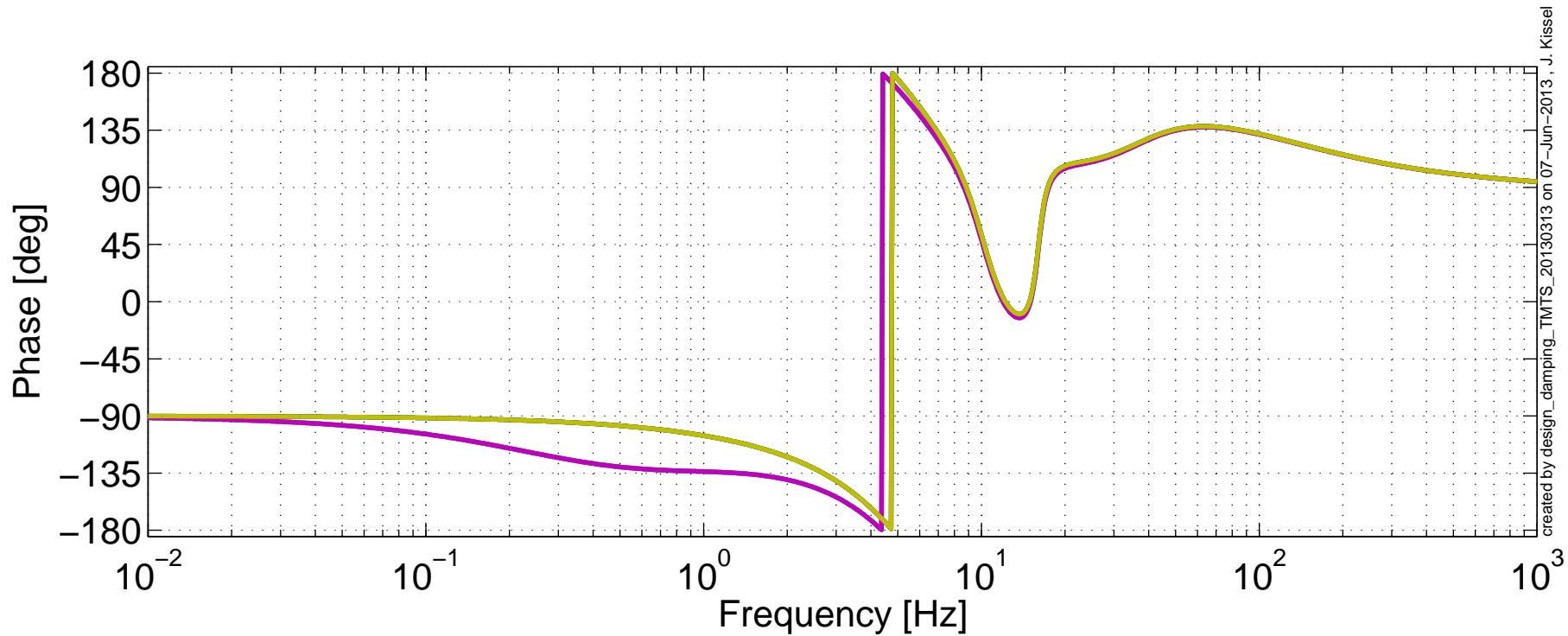
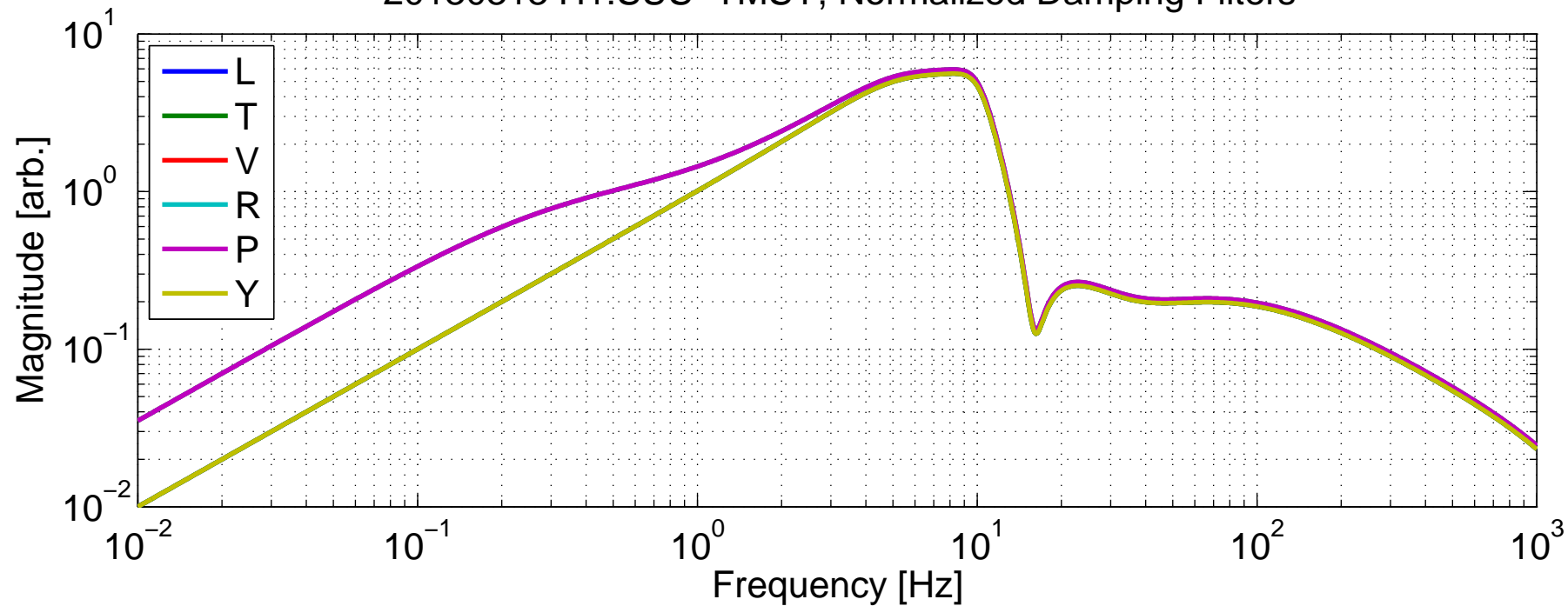
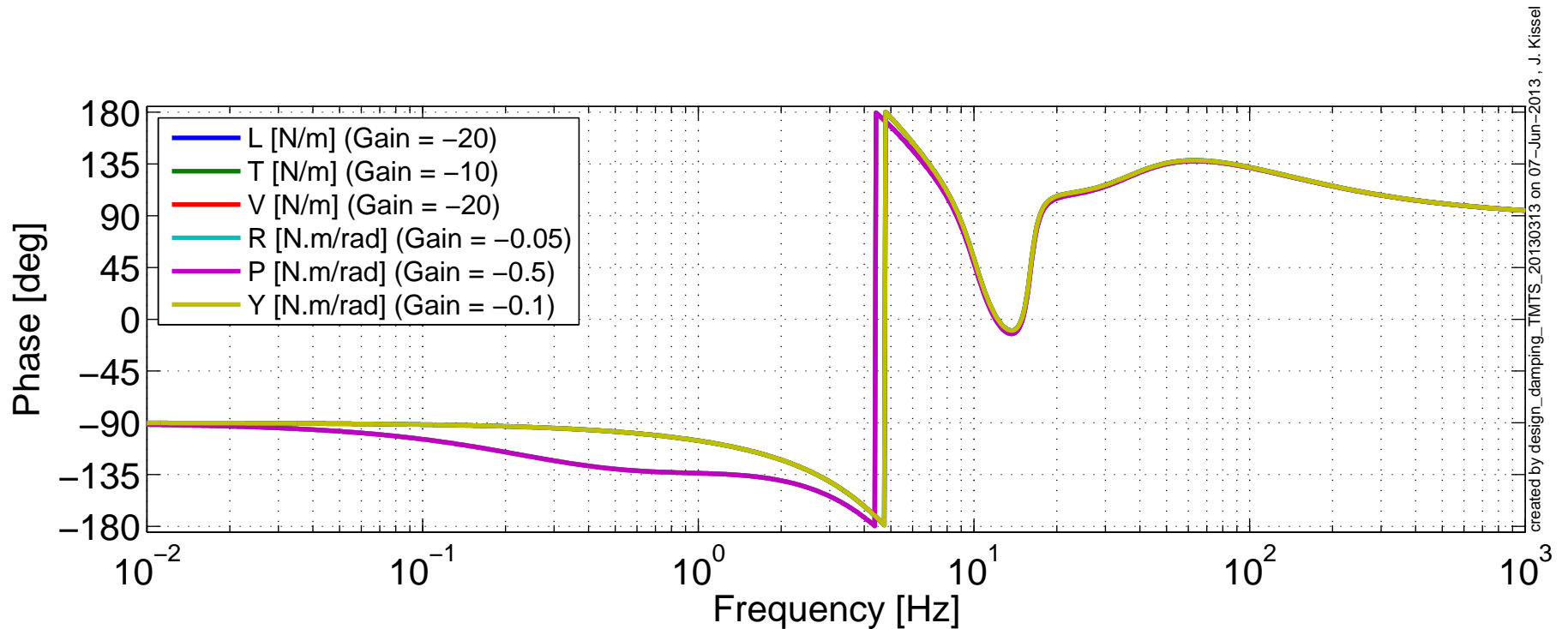
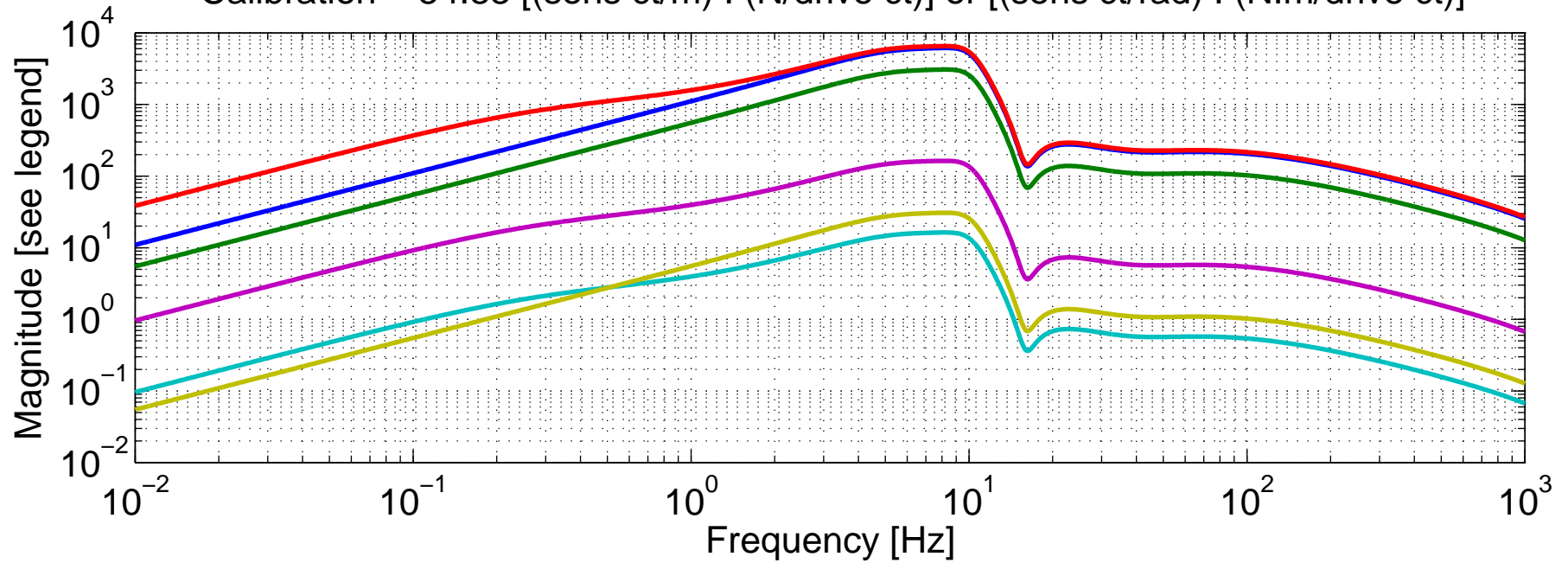


# 20130313 H1:SUS-TMSY, Normalized Damping Filters



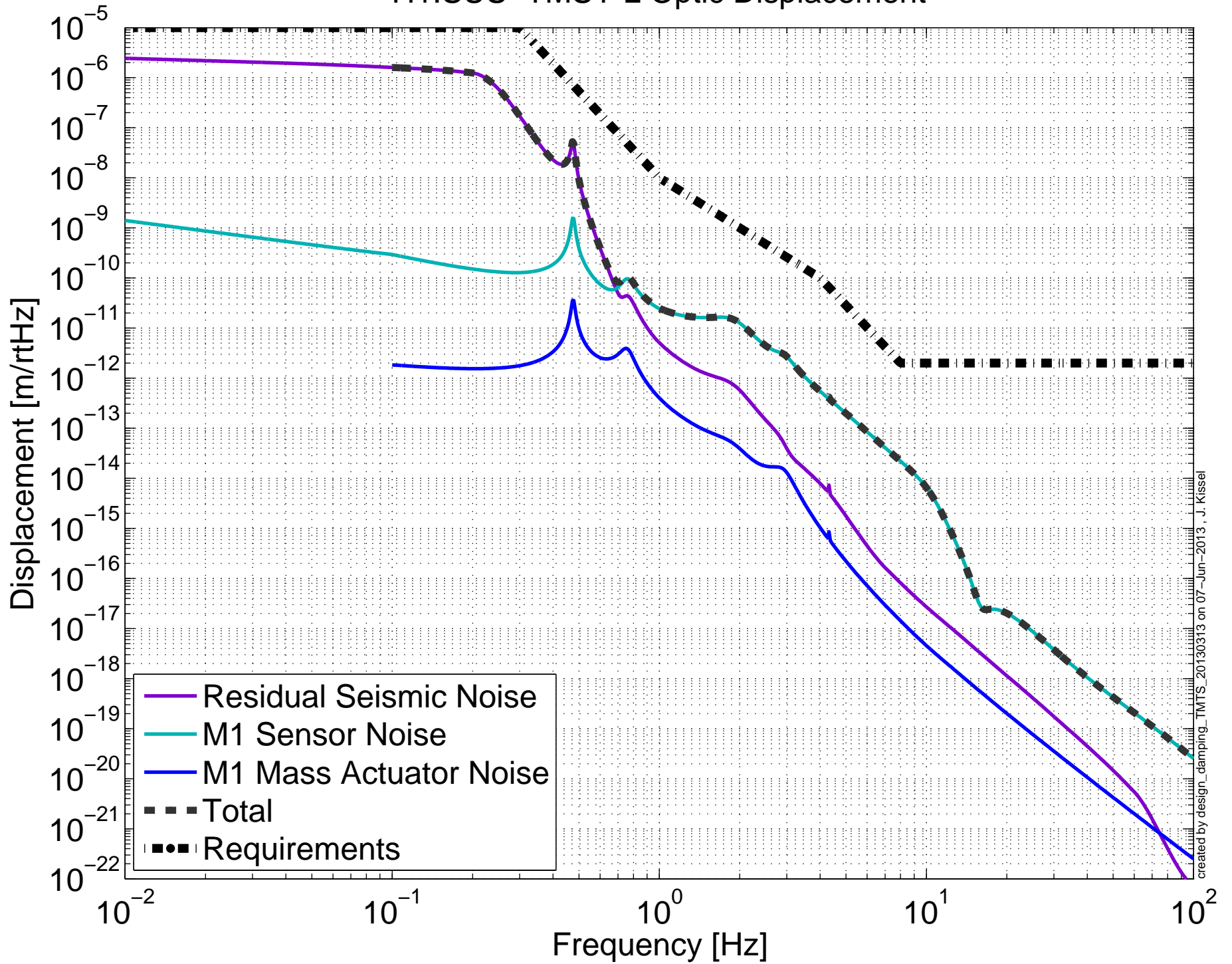
created by design\_damping\_TMTS\_20130313 on 07-Jun-2013, J. Kissel

20130313 H1:SUS-TMSY, Calibrated Damping Filters  
 Calibration = 54.83 [(sens ct/m) . (N/drive ct)] or [(sens ct/rad) . (N.m/drive ct)]



