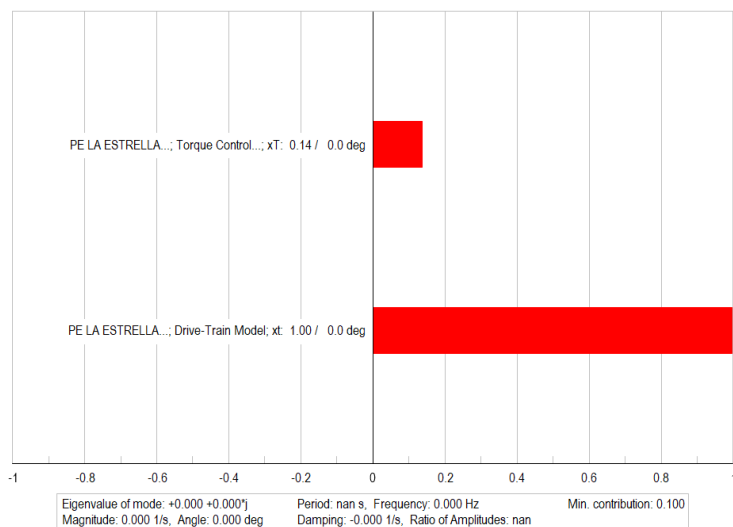
Eigenvalue of mode: $-0.346 + 11.138j$ Period: 0.564 s, Frequency: 1.773 Hz
Magnitude: 11.144 1/s, Angle: 91.780 deg Damping: 0.346 1/s, Ratio of Amplitudes: 1.216

Mode 1262: Participation

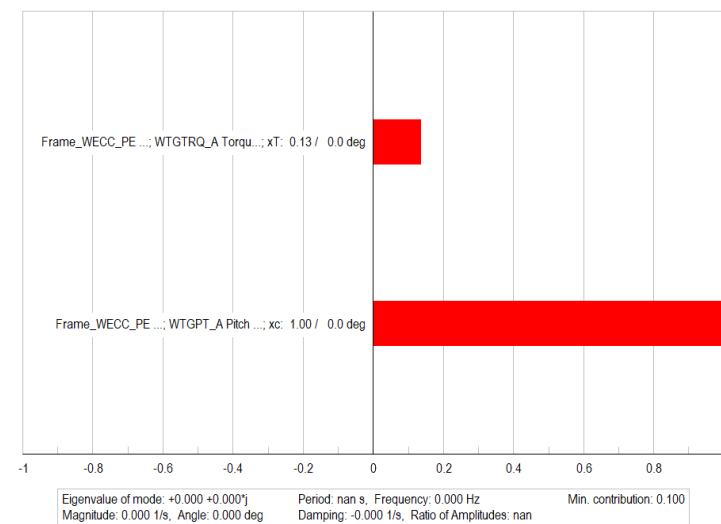


Eigenvalue of mode: $-1.338 + 43.669j$ Period: 0.144 s, Frequency: 6.950 Hz
Magnitude: 43.689 1/s, Angle: 91.755 deg Damping: 1.338 1/s, Ratio of Amplitudes: 1.212

