

```
In [74]: from gwpy.timeseries import TimeSeries  
        from gwpy.plot import Plot
```

```
In [89]: ReferenceTime = 1345218482  
  
        CheckTime = 1345560072 # At least SR2 was rubbing here.  
        CheckTime = 1345894395 # Middle of night, IFO should be DOWN  
  
        dt = 60
```

In [90]:

```
optics = {'ITMX': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'ITMY': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'ETMX': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'ETMY': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'BS': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'PRM': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'PR2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'PR3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'SRM': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'SR2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'SR3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'MC1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'MC2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'MC3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'TMSX': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'TMSY': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'IM1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'IM2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'IM3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'IM4': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'RM1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'RM2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'OM1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'OM2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'OM3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
          'OMC': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
          'OFI': {'stage': 'M1', 'dofs': ['L', 'T', 'Y']},
        }
for optic in optics.keys():
    chanlist = []
    for dof in optics[optic]['dofs']:
        chanlist.append('H1:SUS-%s_%s_DAMP_%s_IN1_DQ'%(optic, optics[optic]['stage'], dof))

    optics[optic]['chanlist'] = chanlist
```

In [91]:

```

myplot = {}

for optic in optics.keys():
    myplot[optic] = Plot(figsize=(50,8))
    ii = 0
    for dof in optics[optic]['dofs']:
        ii += 1
        myplot[optic].add_subplot(1, len(optics[optic]['dofs']), ii)

        print('Fetching data for %s'%optics[optic]['chanlist'][ii-1])
        refData = TimeSeries.fetch(optics[optic]['chanlist'][ii-1], ReferenceTime, ReferenceTime+dt).asd(
        checkData = TimeSeries.fetch(optics[optic]['chanlist'][ii-1], CheckTime, CheckTime+dt).asd(8,4)

        ax = myplot[optic].gca()
        ax.plot(refData, label='Reference time %s'%ReferenceTime)
        ax.plot(checkData, label='Check time %s'%CheckTime)
        ax.set_xscale('log')
        ax.set_yscale('log')
        ax.set_xlabel('Frequency [Hz]')
        ax.set_ylabel('Optic Motion [um/rtHz or urad/rtHz]')
        ax.set_title(optics[optic]['chanlist'][ii-1])
        ax.legend()

```

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Fetching data for H1:SUS-ITMX_M0_DAMP_L_IN1_DQ
Fetching data for H1:SUS-ITMX_M0_DAMP_P_IN1_DQ
Fetching data for H1:SUS-ITMX_M0_DAMP_Y_IN1_DQ
Fetching data for H1:SUS-ITMX_M0_DAMP_R_IN1_DQ
Fetching data for H1:SUS-ITMX_M0_DAMP_T_IN1_DQ
Fetching data for H1:SUS-ITMX_M0_DAMP_V_IN1_DQ
Fetching data for H1:SUS-ITMY_M0_DAMP_L_IN1_DQ
Fetching data for H1:SUS-ITMY_M0_DAMP_P_IN1_DQ
Fetching data for H1:SUS-ITMY_M0_DAMP_Y_IN1_DQ
Fetching data for H1:SUS-ITMY_M0_DAMP_R_IN1_DQ
Fetching data for H1:SUS-ITMY_M0_DAMP_T_IN1_DQ
Fetching data for H1:SUS-ITMY_M0_DAMP_V_IN1_DQ
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Fetching data for H1:SUS-ETMX_M0_DAMP_T_IN1_DQ
Fetching data for H1:SUS-ETMX_M0_DAMP_V_IN1_DQ
Fetching data for H1:SUS-ETMY_M0_DAMP_L_IN1_DQ

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Fetching data for H1:SUS-ETMY_M0_DAMP_P_IN1_DQ
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Fetching data for H1:SUS-ETMY_M0_DAMP_V_IN1_DQ
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Fetching data for H1:SUS-BS_M1_DAMP_P_IN1_DQ
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Fetching data for H1:SUS-TMSX_M1_DAMP_R_IN1_DQ
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Fetching data for H1:SUS-TMSX_M1_DAMP_V_IN1_DQ
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Fetching data for H1:SUS-IM2_M1_DAMP_P_IN1_DQ
Fetching data for H1:SUS-IM2_M1_DAMP_Y_IN1_DQ
Fetching data for H1:SUS-IM3_M1_DAMP_L_IN1_DQ
Fetching data for H1:SUS-IM3_M1_DAMP_P_IN1_DQ
Fetching data for H1:SUS-IM3_M1_DAMP_Y_IN1_DQ
Fetching data for H1:SUS-IM4_M1_DAMP_L_IN1_DQ
Fetching data for H1:SUS-IM4_M1_DAMP_P_IN1_DQ

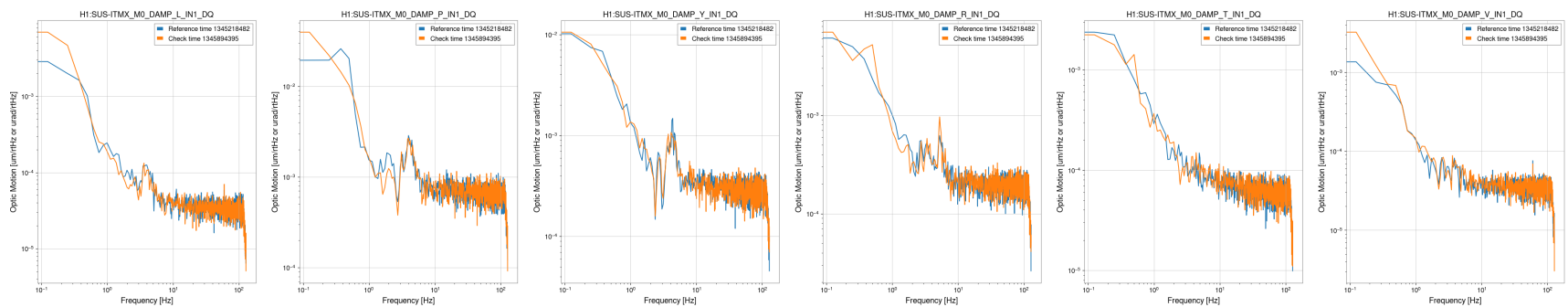
```

Fetching data for H1:SUS-IM4_M1_DAMP_Y_IN1_DQ
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Fetching data for H1:SUS-RM1_M1_DAMP_P_IN1_DQ
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Fetching data for H1:SUS-RM2_M1_DAMP_P_IN1_DQ
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Fetching data for H1:SUS-OM1_M1_DAMP_Y_IN1_DQ
Fetching data for H1:SUS-OM2_M1_DAMP_L_IN1_DQ
Fetching data for H1:SUS-OM2_M1_DAMP_P_IN1_DQ
Fetching data for H1:SUS-OM2_M1_DAMP_Y_IN1_DQ
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Fetching data for H1:SUS-OM3_M1_DAMP_P_IN1_DQ
Fetching data for H1:SUS-OM3_M1_DAMP_Y_IN1_DQ
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Fetching data for H1:SUS-OMC_M1_DAMP_P_IN1_DQ
Fetching data for H1:SUS-OMC_M1_DAMP_Y_IN1_DQ
Fetching data for H1:SUS-OMC_M1_DAMP_R_IN1_DQ
Fetching data for H1:SUS-OMC_M1_DAMP_T_IN1_DQ
Fetching data for H1:SUS-OMC_M1_DAMP_V_IN1_DQ
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Fetching data for H1:SUS-OFI_M1_DAMP_T_IN1_DQ