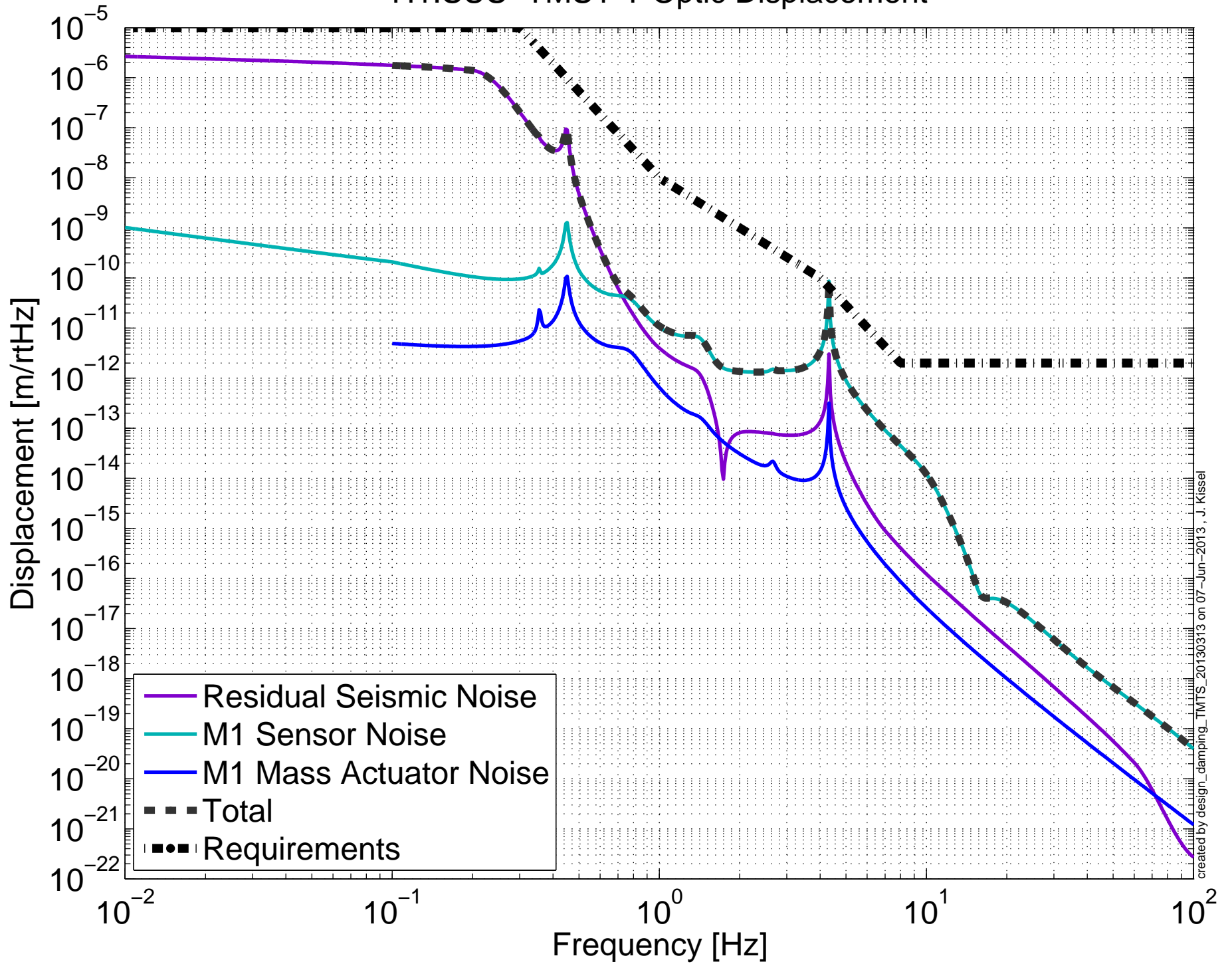
# Damping Loop Performance

## H1:SUS-TMSY L Optic Displacement



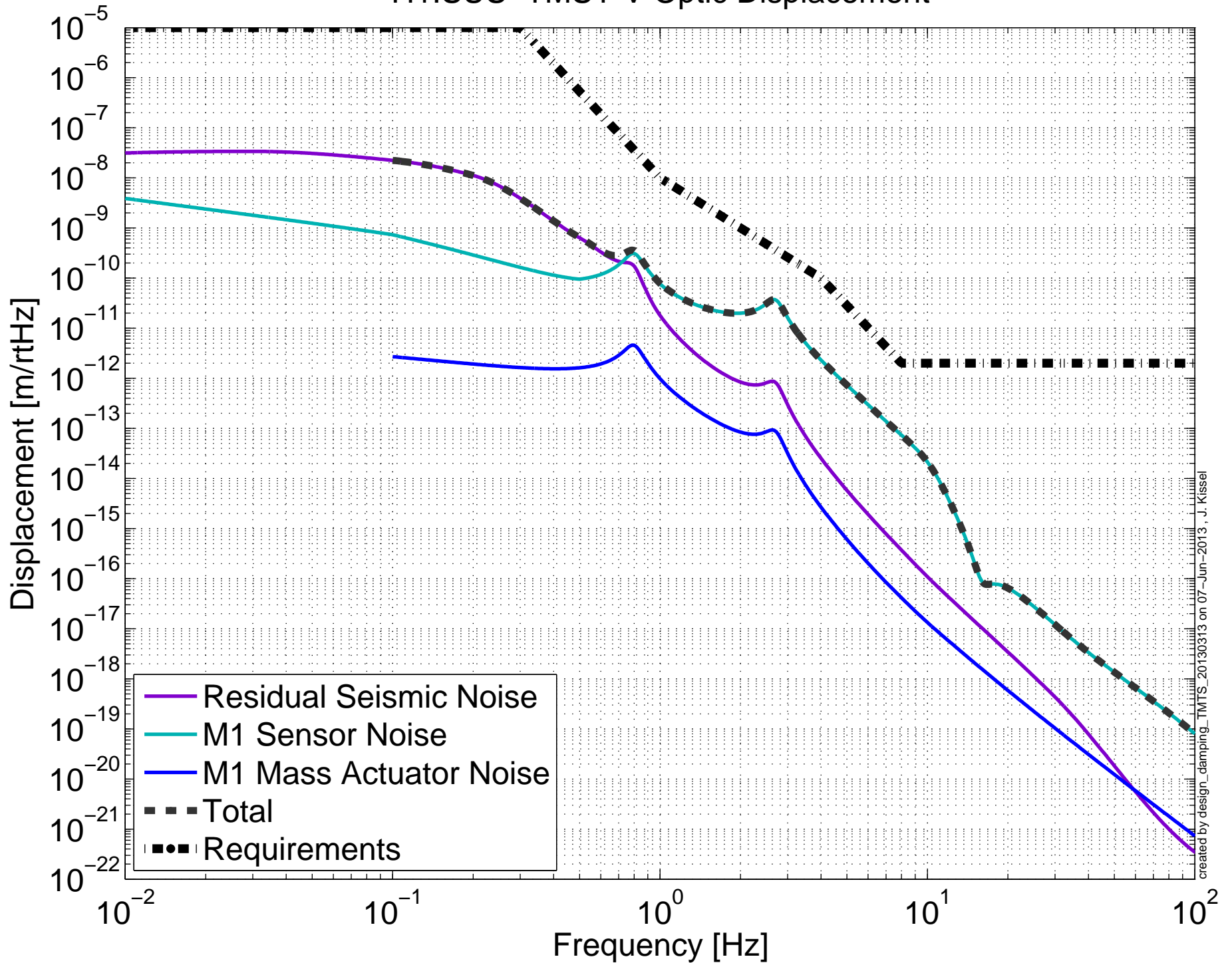
# Damping Loop Performance

## H1:SUS-TMSY T Optic Displacement



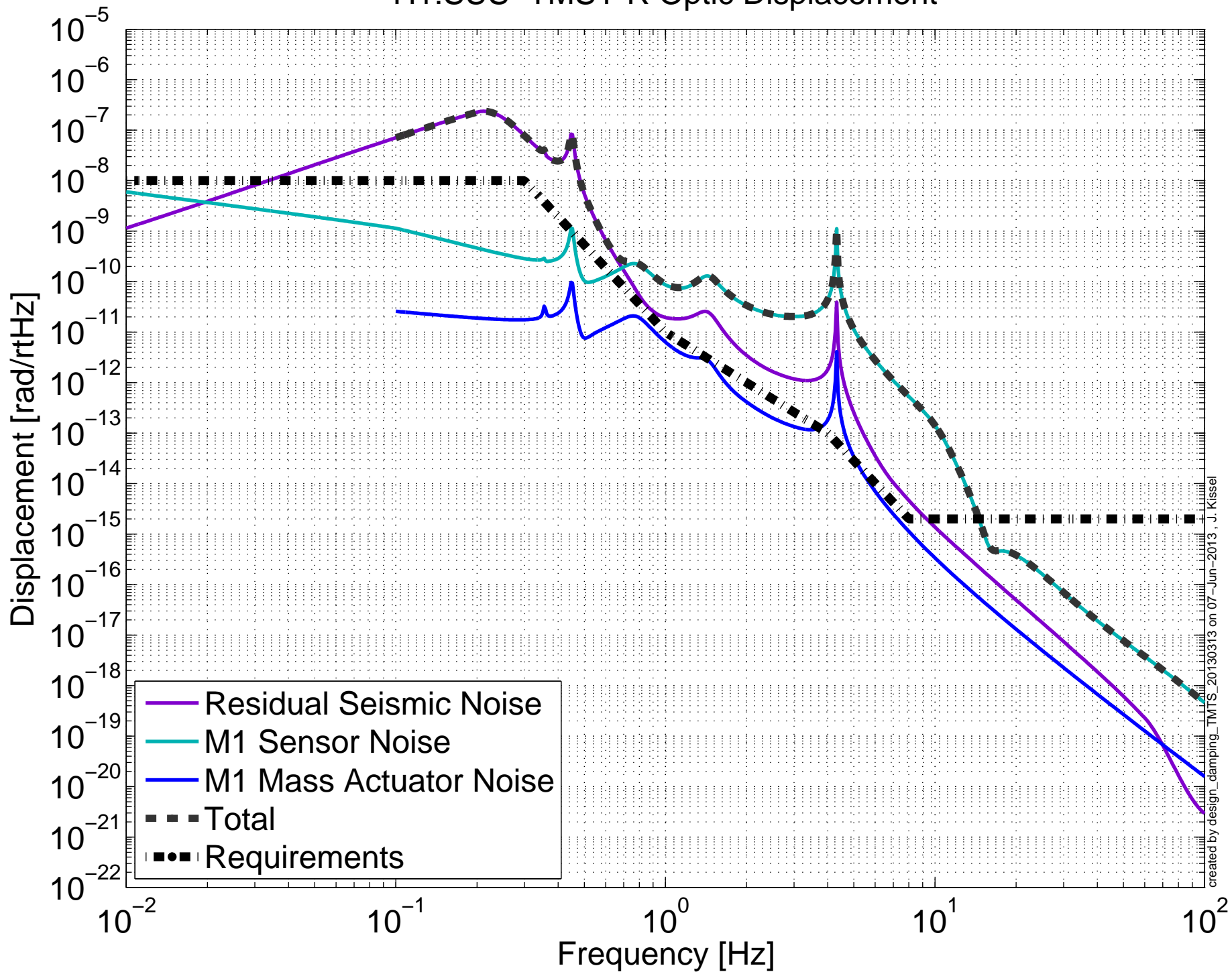
created by design\_damping\_TMSY\_20130313 on 07-Jun-2013 - J. Kissel