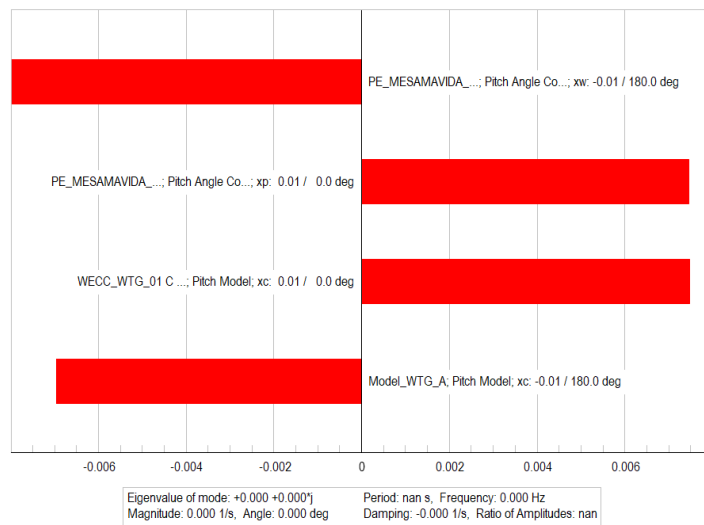
Mode 1: Participation



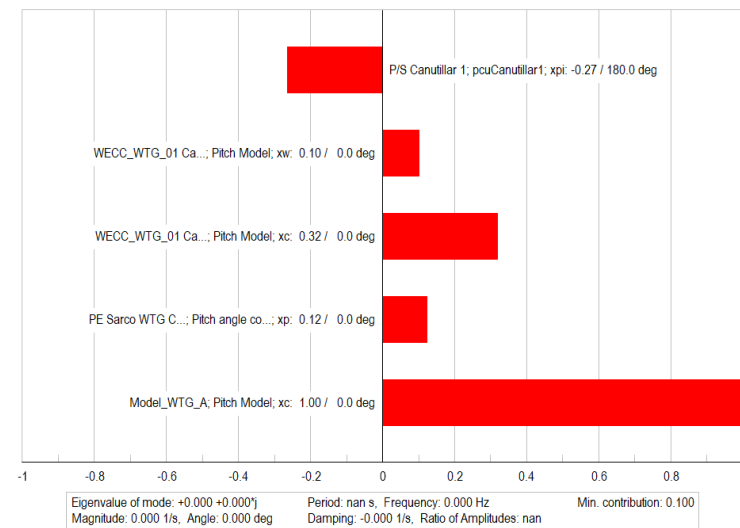
Mode 2: Participation



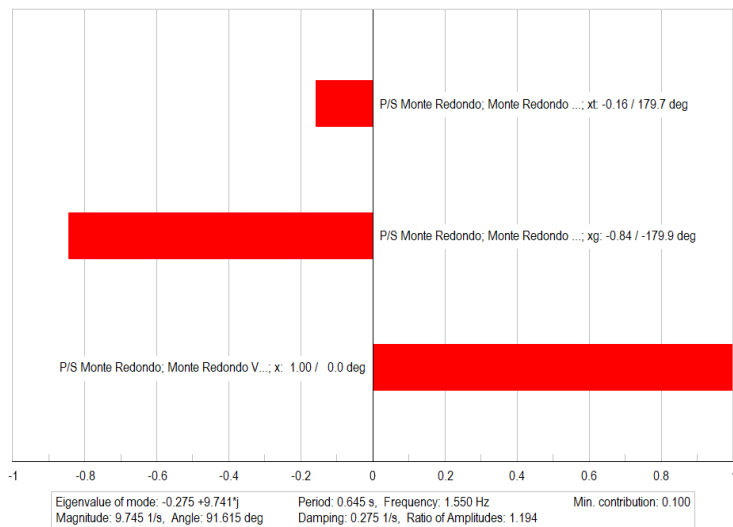
Mode 3: Participation