```

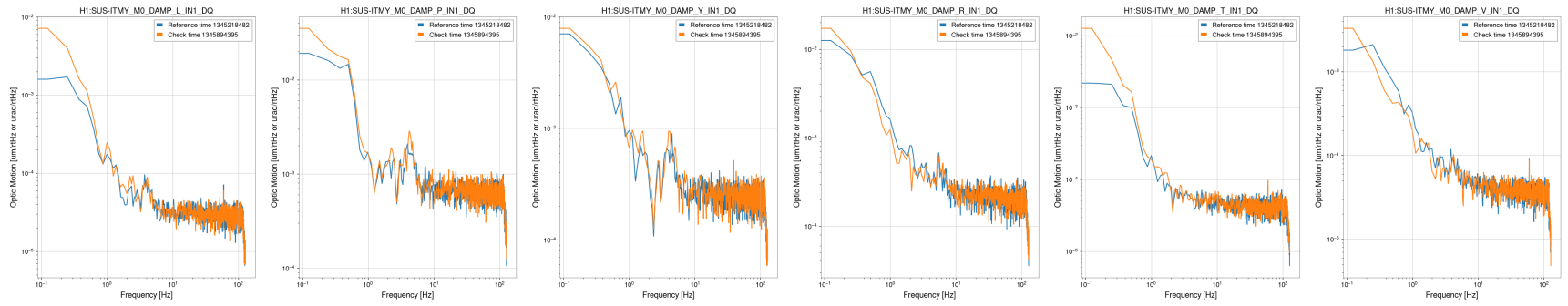
In [92]: `myplot['ITMX']`

Out[92]:



In [93]: `myplot['ITMY']`

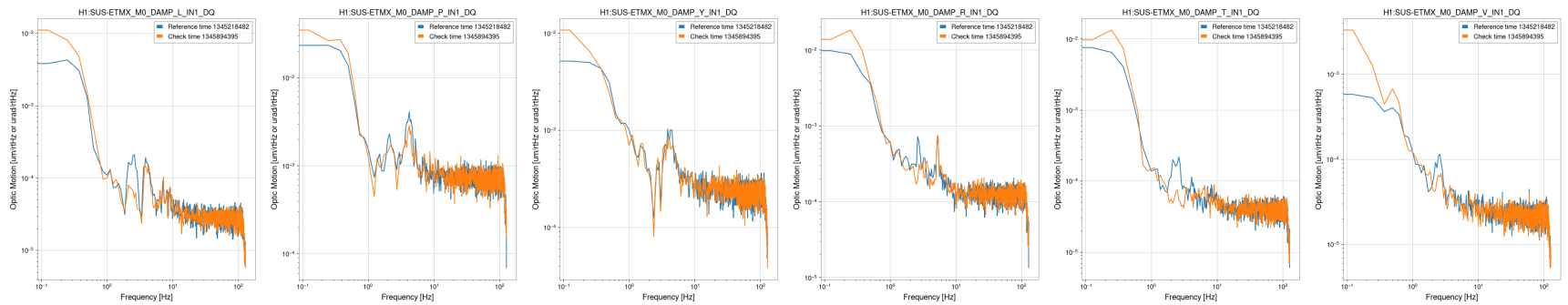
Out [93]:



In [94]:

myplot['ETMX']

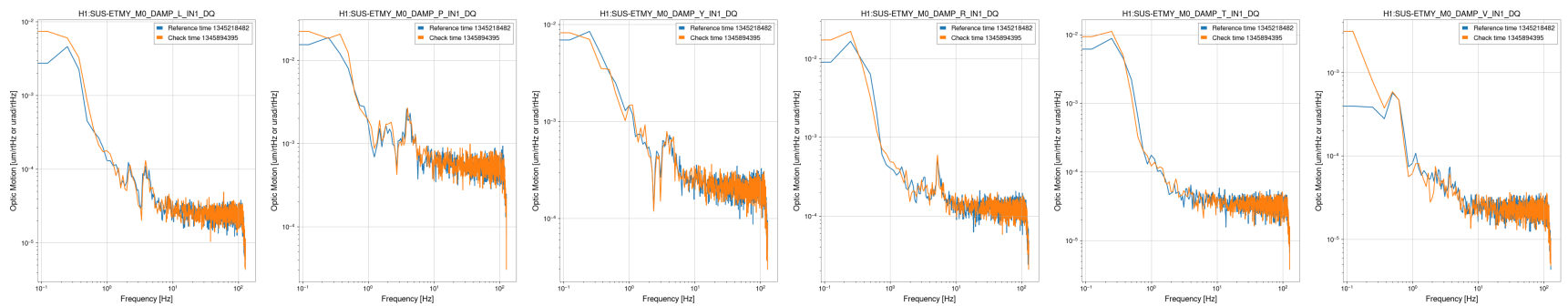
Out [94]:



In [95]:

myplot['ETMY']