# Damping Loop Performance H1:SUS-TMSY V Optic Displacement



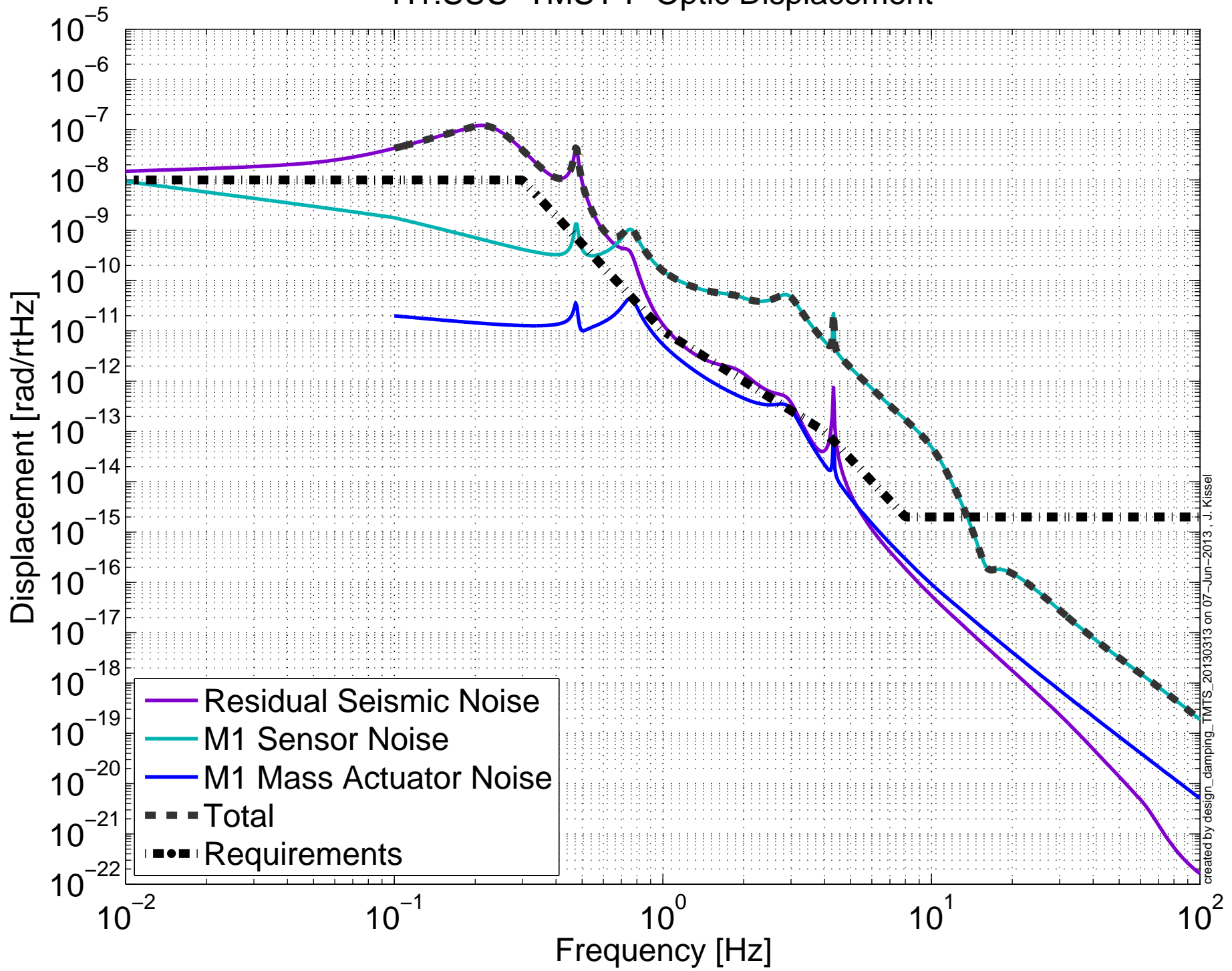
# Damping Loop Performance

## H1:SUS-TMSY R Optic Displacement



# Damping Loop Performance

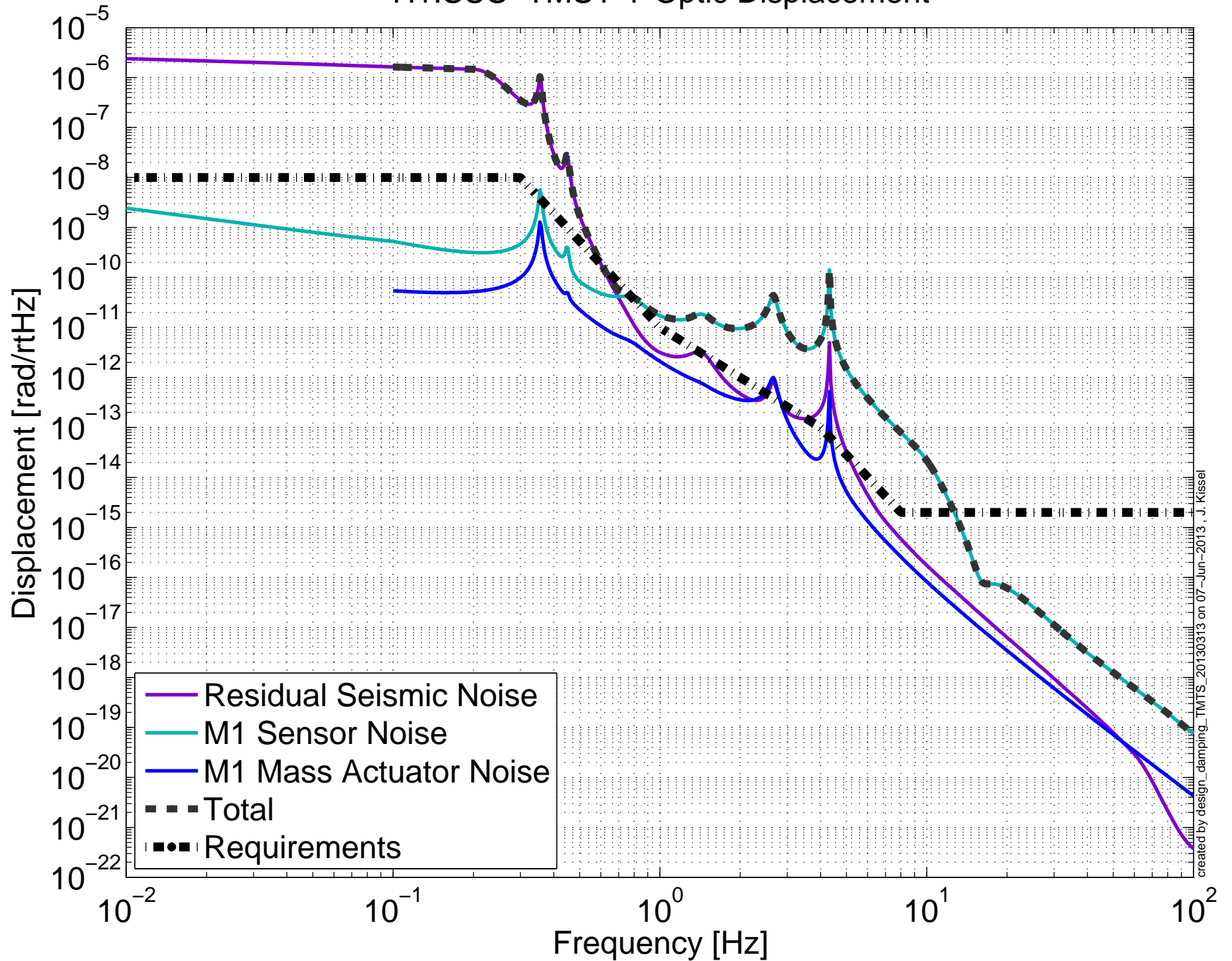
## H1:SUS-TMSY P Optic Displacement



created by design\_damping\_TMSY\_20130313 on 07-Jun-2013 - J. Kissel

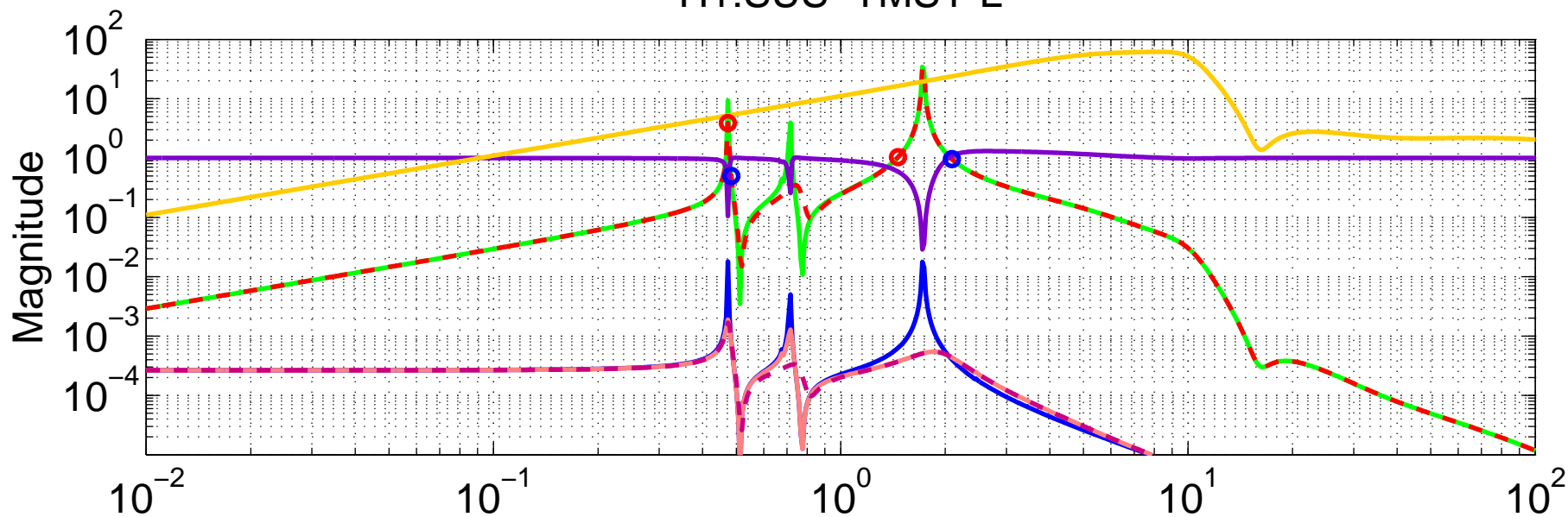
# Damping Loop Performance

## H1:SUS-TMSY Y Optic Displacement

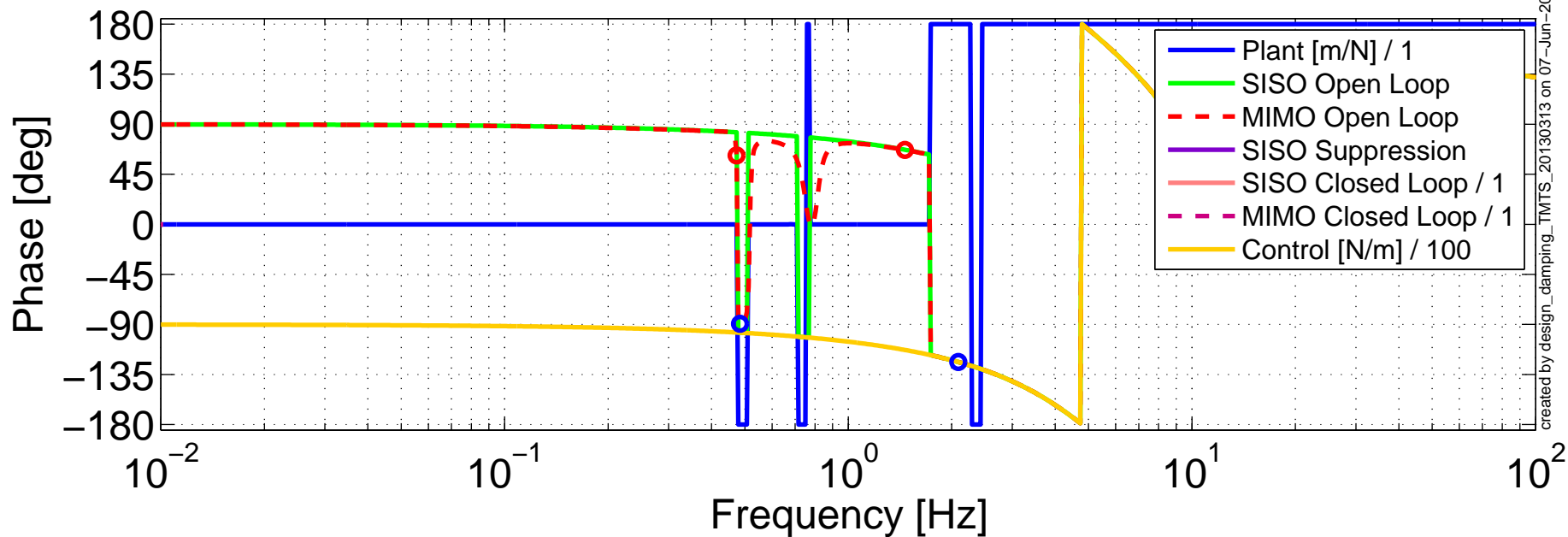




# Damping Loop Design H1:SUS-TMSY L

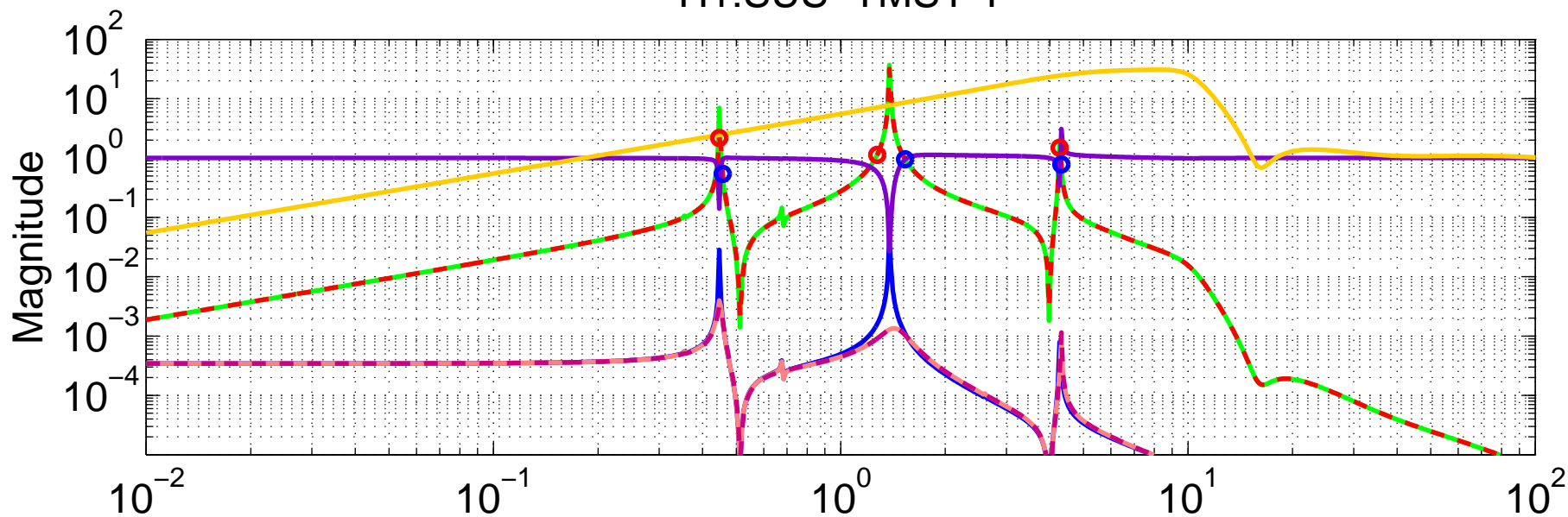


MIMO LUGF Phase Margins (red): [118 113] [deg]  
MIMO UUGF Phase Margins (blue): [90.5 56.2] [deg]

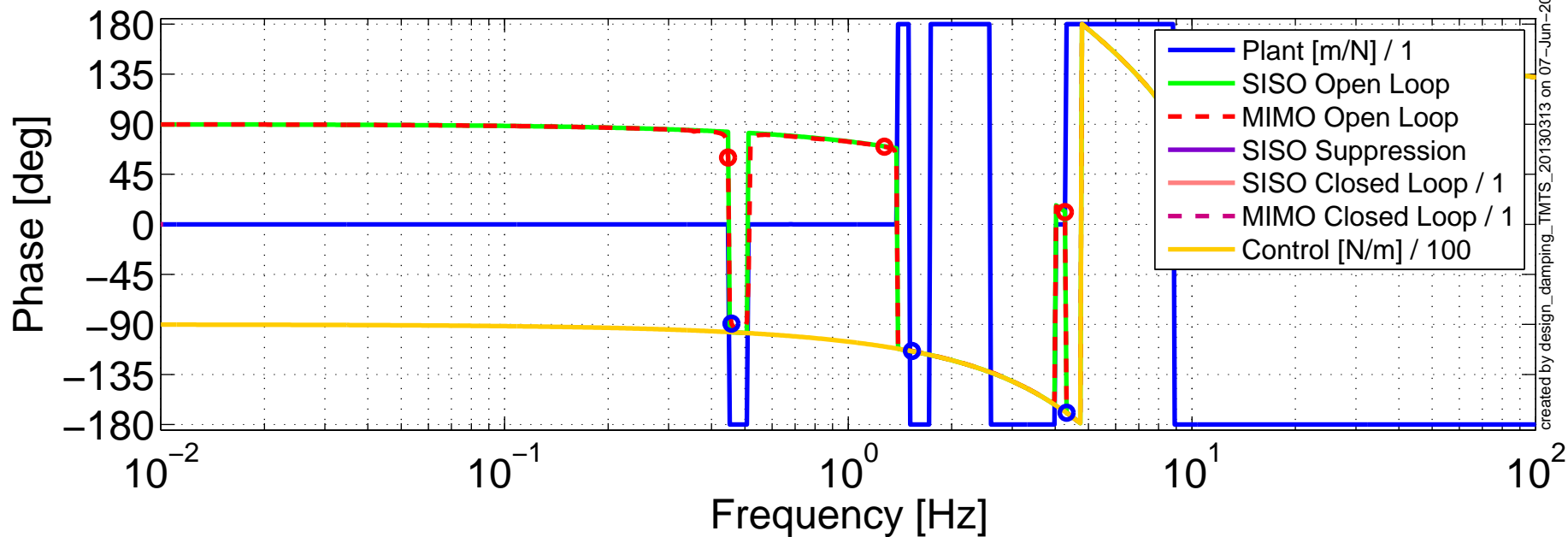


# Damping Loop Design

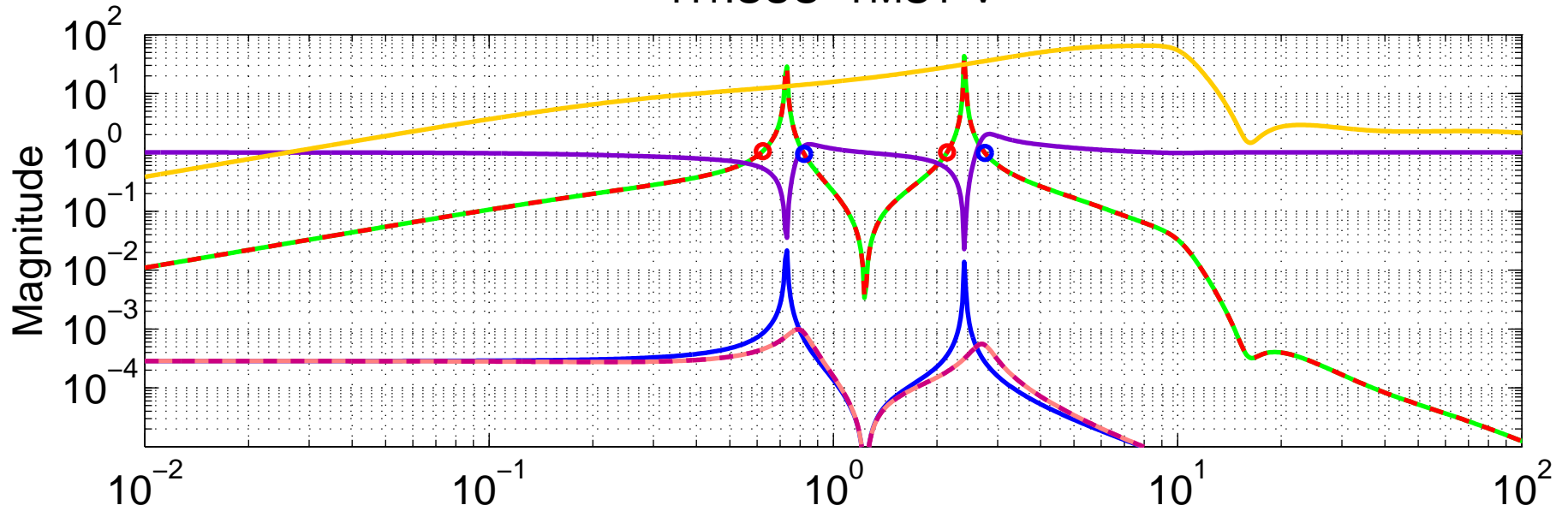
## H1:SUS-TMSY T



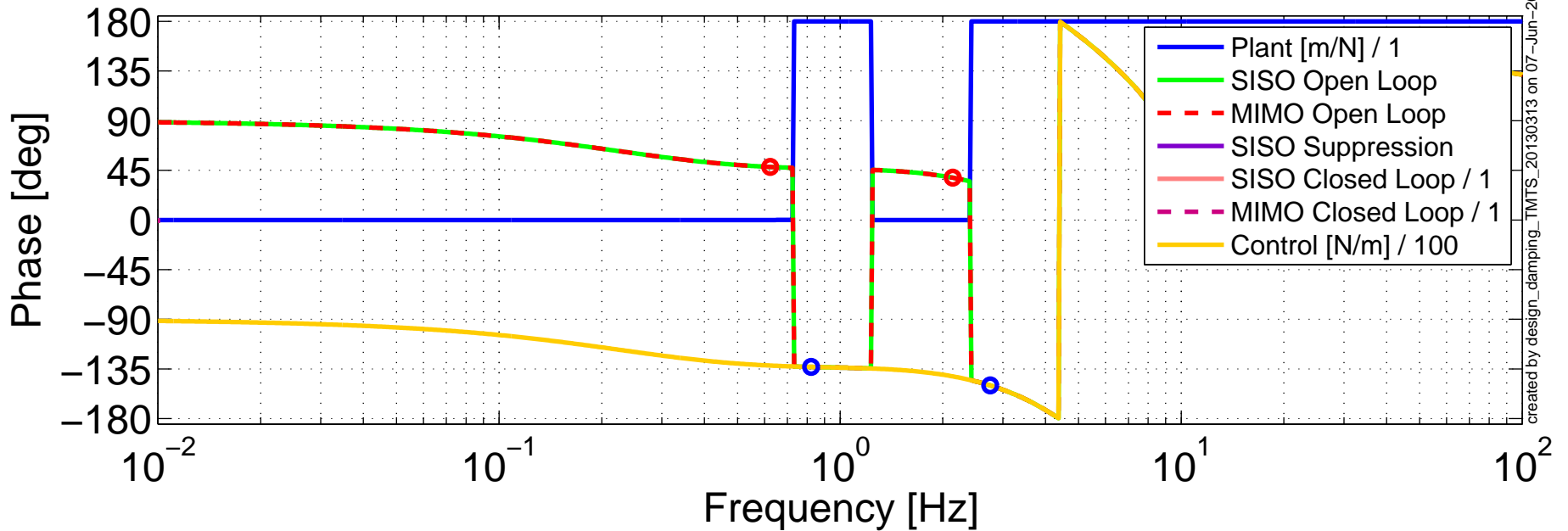
MIMO LUGF Phase Margins (red): [120    110    169] [deg]  
MIMO UUGF Phase Margins (blue): [90.7    66.2    10.7] [deg]



# Damping Loop Design H1:SUS-TMSY V

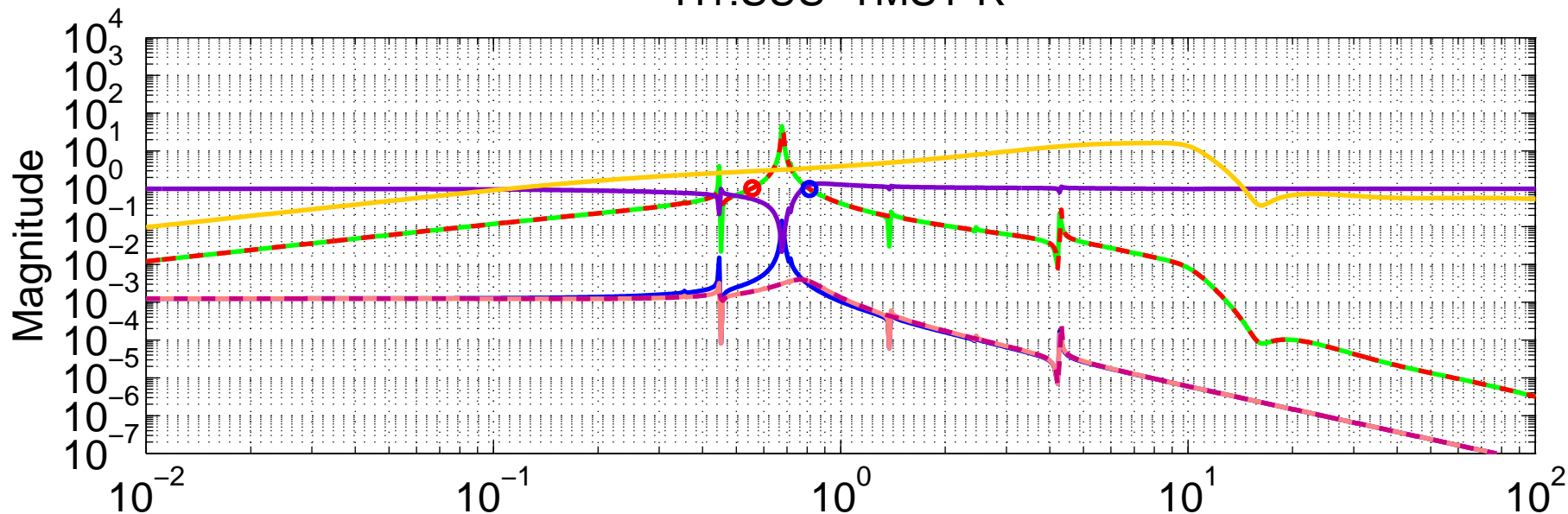


MIMO LUGF Phase Margins (red): [132    142] [deg]  
MIMO UUGF Phase Margins (blue): [46.8    30] [deg]