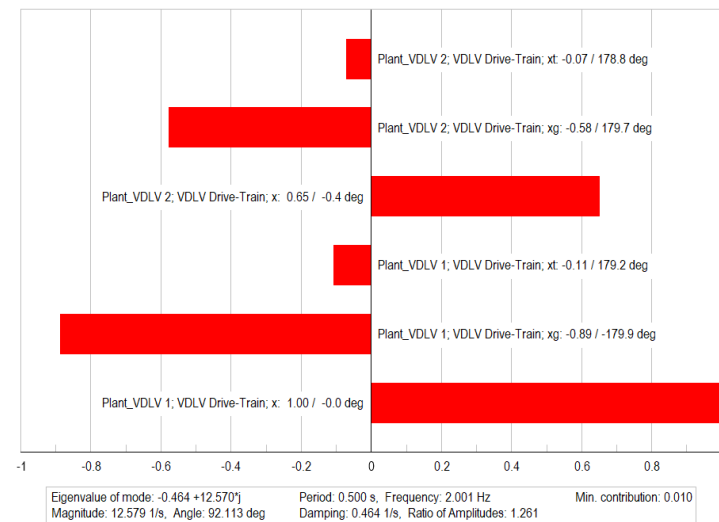
Mode 6: Participation



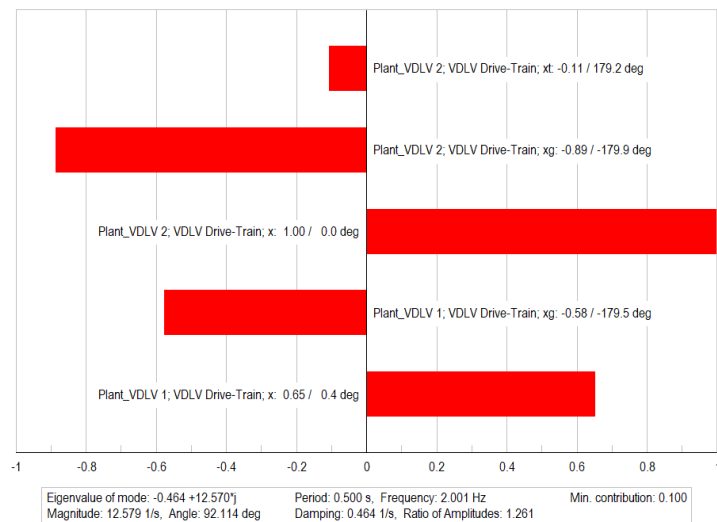
Mode 662: Participation



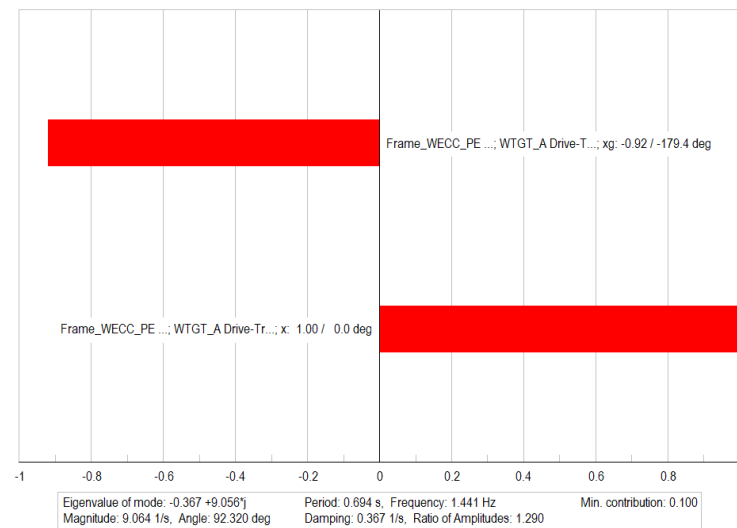
Mode 768: Participation