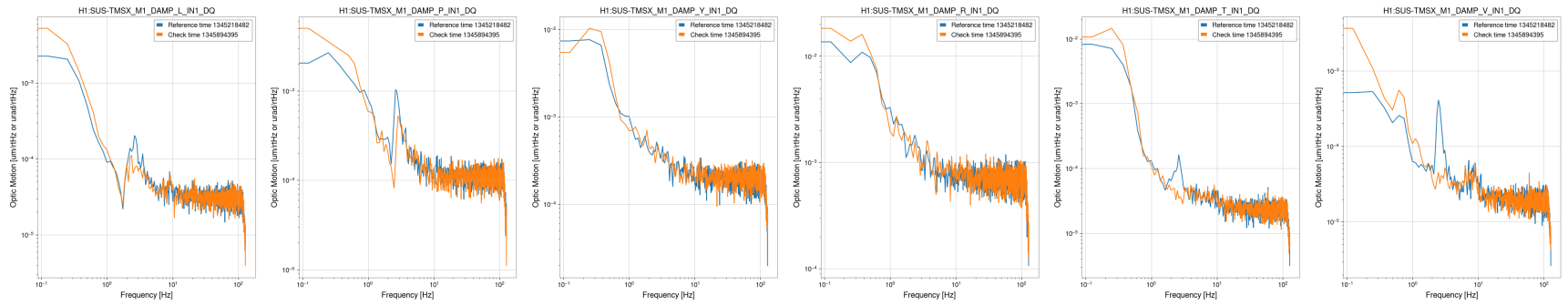
Out [95]:



In [96]:

myplot['TMSX']

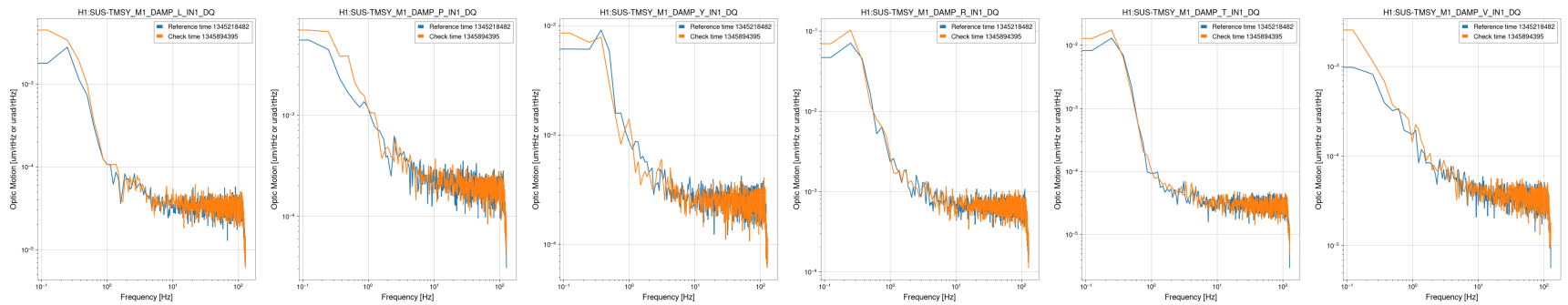
Out [96]:



In [97]:

myplot['TMSY']

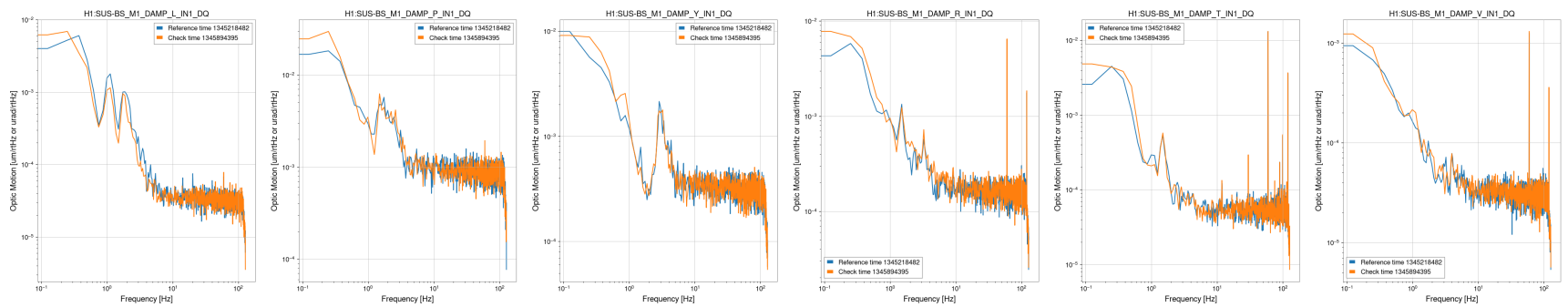
Out [97]:



In [98]:

myplot['BS']

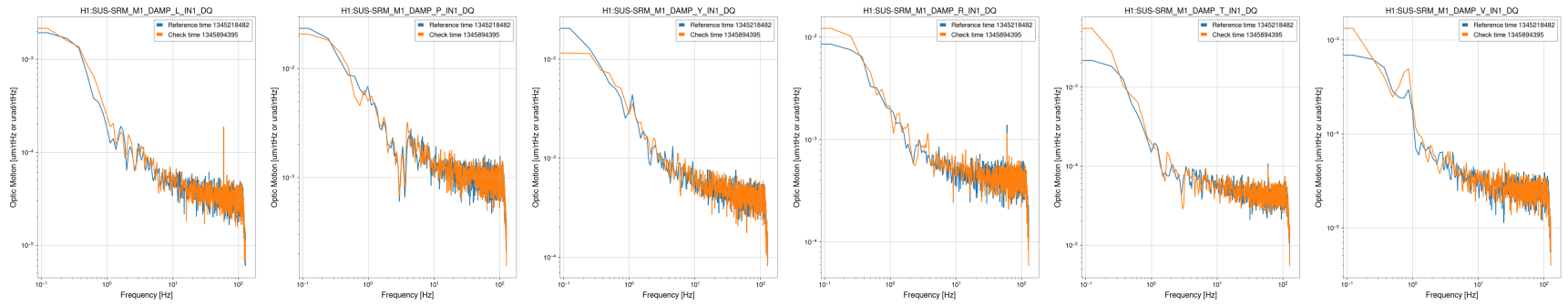
Out [98]:



In [99]:

myplot['SRM']