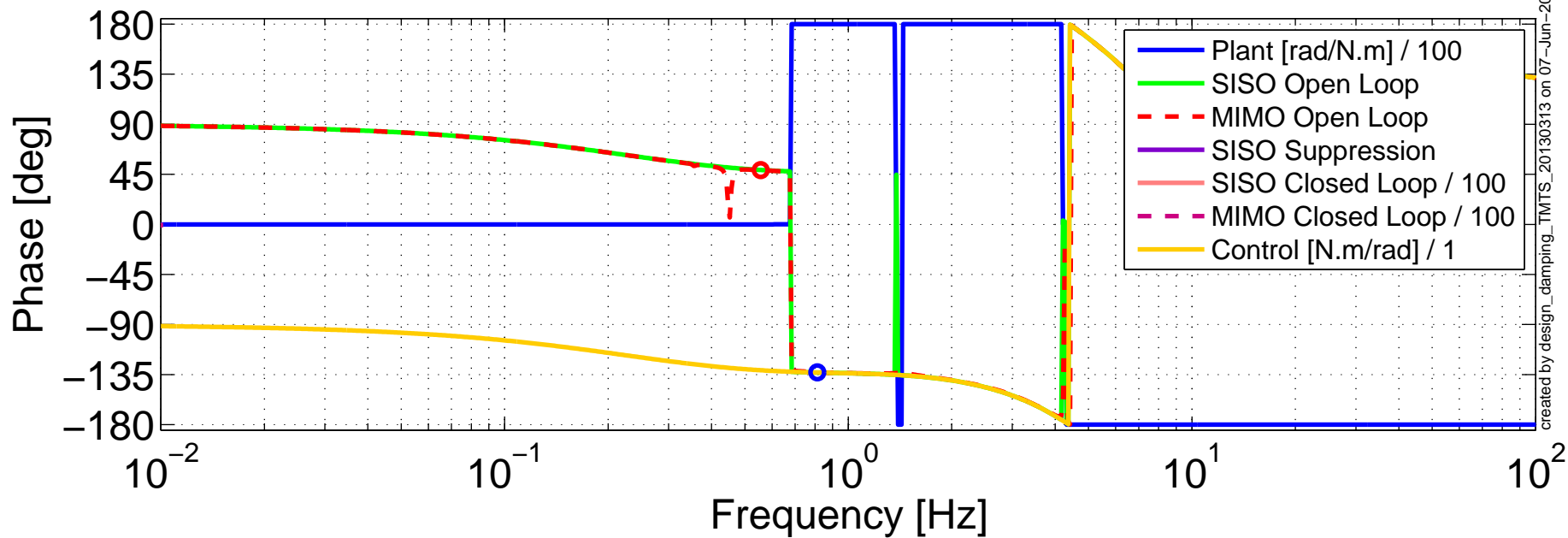


# Damping Loop Design

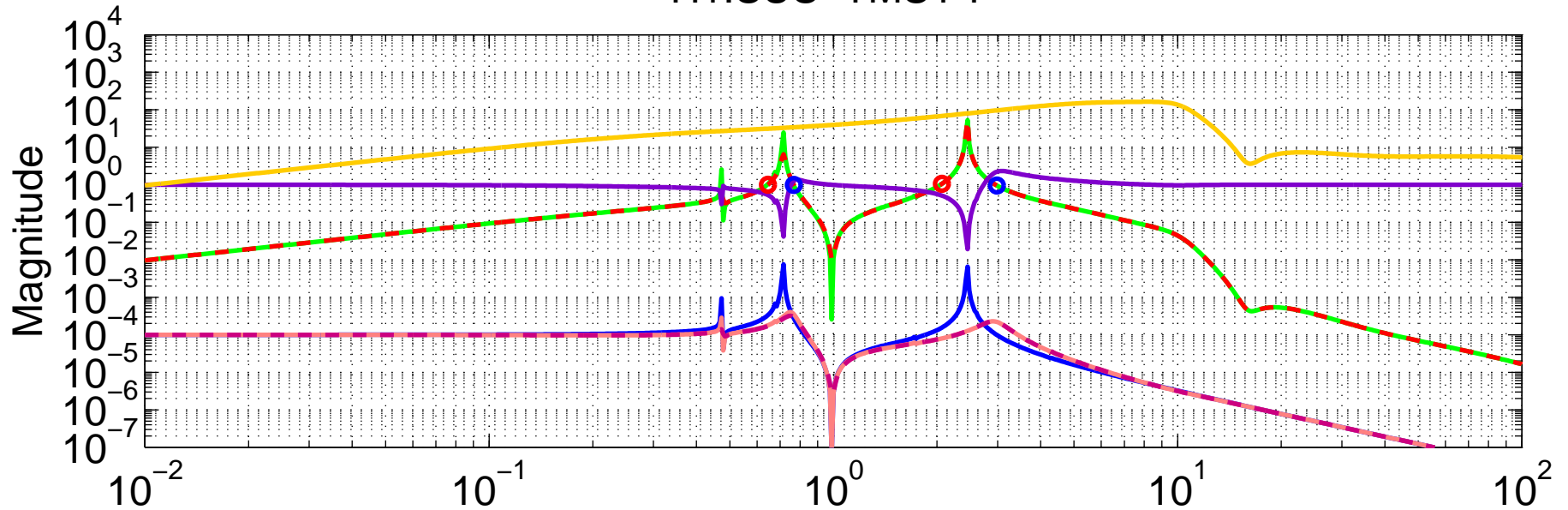
## H1:SUS-TMSY R



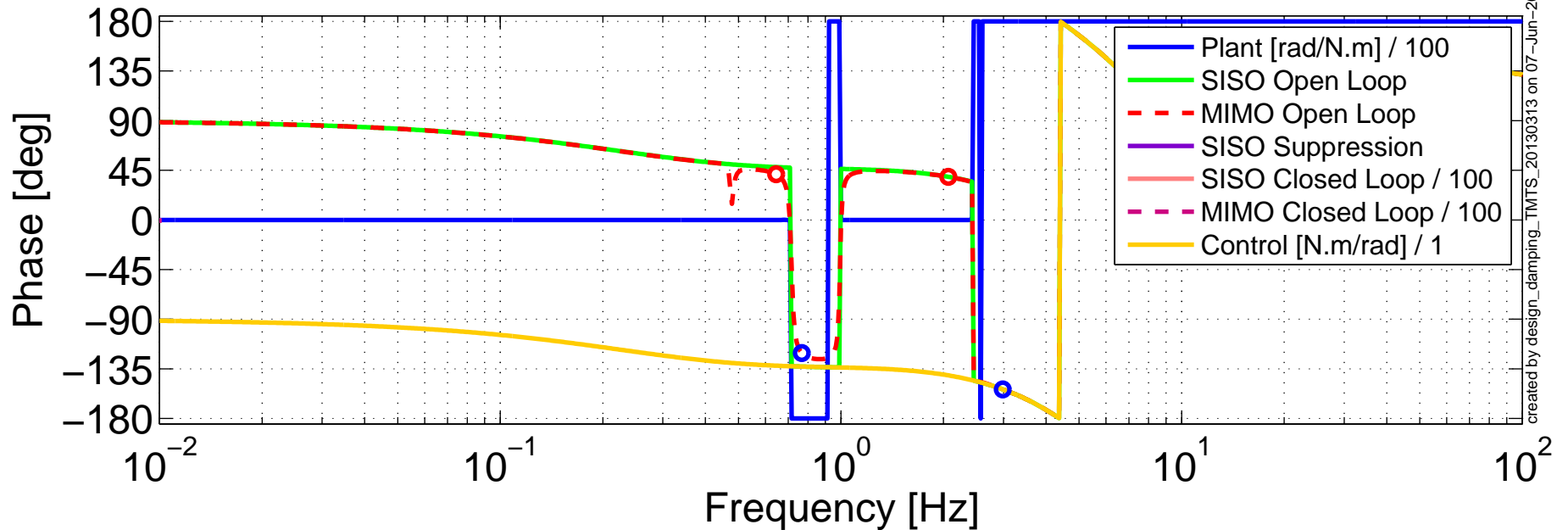
MIMO LUGF Phase Margins (red): [131] [deg]  
MIMO UUGF Phase Margins (blue): [47] [deg]



# Damping Loop Design H1:SUS-TMSY P

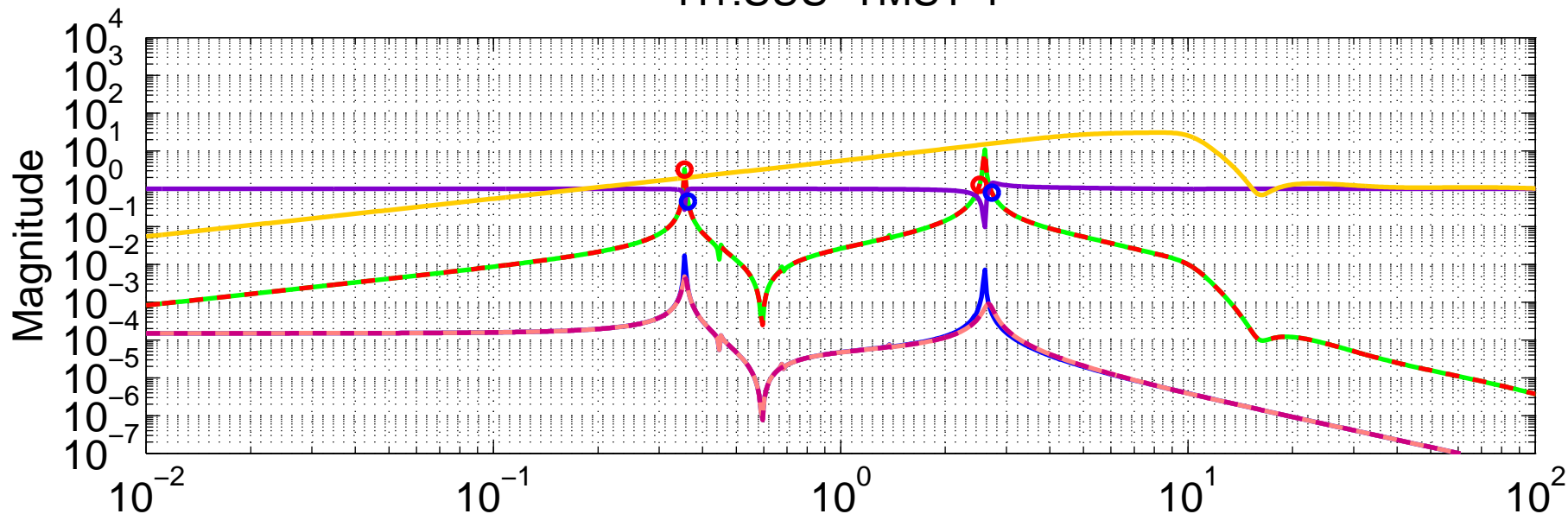


MIMO LUGF Phase Margins (red): [139    141] [deg]  
MIMO UUGF Phase Margins (blue): [59.3    26.4] [deg]

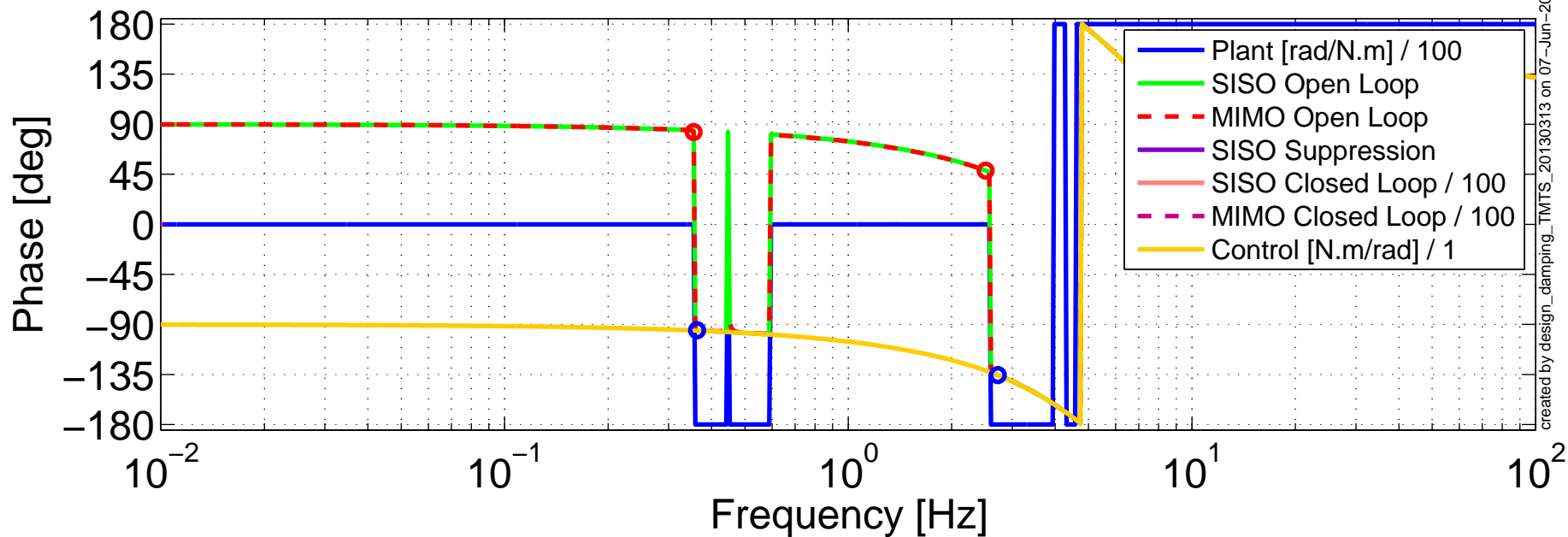


# Damping Loop Design

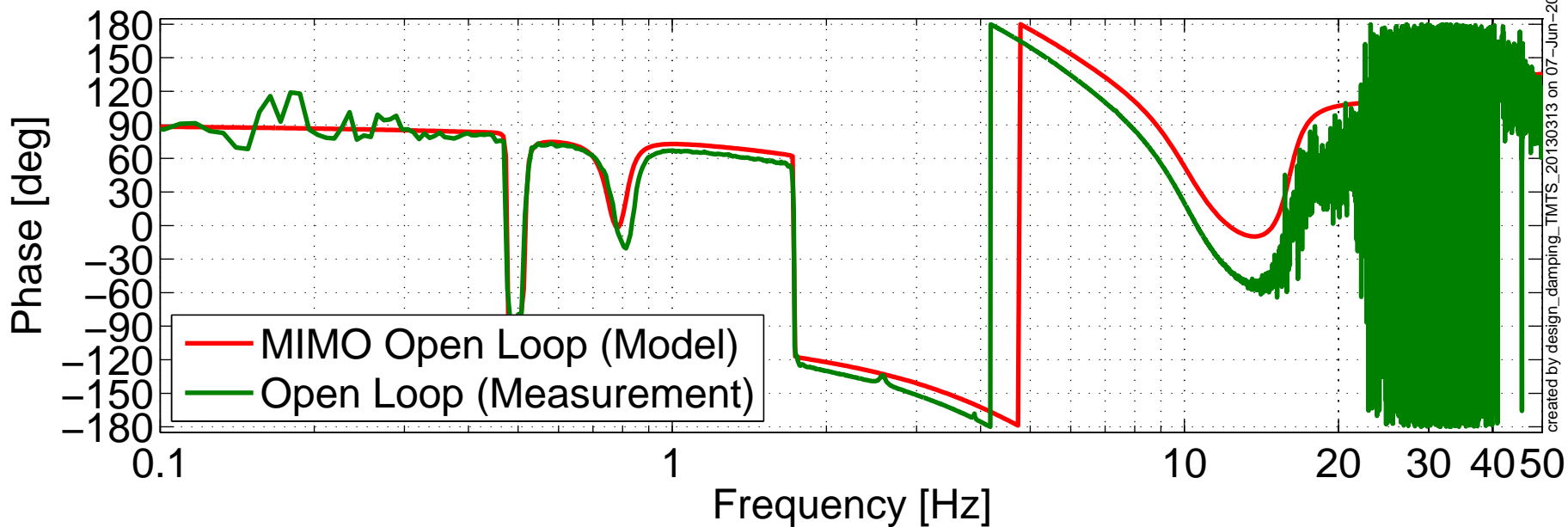
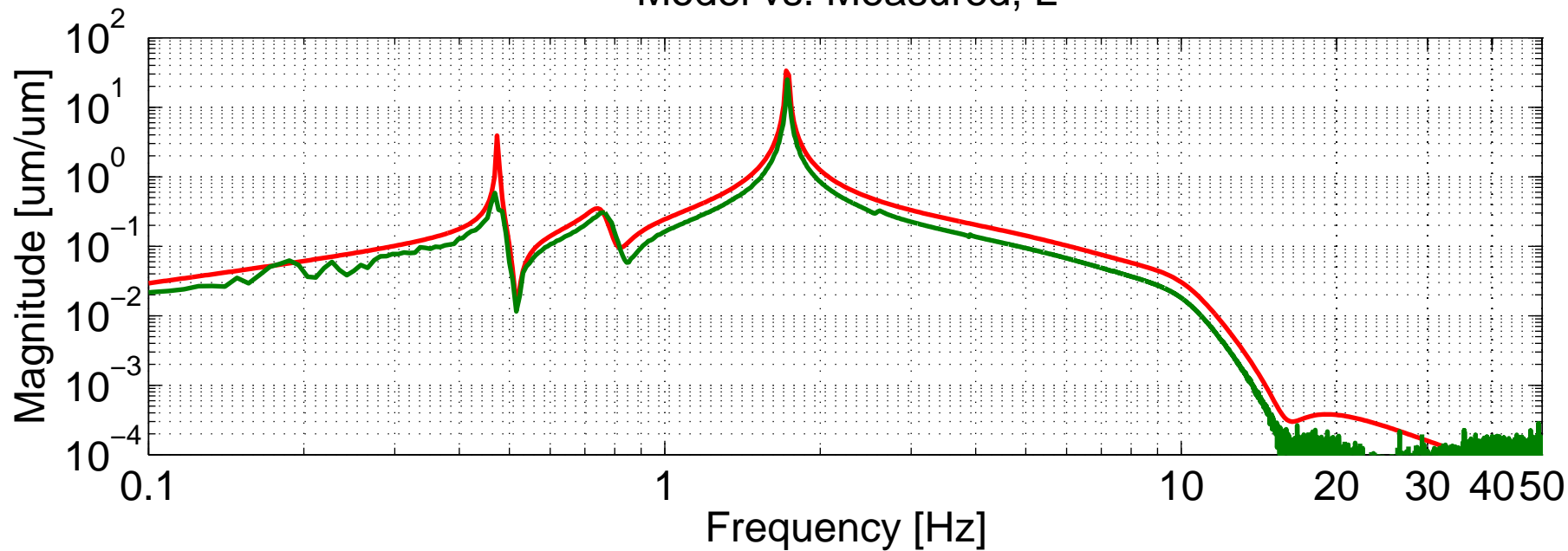
## H1:SUS-TMSY Y