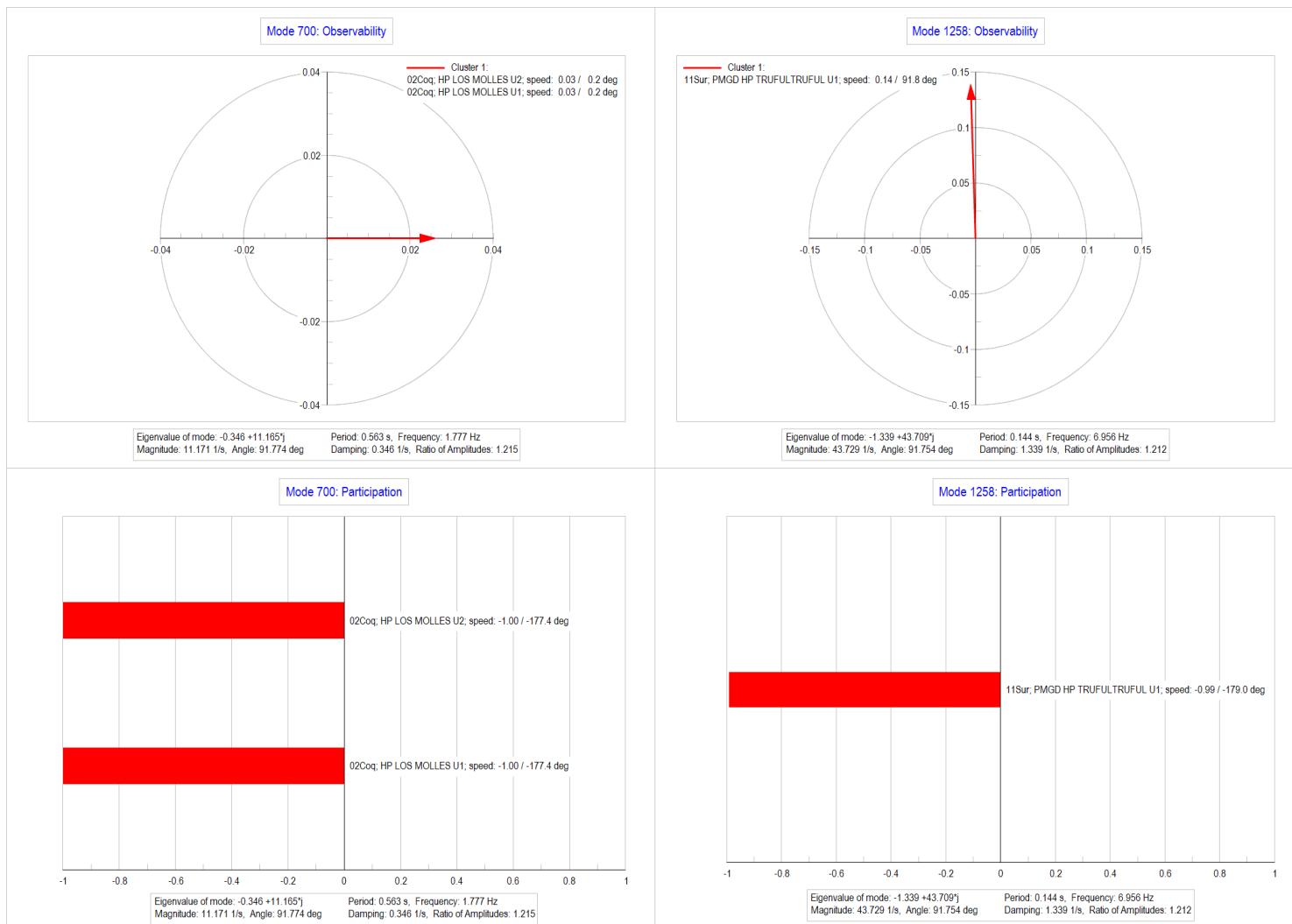
Mode 770: Participation



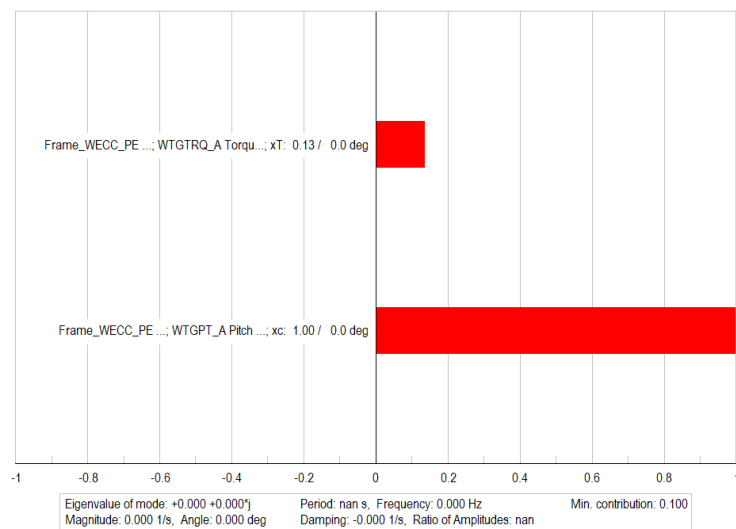
Mode 707: Participation



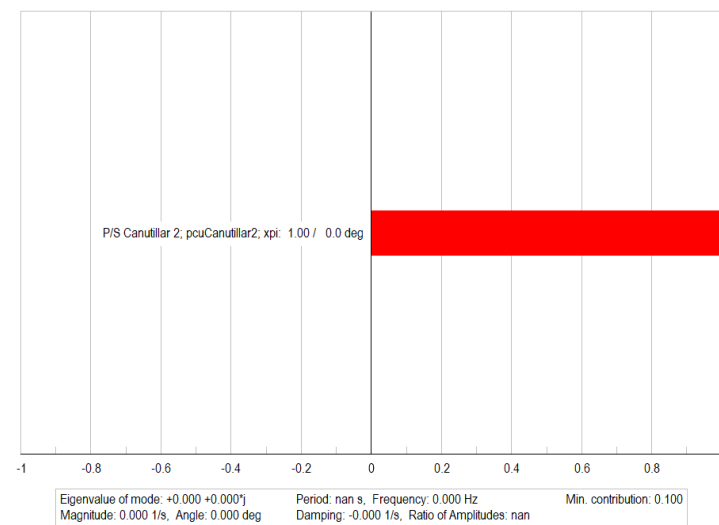
15.4.4 Red N-1 Caso 3.- Entre Ríos - Ancoa 500 kV