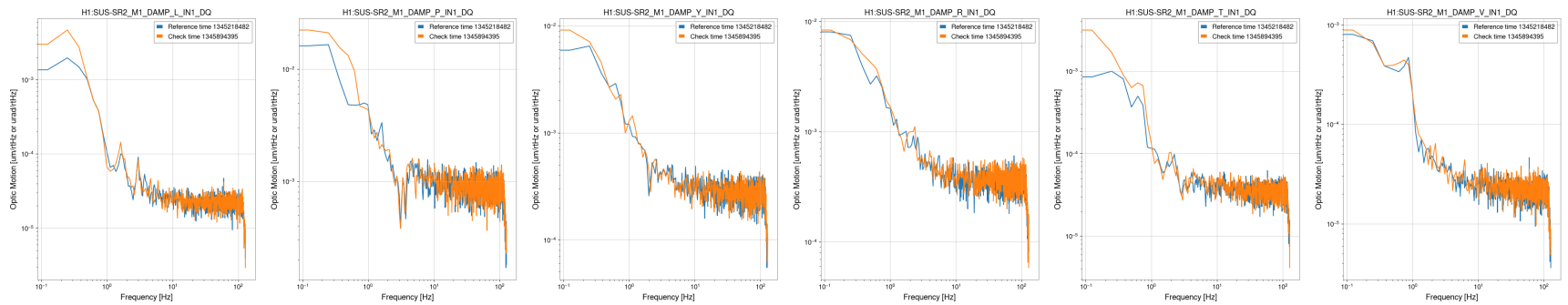
Out [99]:



In [100...

myplot['SR2']

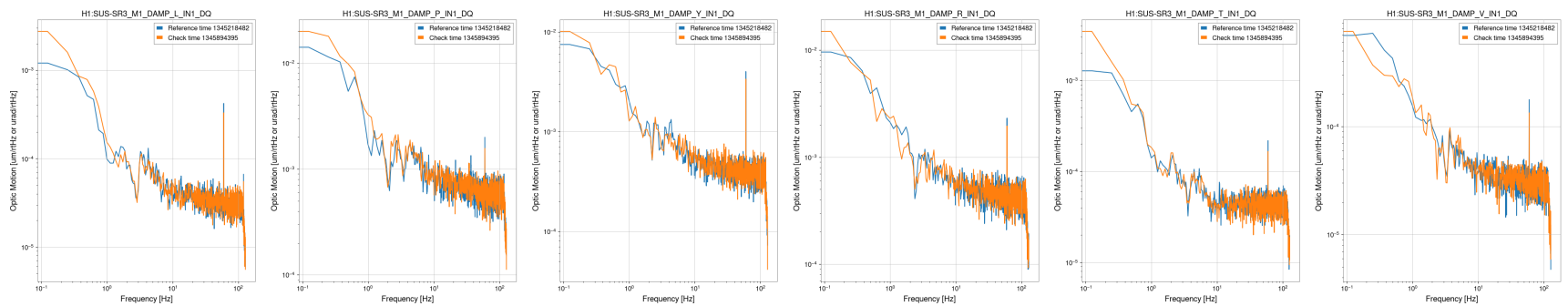
Out [100...



In [101...

myplot['SR3']

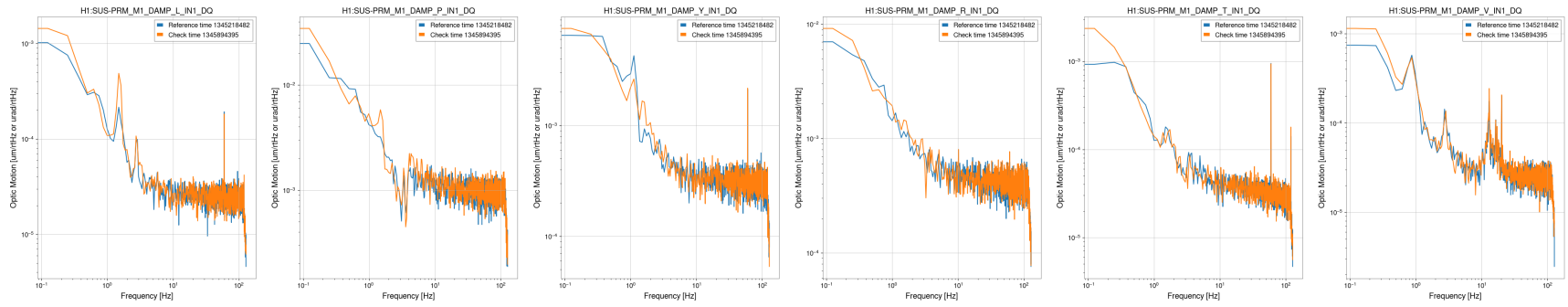
Out [101...



In [102...

myplot['PRM']

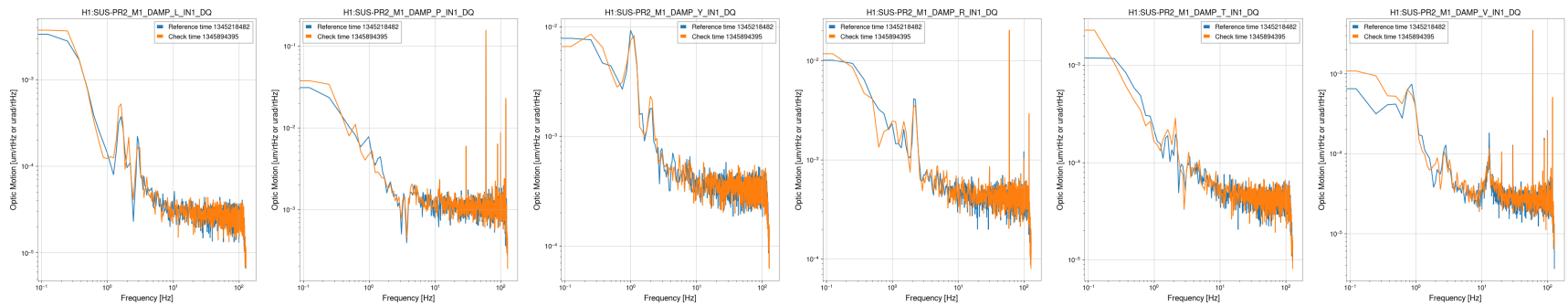
Out [102...