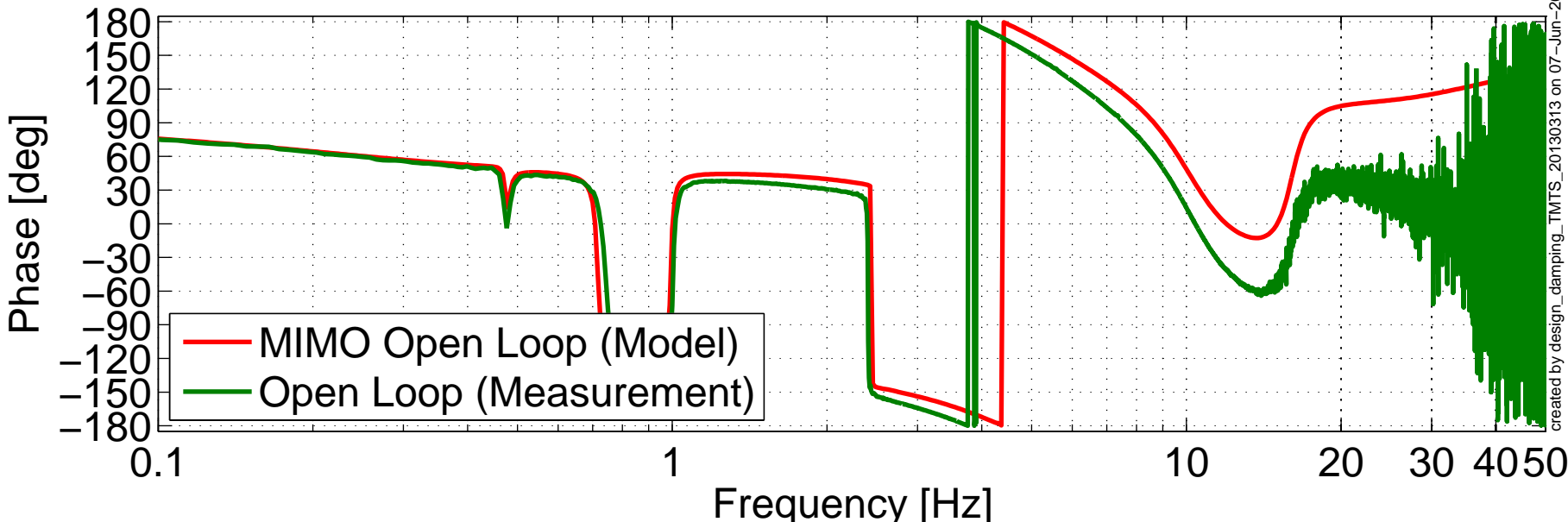
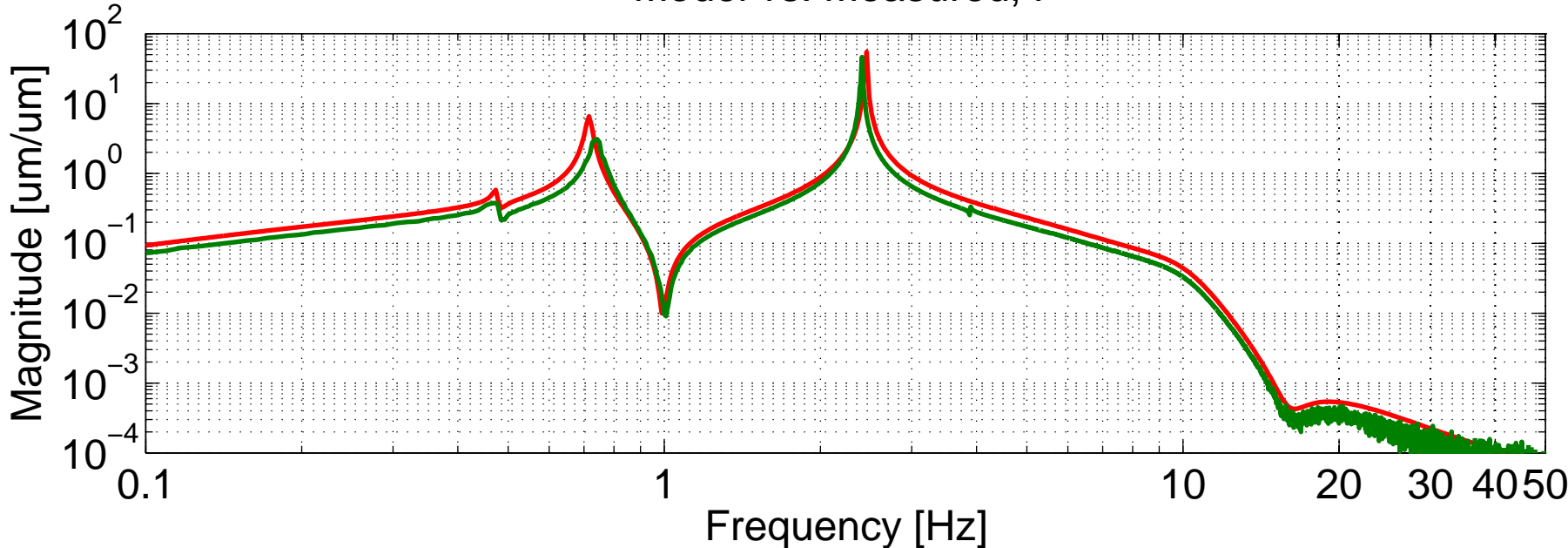
MIMO LUGF Phase Margins (red): [97 132] [deg]  
MIMO UUGF Phase Margins (blue): [84.7 44.5] [deg]



# H1:SUS-TMSY Open Loop Gain TF Model vs. Measured, L



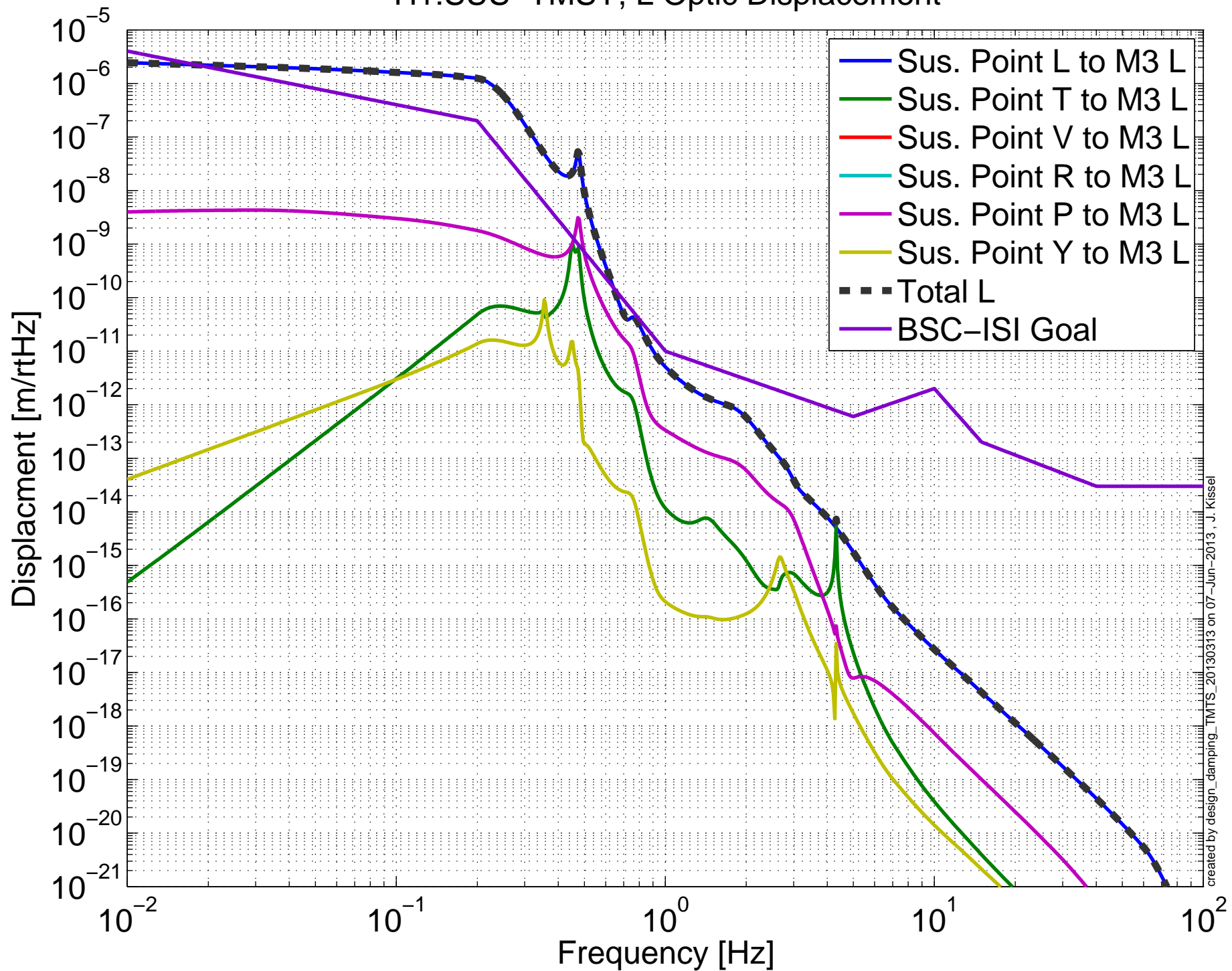
# H1:SUS-TMSY Open Loop Gain TF Model vs. Measured, P



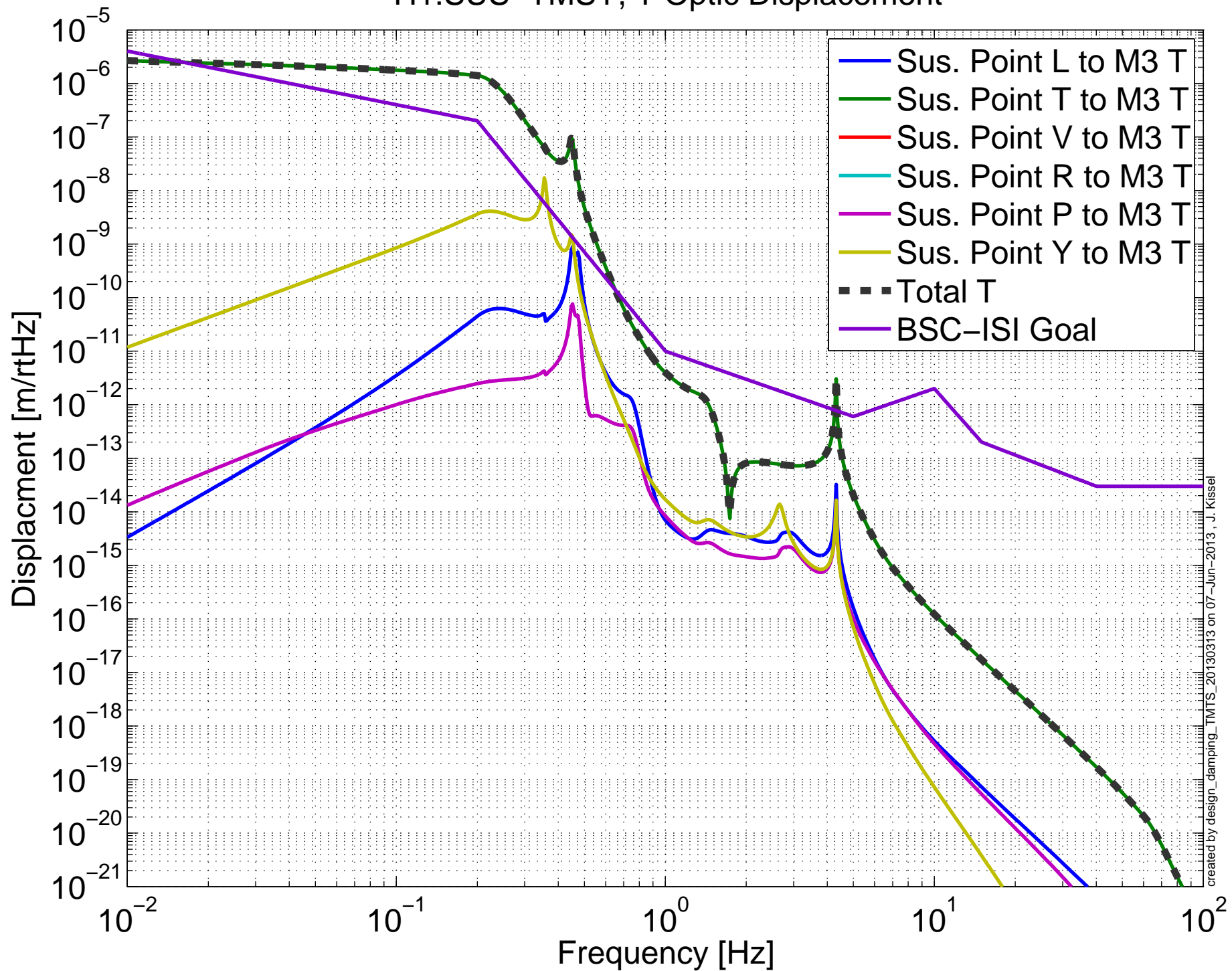
created by design\_damping\_TMTS\_20130313 on 07-Jun-2013, J. Kissel



# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-TMSY, L Optic Displacement

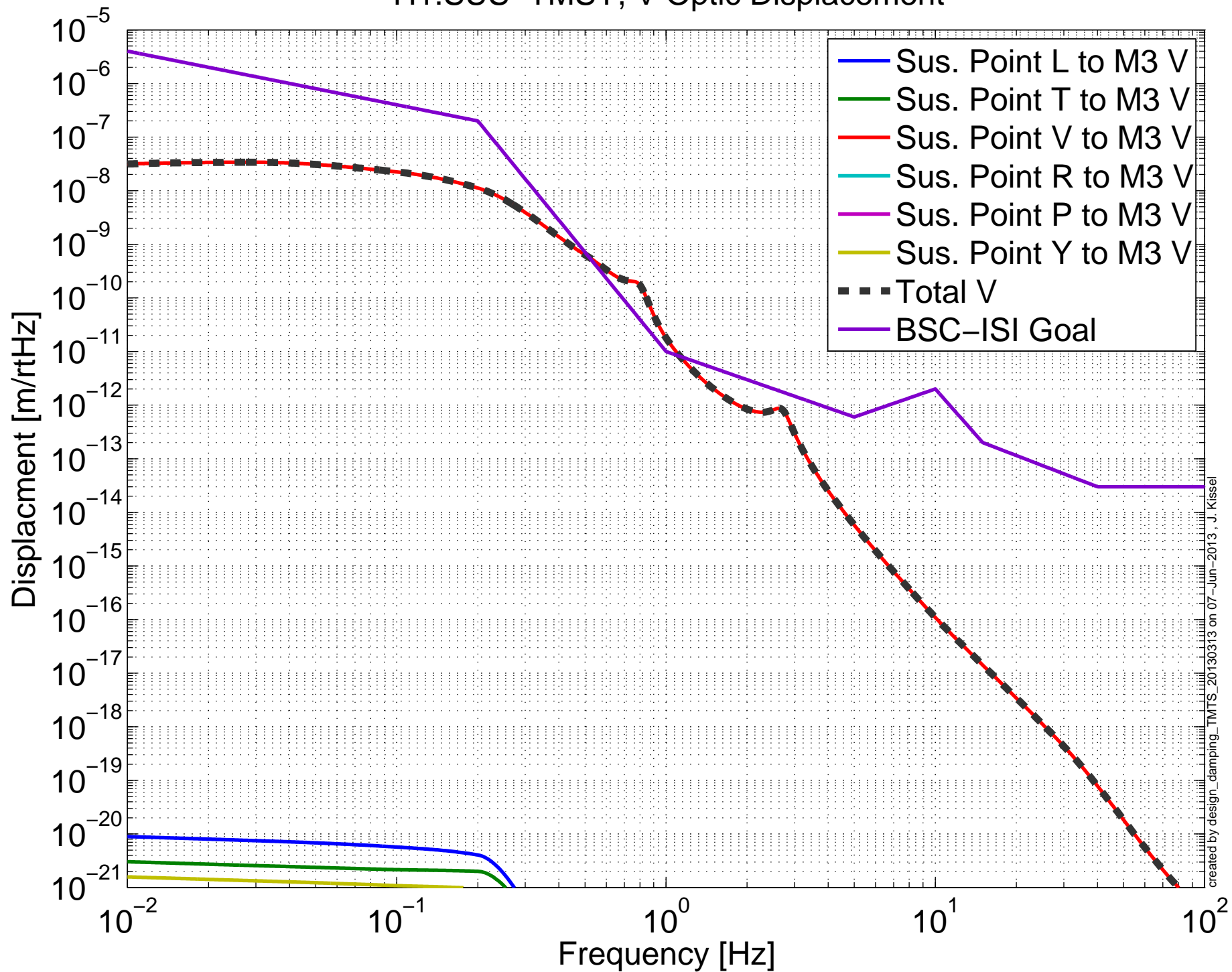


# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-TMSY, T Optic Displacement



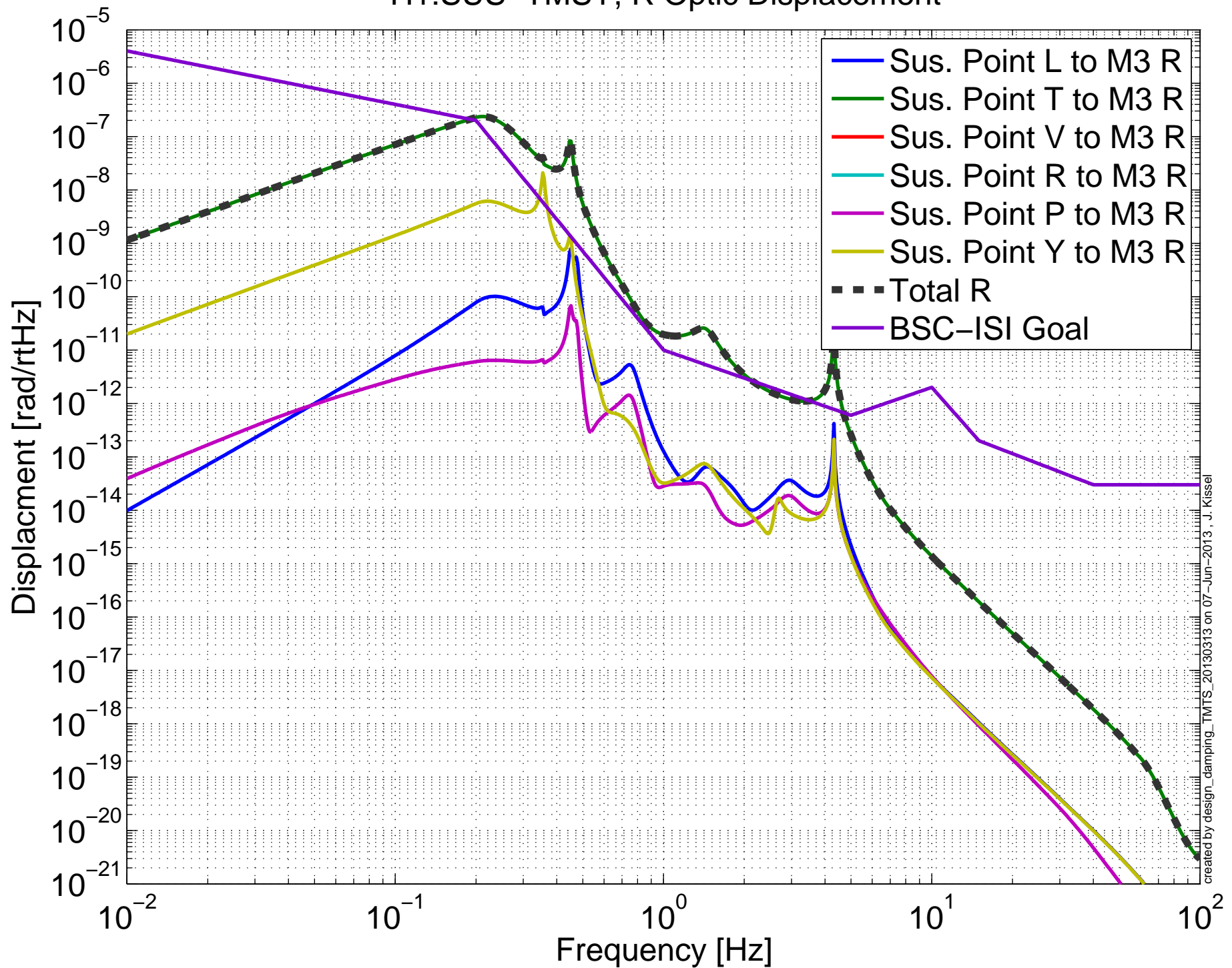
created by design\_damping\_TMS\_20130313 on 07-Jun-2013 - J. Kissel

# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-TMSY, V Optic Displacement

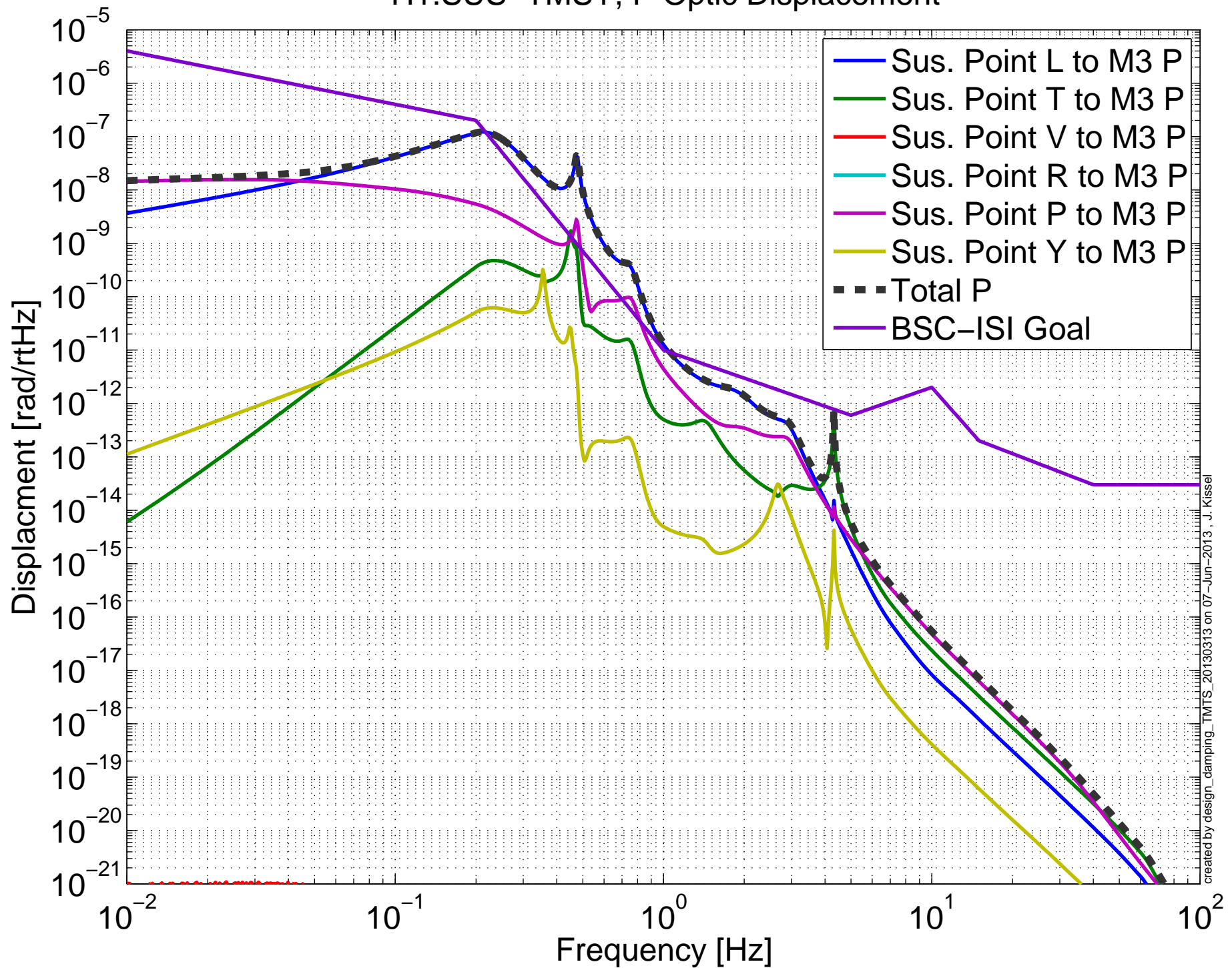


created by design\_damping\_TMTS\_20130313 on 07-Jun-2013 - J. Kissel

# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-TMSY, R Optic Displacement

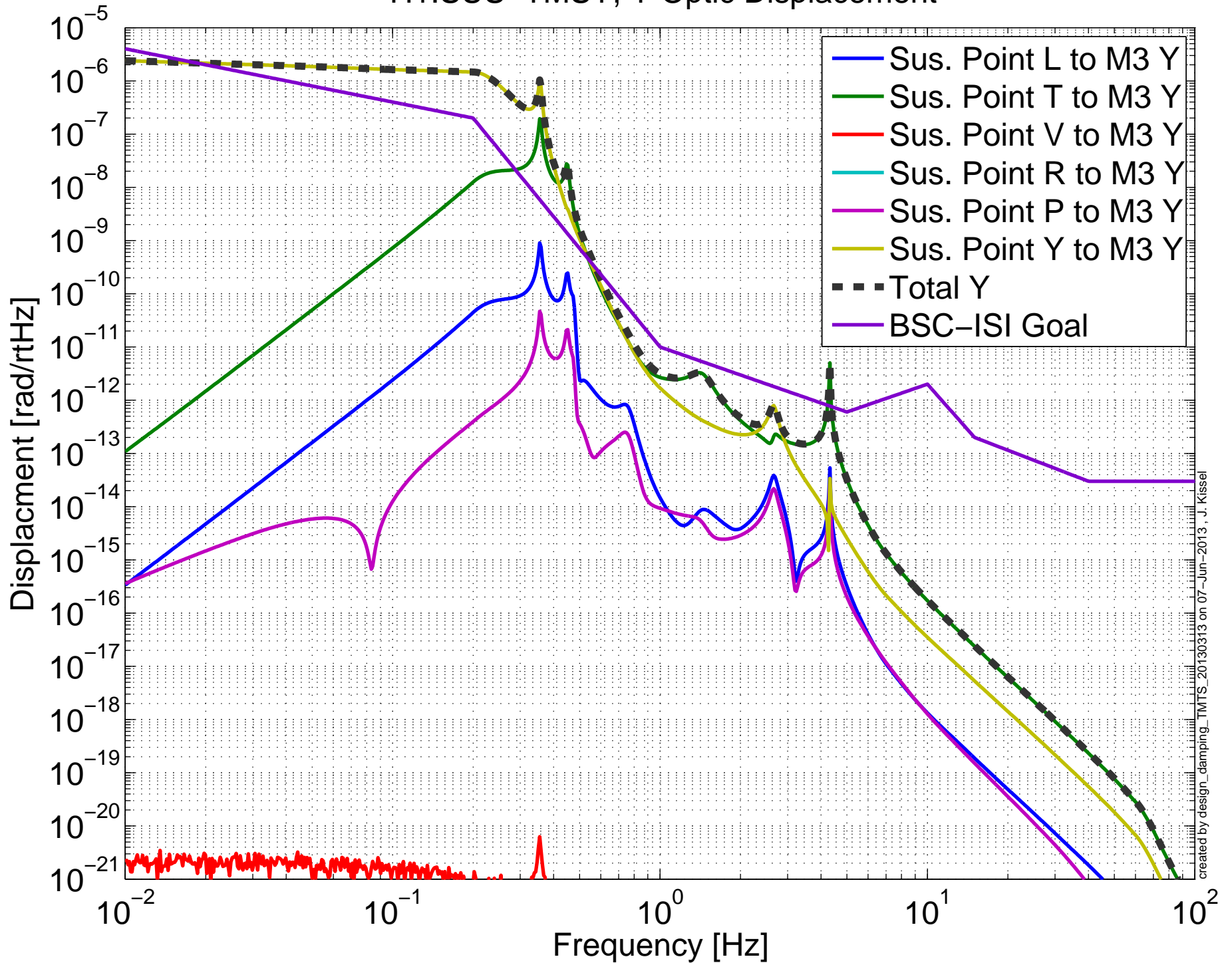


# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-TMSY, P Optic Displacement

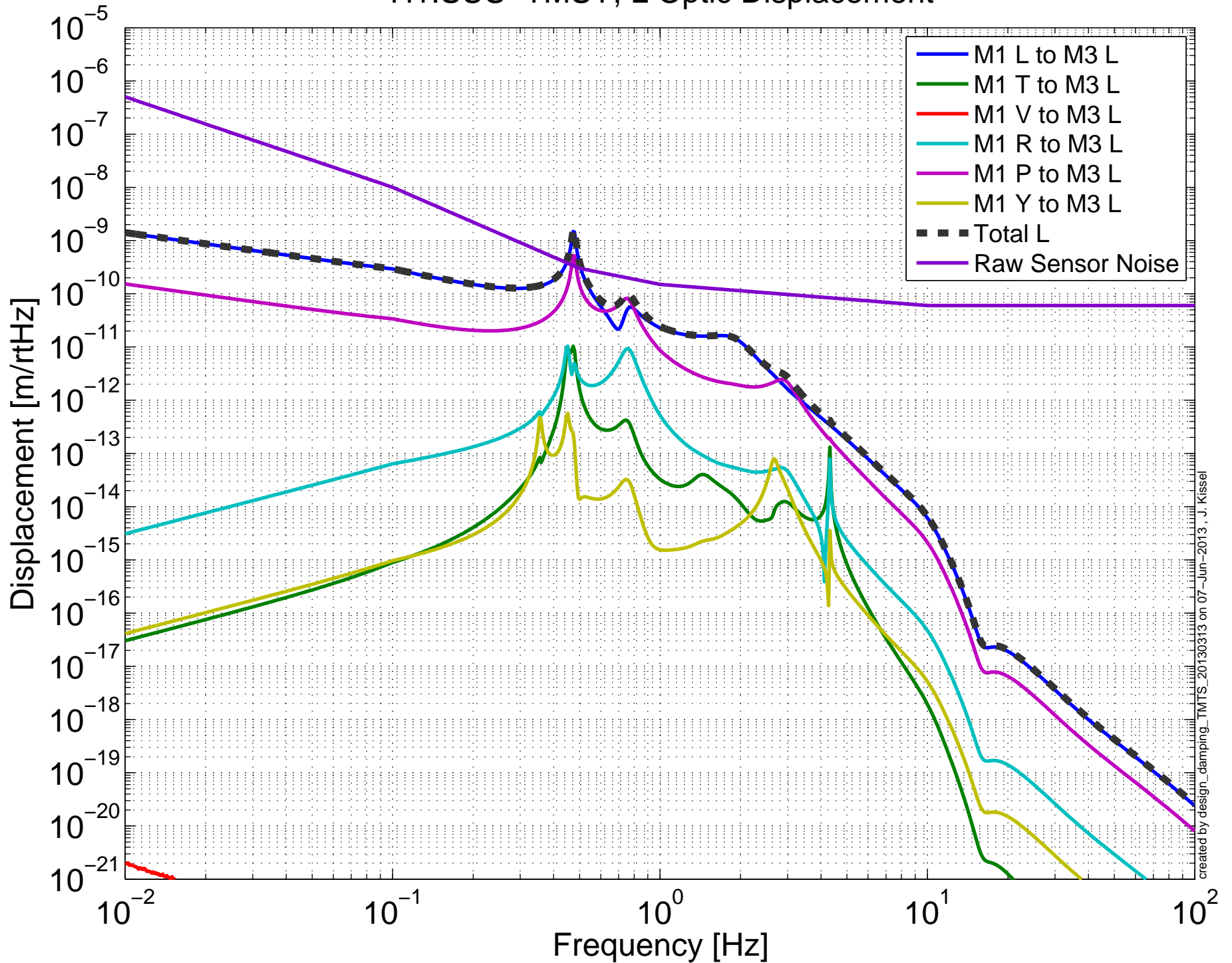


created by design\_damping\_TMS\_20130313 on 07-Jun-2013 - J. Kissel

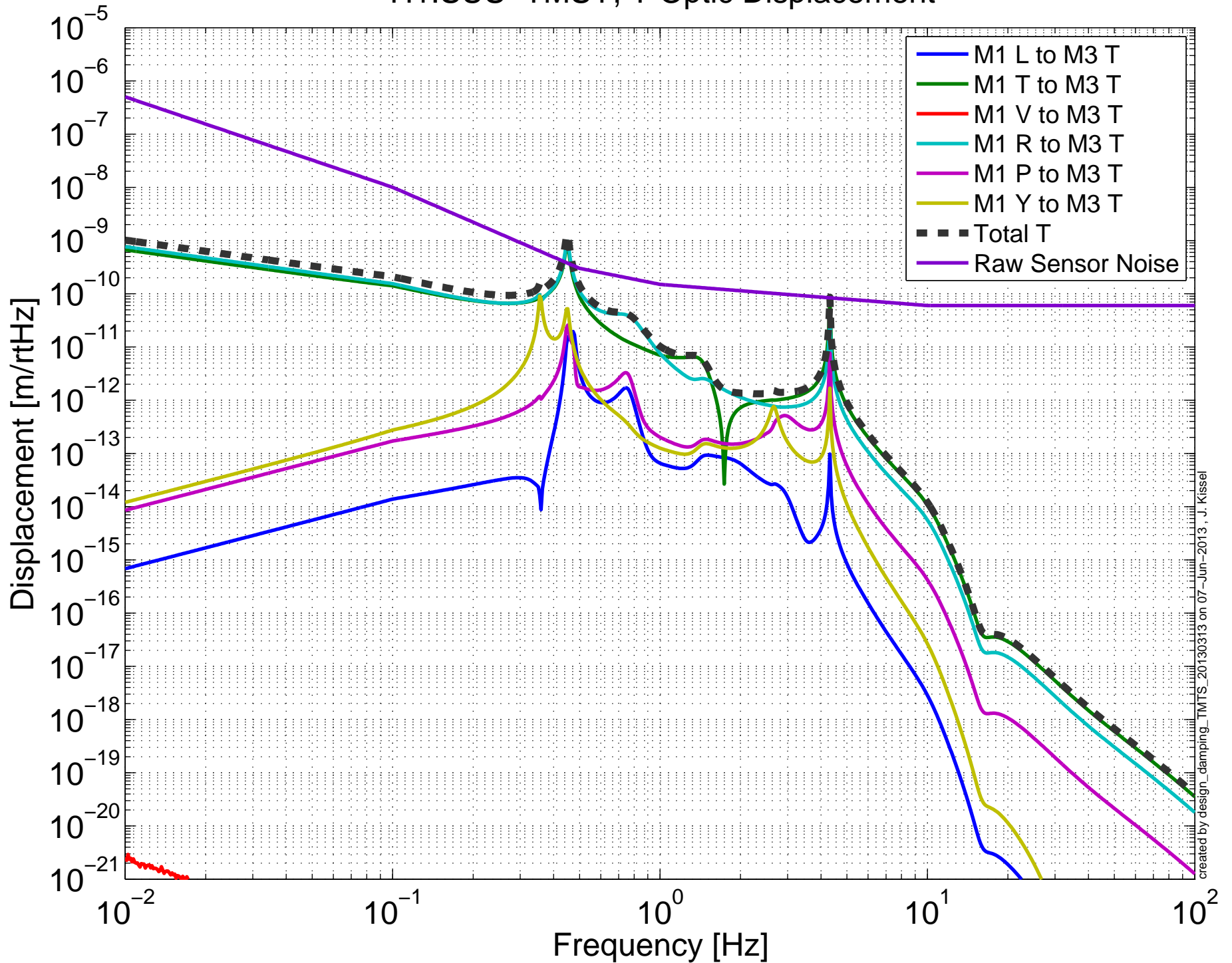
Projected Sus. Point > Optic Seismic Noise Budget  
H1:SUS-TMSY, Y Optic Displacement



# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-TMSY, L Optic Displacement