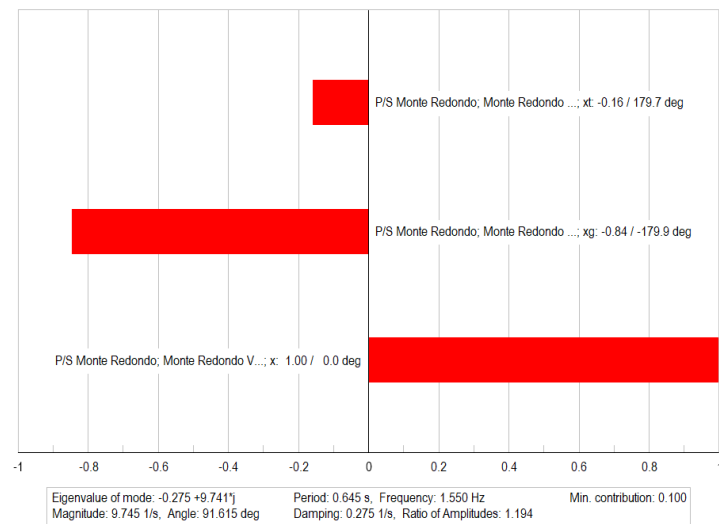
Mode 1: Participation



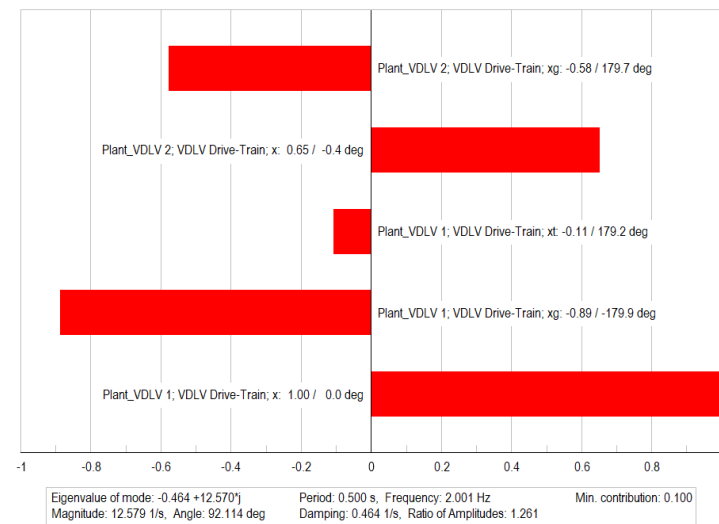
Mode 2: Participation