In [103...

myplot['PR2']

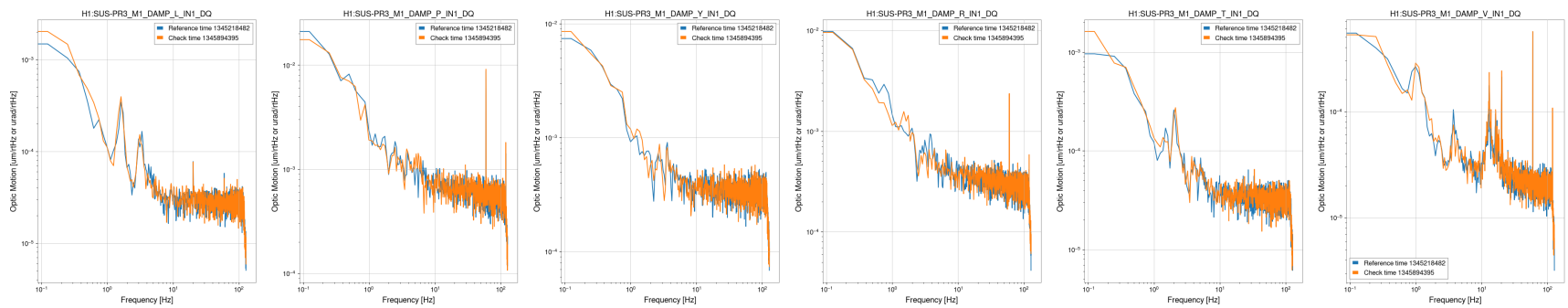
Out [103...



In [104...

myplot['PR3']

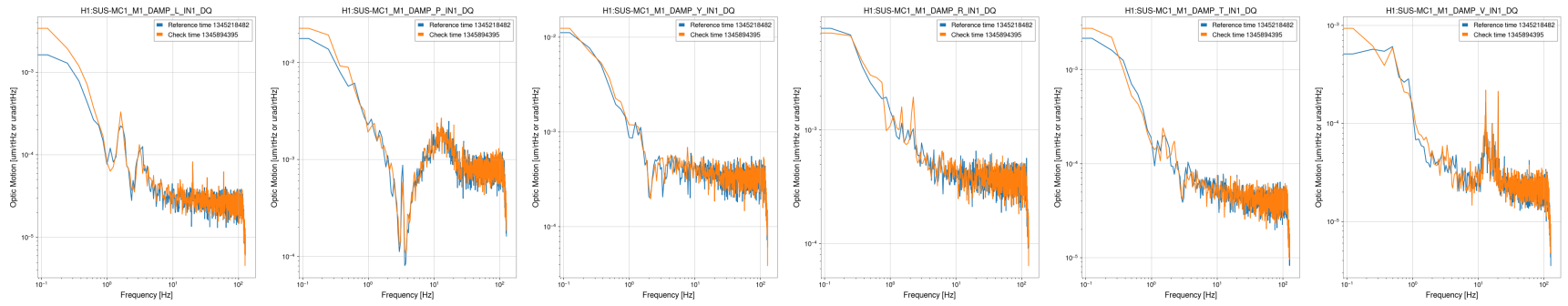
Out [104...



In [105...

myplot['MC1']

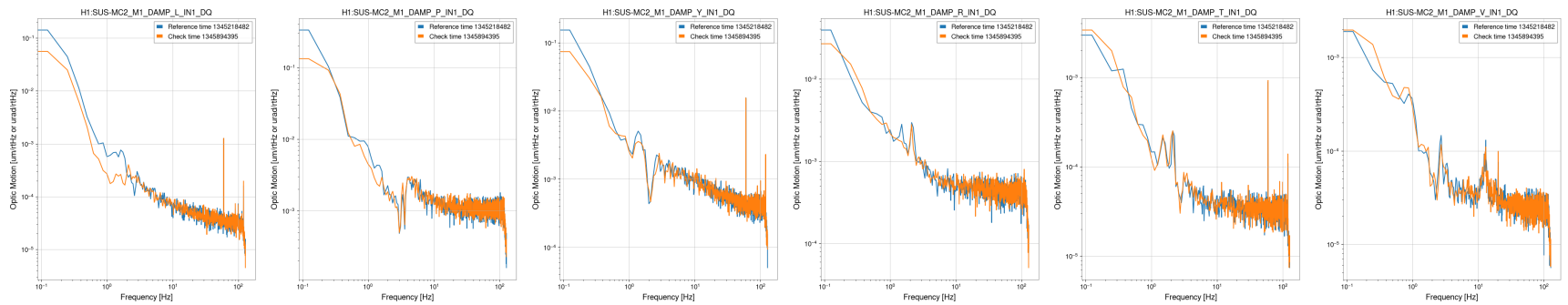
Out [105...



In [106...

myplot['MC2']

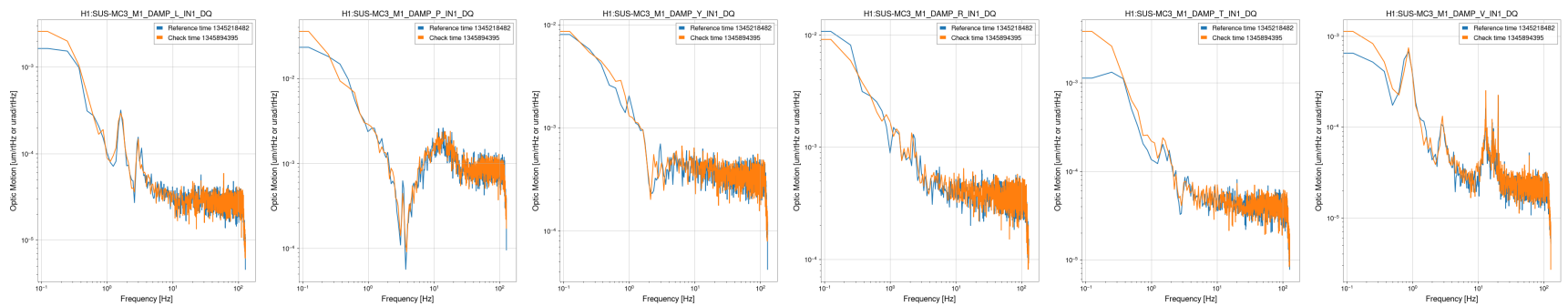
Out [106...