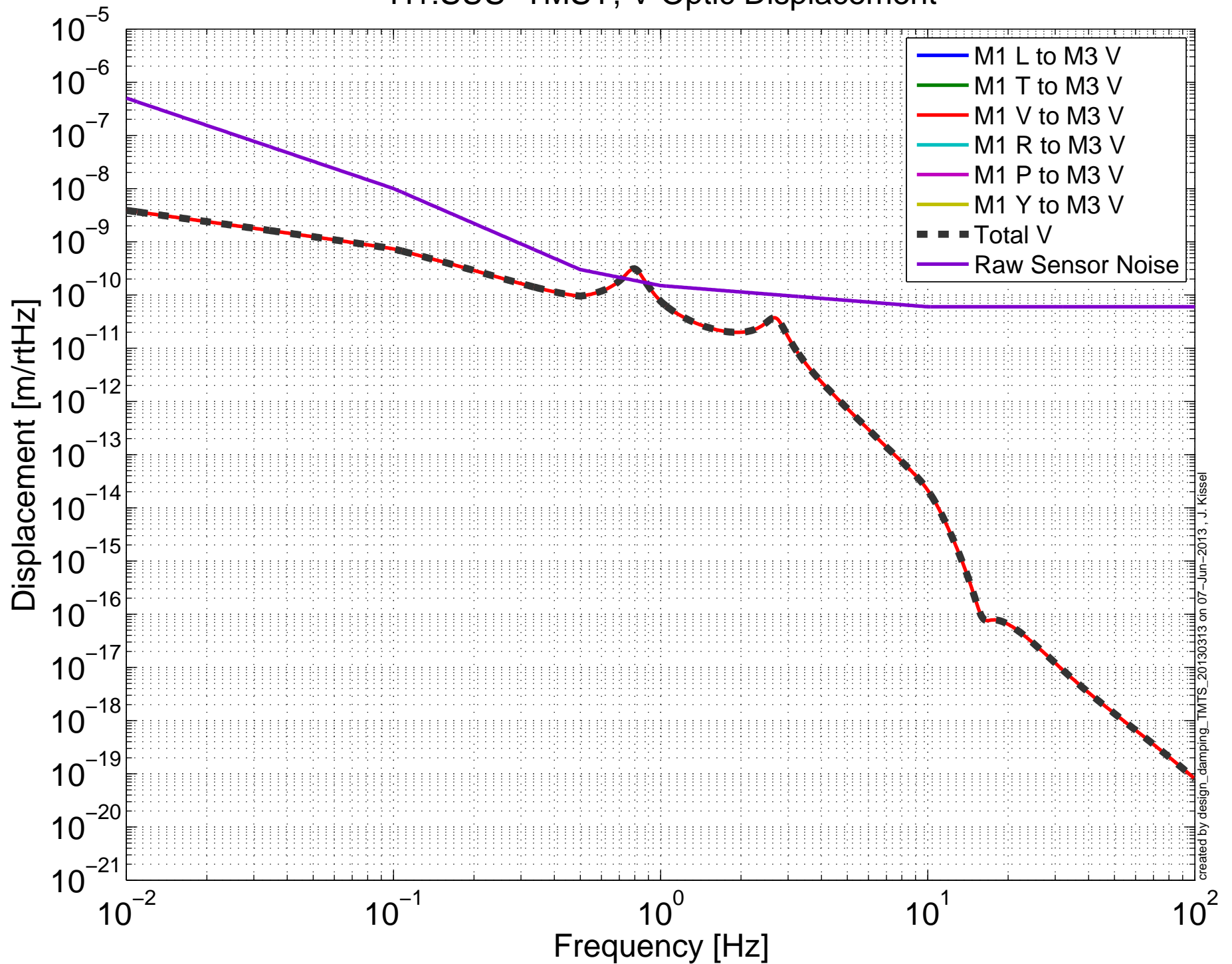


# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-TMSY, T Optic Displacement

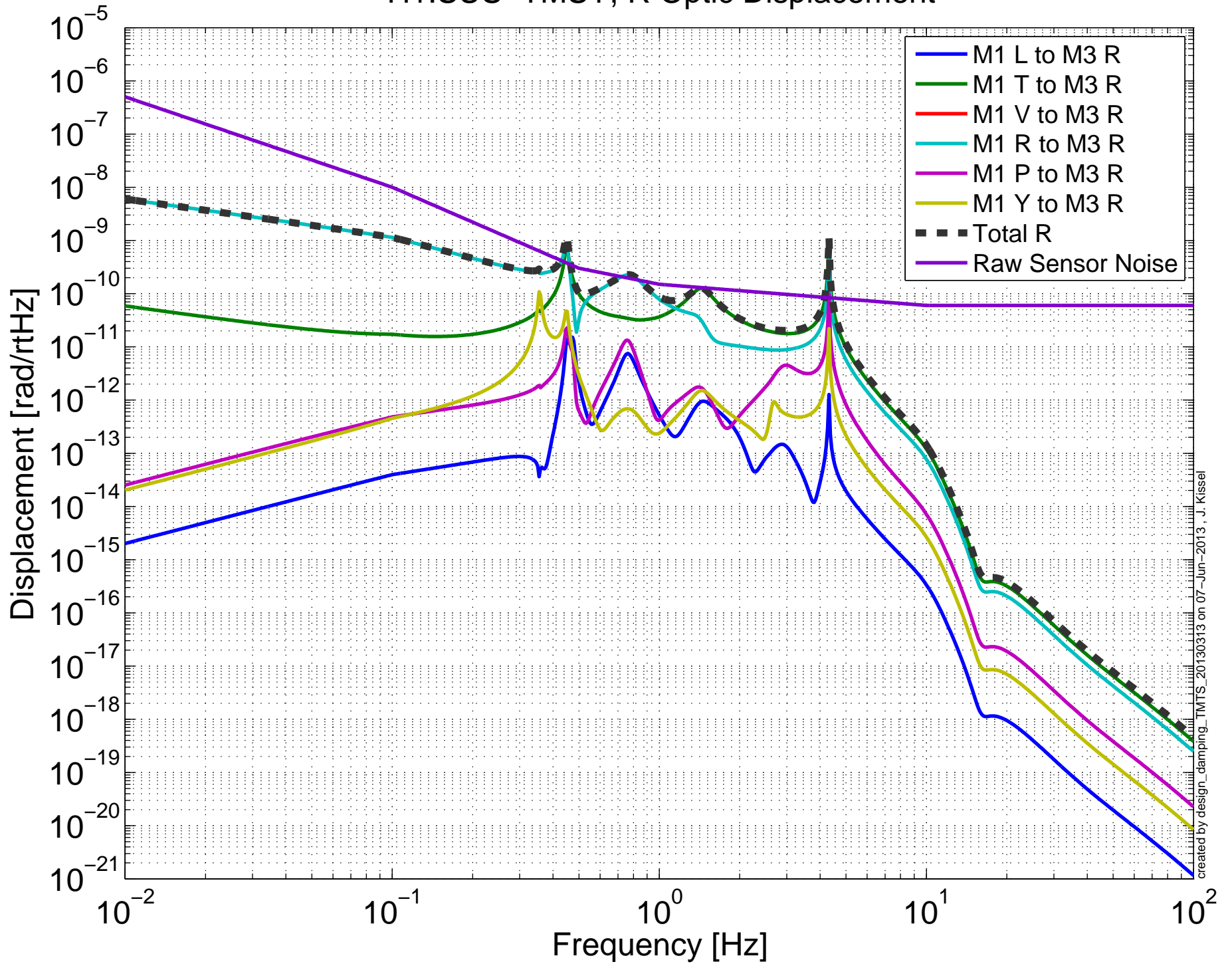




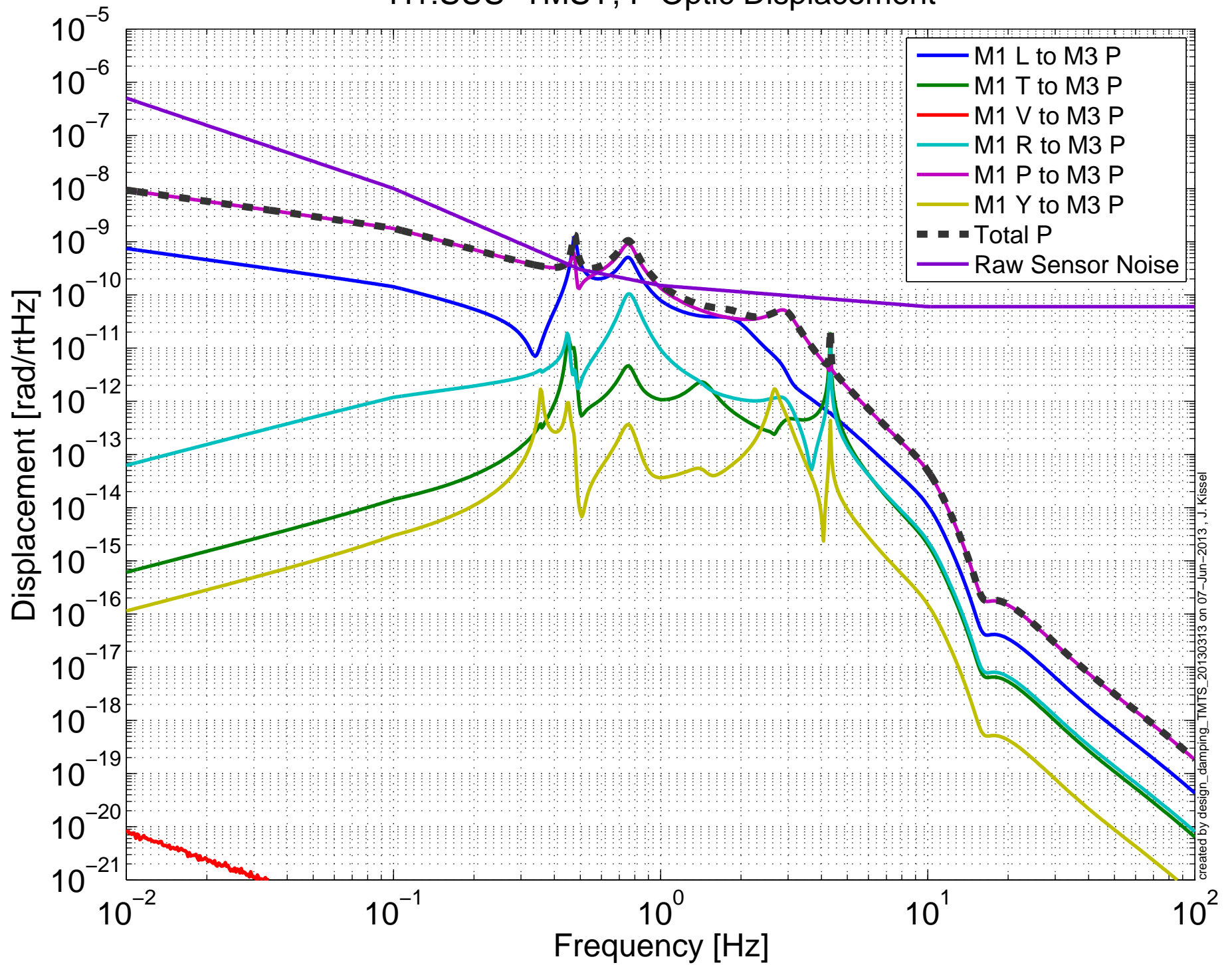
# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-TMSY, V Optic Displacement



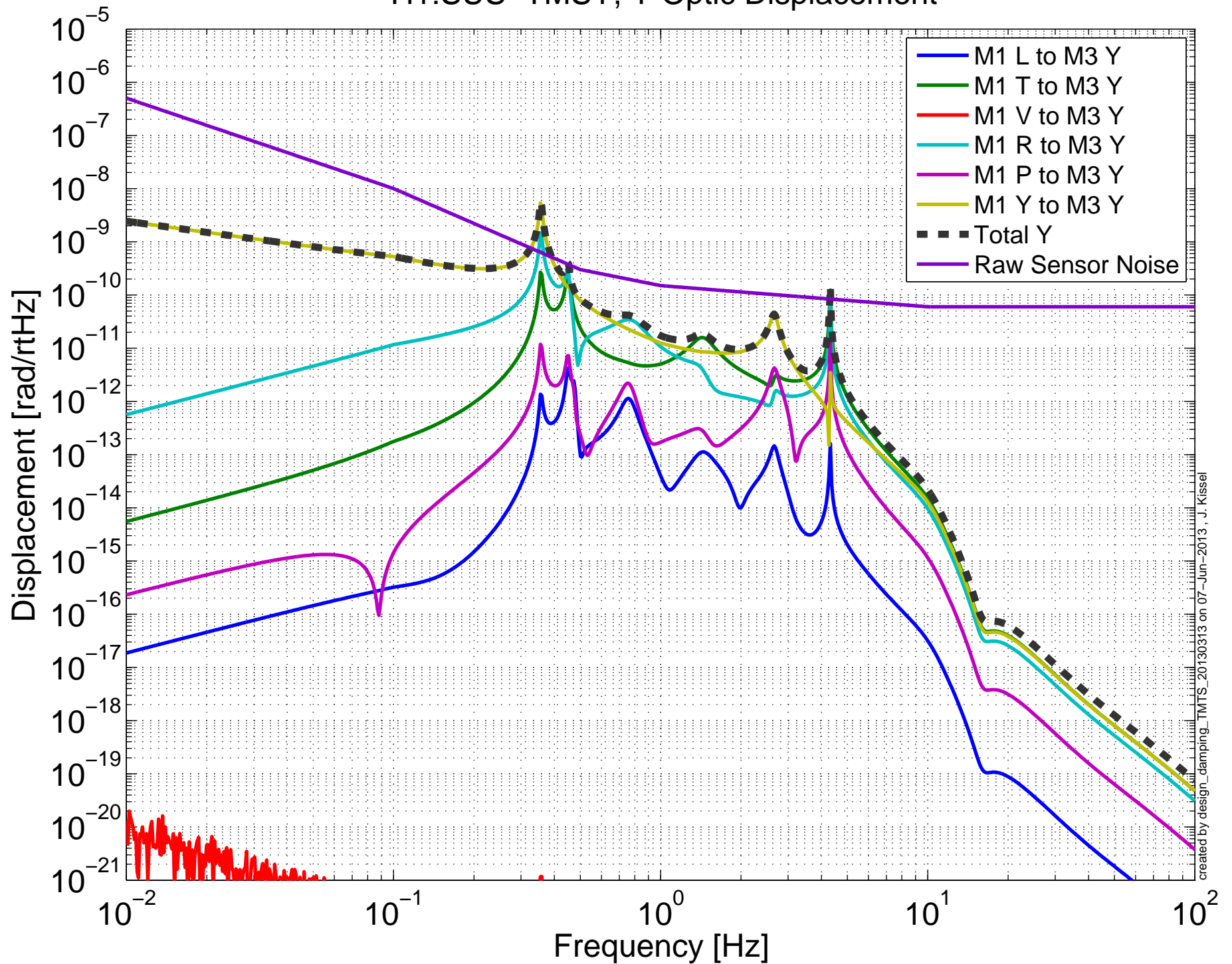
# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-TMSY, R Optic Displacement



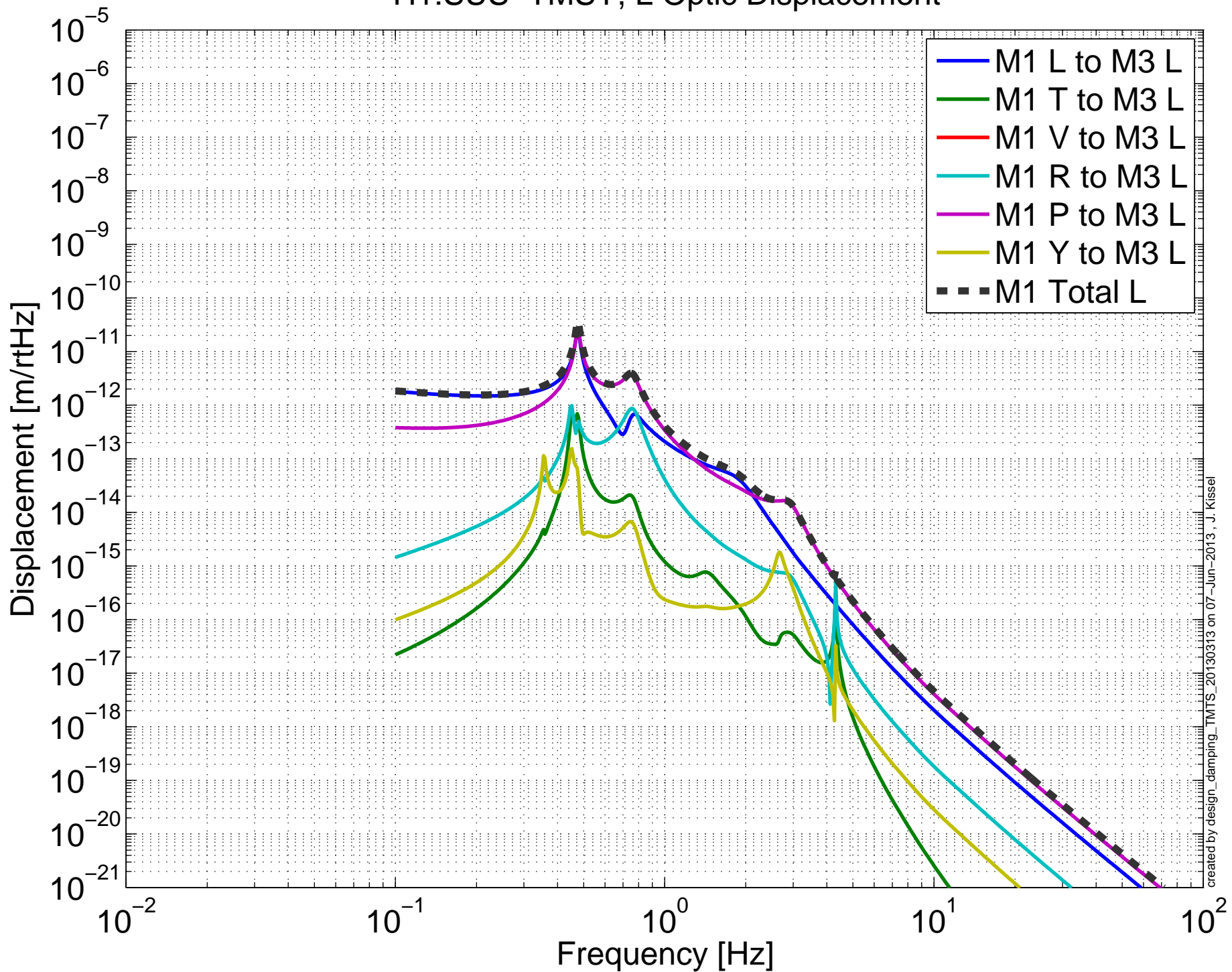
# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-TMSY, P Optic Displacement