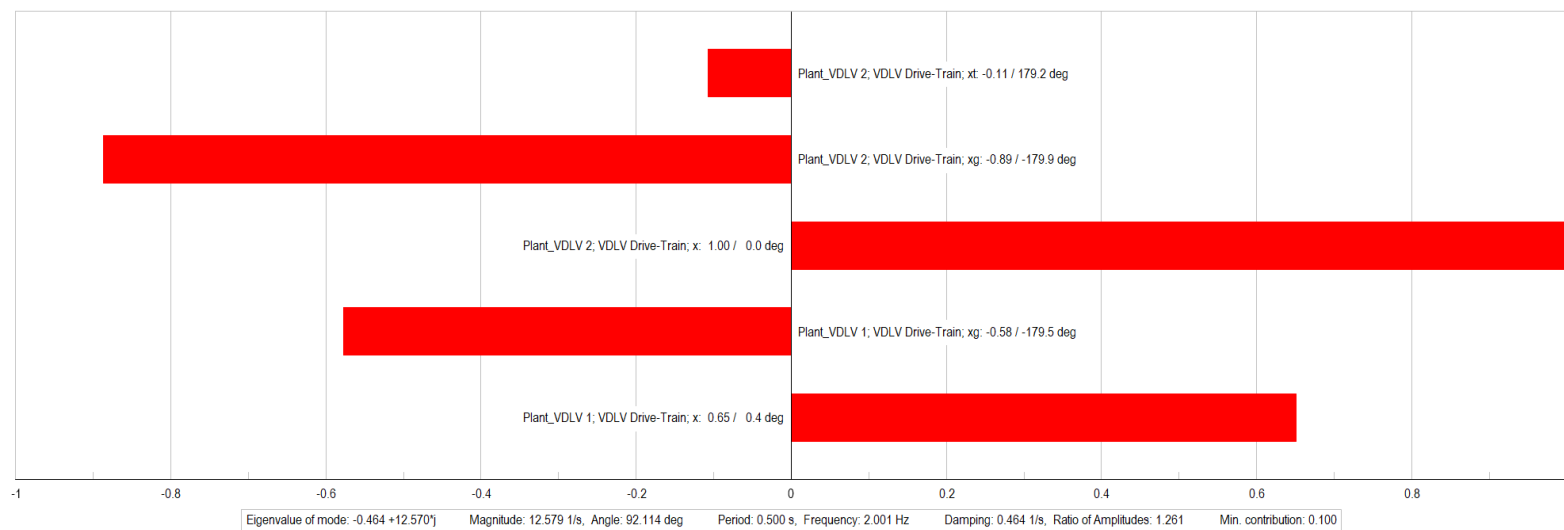
Mode 681: Participation



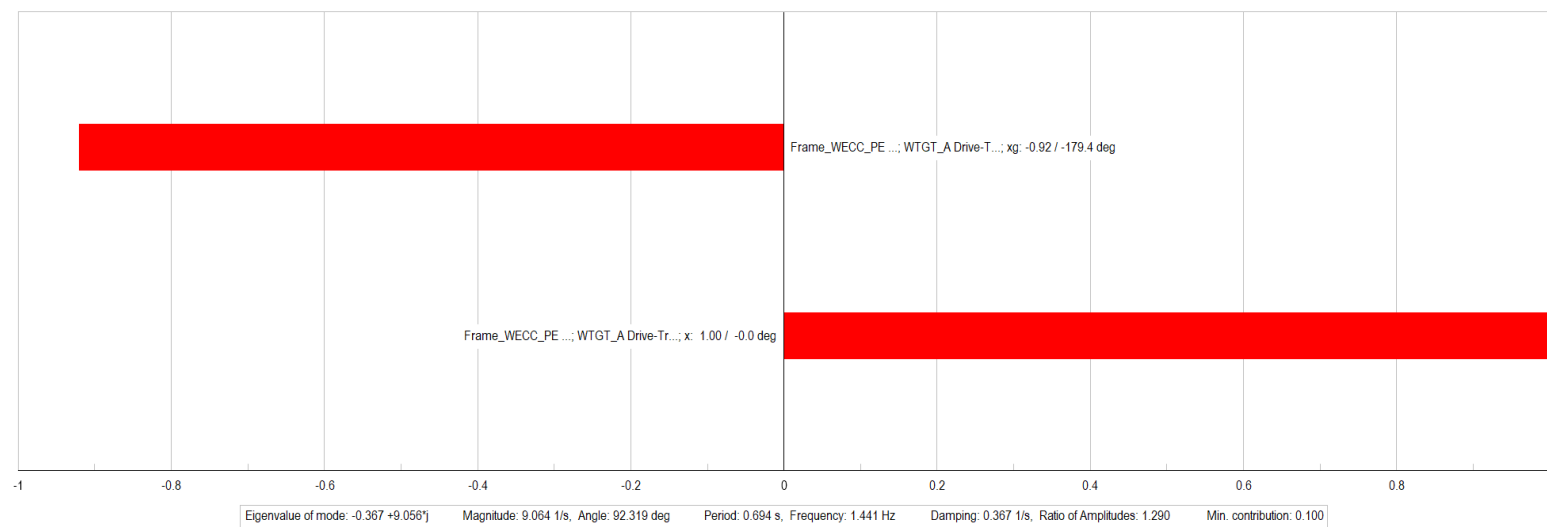