In [107...

myplot['MC3']

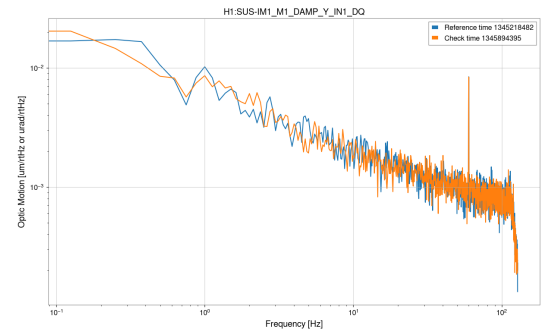
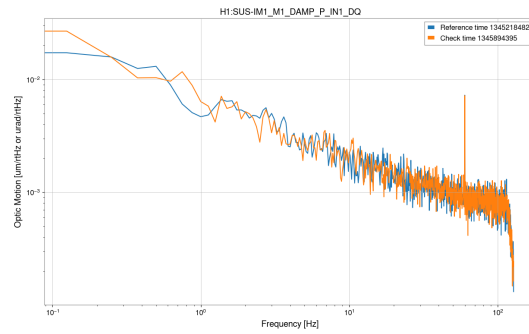
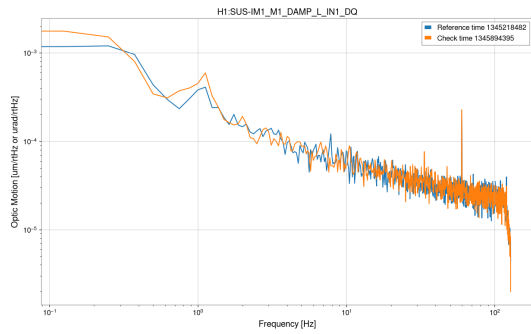
Out [107...



In [108...

myplot['IM1']

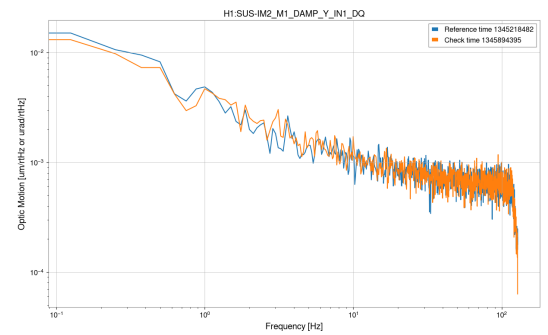
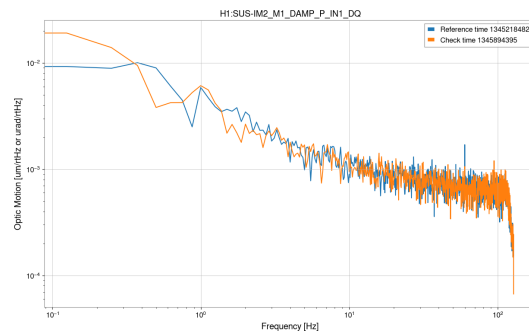
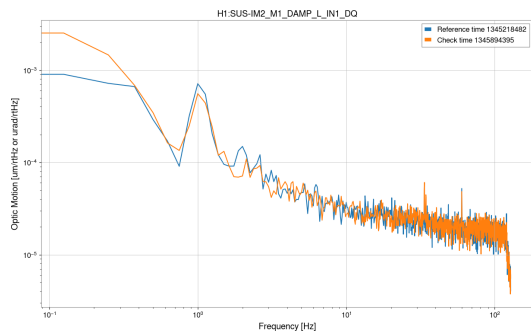
Out [108...



In [109...

myplot['IM2']

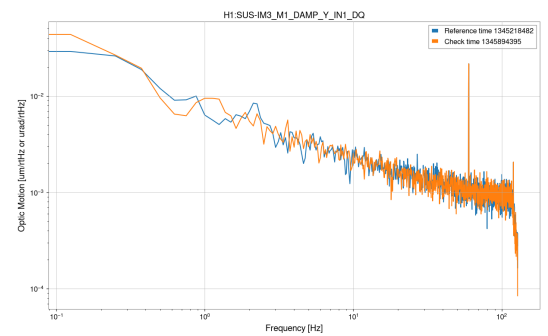
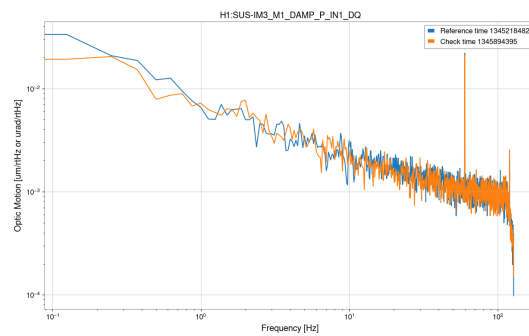
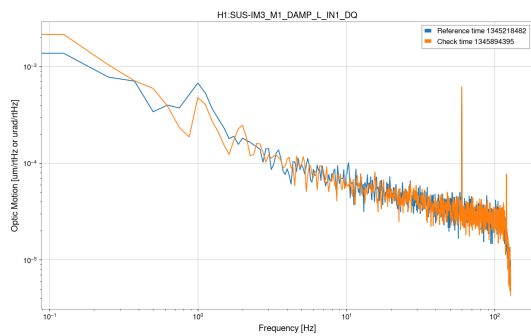
Out [109...



In [110...

myplot['IM3']

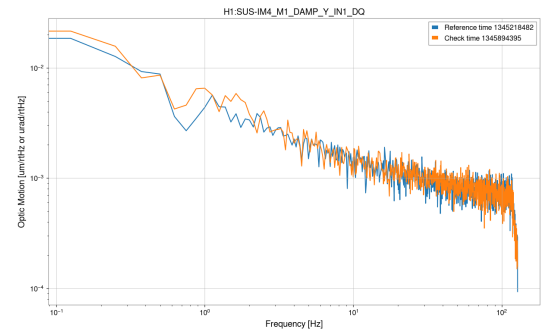
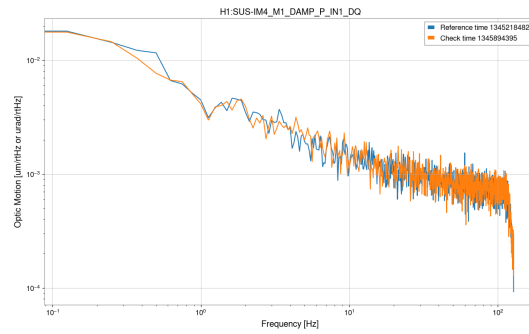
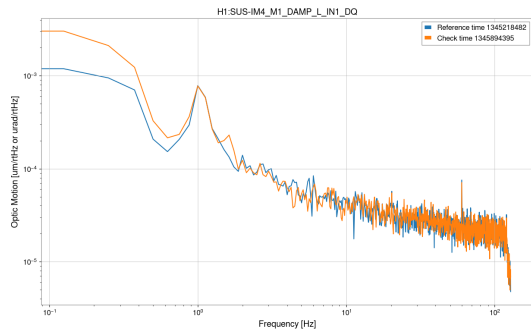
Out [110...