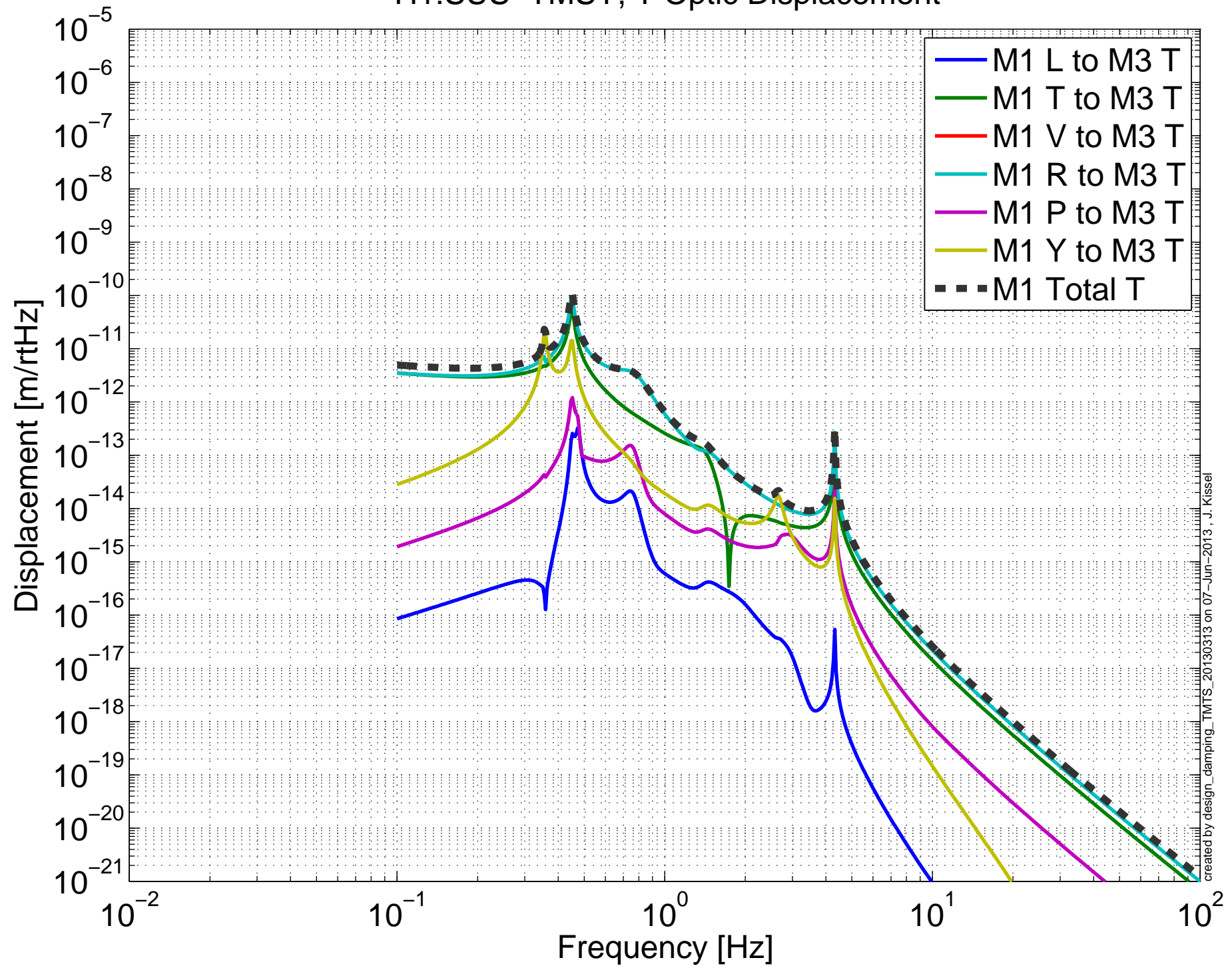
# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-TMSY, Y Optic Displacement



# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-TMSY, L Optic Displacement

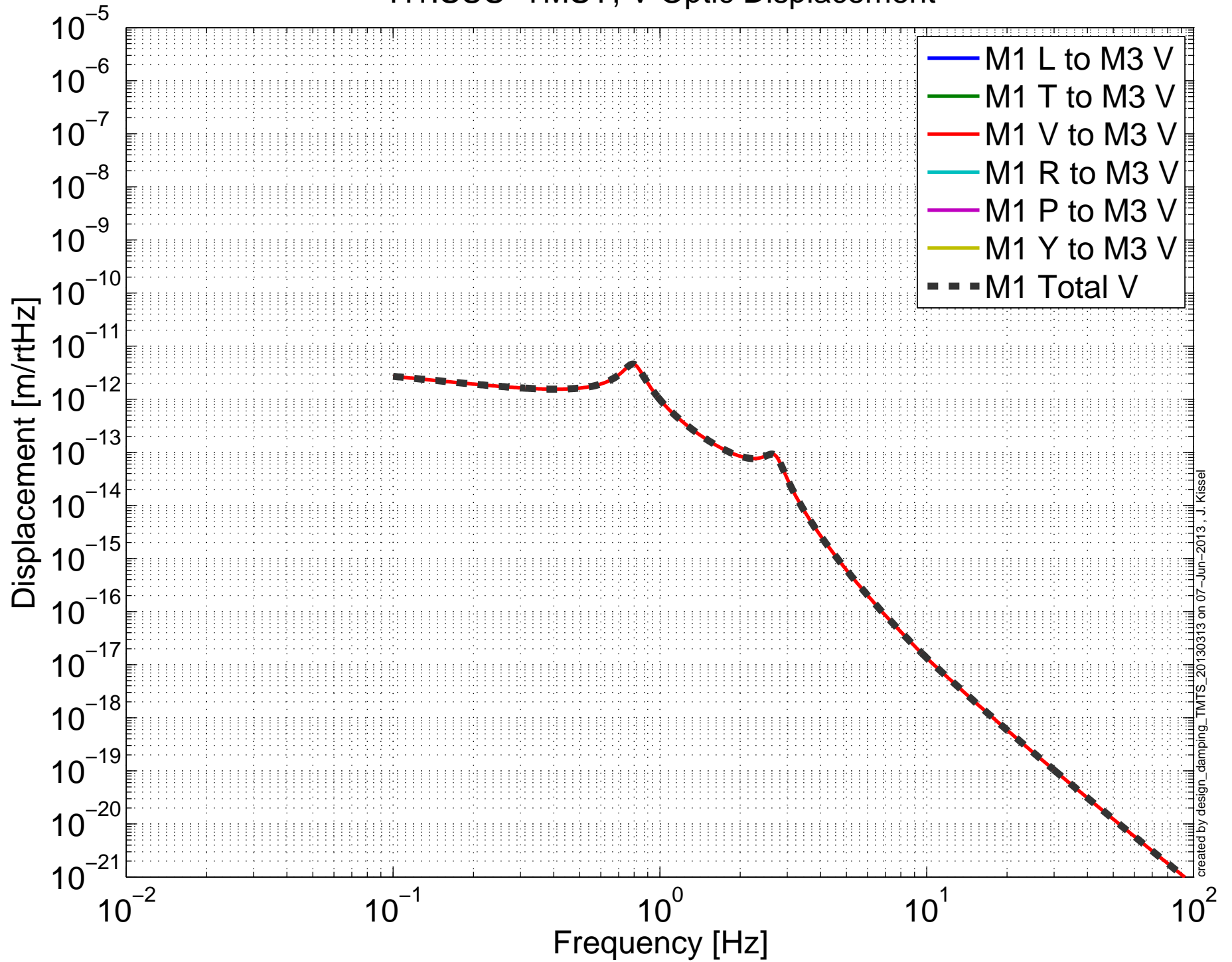


# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-TMSY, T Optic Displacement



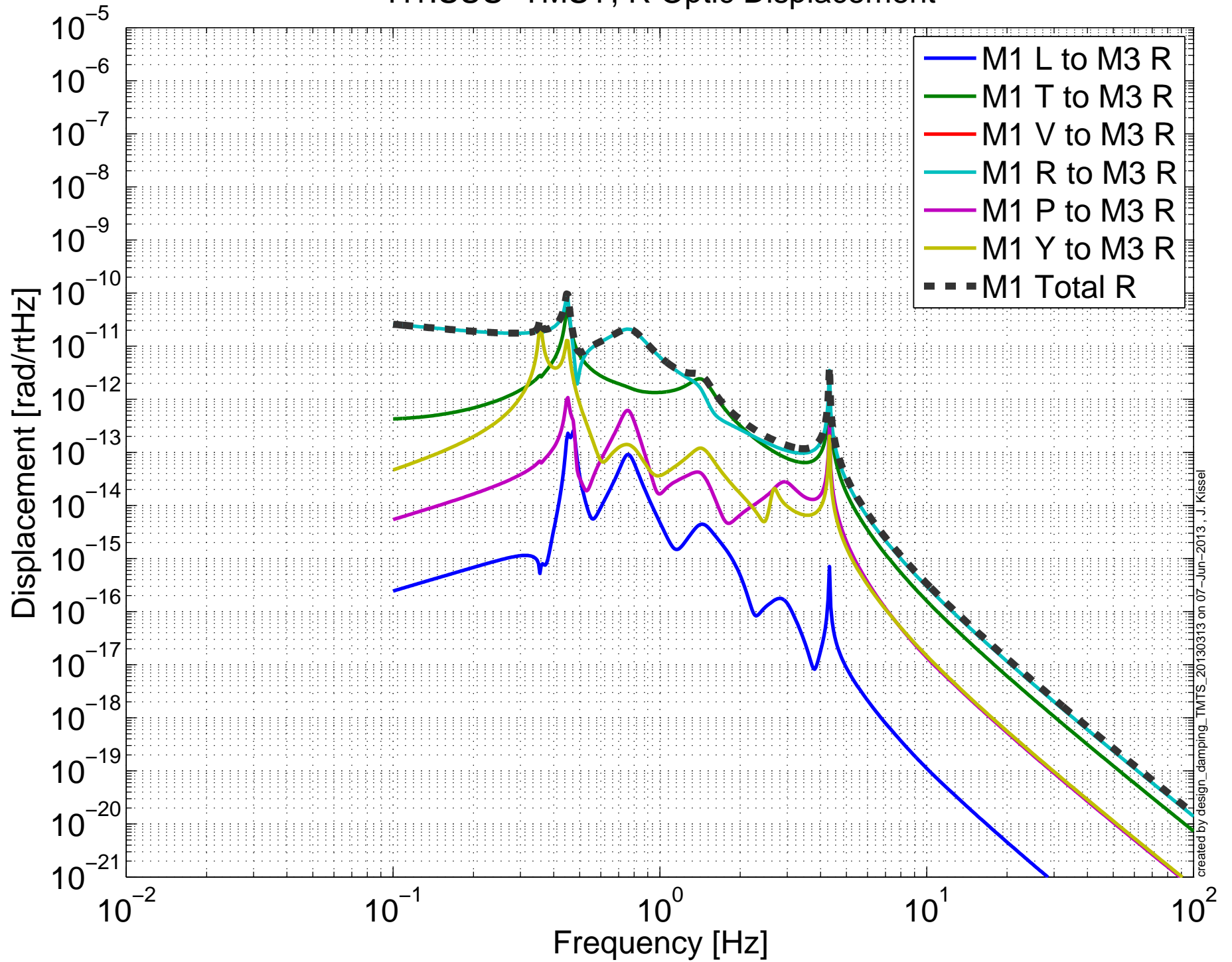
created by design\_damping\_TMTS\_20130313 on 07-Jun-2013 - J. Kissel

# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-TMSY, V Optic Displacement



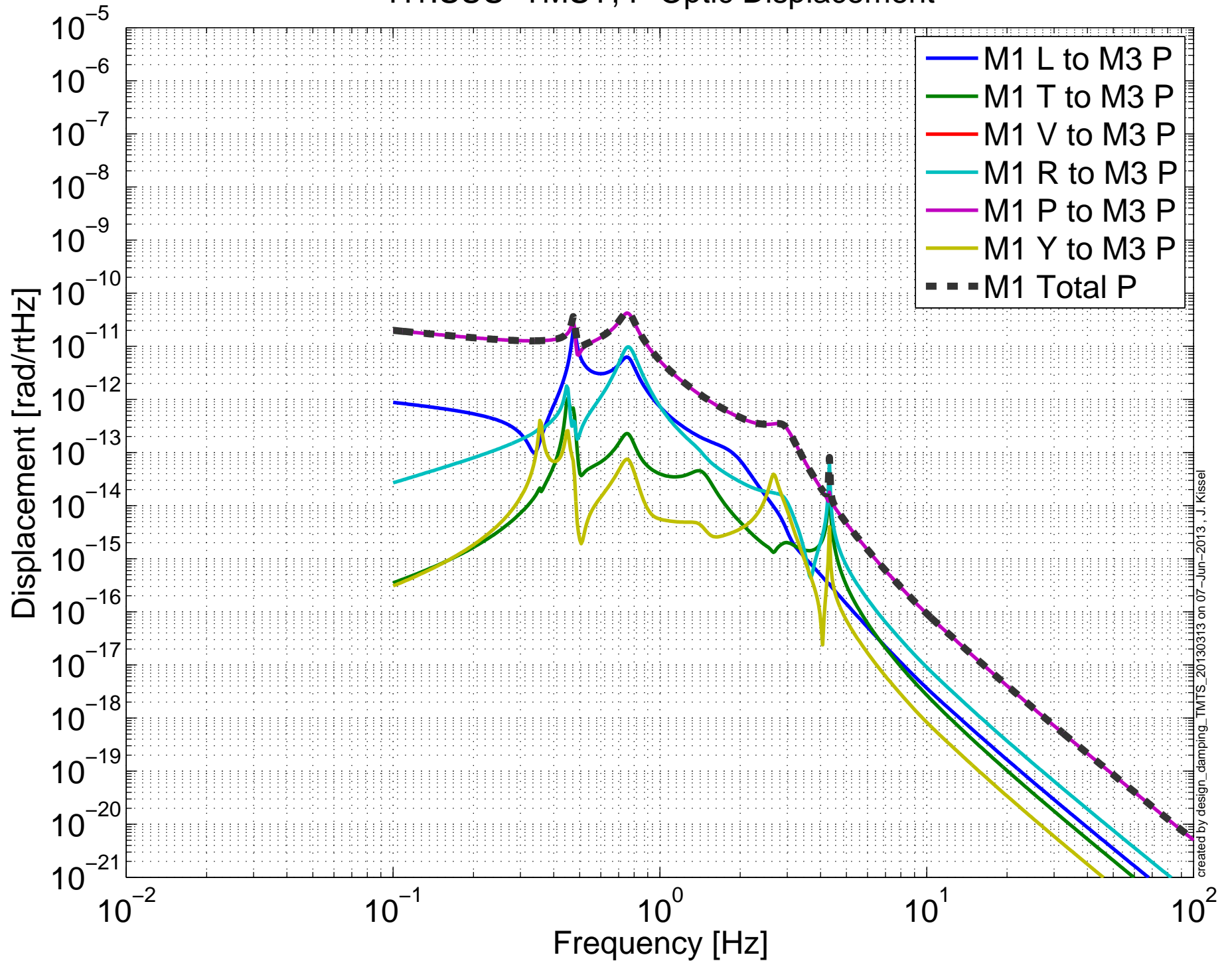
created by design\_damping\_TMSY\_20130313 on 07-Jun-2013 - J. Kissel

# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-TMSY, R Optic Displacement



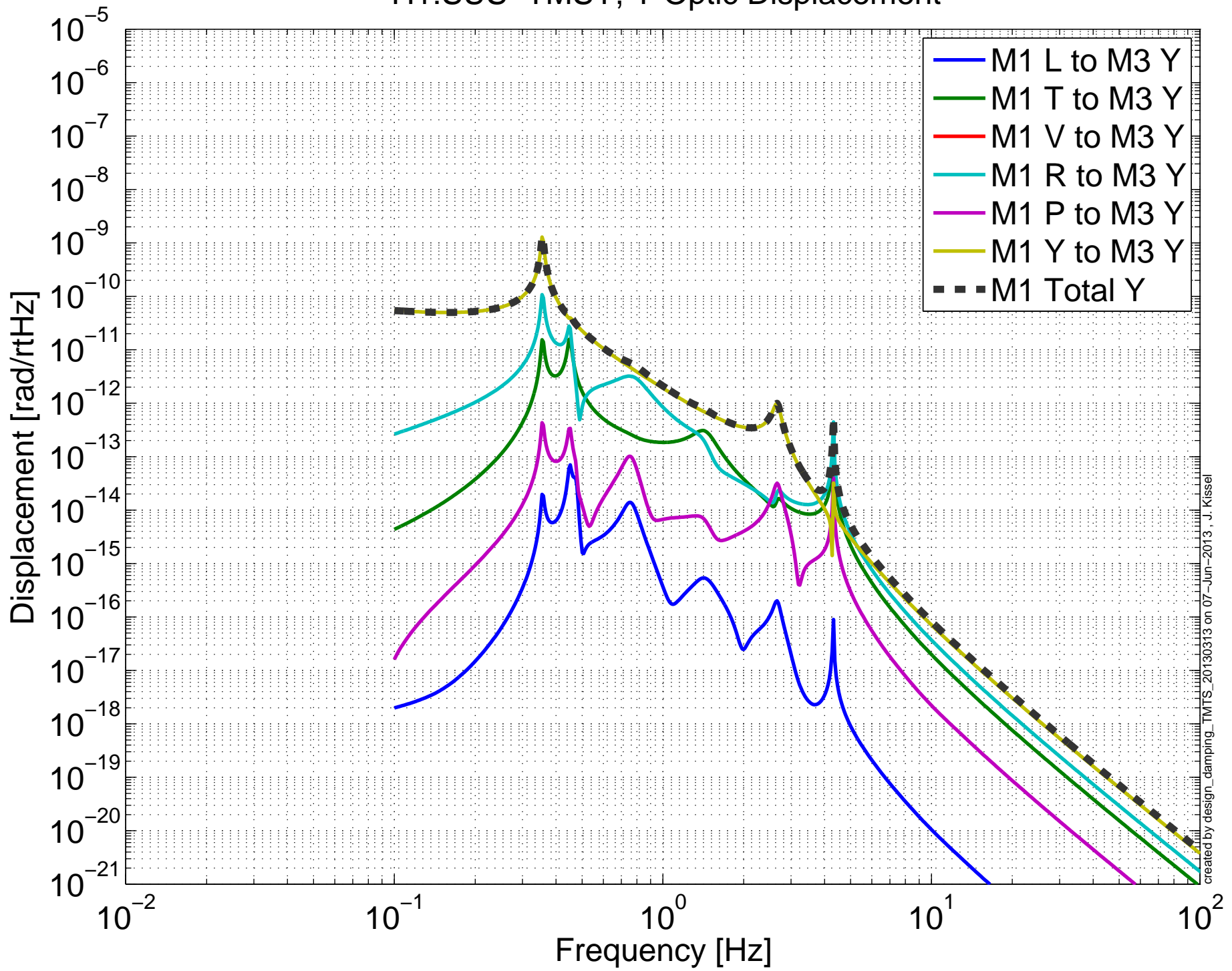


# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-TMSY, P Optic Displacement



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# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-TMSY, Y Optic Displacement



created by design\_damping\_TMTS\_20130313 on 07-Jun-2013 - J. Kissel