Mode 769: Participation



Mode 771: Participation

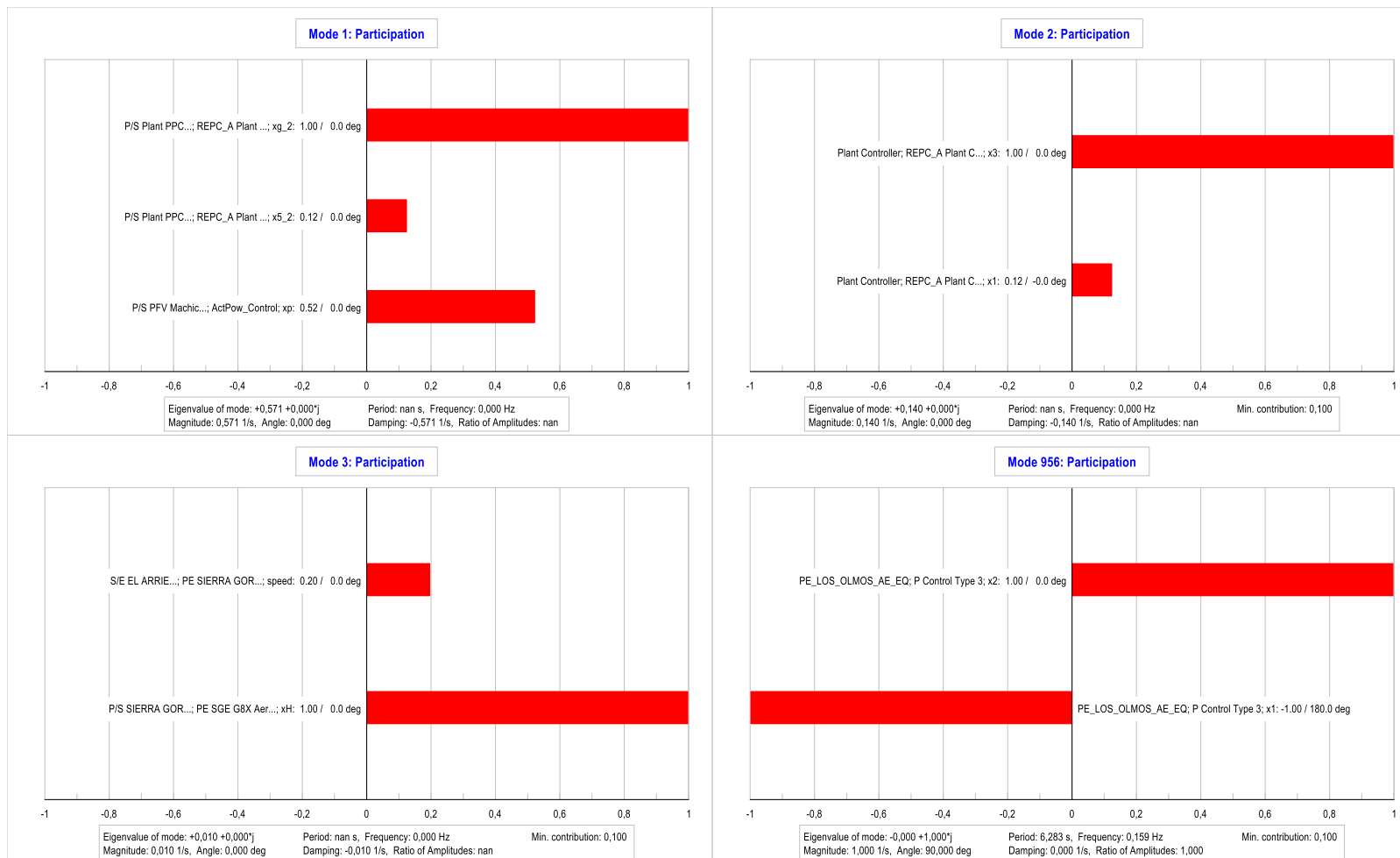


Mode 706: Participation

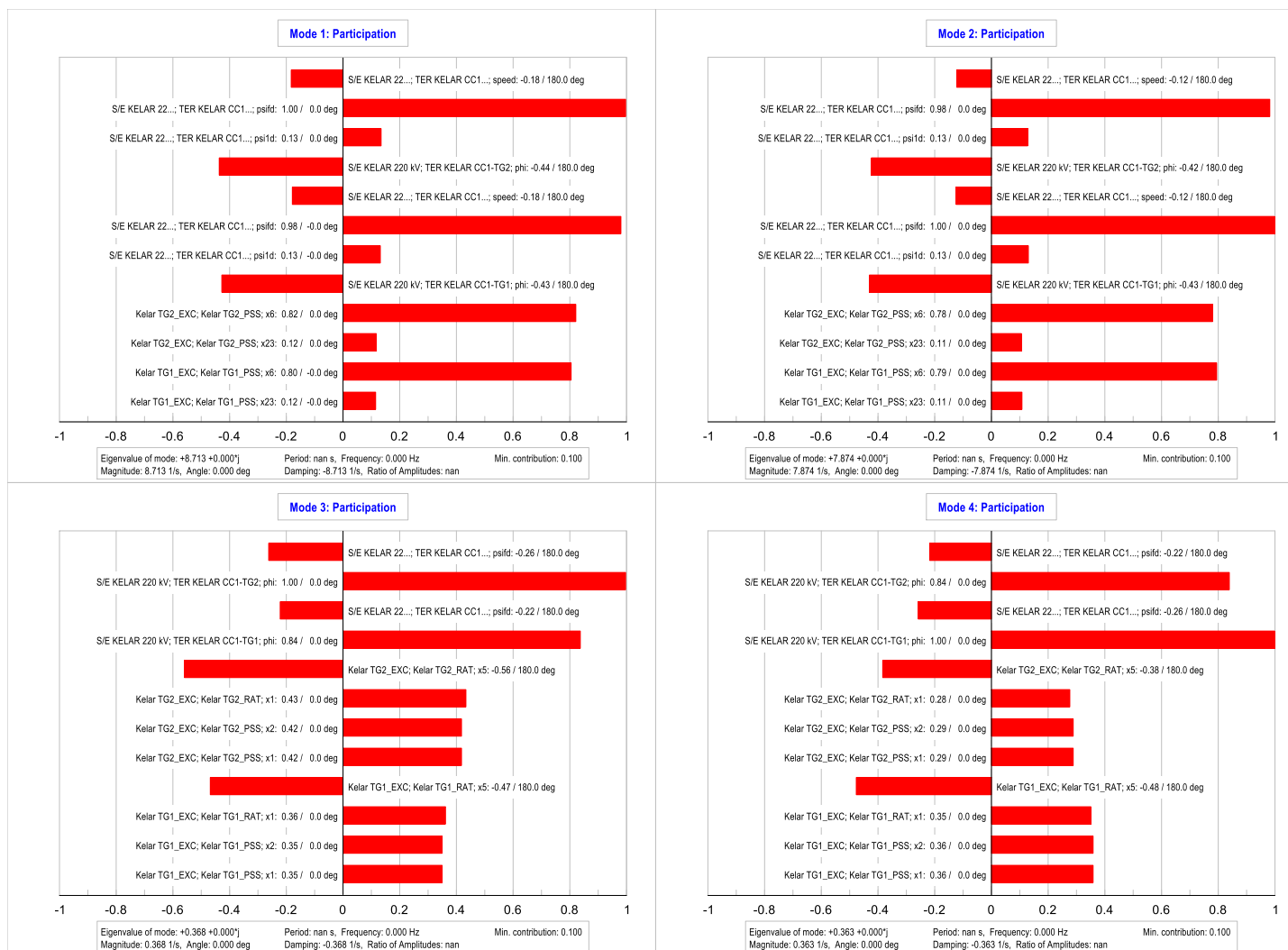


16 MODOS INESTABLES

16.1 Escenario E1



16.2 Escenario E2



16.3 Escenario E3