In [111...

myplot['IM4']

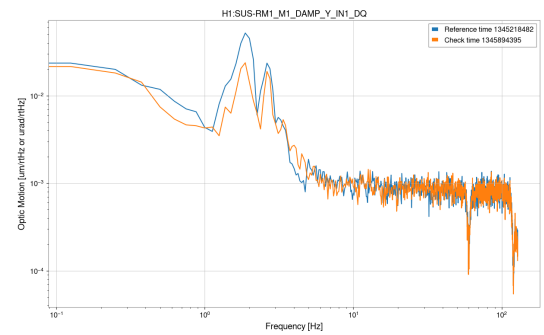
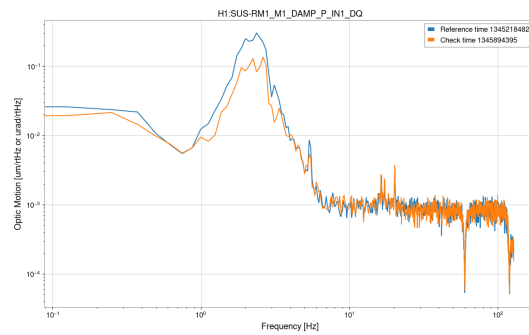
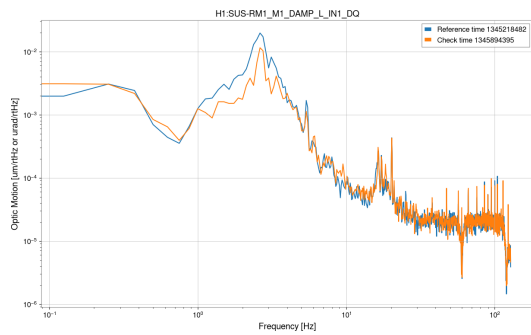
Out [111...



In [112...

myplot['RM1']

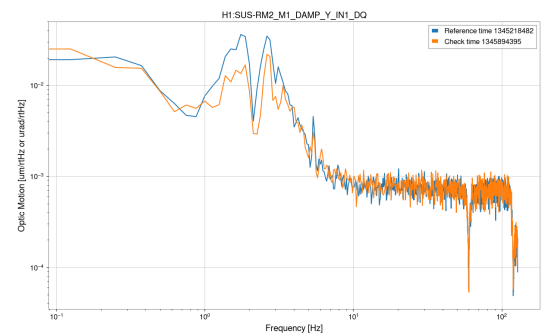
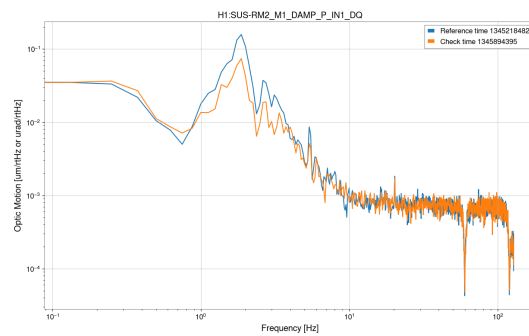
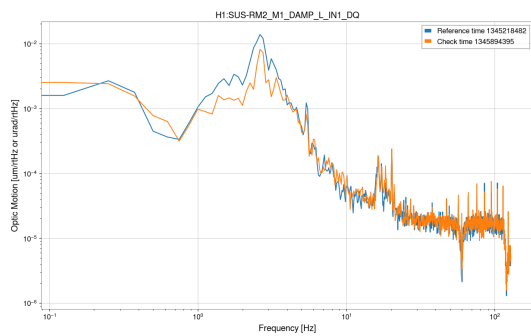
Out [112...



In [113...

myplot['RM2']

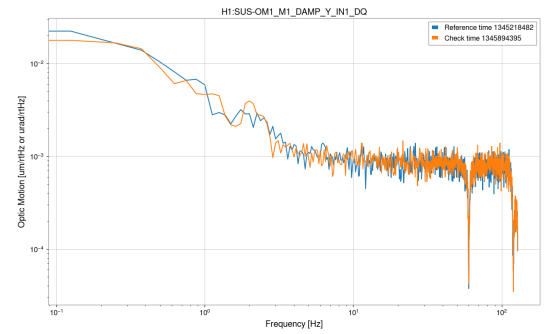
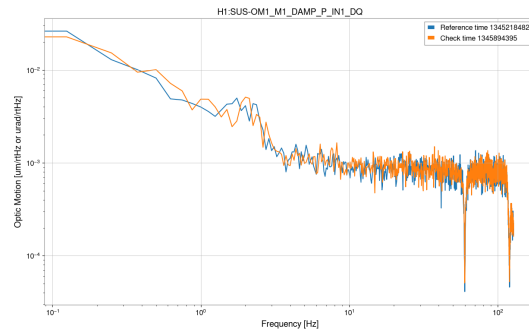
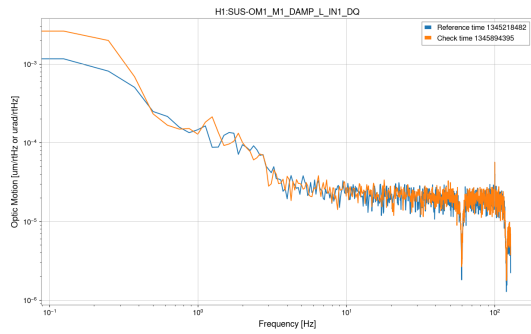
Out [113...



In [114...

myplot['OM1']

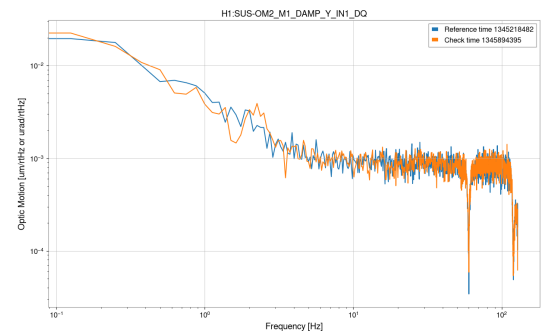
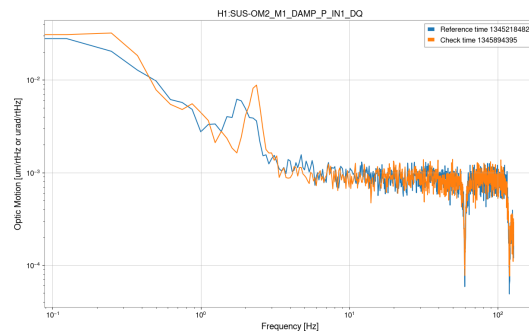
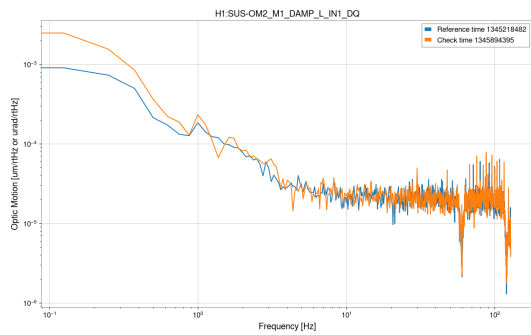
Out [114...



In [115...

myplot['OM2']

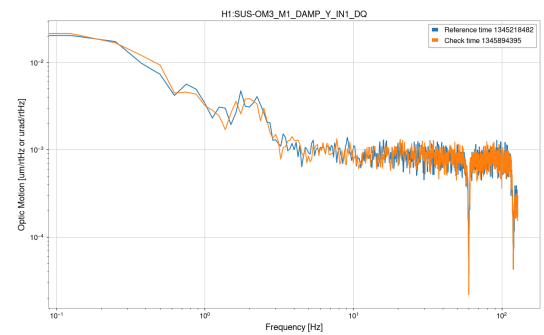
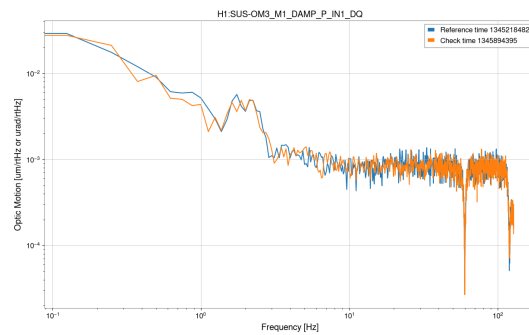
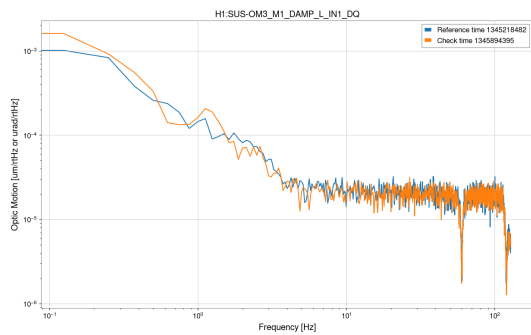
Out [115...



In [116...

myplot['OM3']

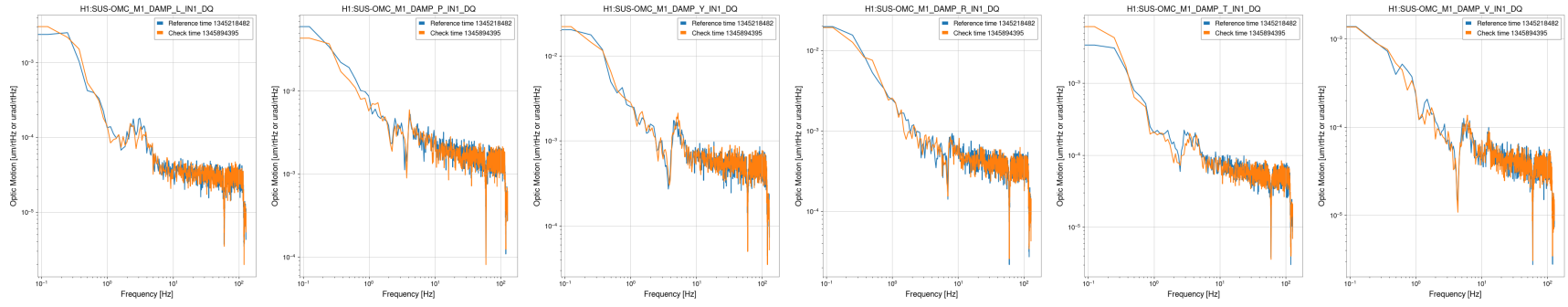
Out [116...



In [117...

myplot['OMC']

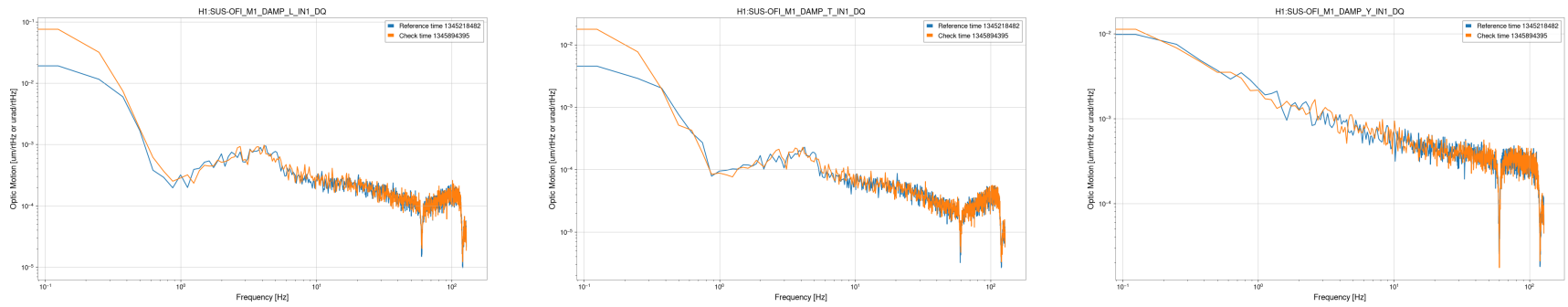
Out [117...



In [118...

```
myplot['OFI']
```

Out [118...



In []: