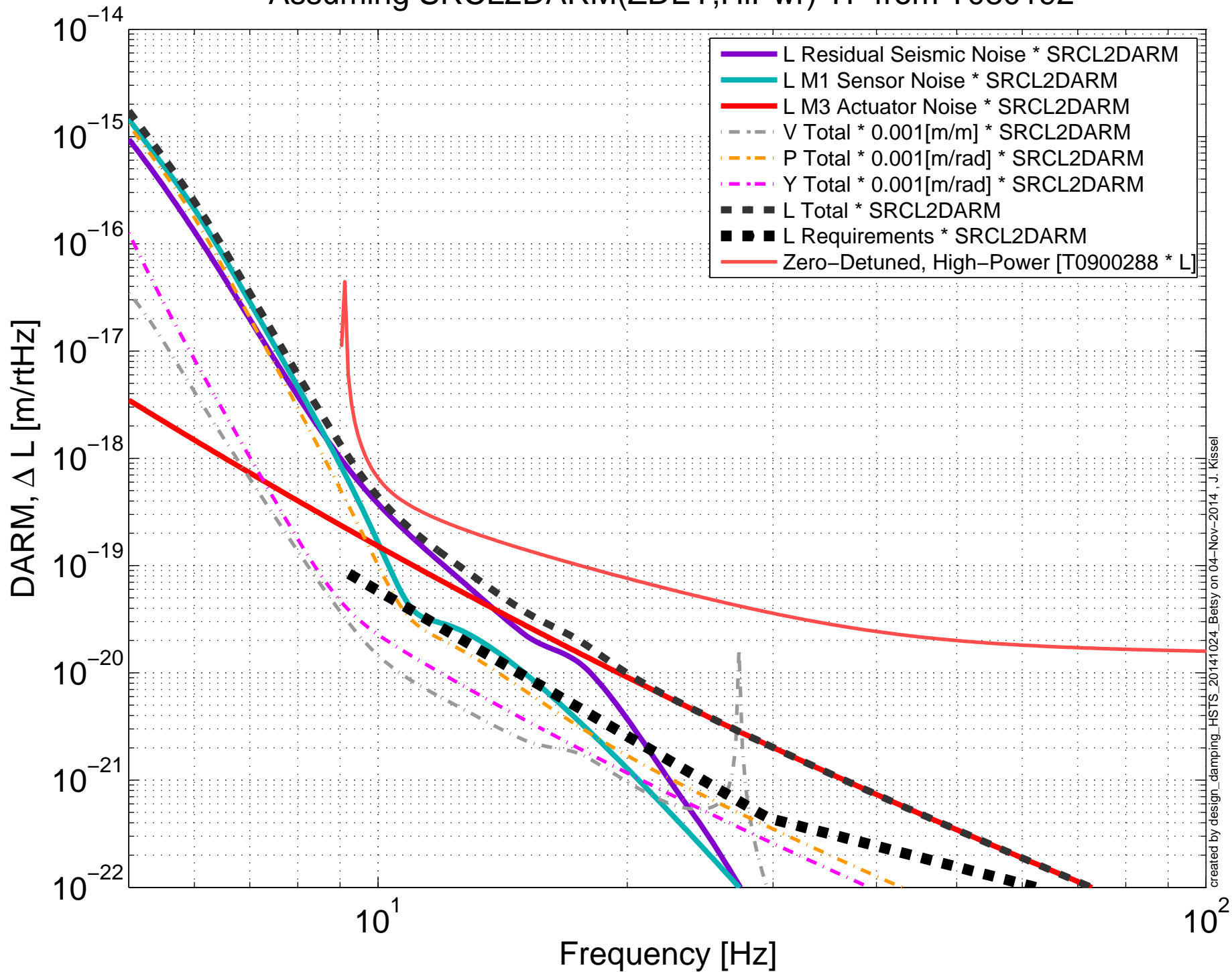
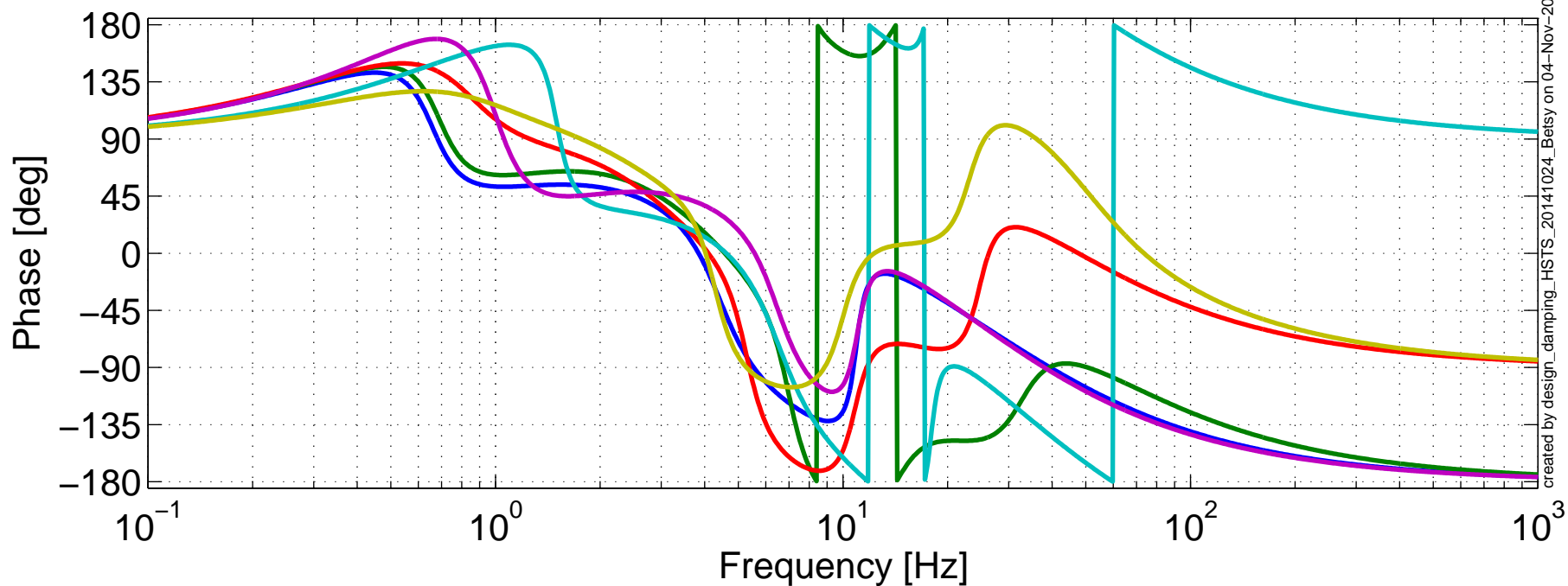
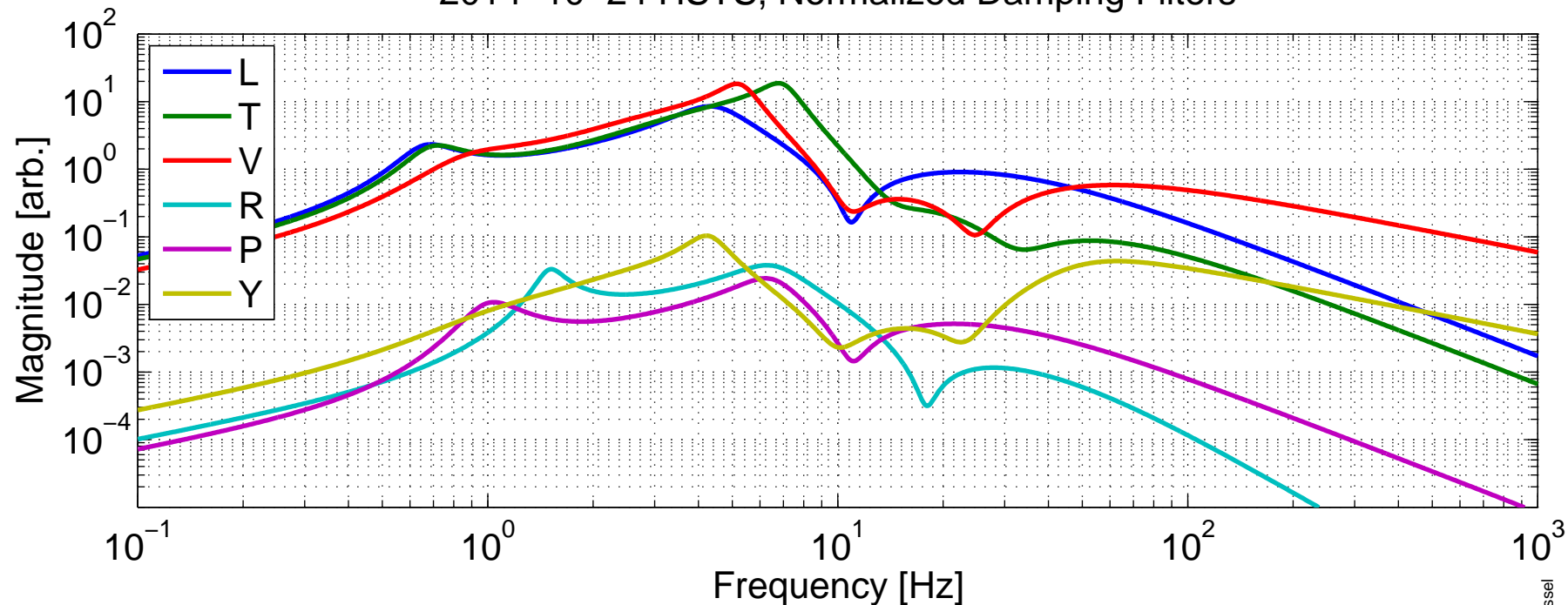


HSTS Damping Loop Performance; Differential Arm Displacement Assuming SRCL2DARM(ZDET,HiPwr) TF from T080192

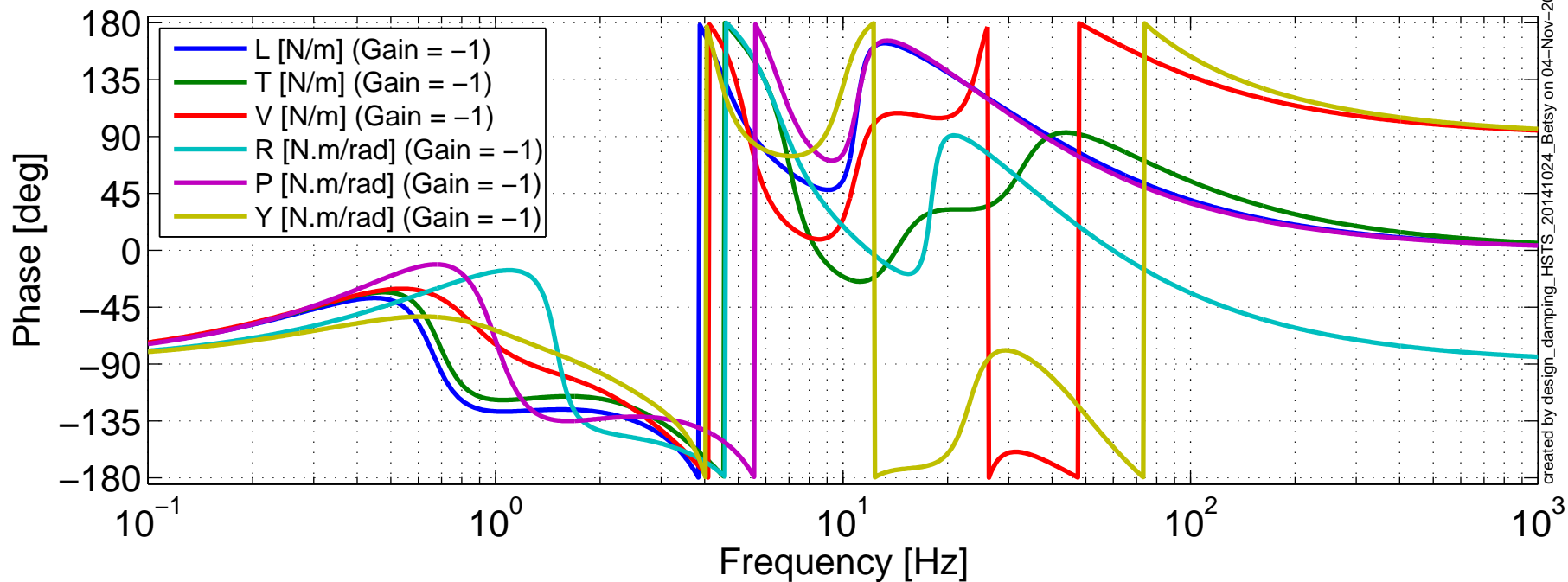
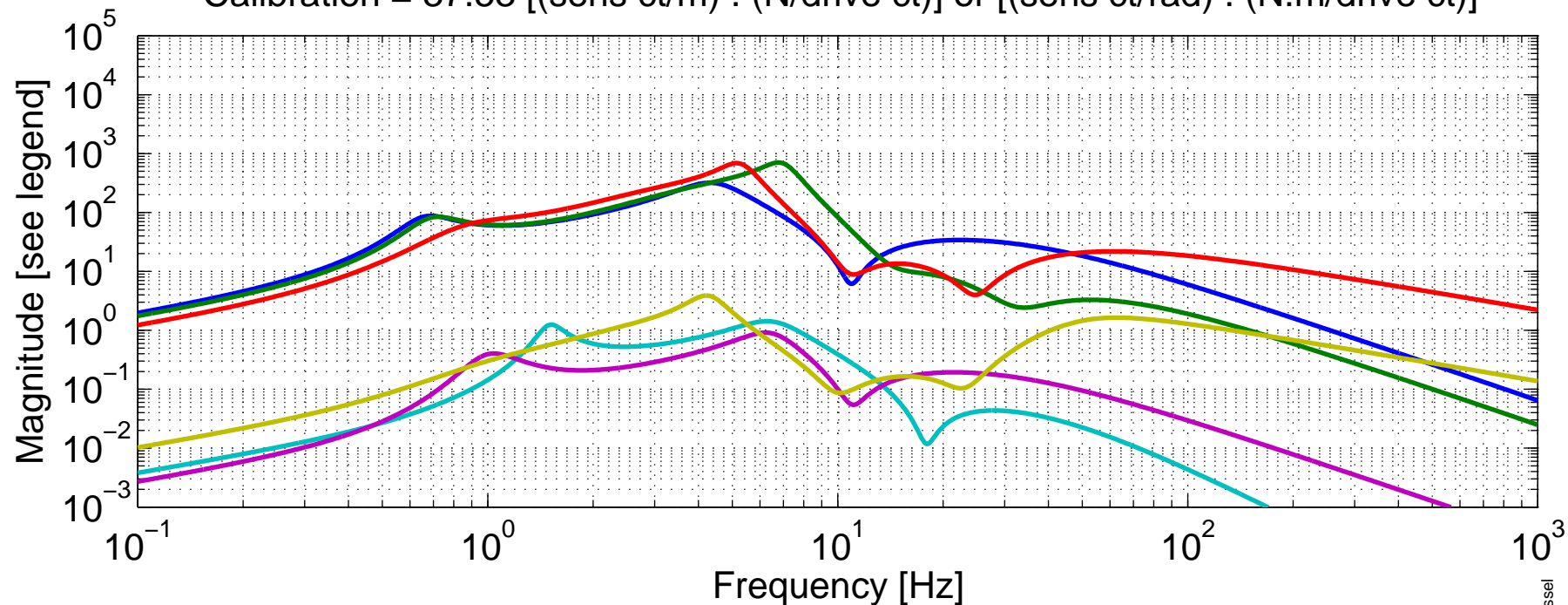


created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

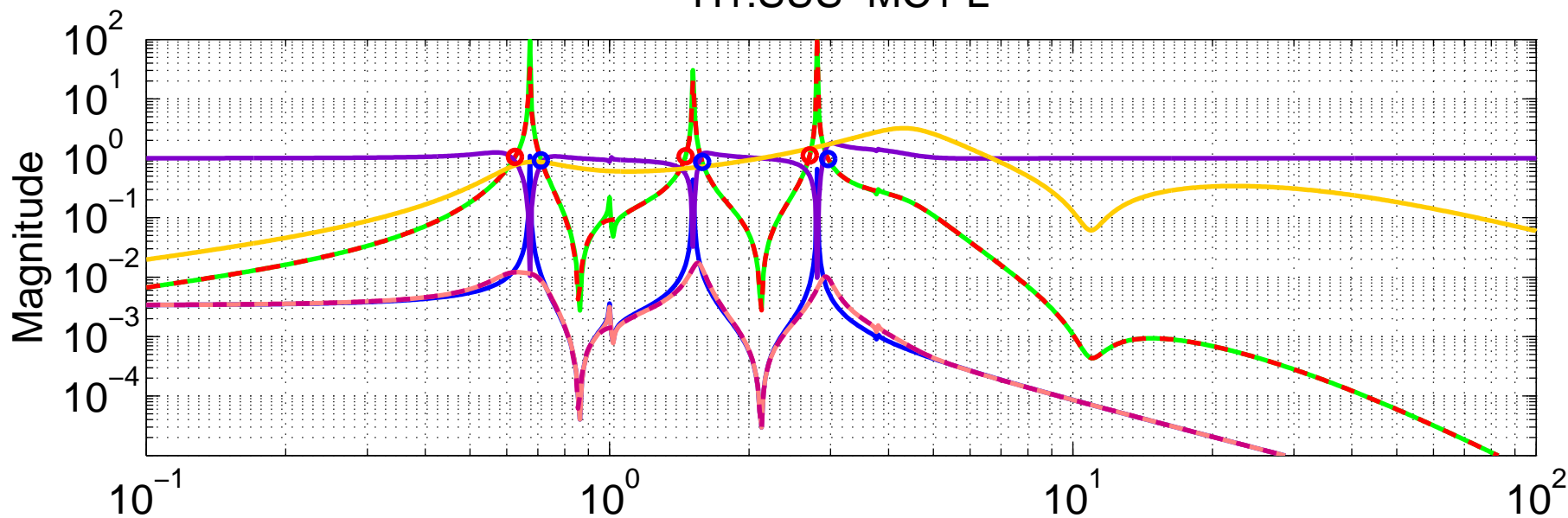
2014-10-24 HSTS, Normalized Damping Filters



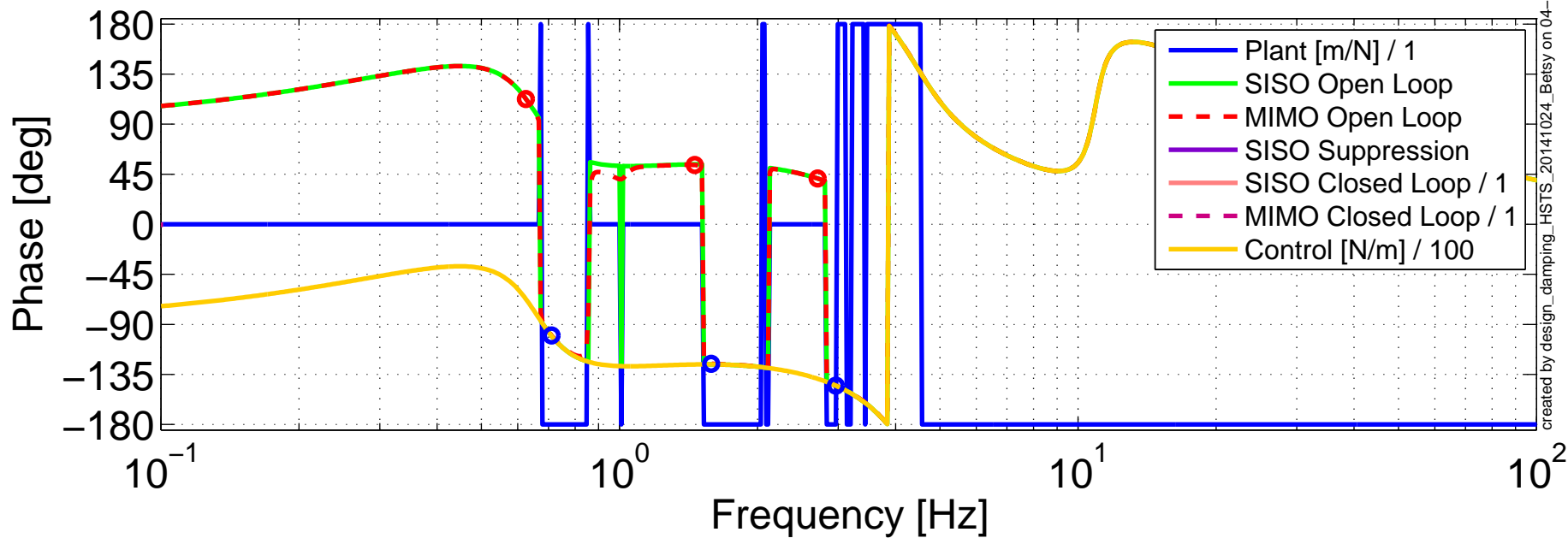
2014-10-24 HSTS, Calibrated Damping Filters
 Calibration = 37.53 [(sens ct/m) . (N/drive ct)] or [(sens ct/rad) . (N.m/drive ct)]



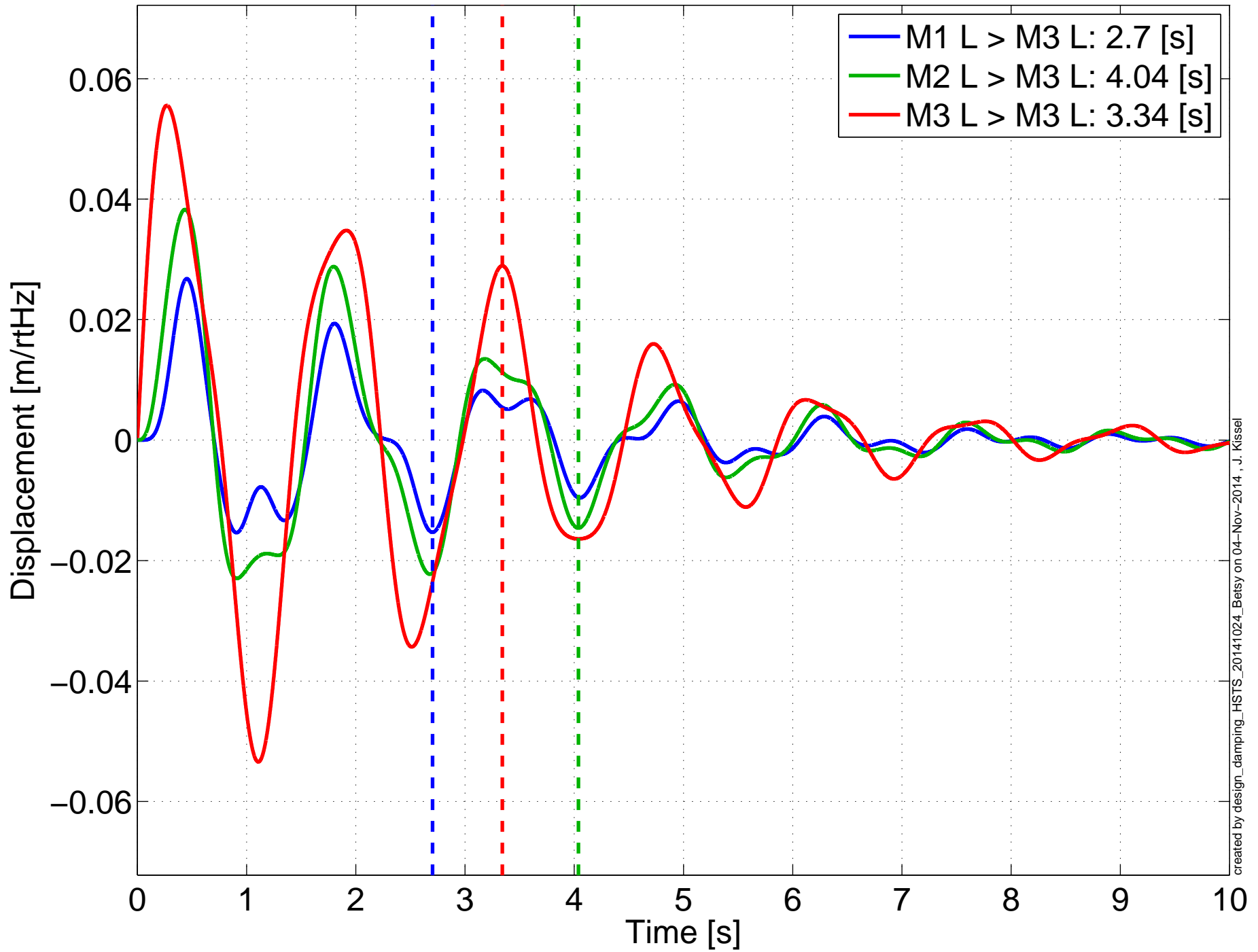
Damping Loop Design H1:SUS-MC1 L



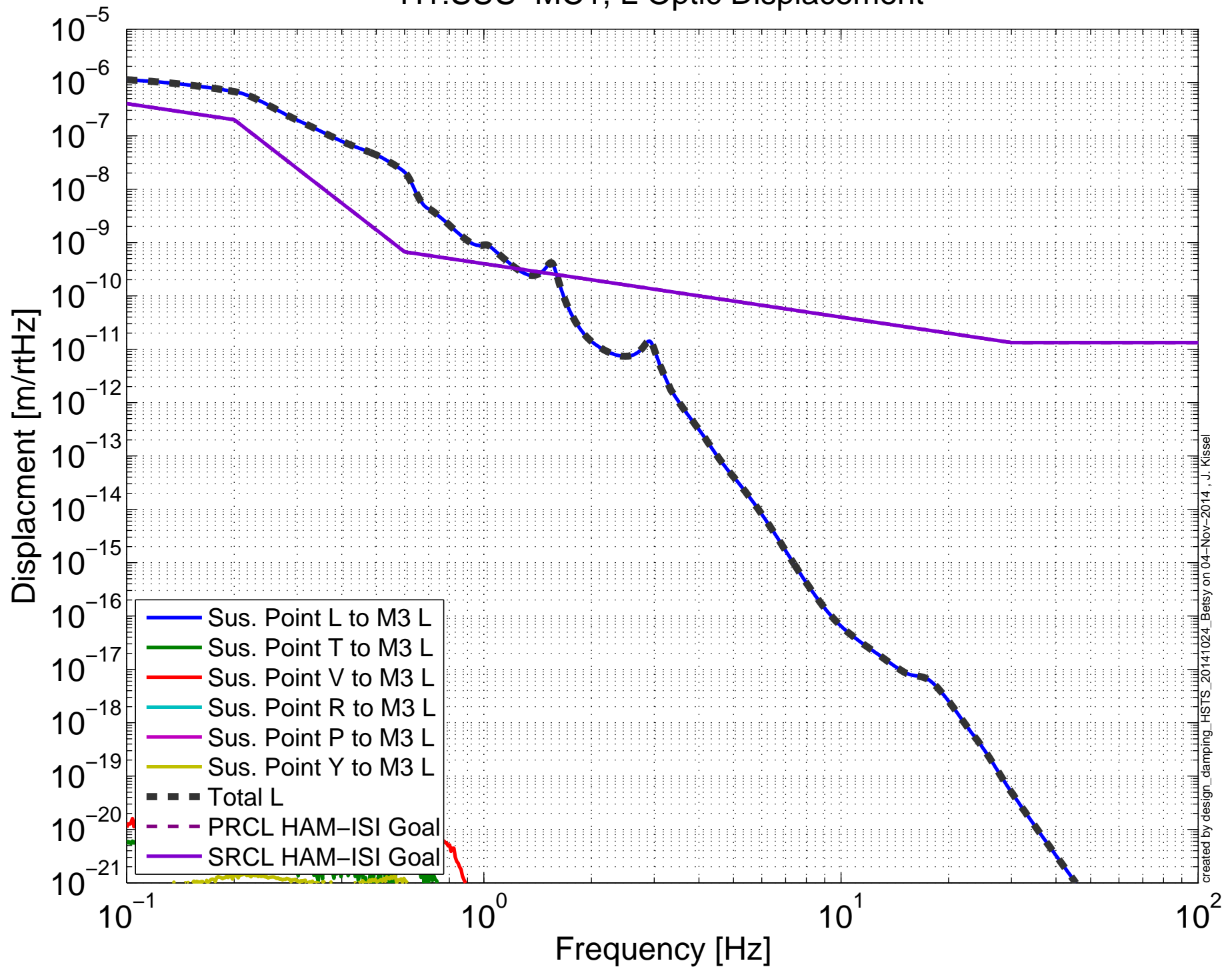
MIMO LUGF Phase Margins (red): [67.4 127 139] [deg]
 MIMO UUGF Phase Margins (blue): [80 54.6 34.9] [deg]



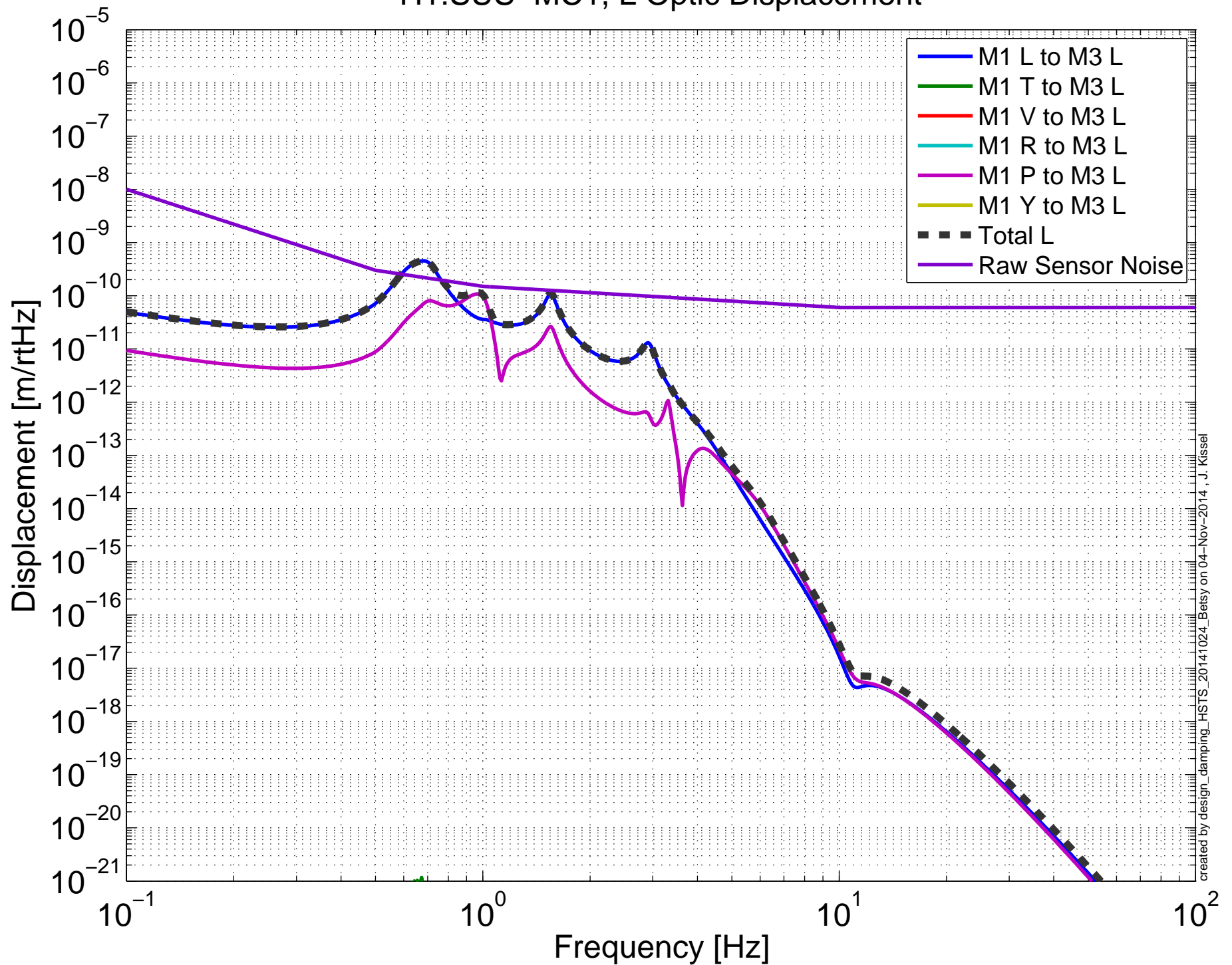
Damped Impulse Response H1:SUS-MC1 L



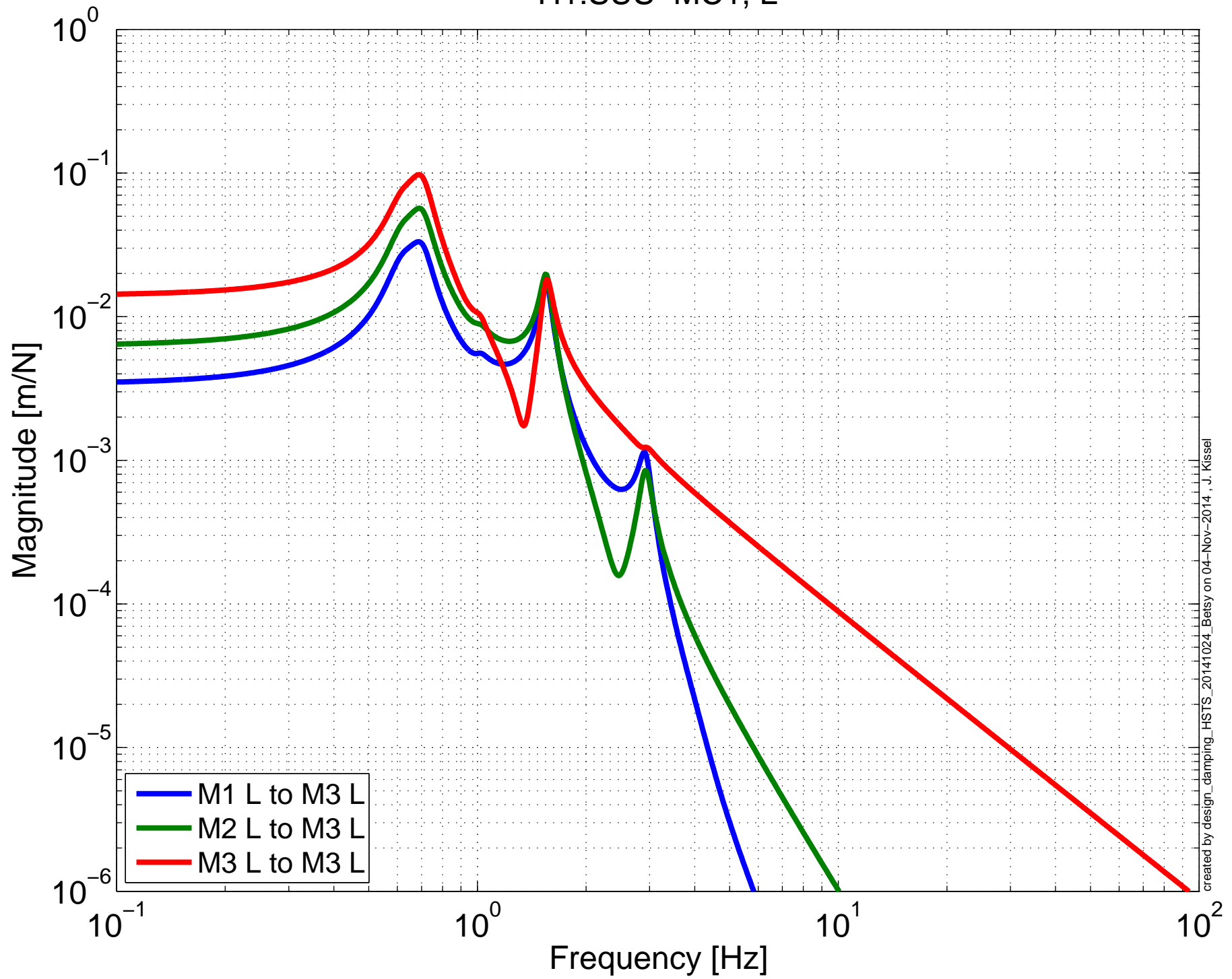
Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-MC1, L Optic Displacement



Projected Top Mass Sensor > Optic Noise Budget H1:SUS-MC1, L Optic Displacement

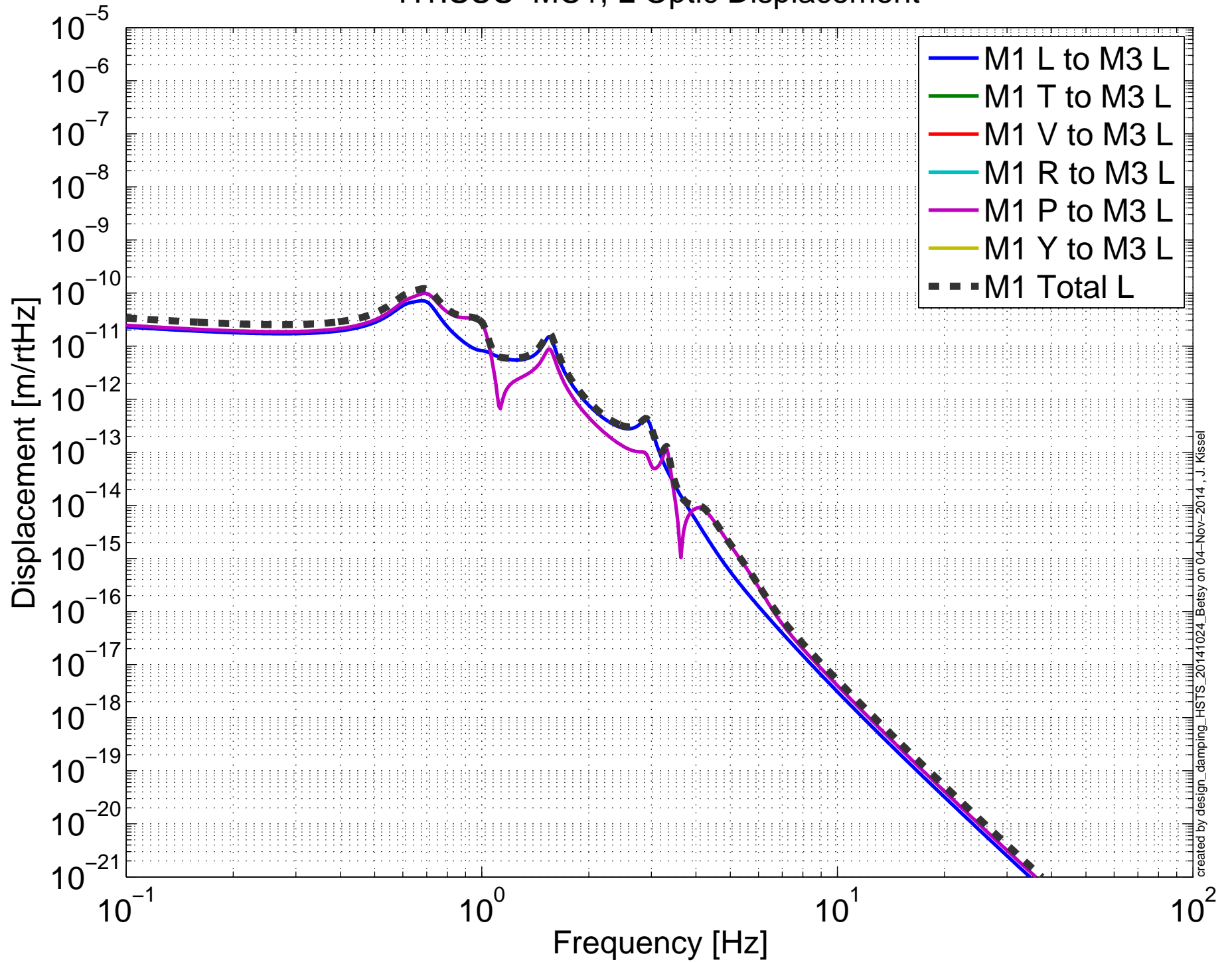


Global Control Transfer Functions to Optic H1:SUS-MC1, L



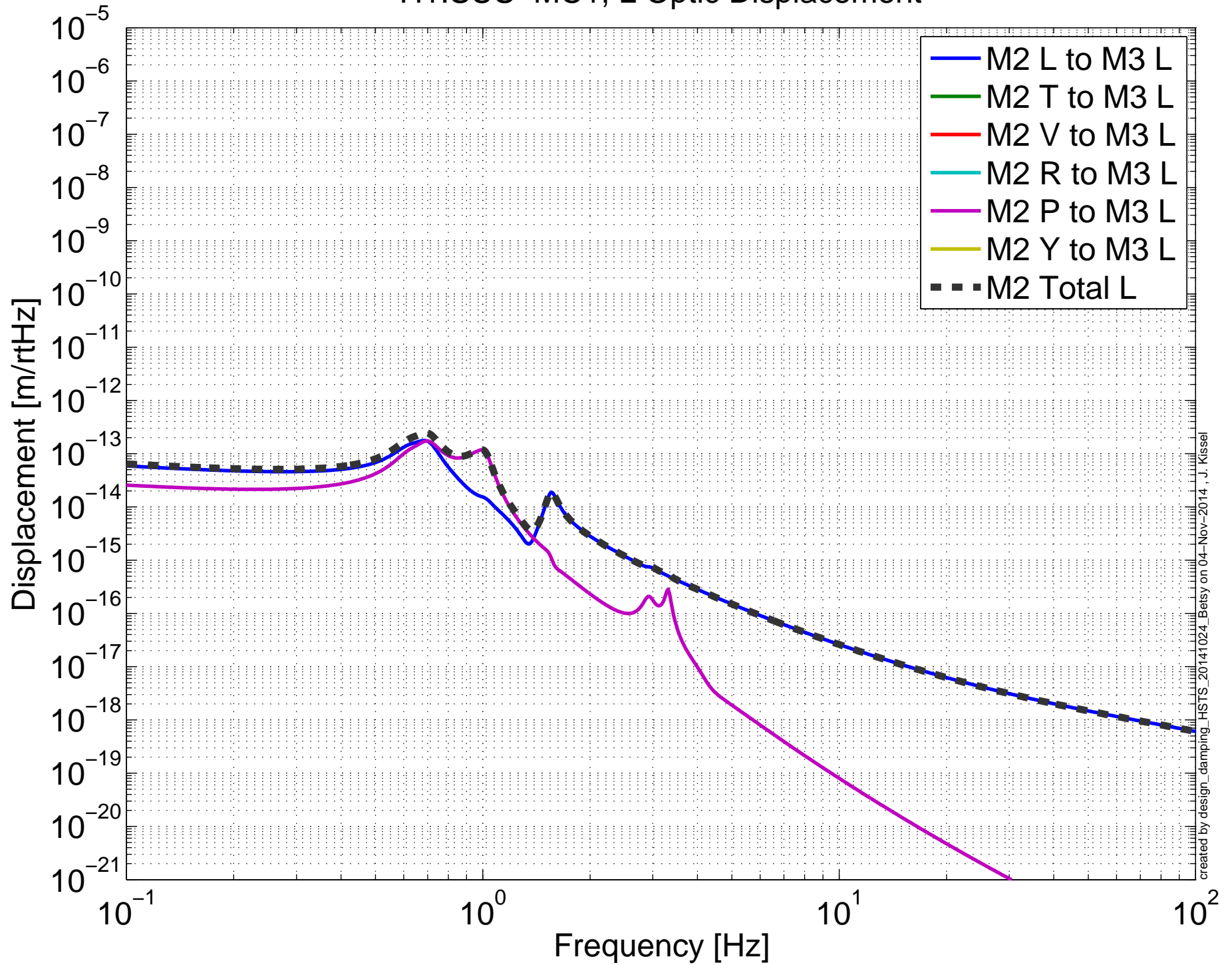
created by design_damping_HSTS_20141024_Beisy on 04-Nov-2014, J. Kissel

Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-MC1, L Optic Displacement



created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

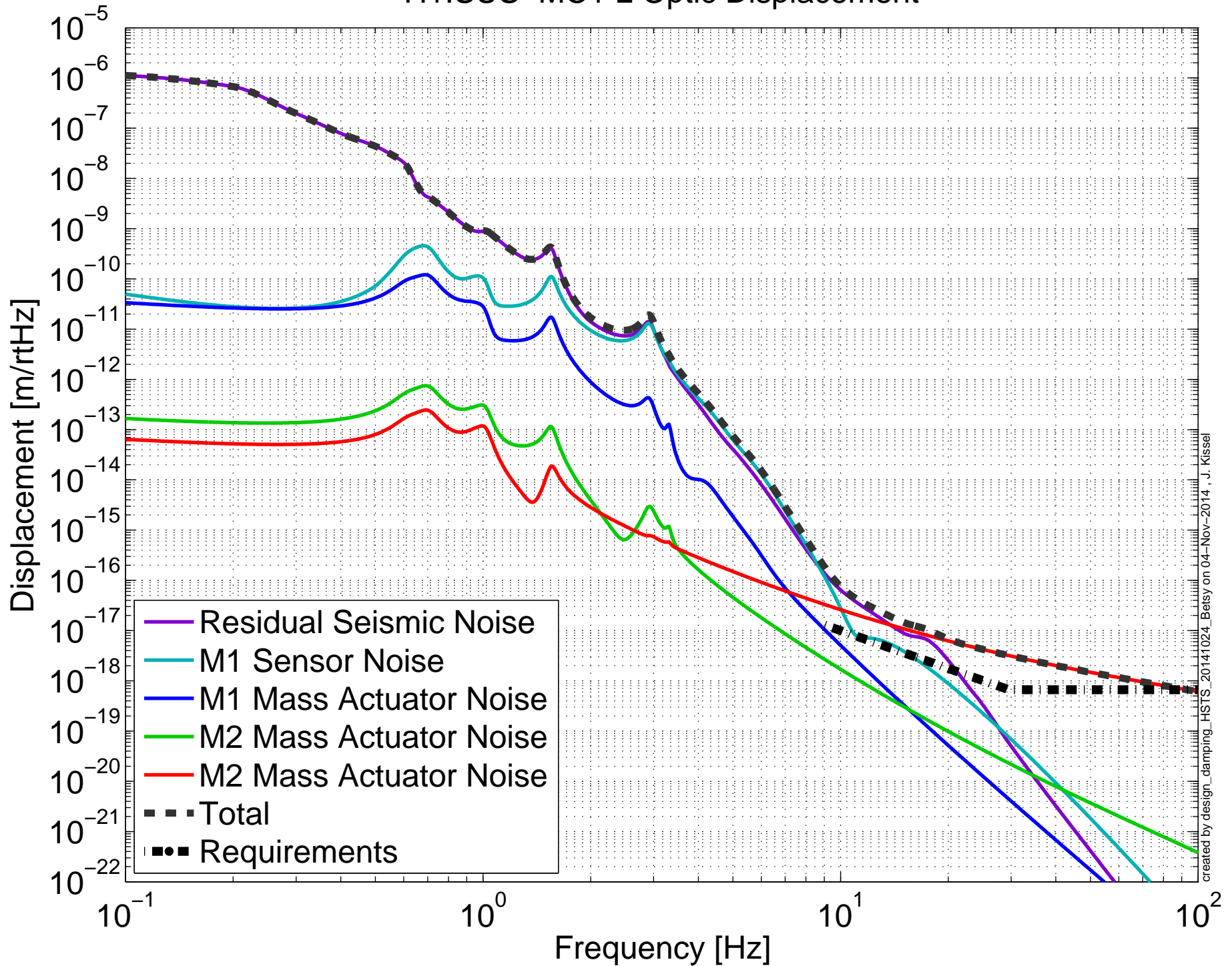
Projected M3 Mass Actuator > Optic Noise Budget H1:SUS-MC1, L Optic Displacement



created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

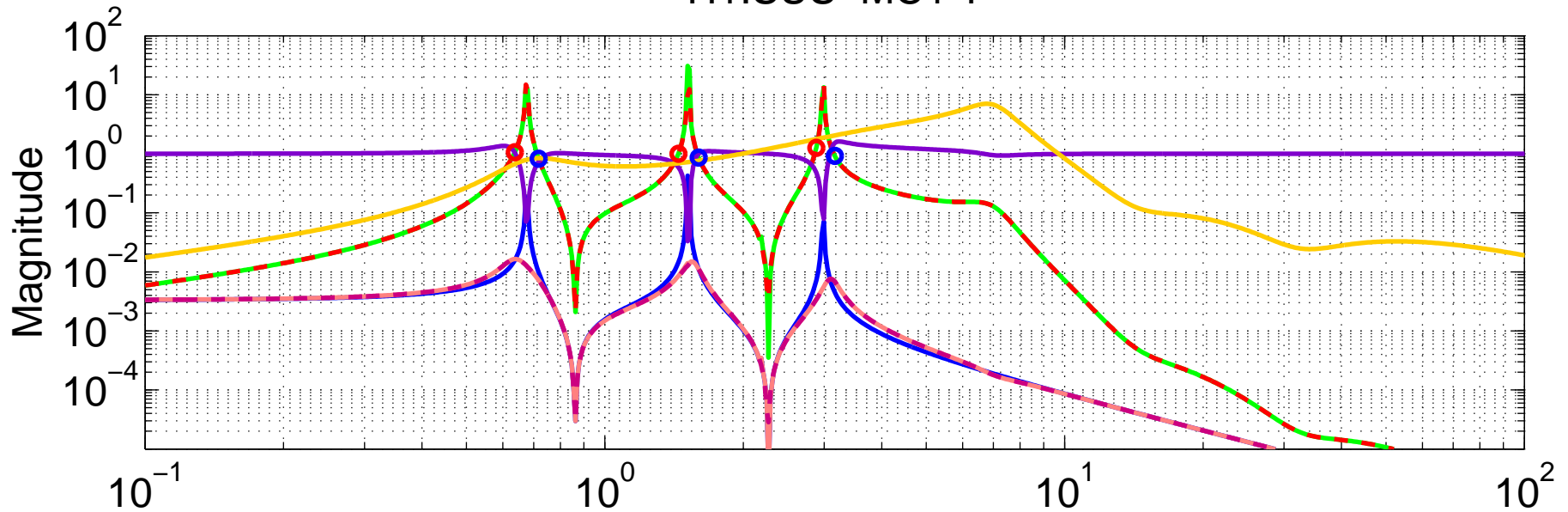
Damping Loop Performance

H1:SUS-MC1 L Optic Displacement

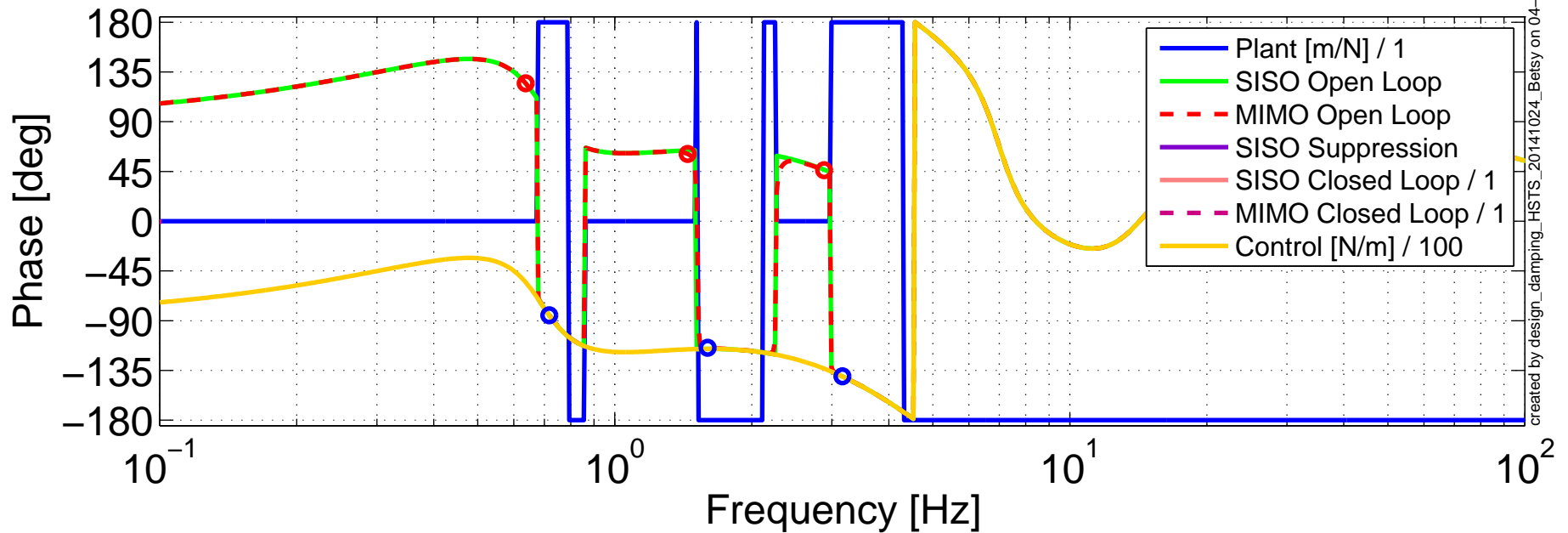


Damping Loop Design

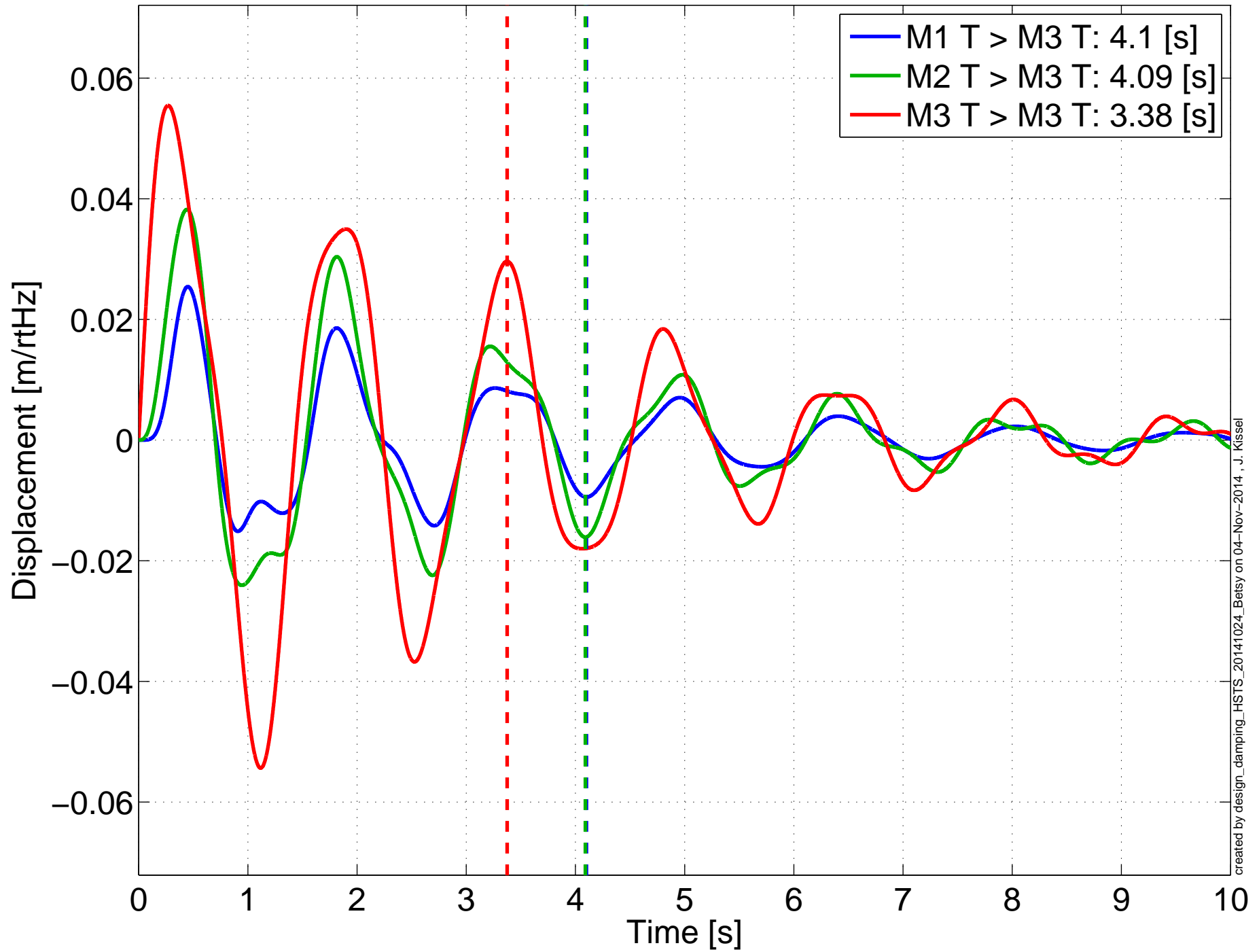
H1:SUS-MC1 T



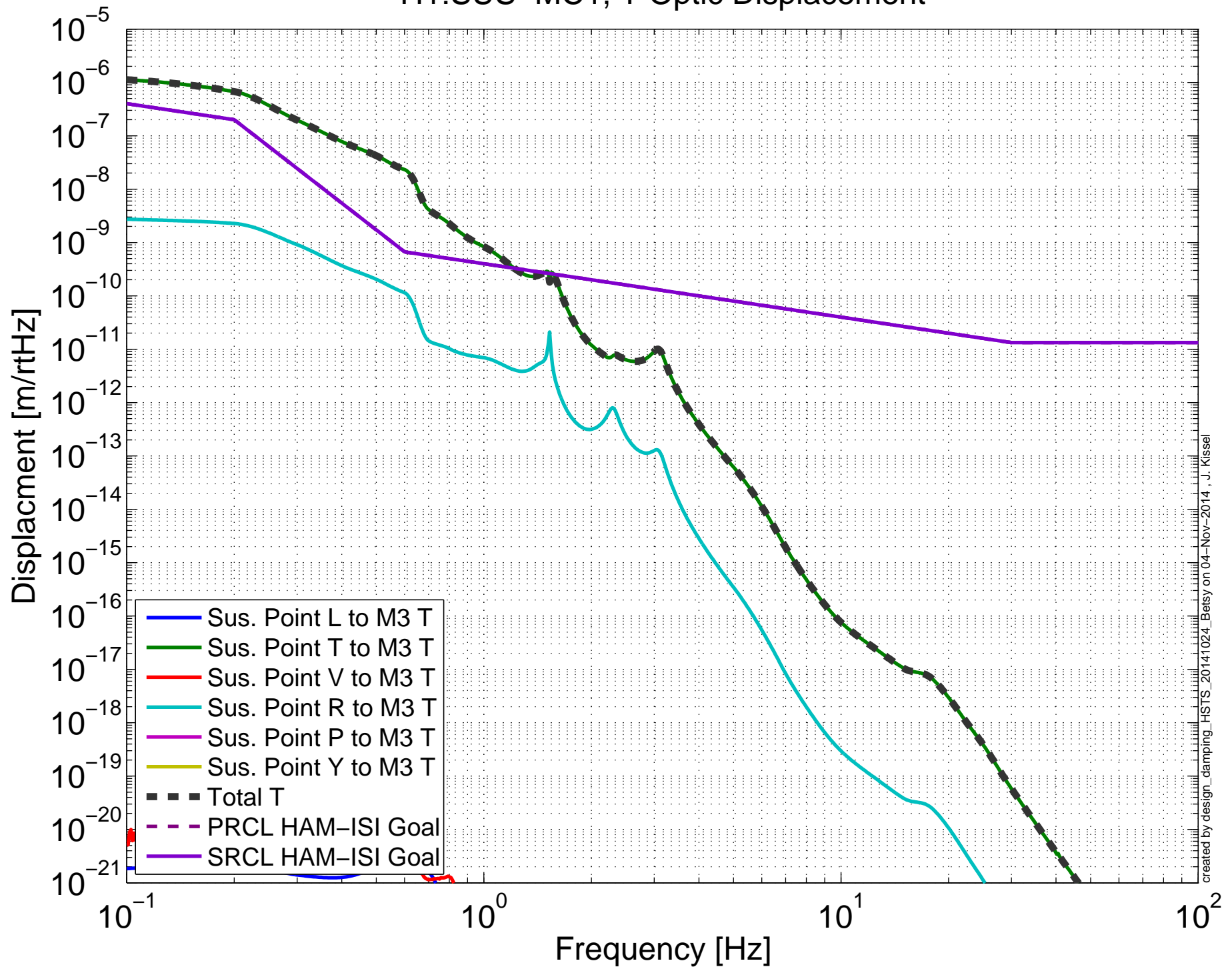
MIMO LUGF Phase Margins (red): [55.3 119 134] [deg]
MIMO UUGF Phase Margins (blue): [94.9 65.5 39.7] [deg]



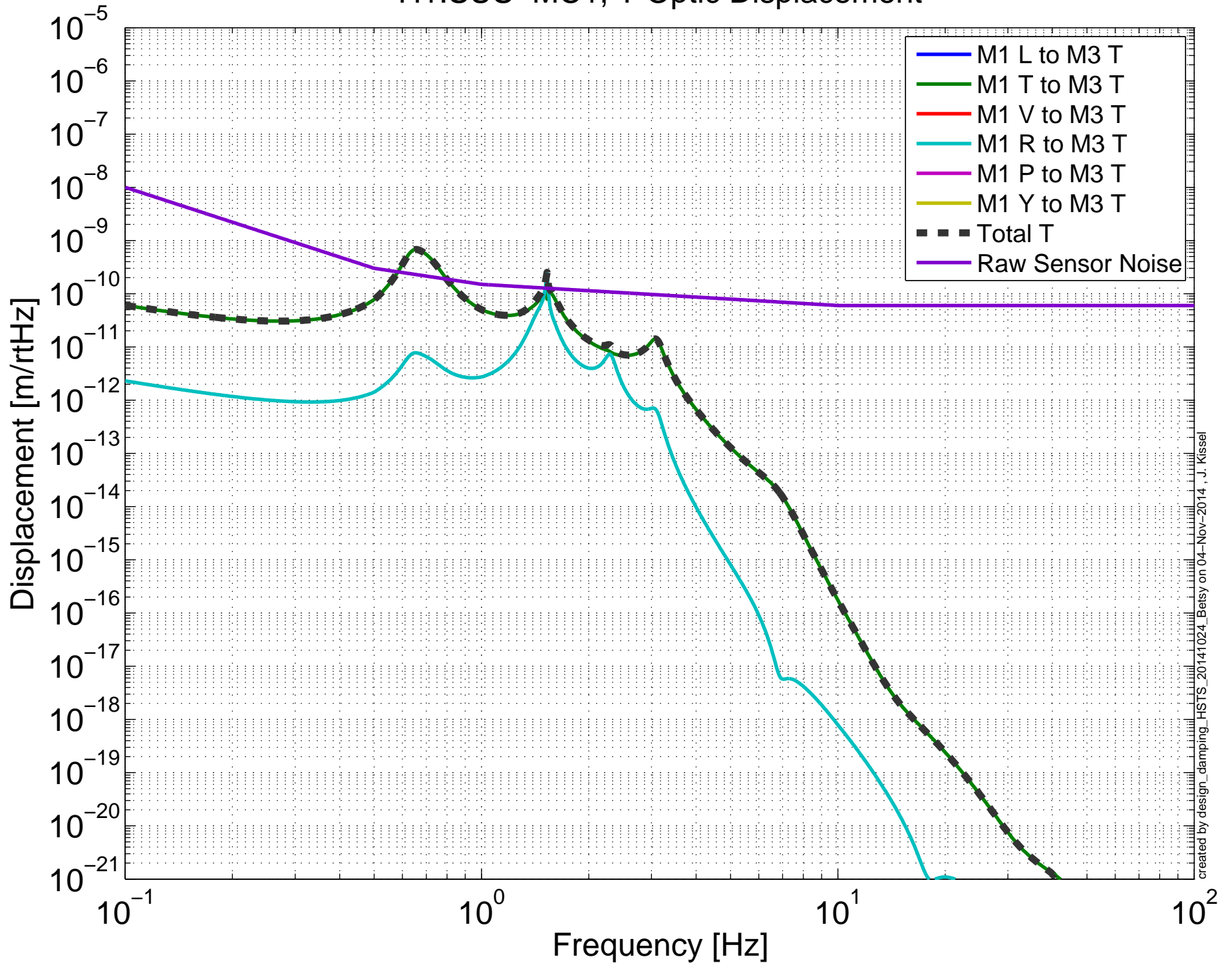
Damped Impulse Response H1:SUS-MC1 T



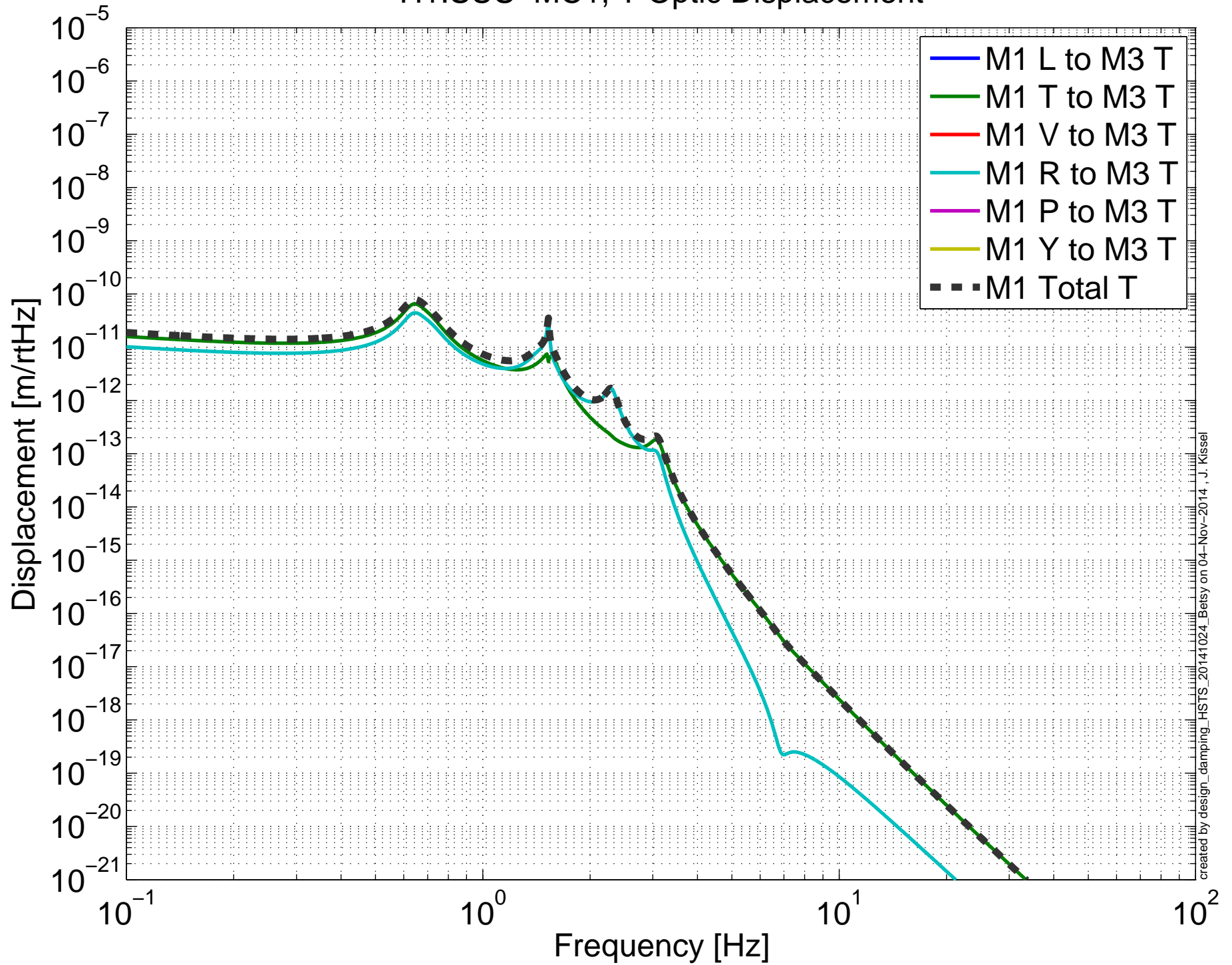
Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-MC1, T Optic Displacement



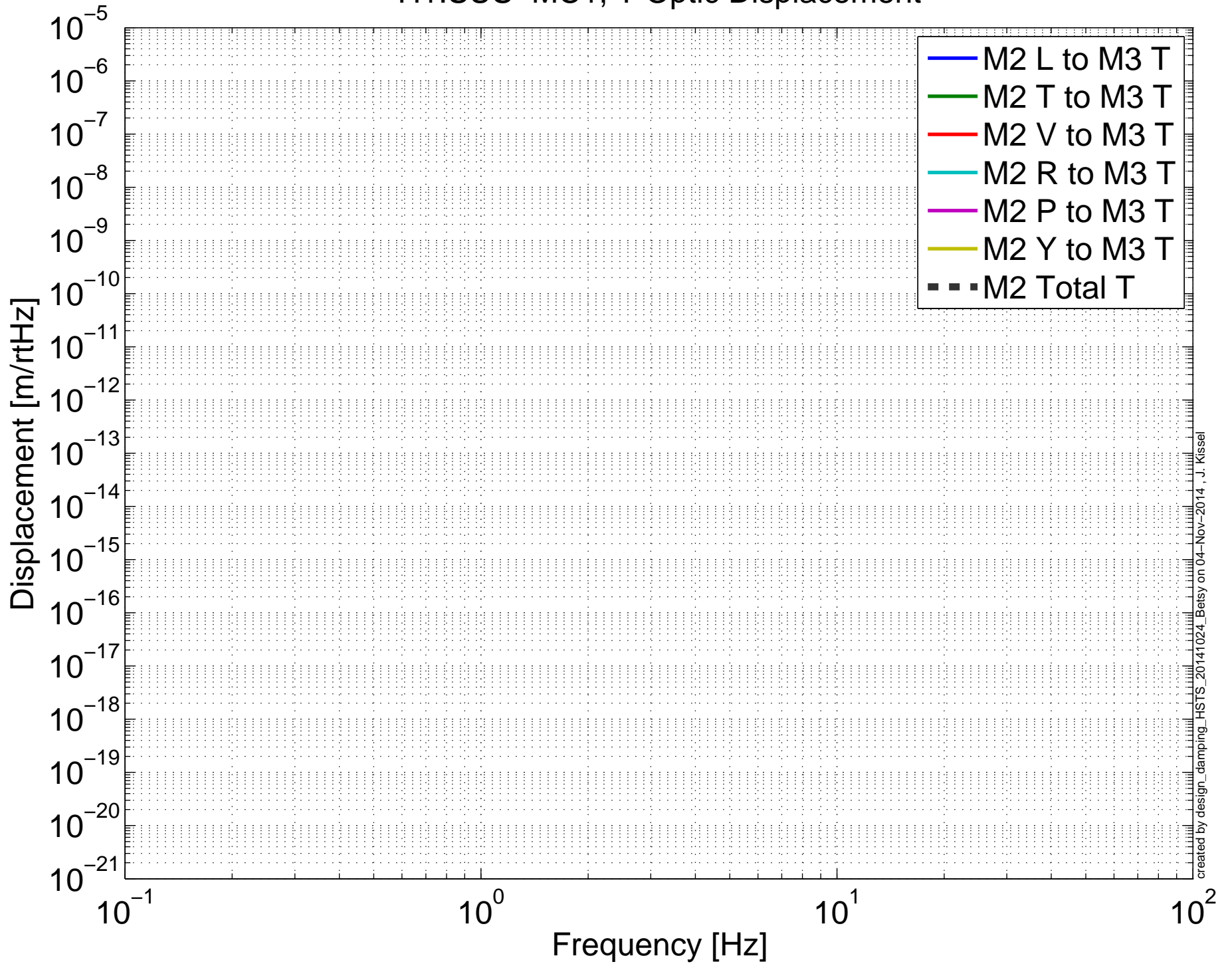
Projected Top Mass Sensor > Optic Noise Budget H1:SUS-MC1, T Optic Displacement



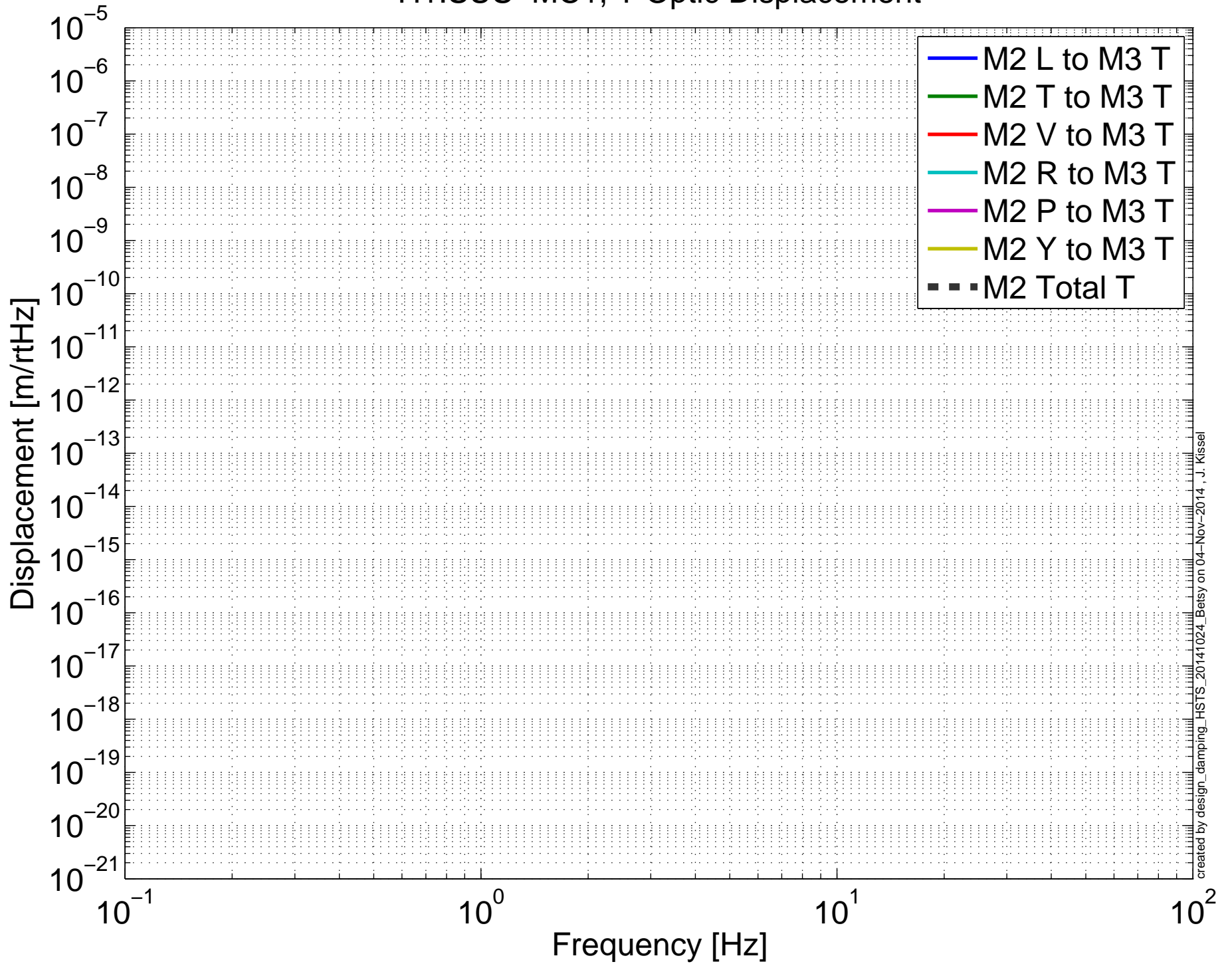
Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-MC1, T Optic Displacement



Projected M2 Mass Actuator > Optic Noise Budget H1:SUS-MC1, T Optic Displacement

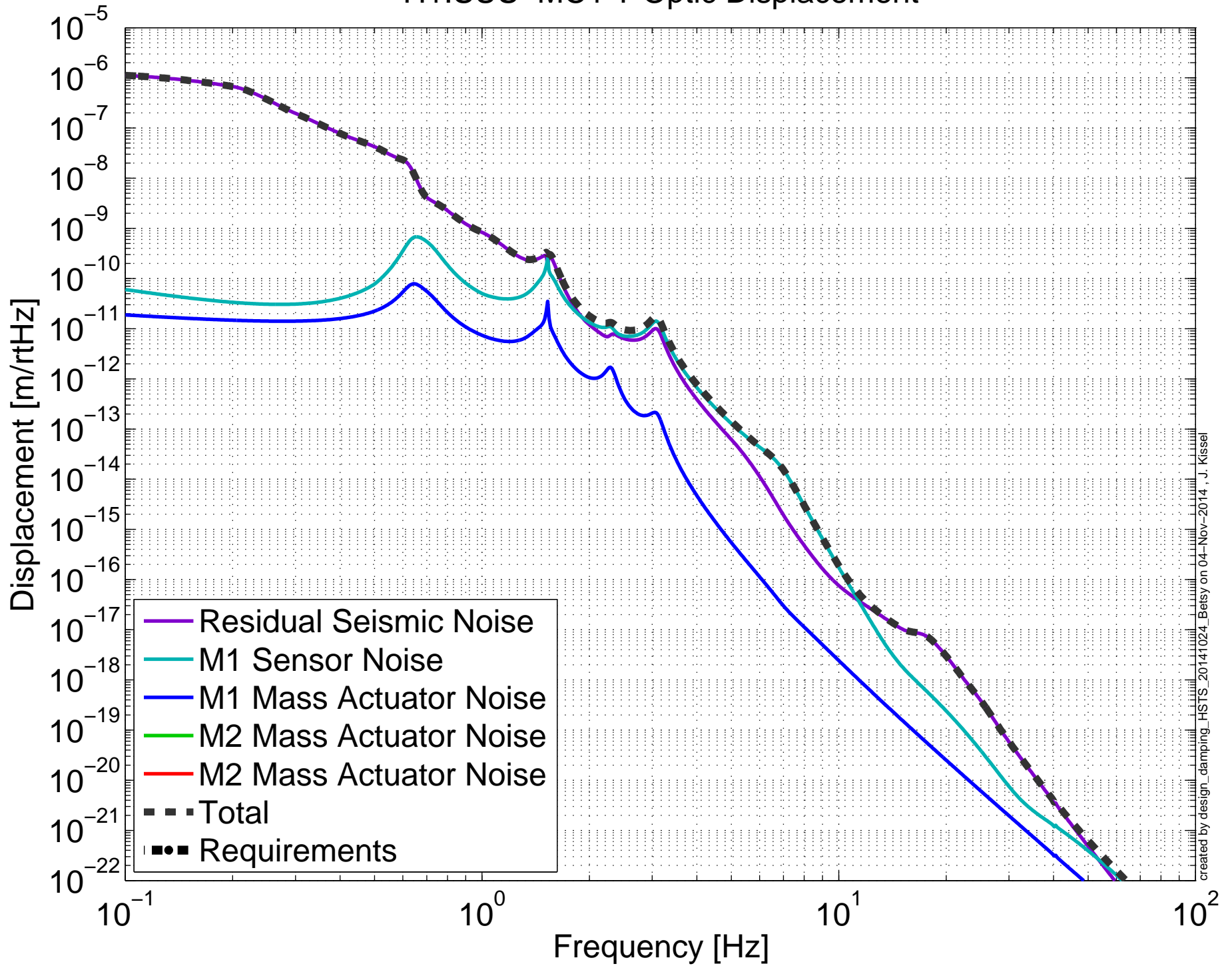


Projected M3 Mass Actuator > Optic Noise Budget H1:SUS-MC1, T Optic Displacement

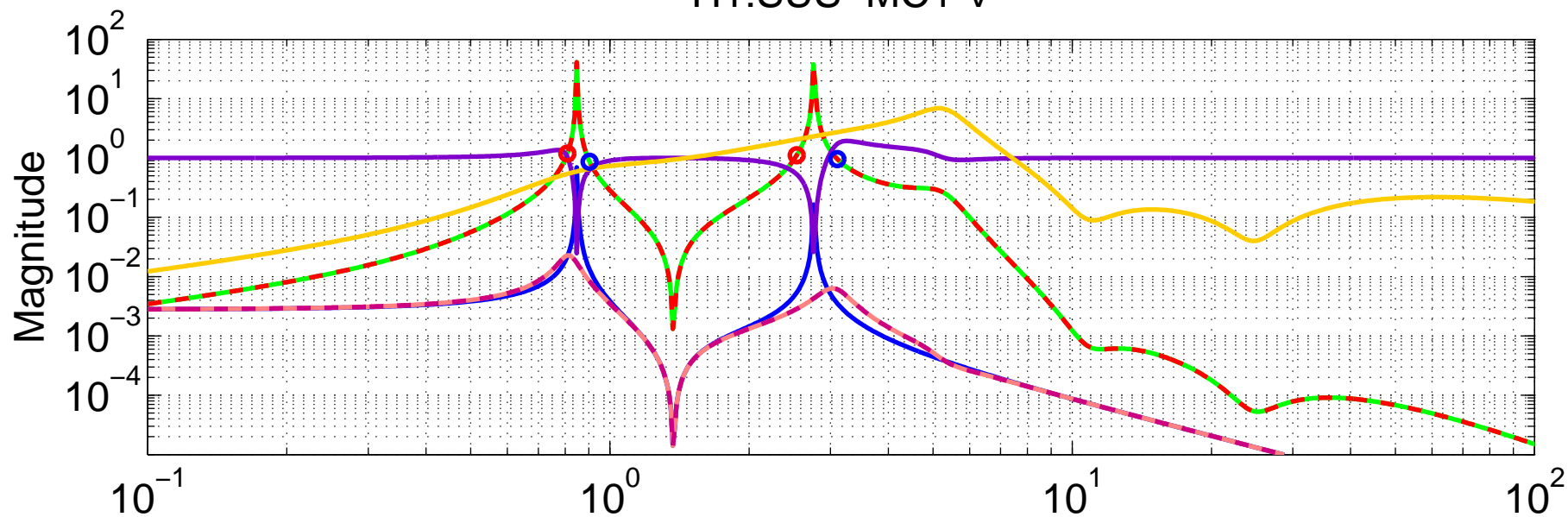


Damping Loop Performance

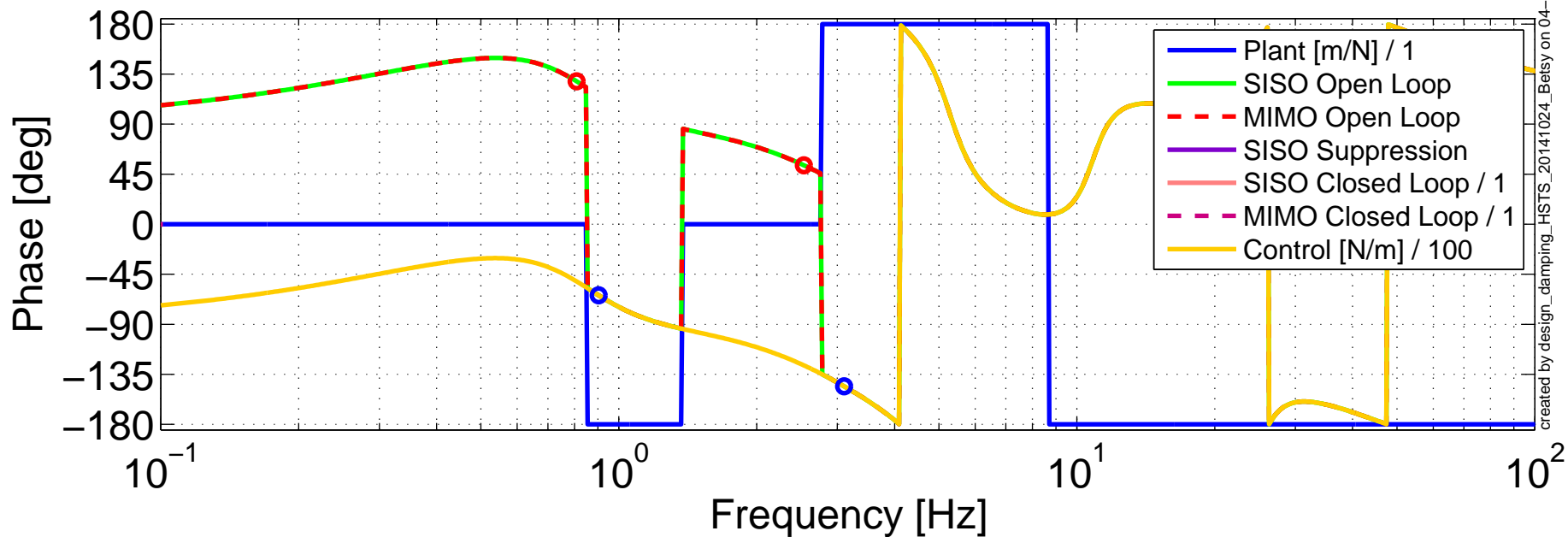
H1:SUS-MC1 T Optic Displacement



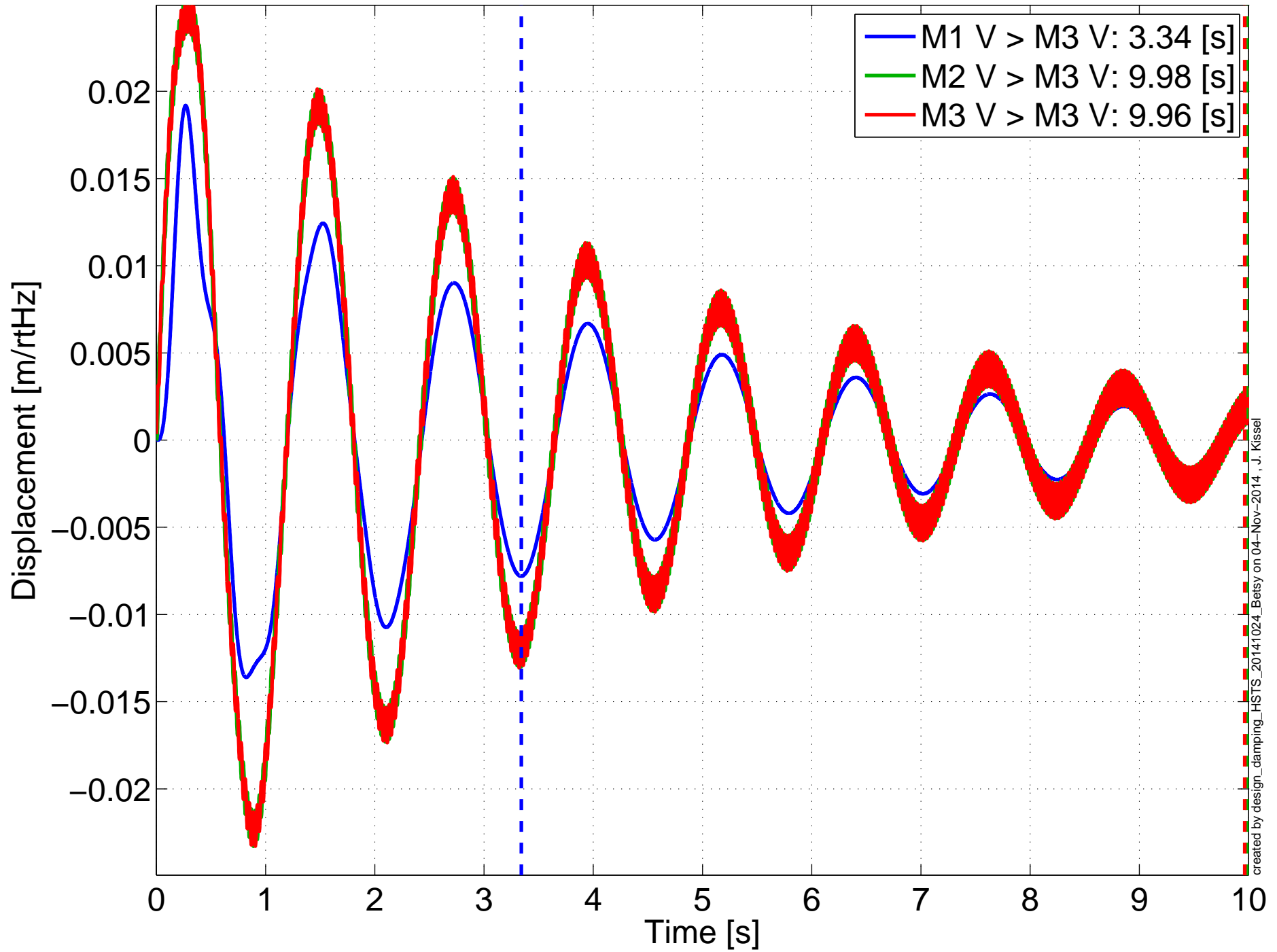
Damping Loop Design H1:SUS-MC1 V



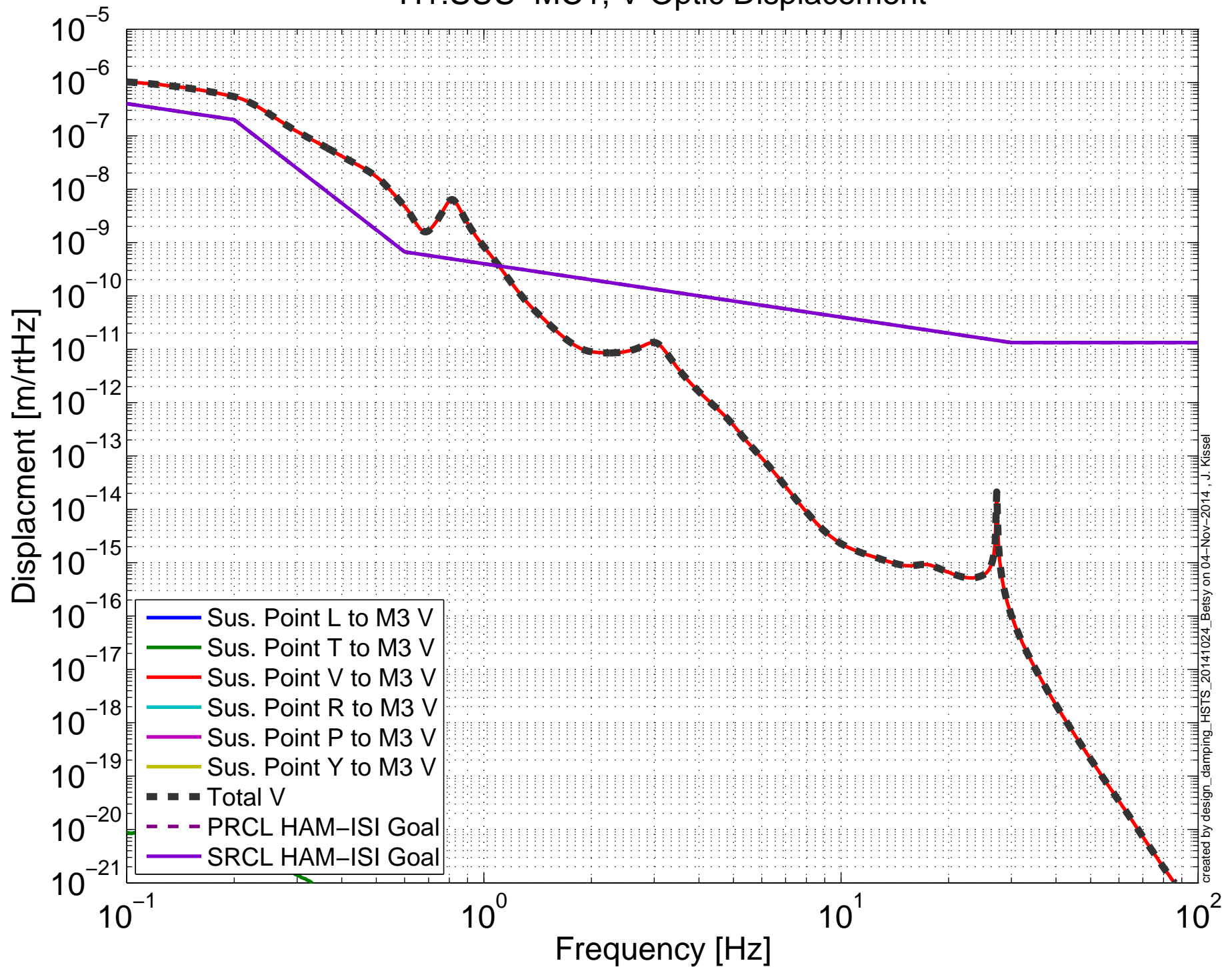
MIMO LUGF Phase Margins (red): [51.5 127] [deg]
MIMO UUGF Phase Margins (blue): [116 34.2] [deg]



Damped Impulse Response H1:SUS-MC1 V

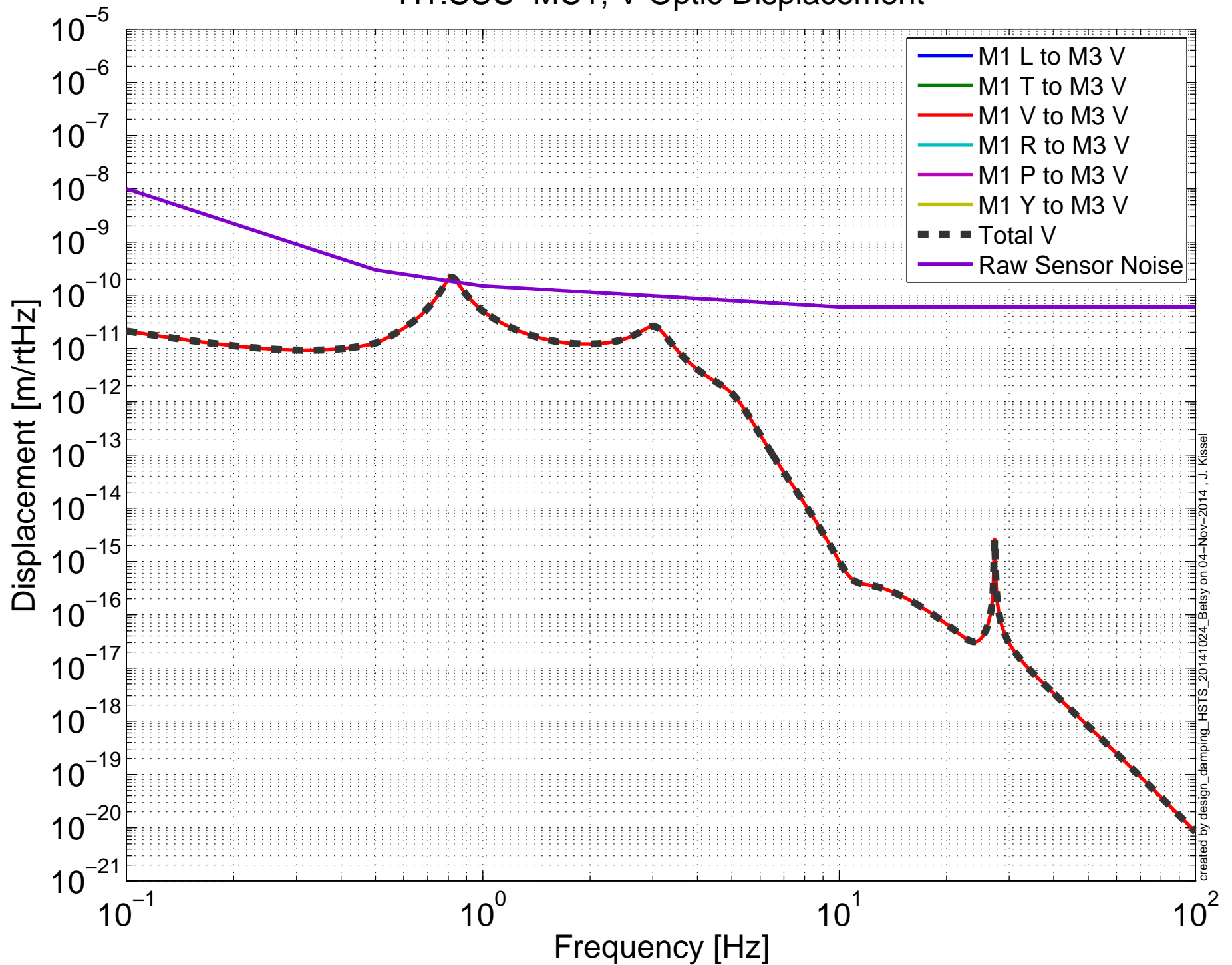


Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-MC1, V Optic Displacement

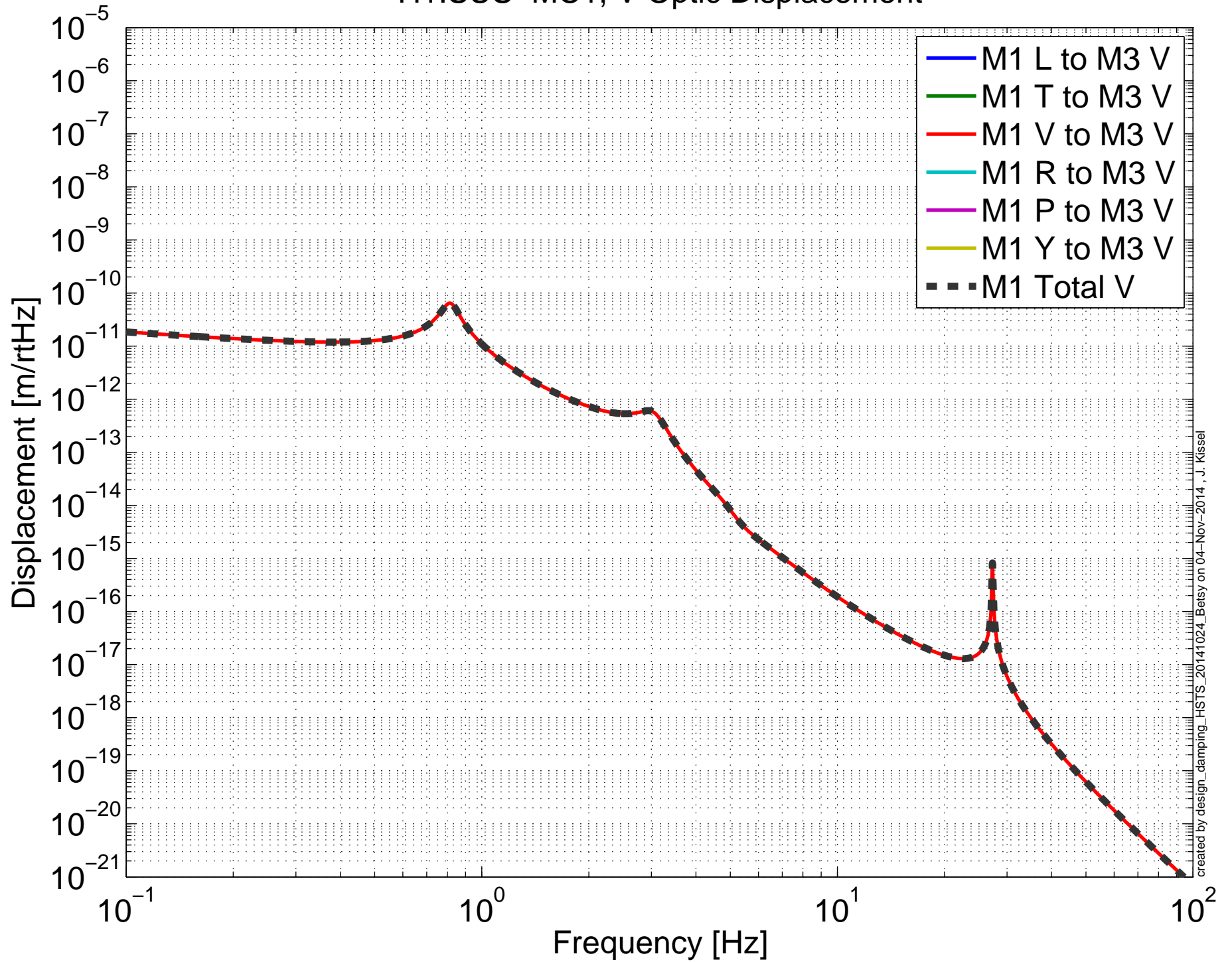


created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

Projected Top Mass Sensor > Optic Noise Budget H1:SUS-MC1, V Optic Displacement

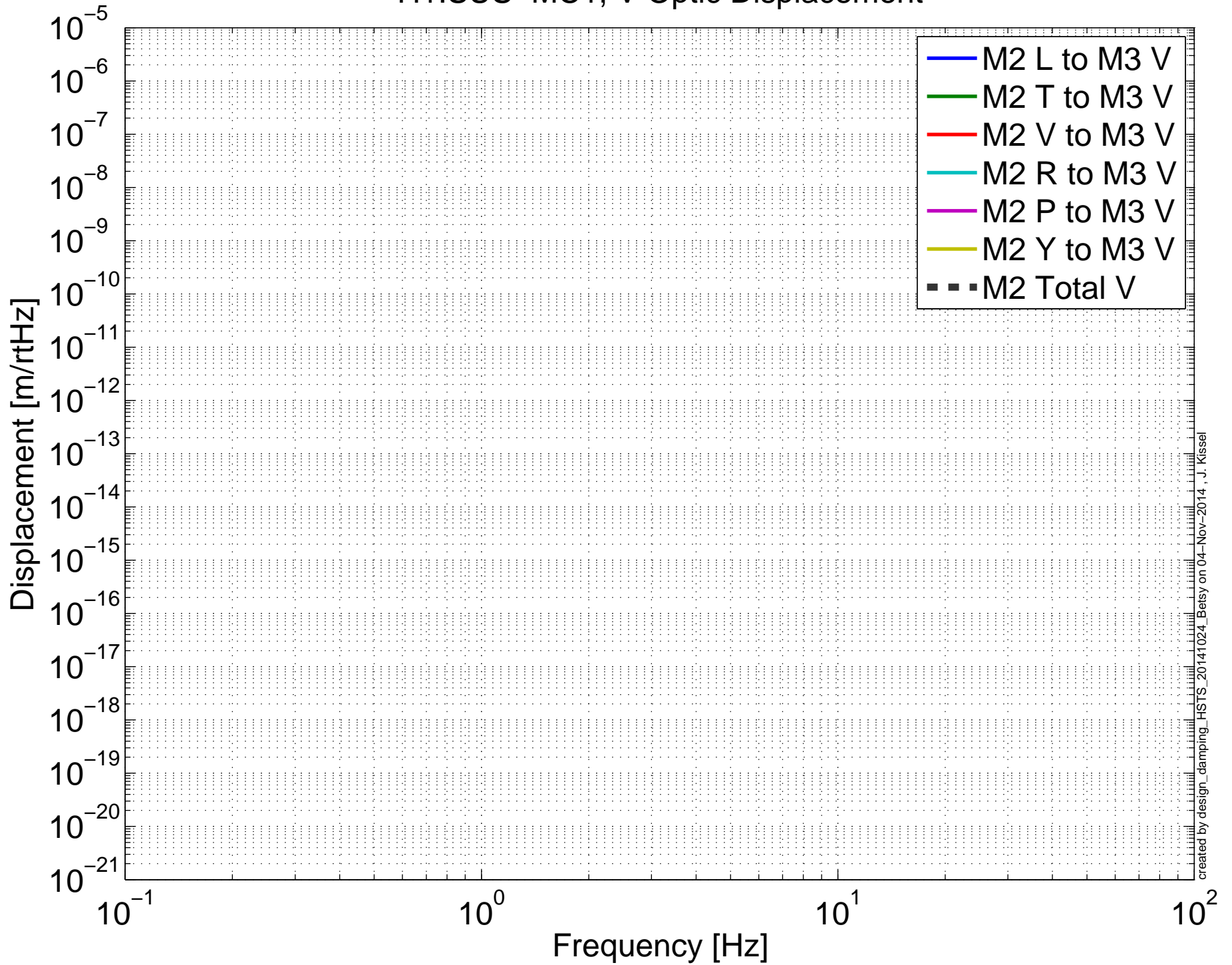


Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-MC1, V Optic Displacement

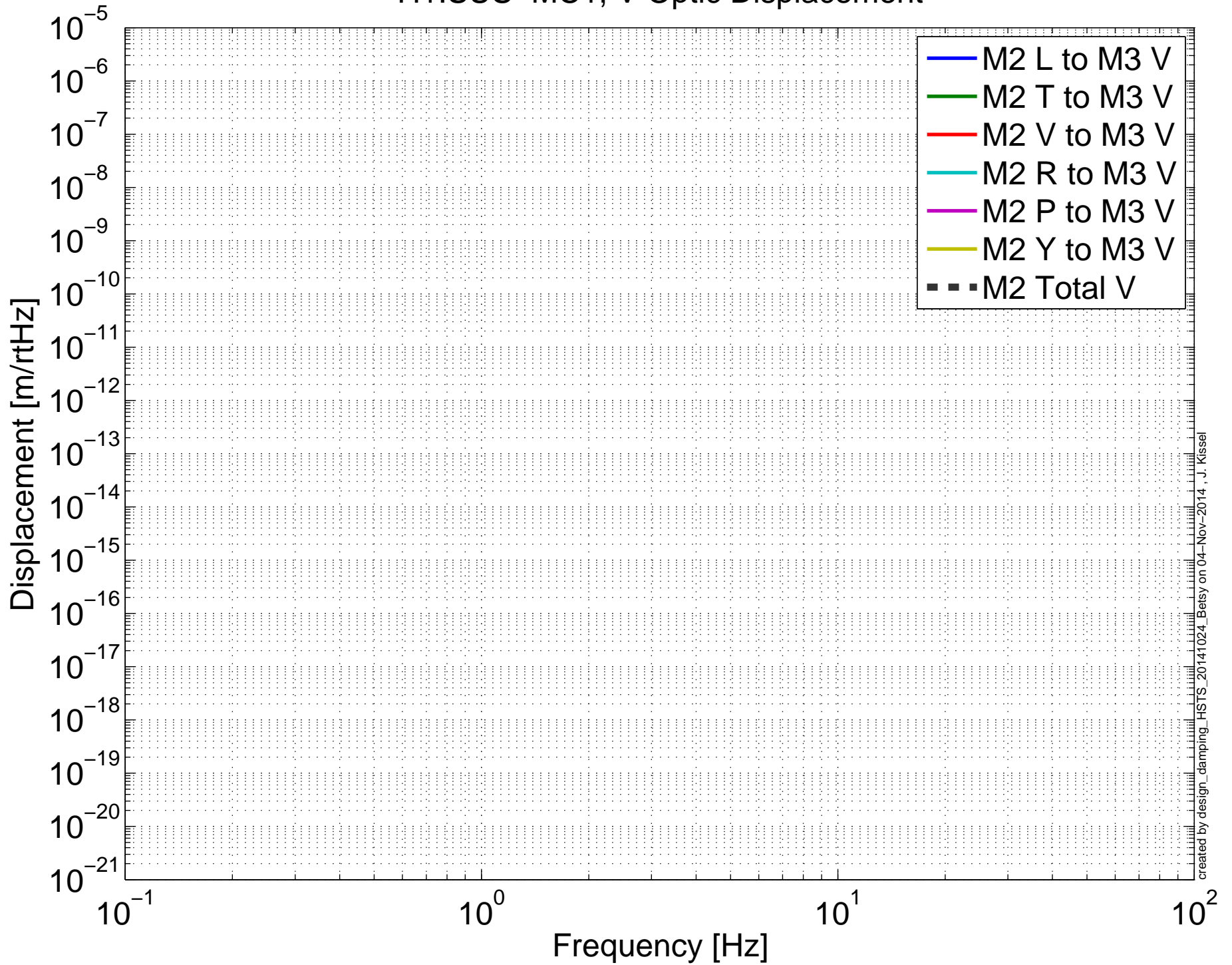


created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

Projected M2 Mass Actuator > Optic Noise Budget H1:SUS-MC1, V Optic Displacement

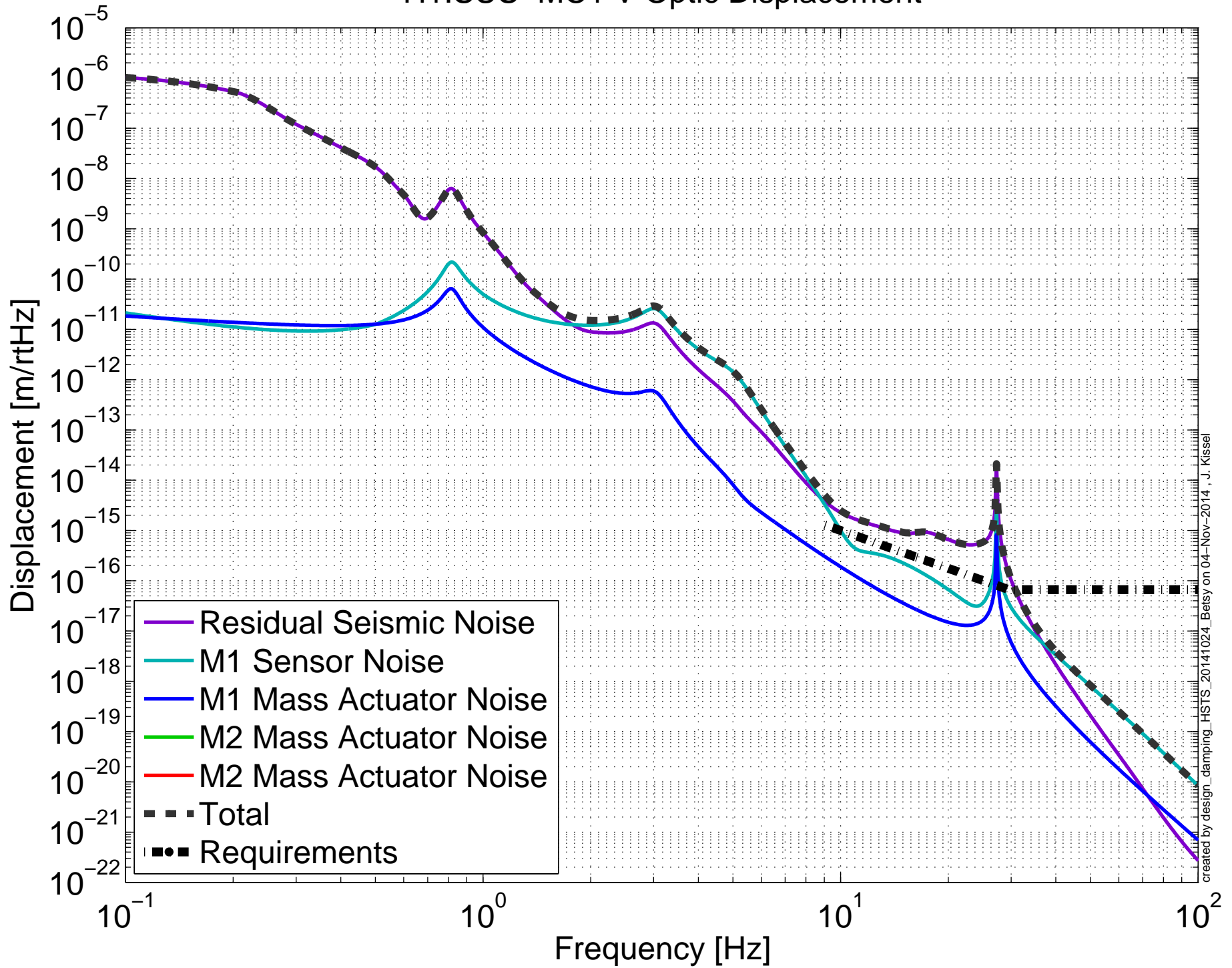


Projected M3 Mass Actuator > Optic Noise Budget H1:SUS-MC1, V Optic Displacement



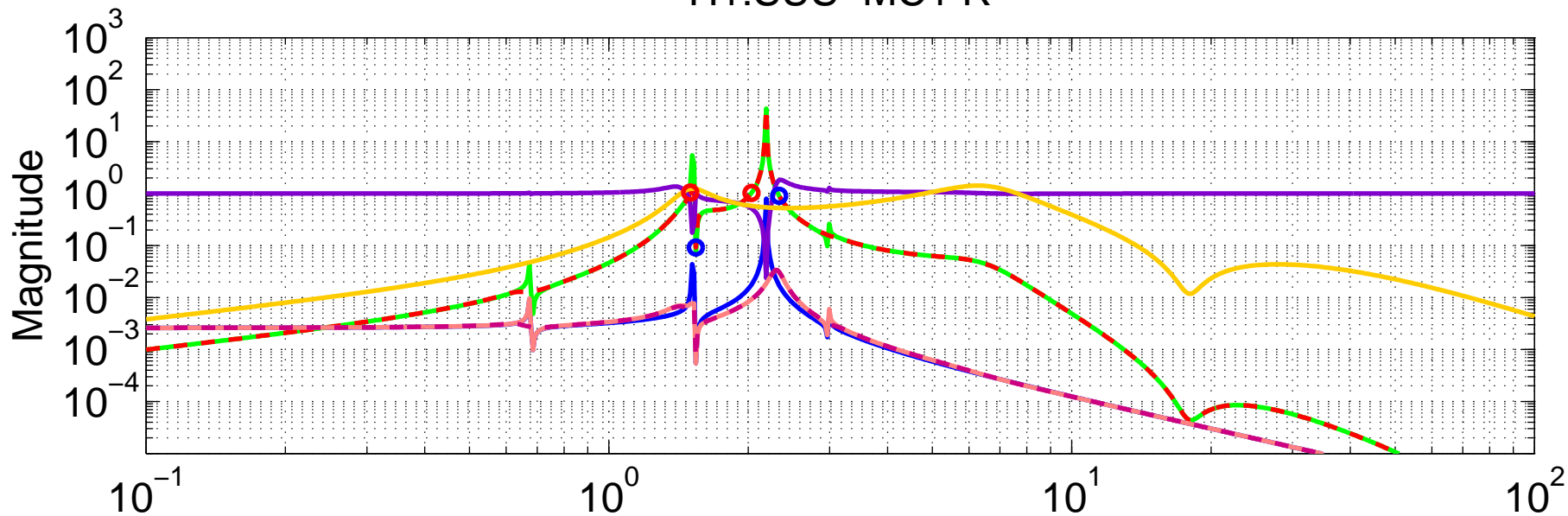
Damping Loop Performance

H1:SUS-MC1 V Optic Displacement

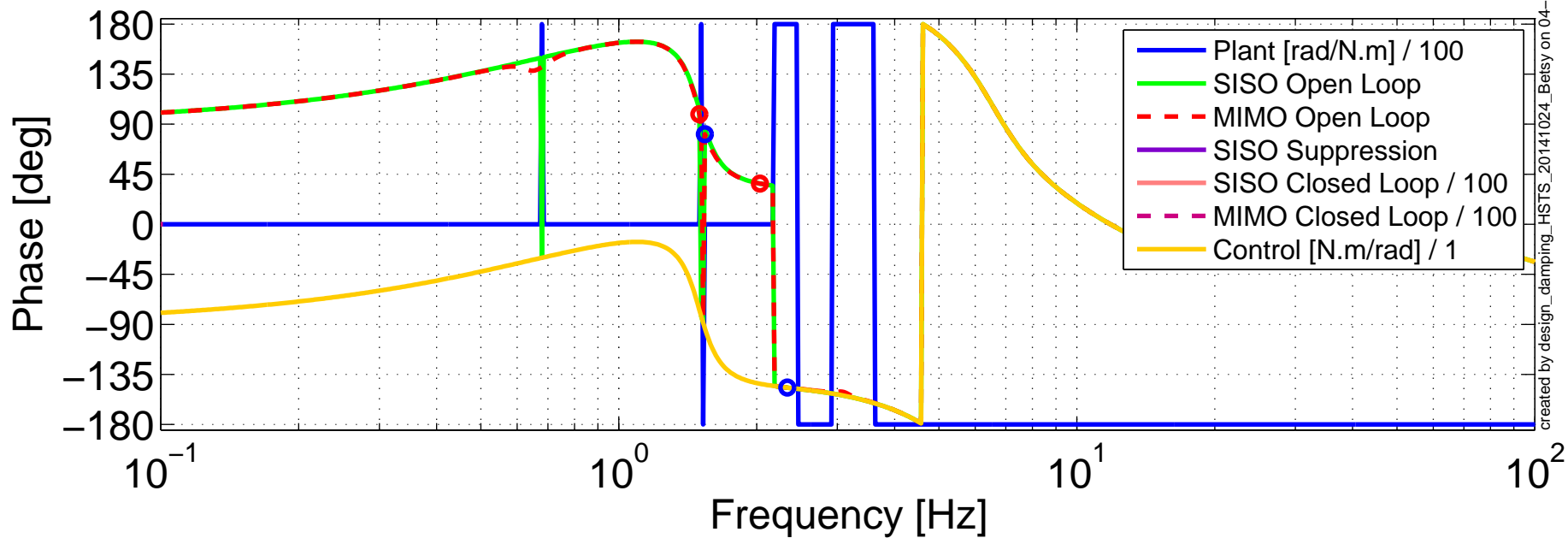


Damping Loop Design

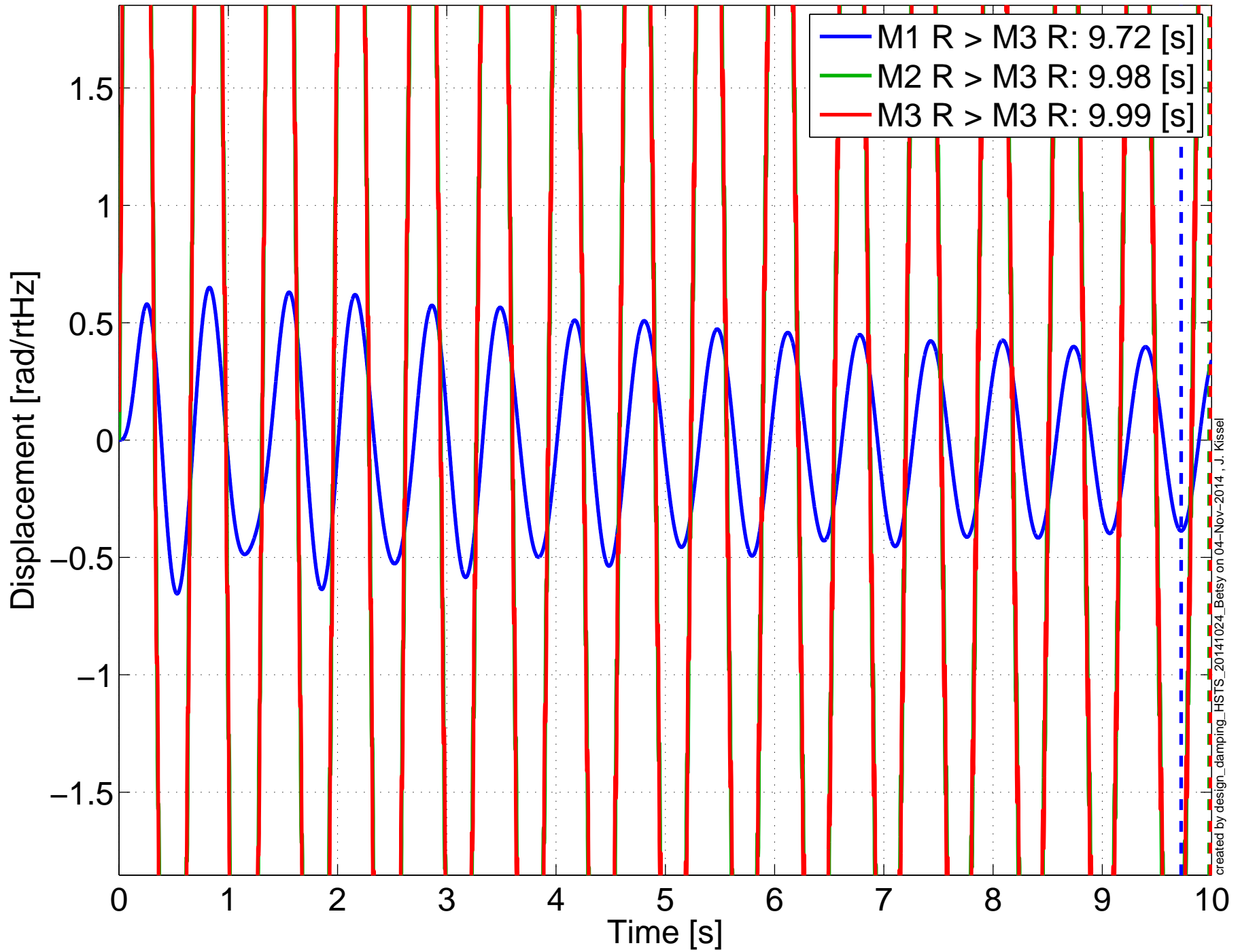
H1:SUS-MC1 R



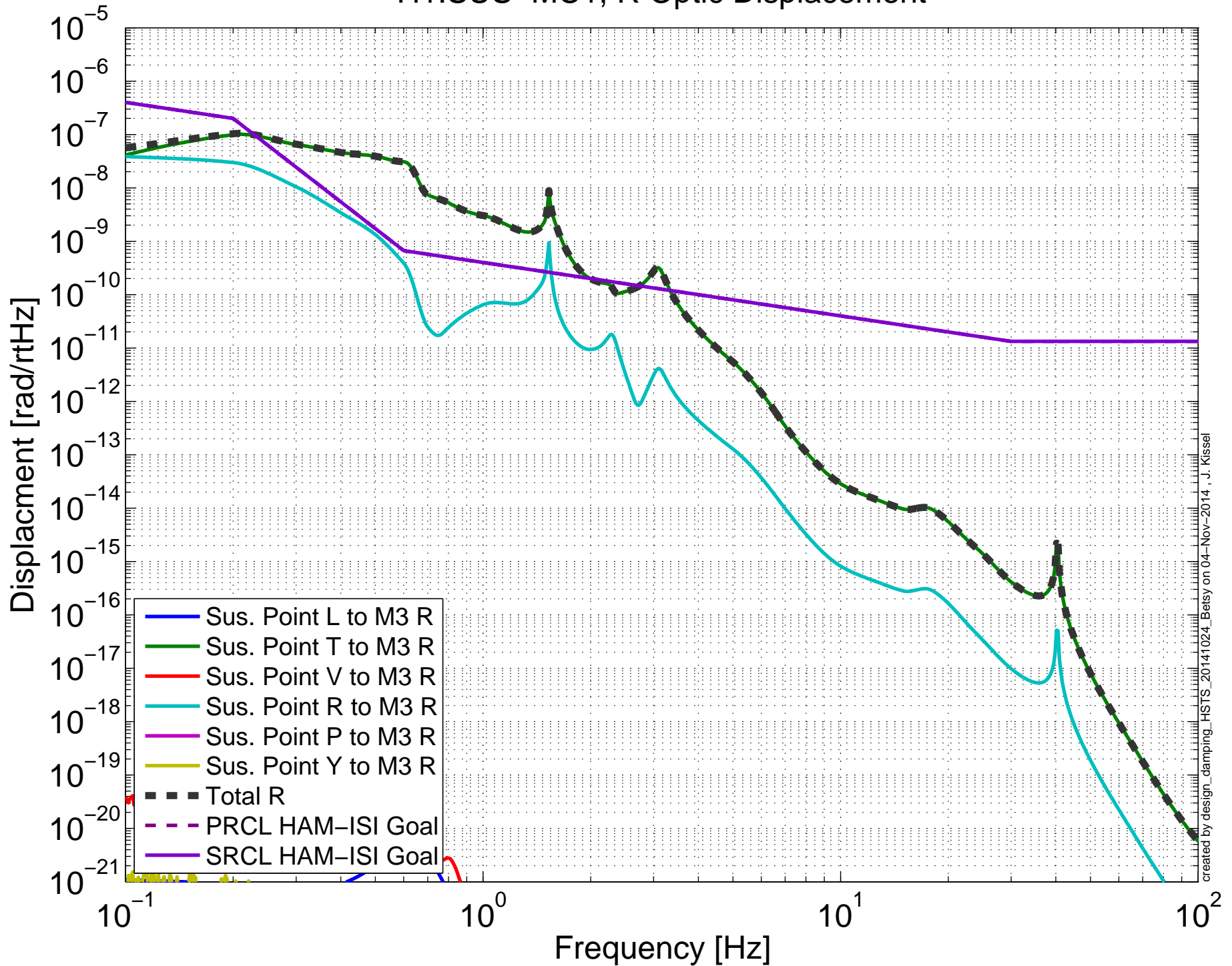
MIMO LUGF Phase Margins (red): [81.1 143] [deg]
MIMO UUGF Phase Margins (blue): [261 33.2] [deg]



Damped Impulse Response H1:SUS-MC1 R

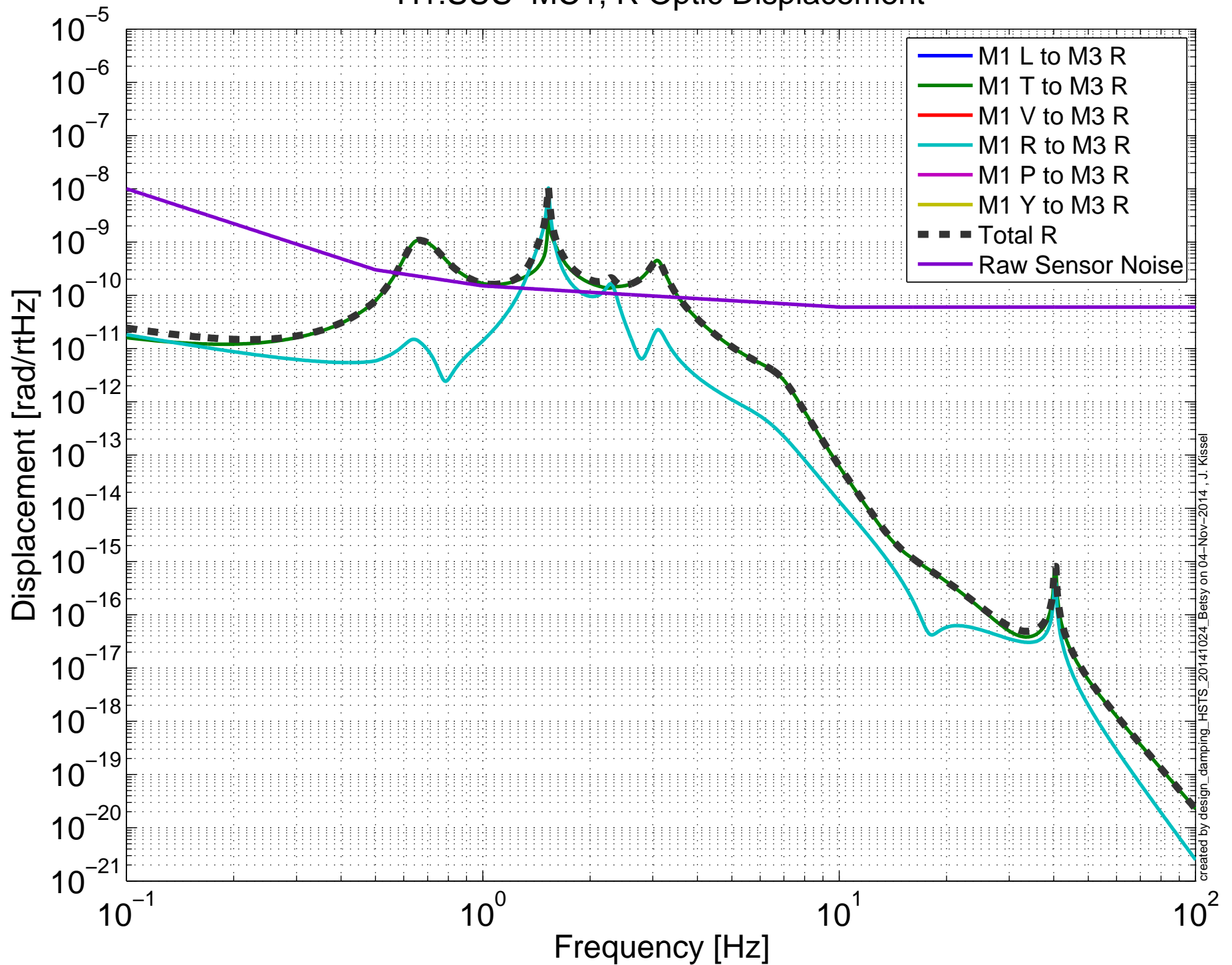


Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-MC1, R Optic Displacement

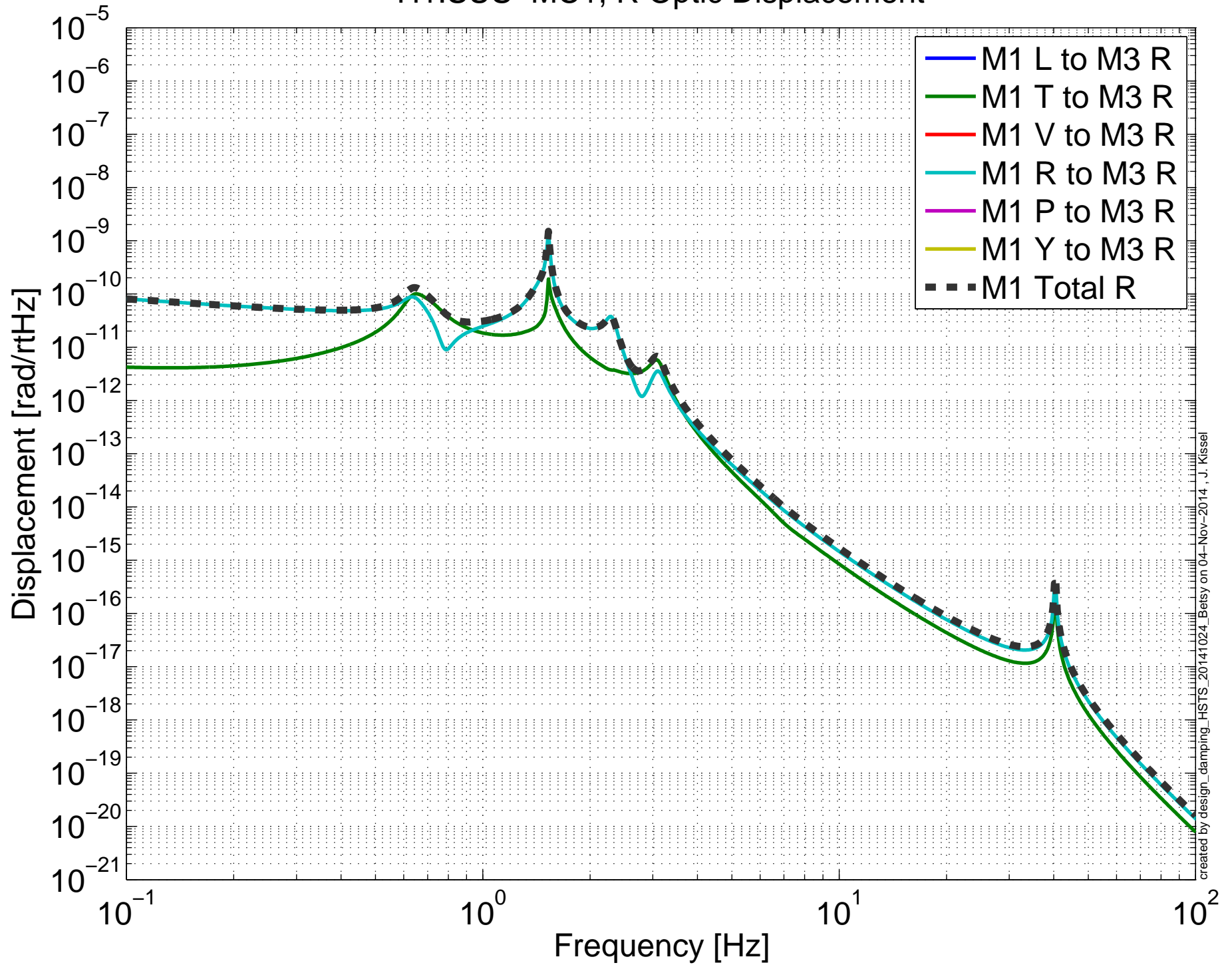


created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

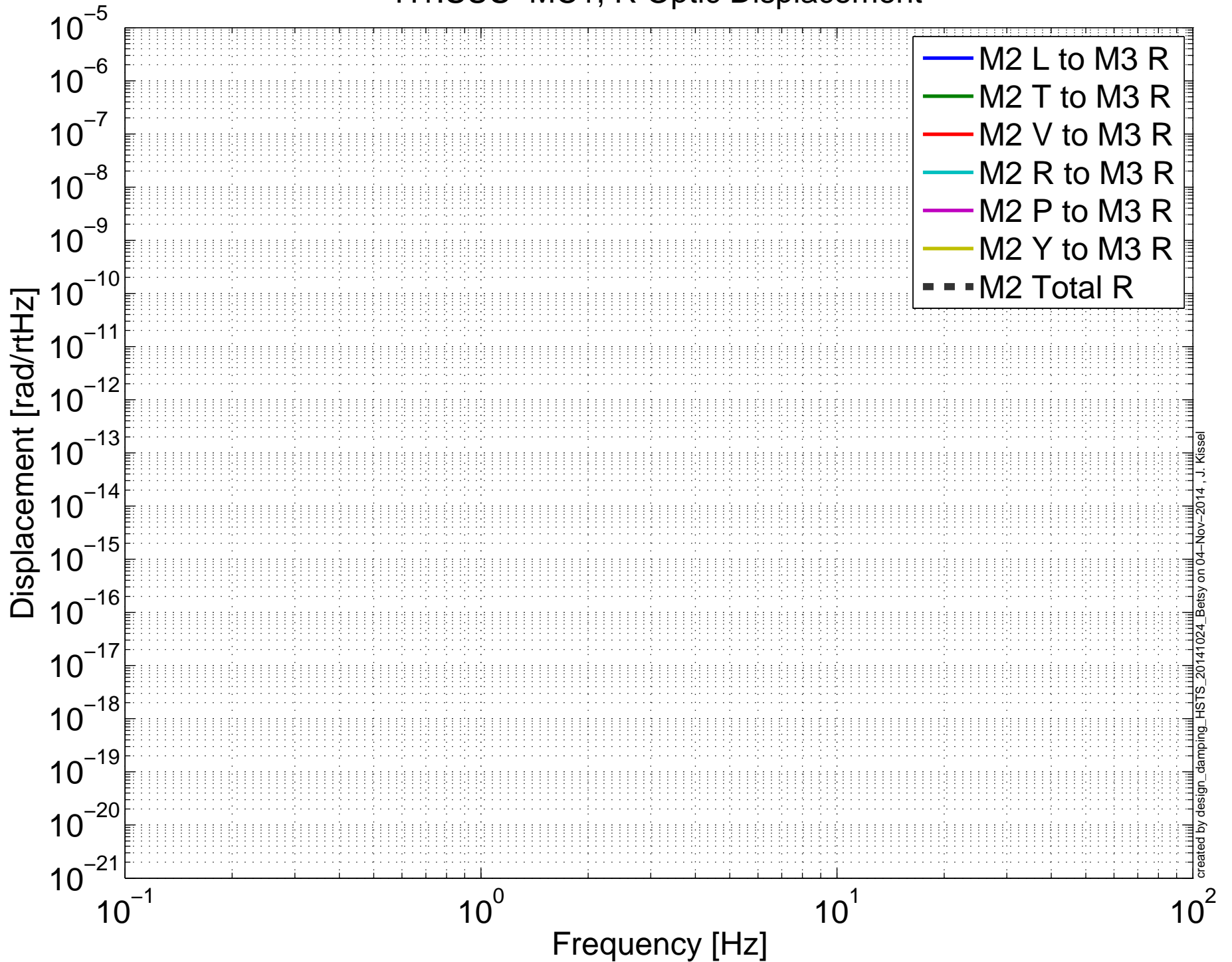
Projected Top Mass Sensor > Optic Noise Budget H1:SUS-MC1, R Optic Displacement



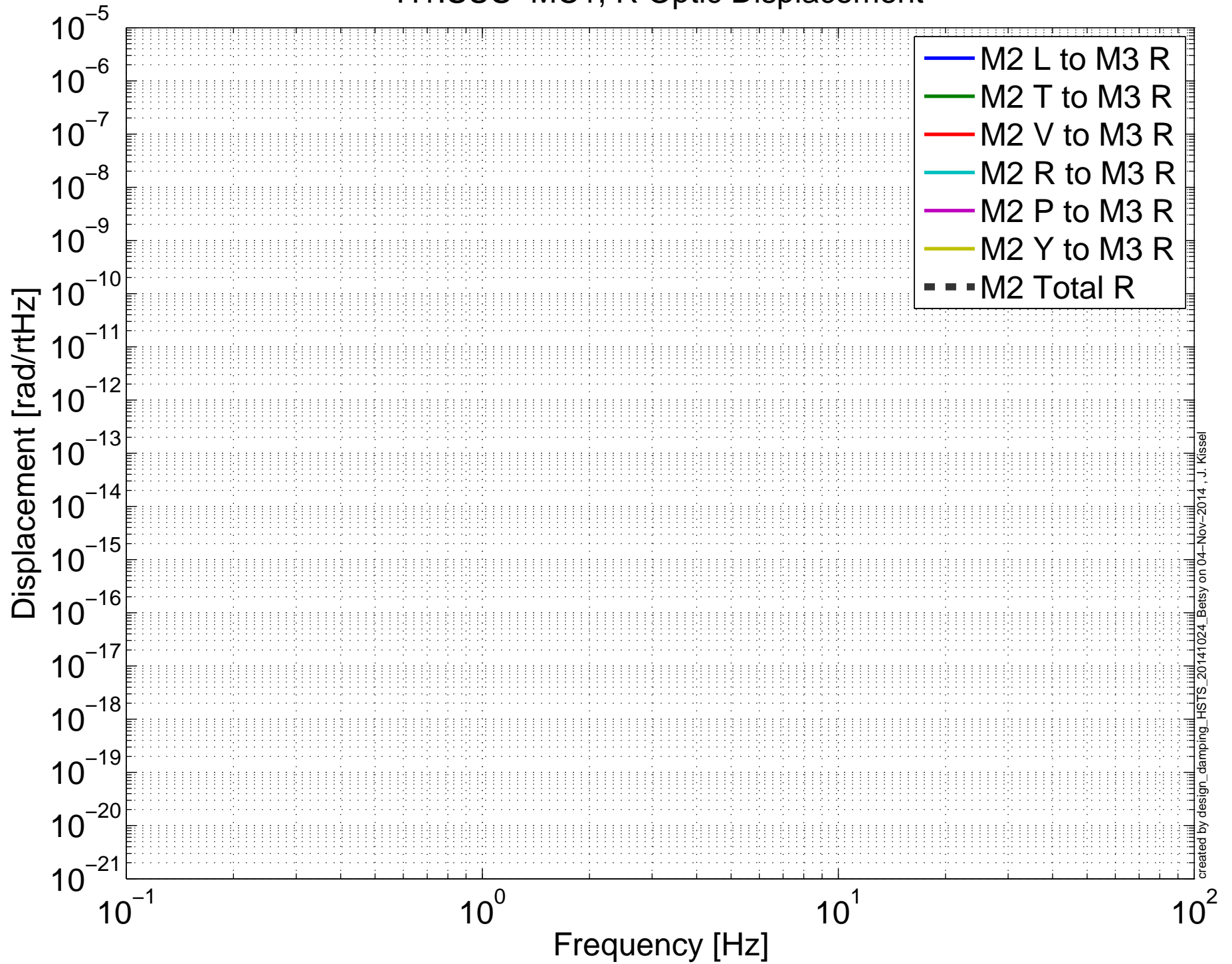
Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-MC1, R Optic Displacement



Projected M2 Mass Actuator > Optic Noise Budget H1:SUS-MC1, R Optic Displacement

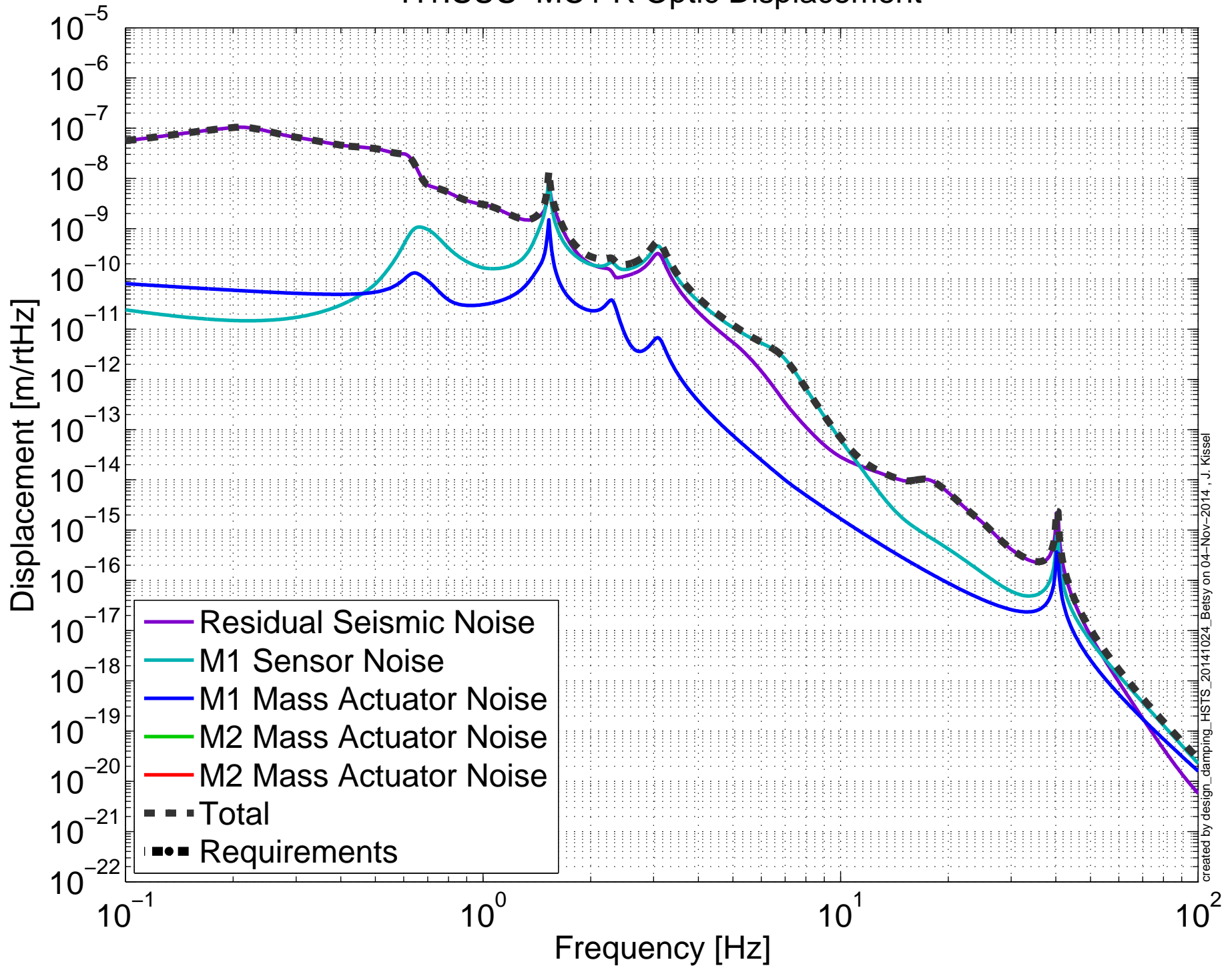


Projected M3 Mass Actuator > Optic Noise Budget H1:SUS-MC1, R Optic Displacement



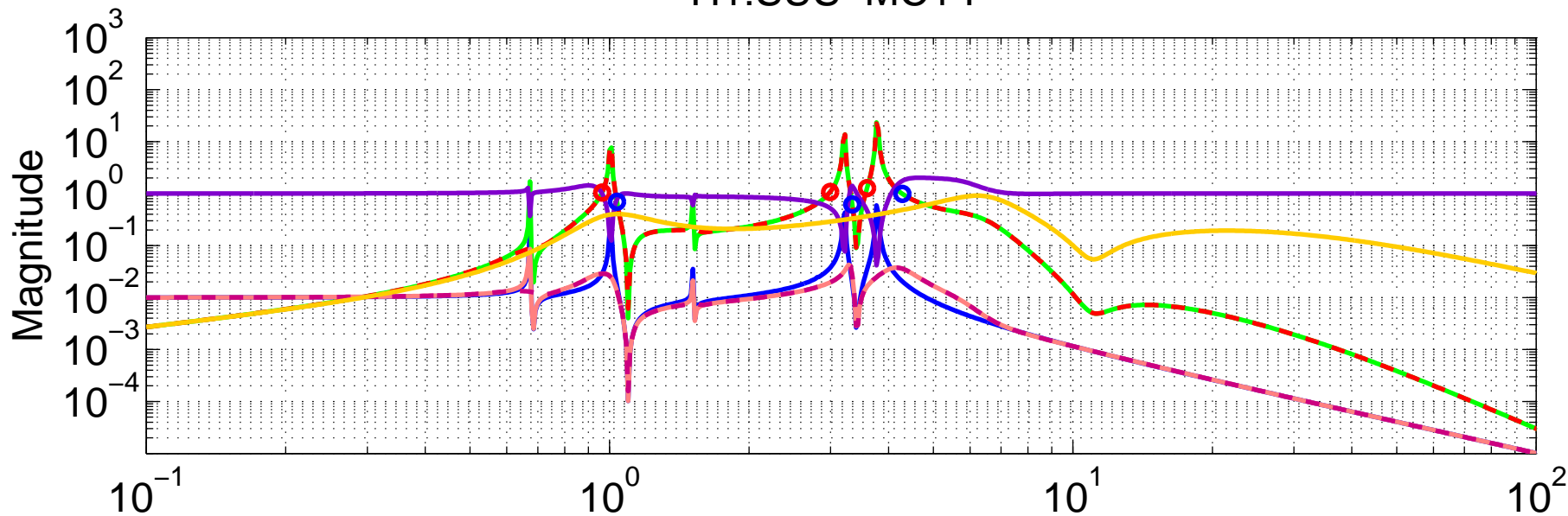
Damping Loop Performance

H1:SUS-MC1 R Optic Displacement

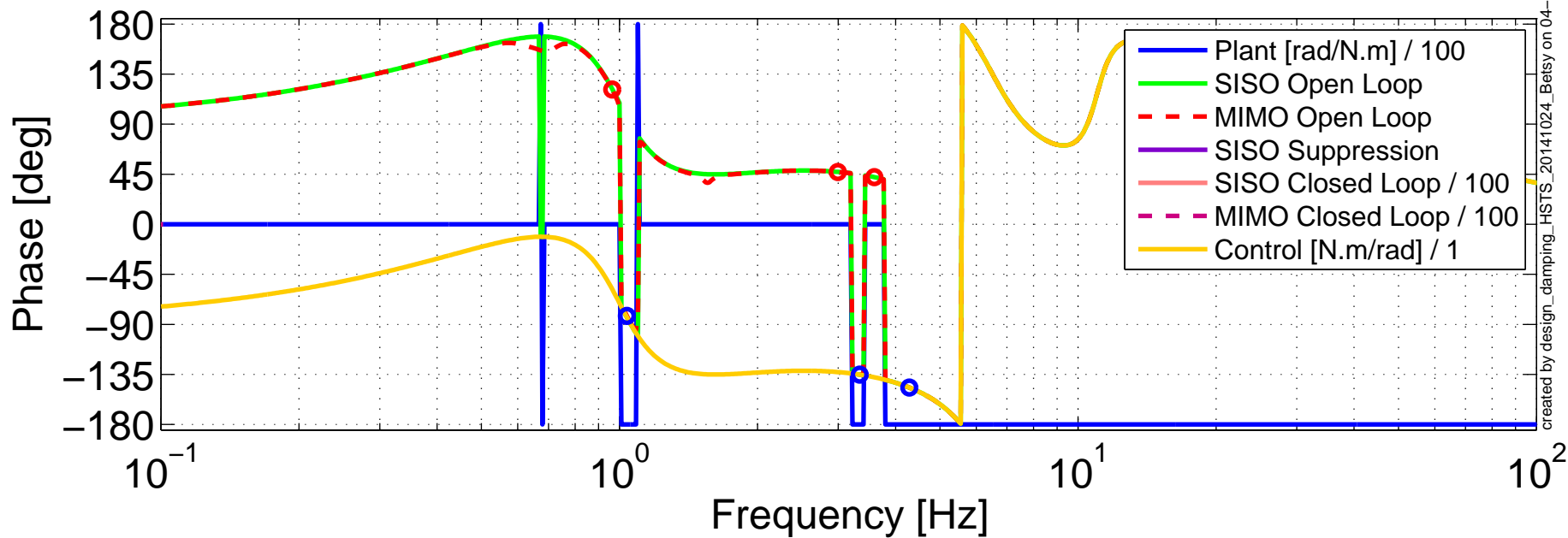


Damping Loop Design

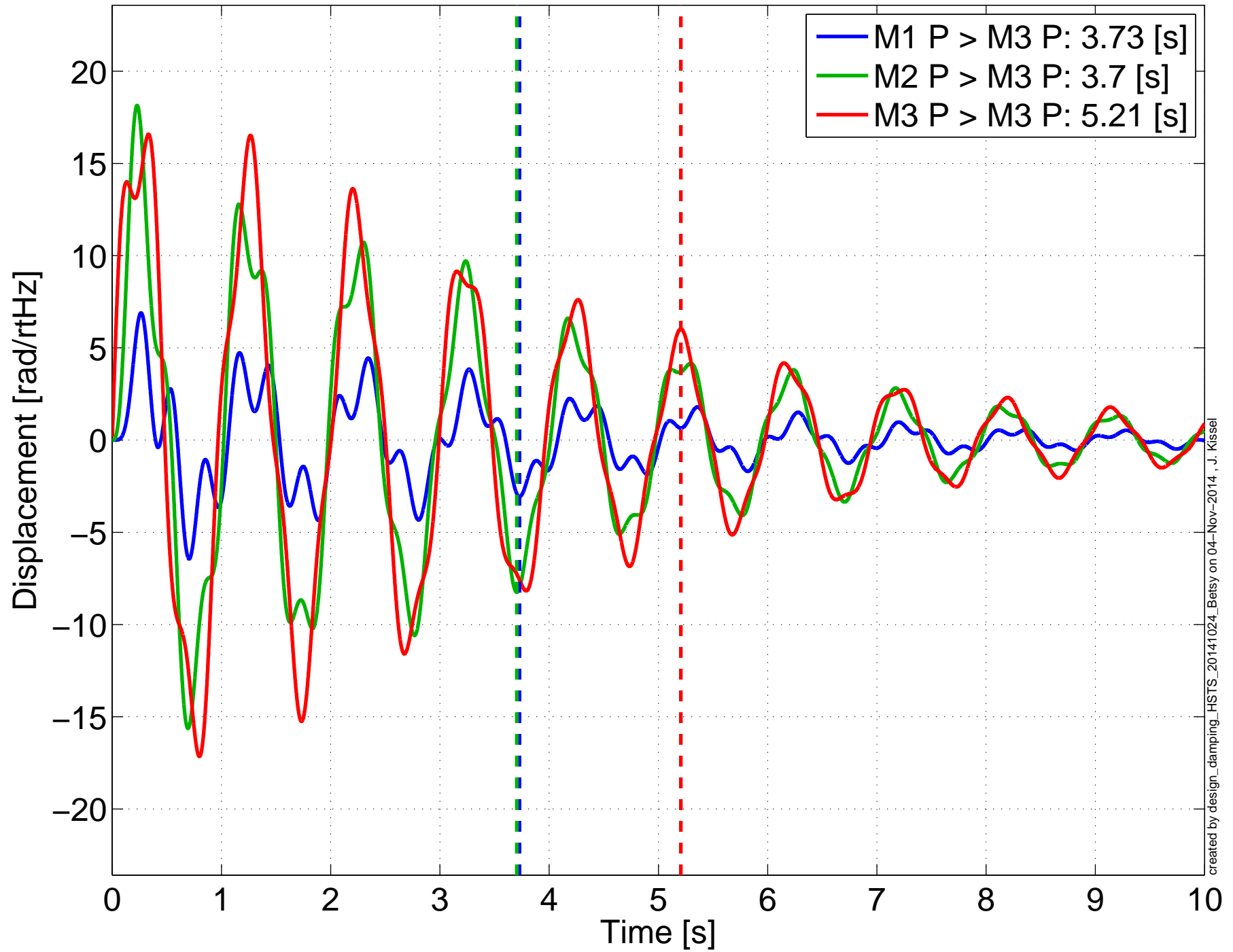
H1:SUS-MC1 P



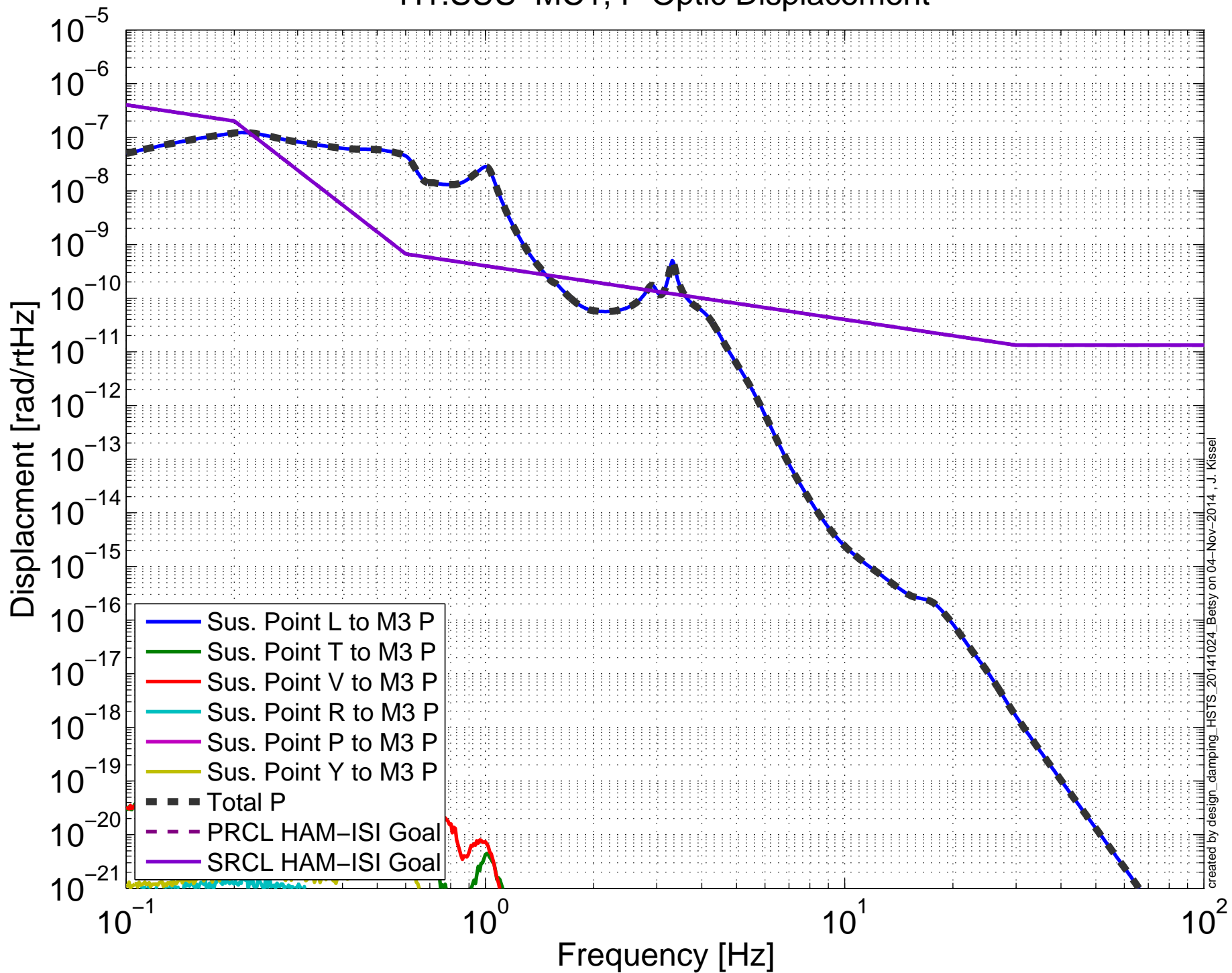
MIMO LUGF Phase Margins (red): [58.9 133 138] [deg]
MIMO UUGF Phase Margins (blue): [97.6 44.9 33.2] [deg]



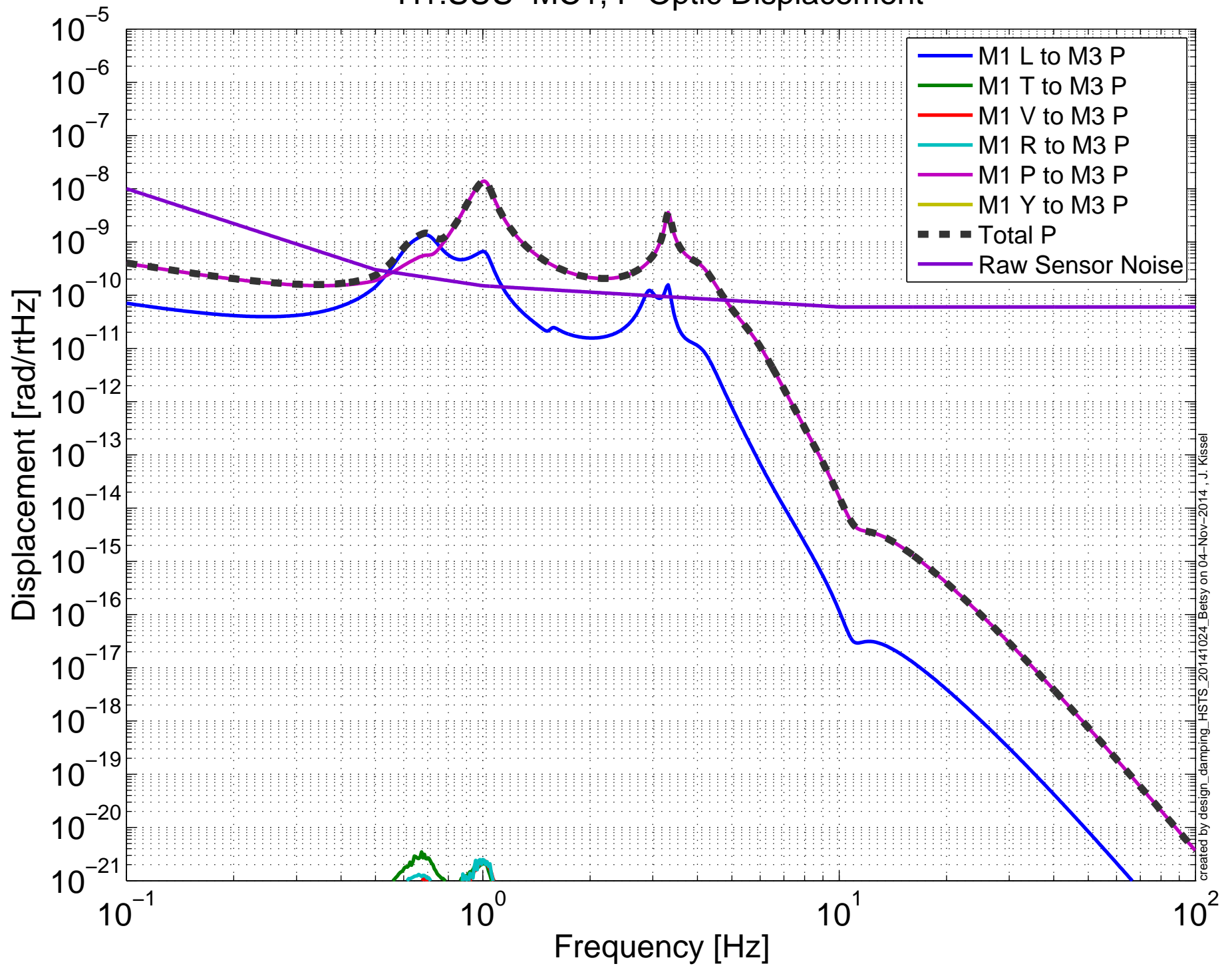
Damped Impulse Response H1:SUS-MC1 P



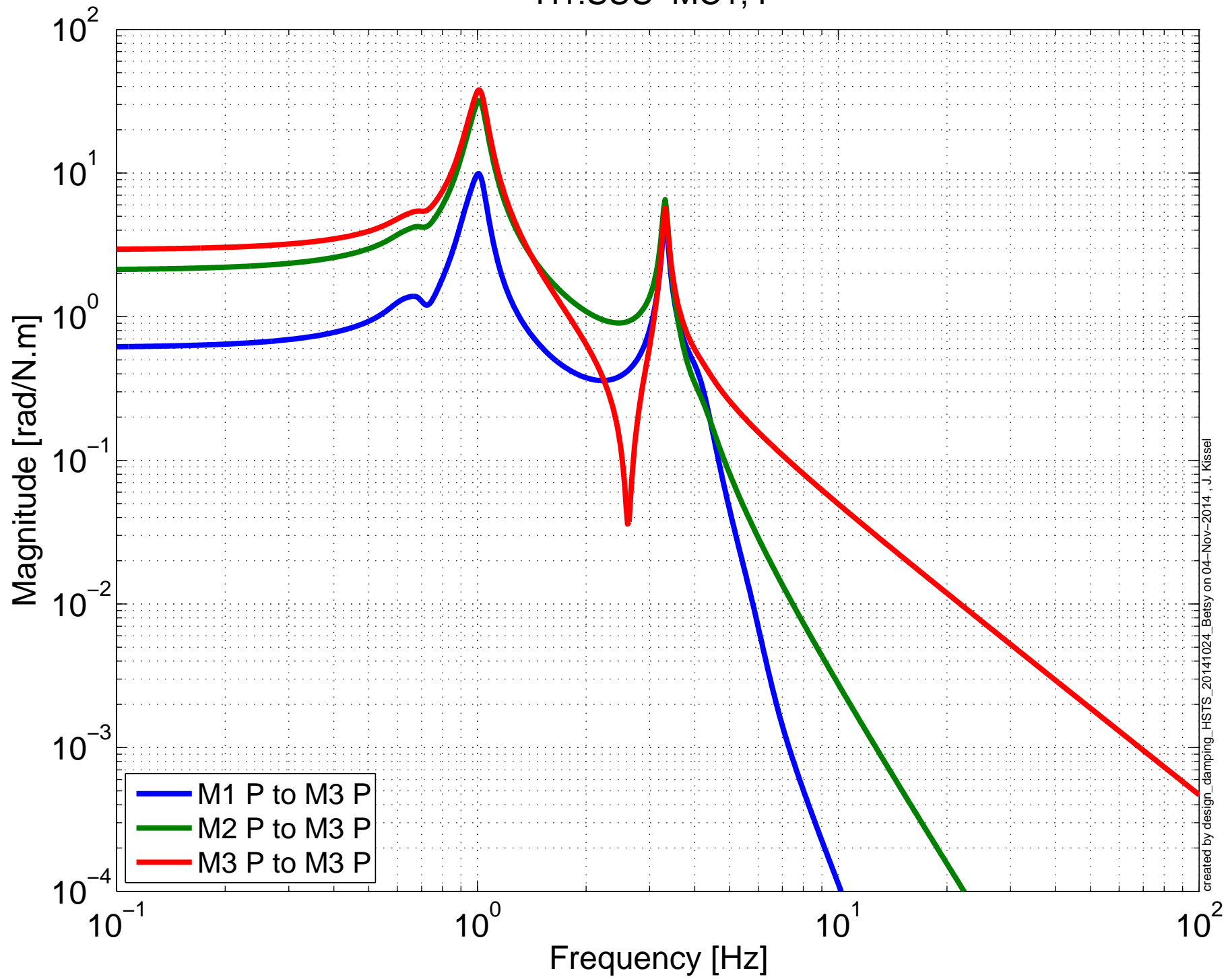
Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-MC1, P Optic Displacement



Projected Top Mass Sensor > Optic Noise Budget H1:SUS-MC1, P Optic Displacement

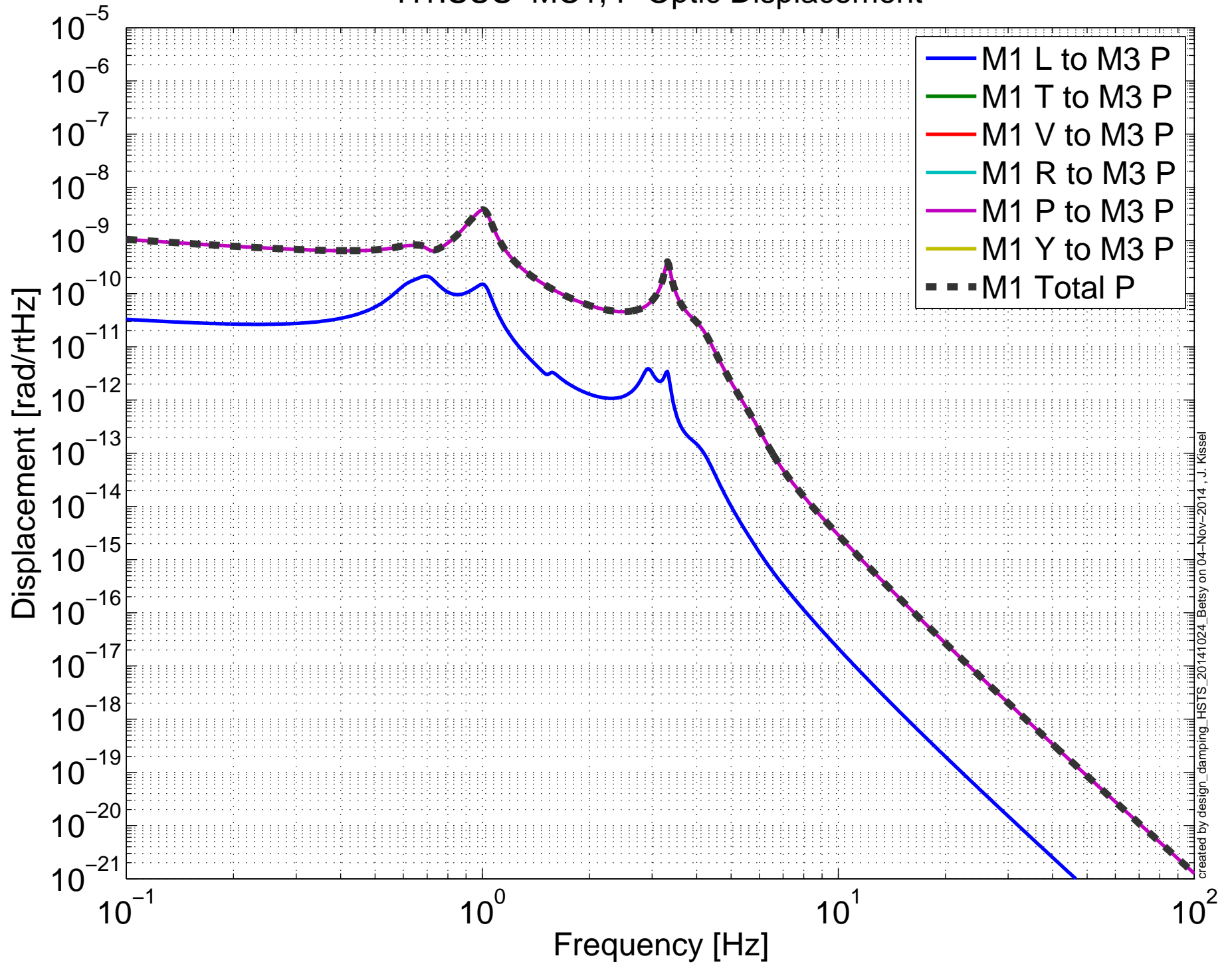


Global Control Transfer Functions to Optic H1:SUS-MC1, P

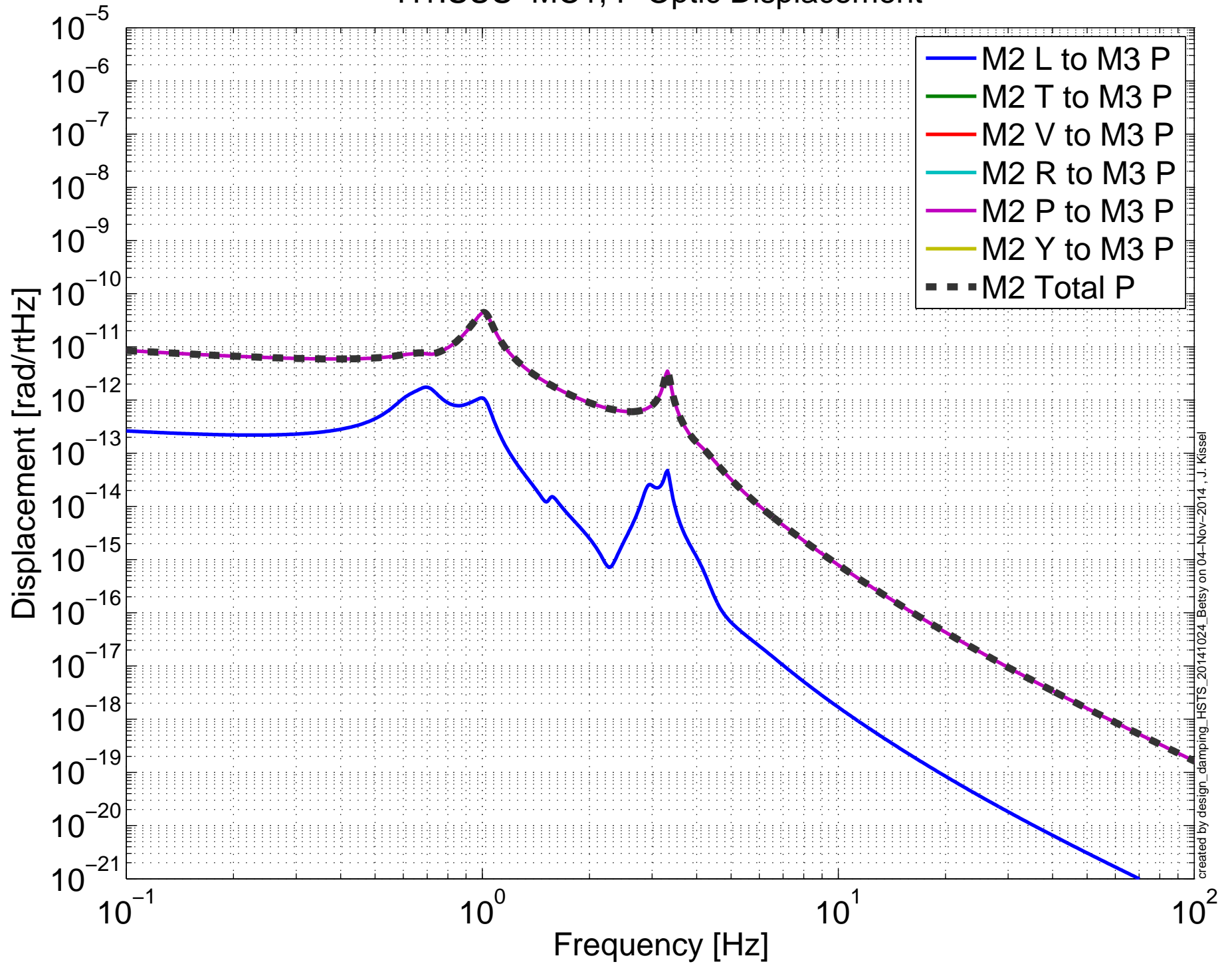


created by design_damping_HSTS_20141024_Beisy on 04-Nov-2014, J. Kissel

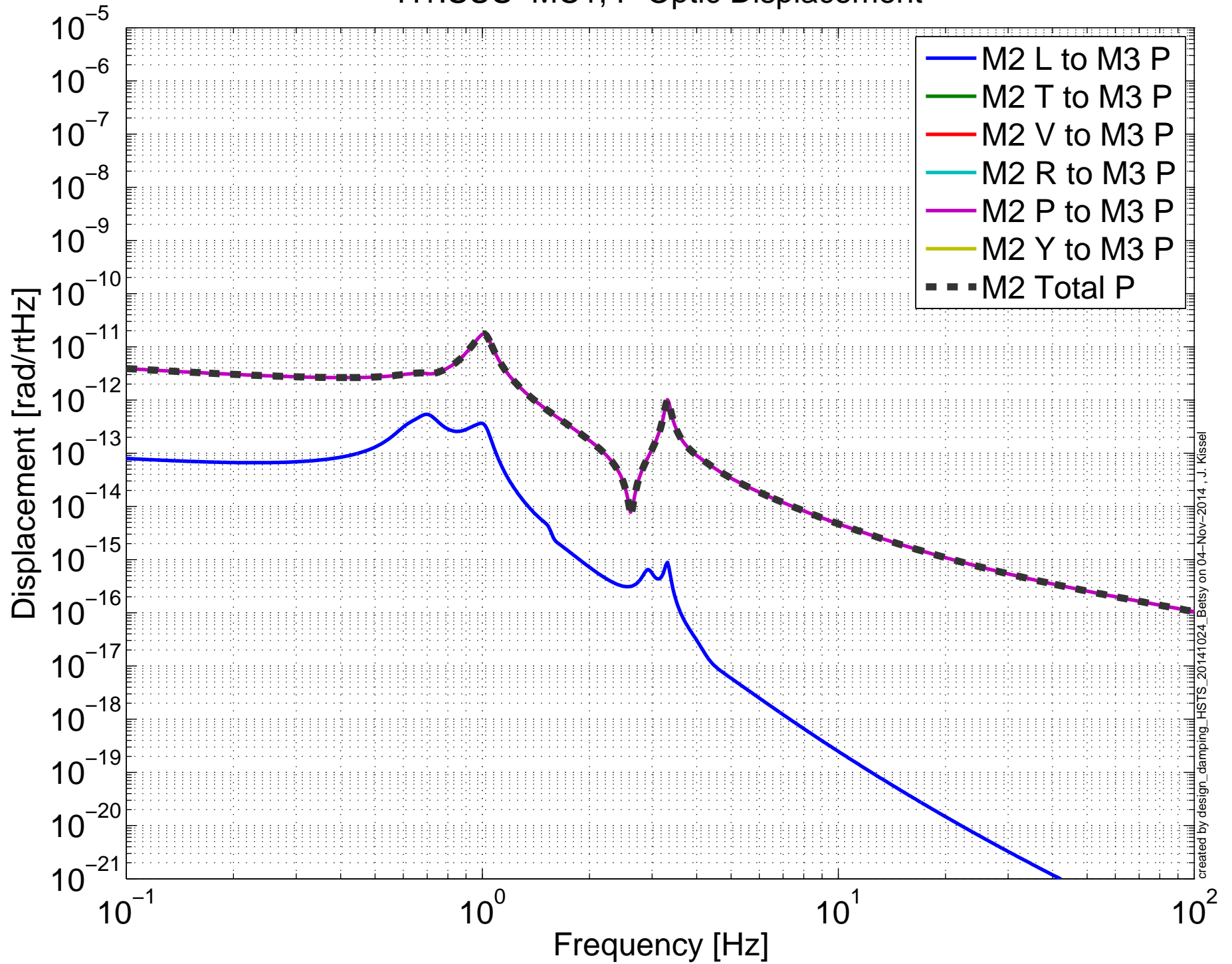
Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-MC1, P Optic Displacement



Projected M2 Mass Actuator > Optic Noise Budget H1:SUS-MC1, P Optic Displacement

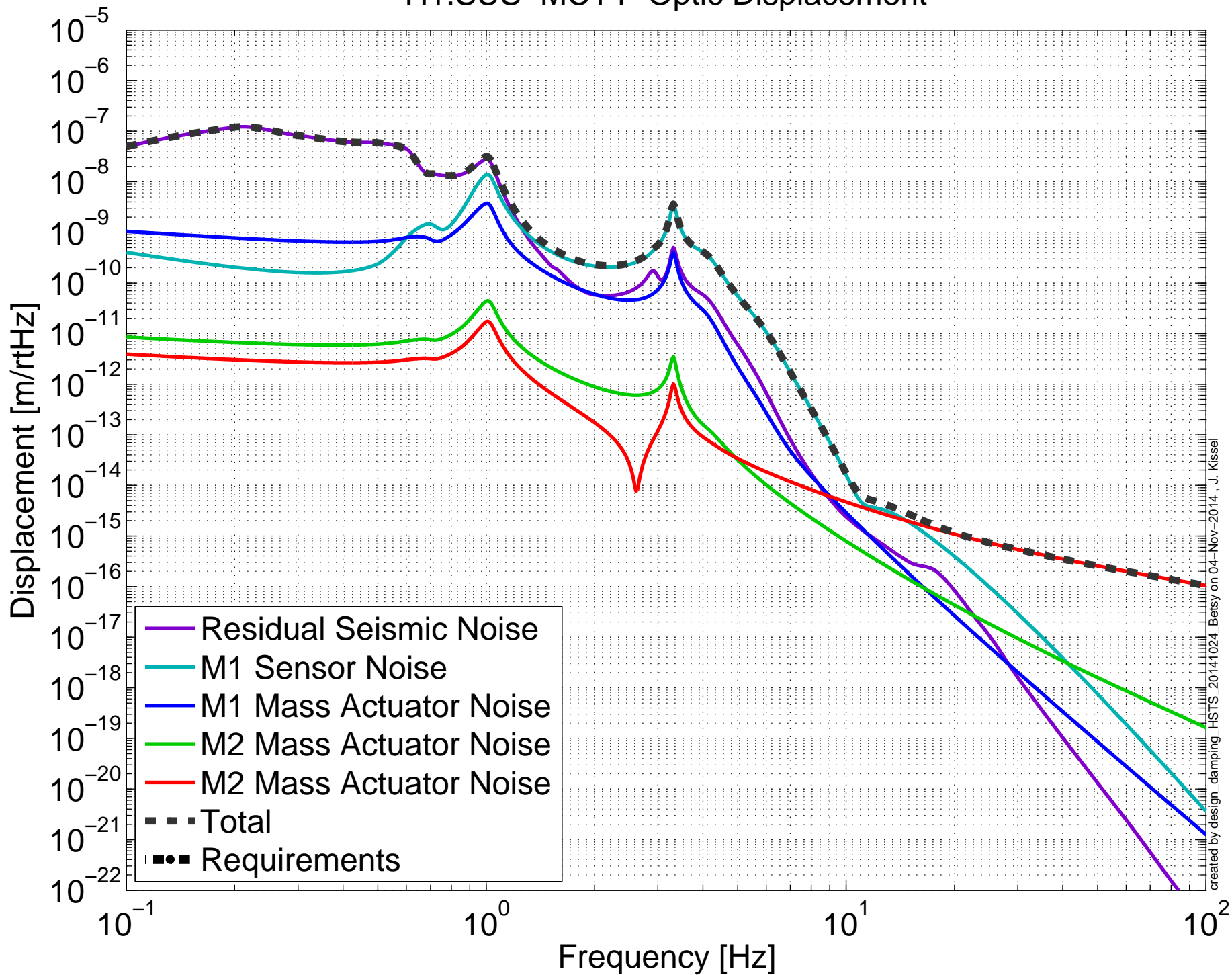


Projected M3 Mass Actuator > Optic Noise Budget H1:SUS-MC1, P Optic Displacement



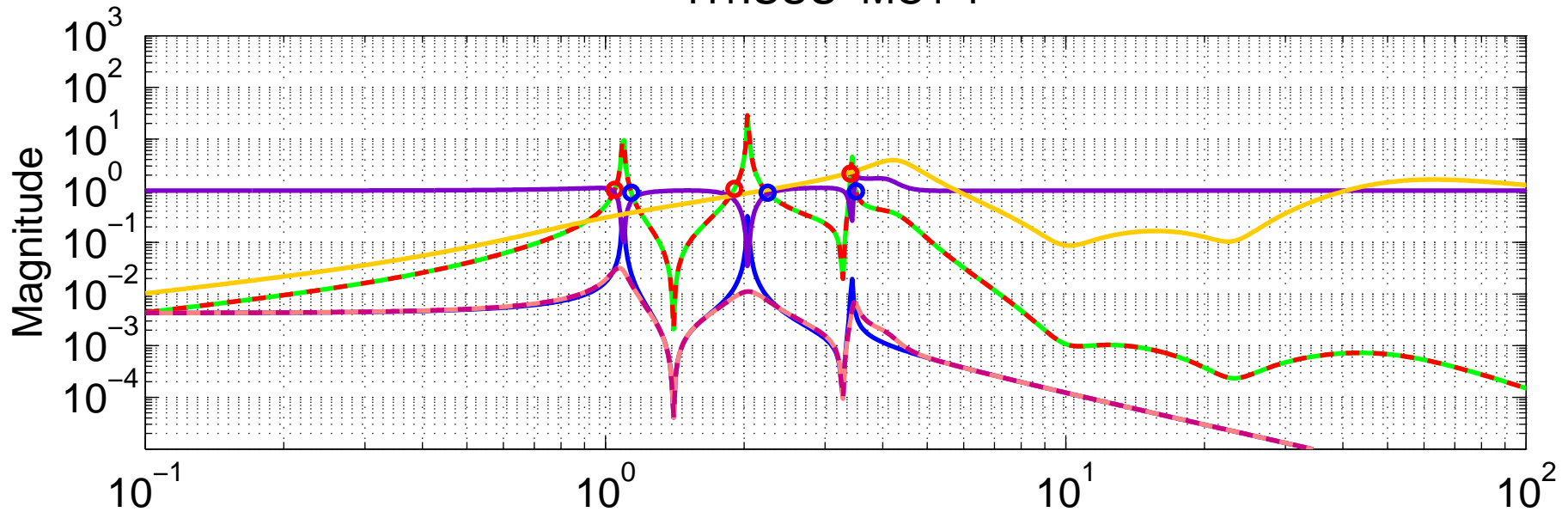
Damping Loop Performance

H1:SUS-MC1 P Optic Displacement

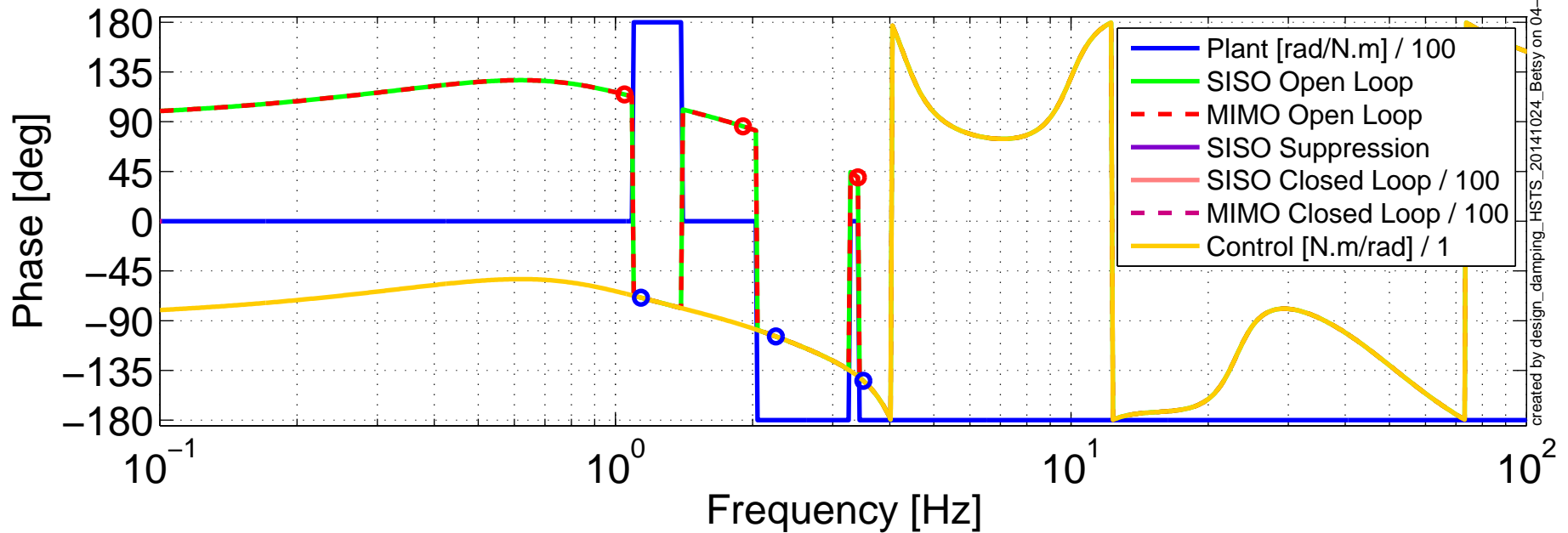


Damping Loop Design

H1:SUS-MC1 Y

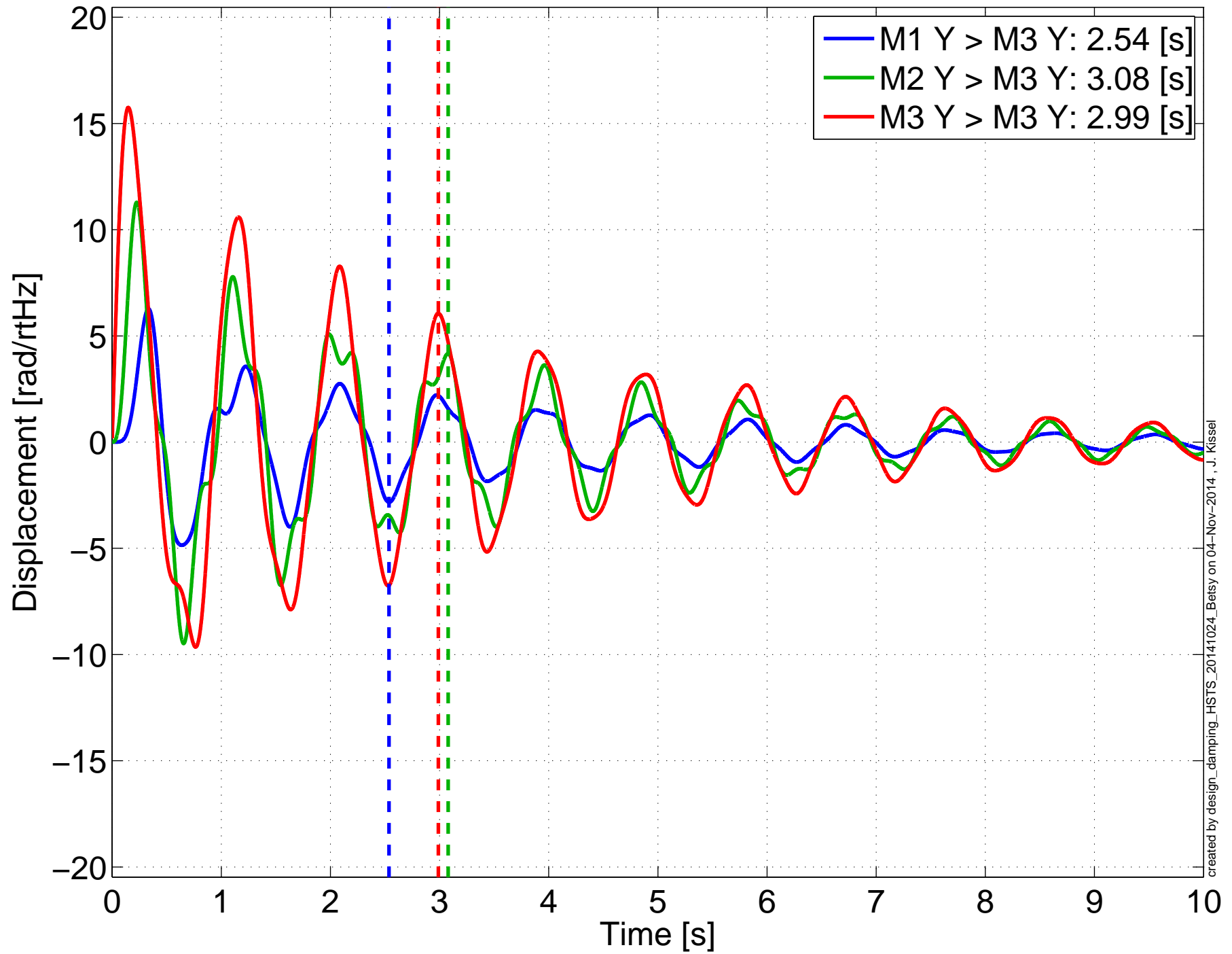


MIMO LUGF Phase Margins (red): [65.4 94.2 140] [deg]
MIMO UUGF Phase Margins (blue): [111 75.7 35.6] [deg]

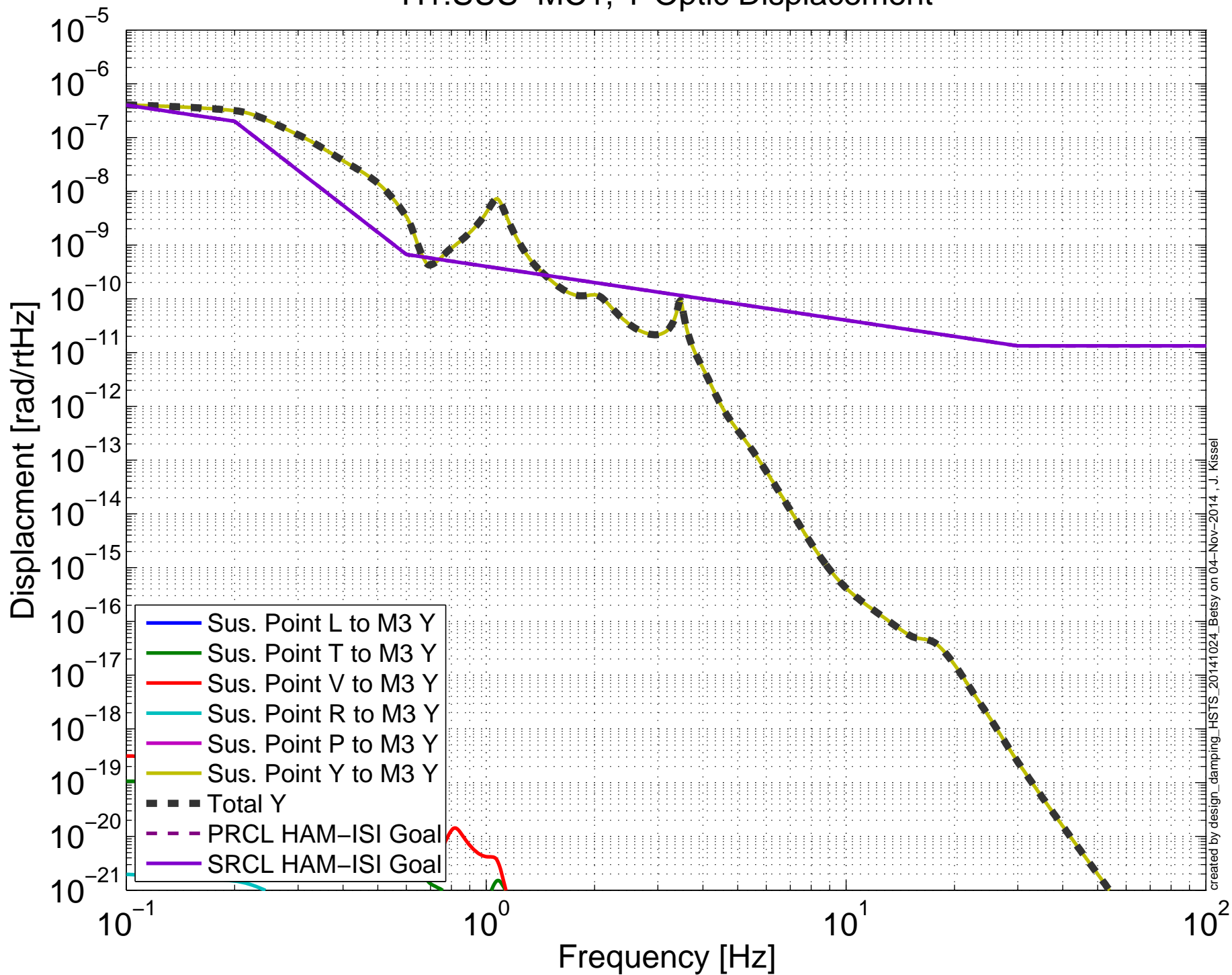


Damped Impulse Response

H1:SUS-MC1 Y

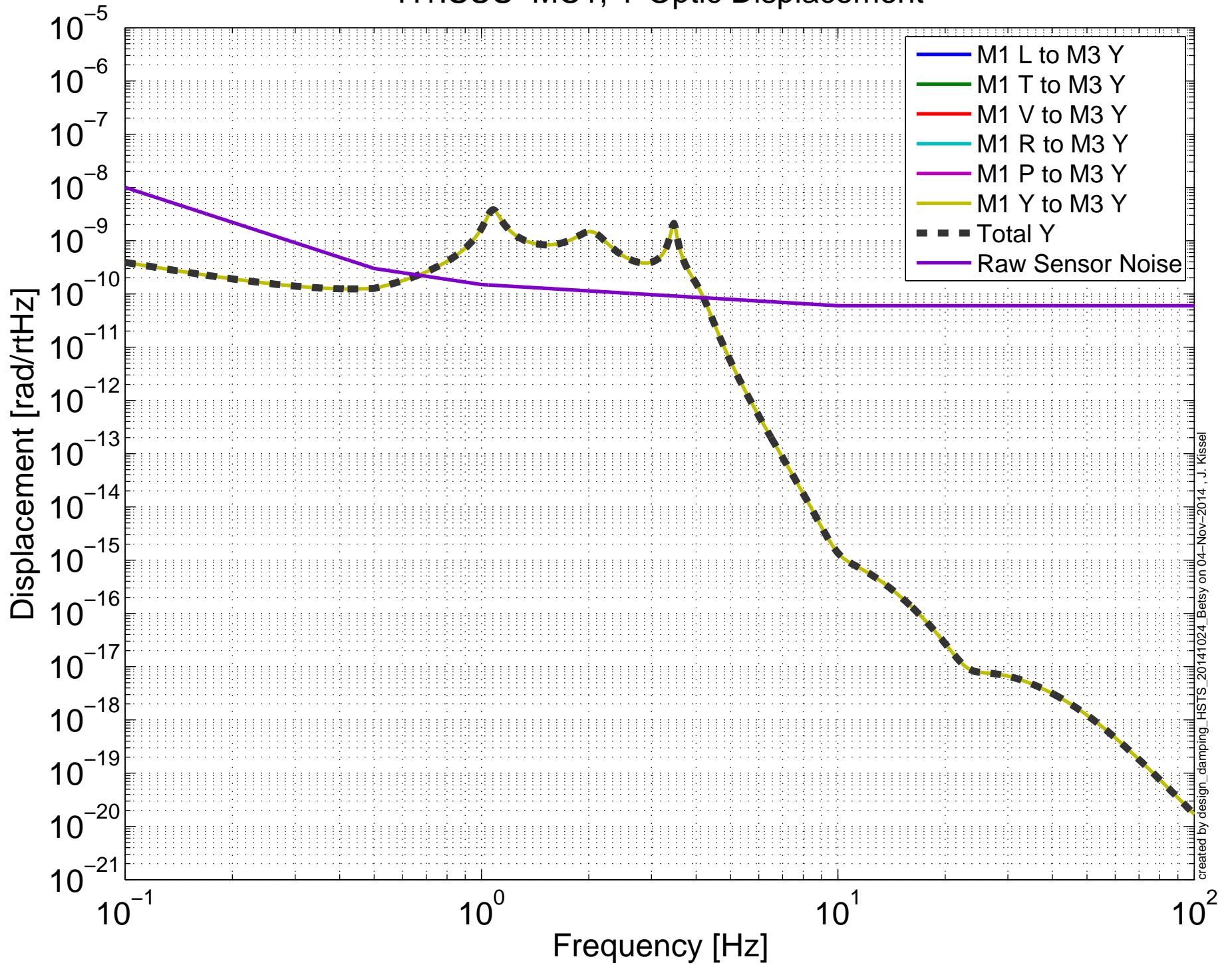


Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-MC1, Y Optic Displacement

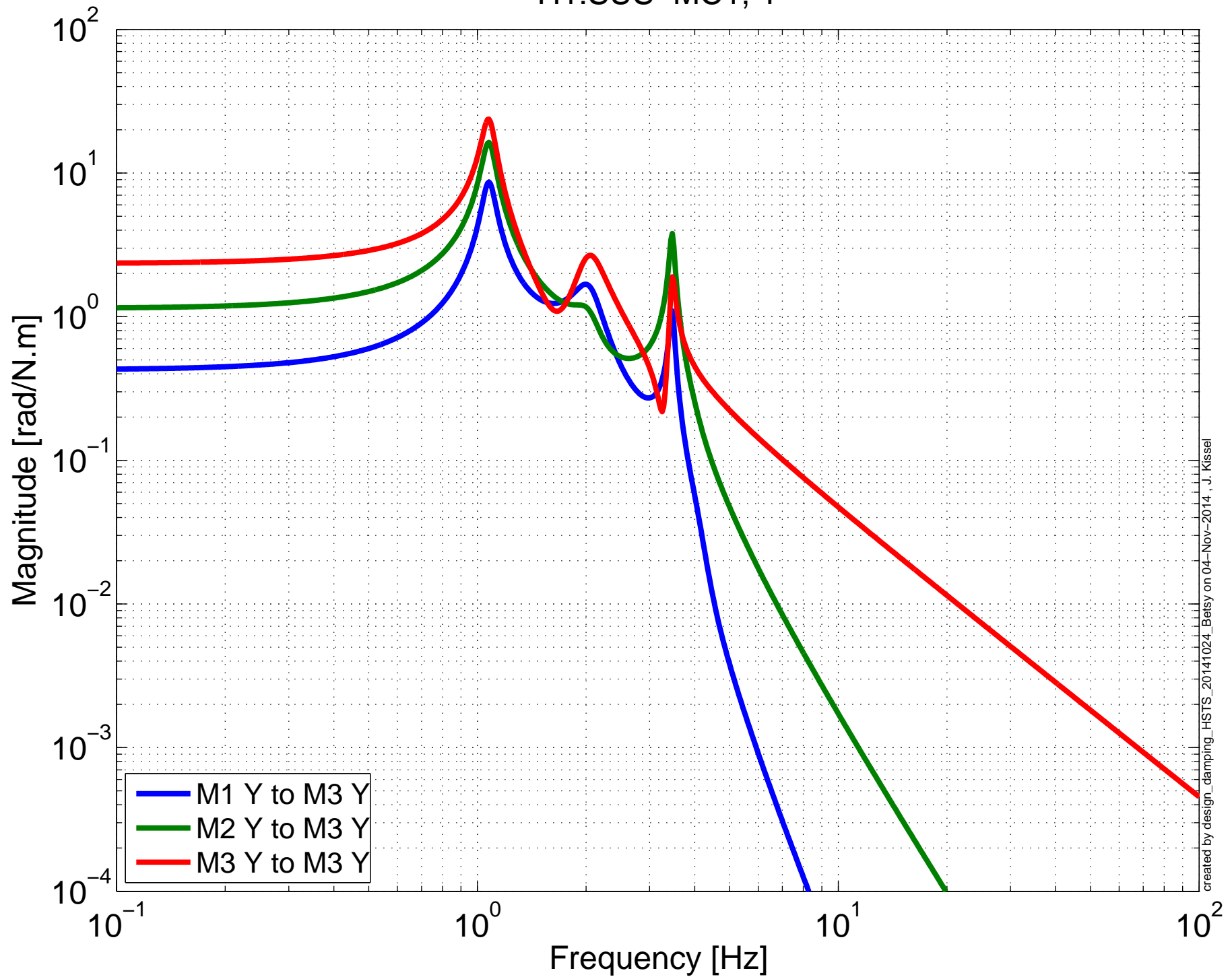


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Projected Top Mass Sensor > Optic Noise Budget H1:SUS-MC1, Y Optic Displacement

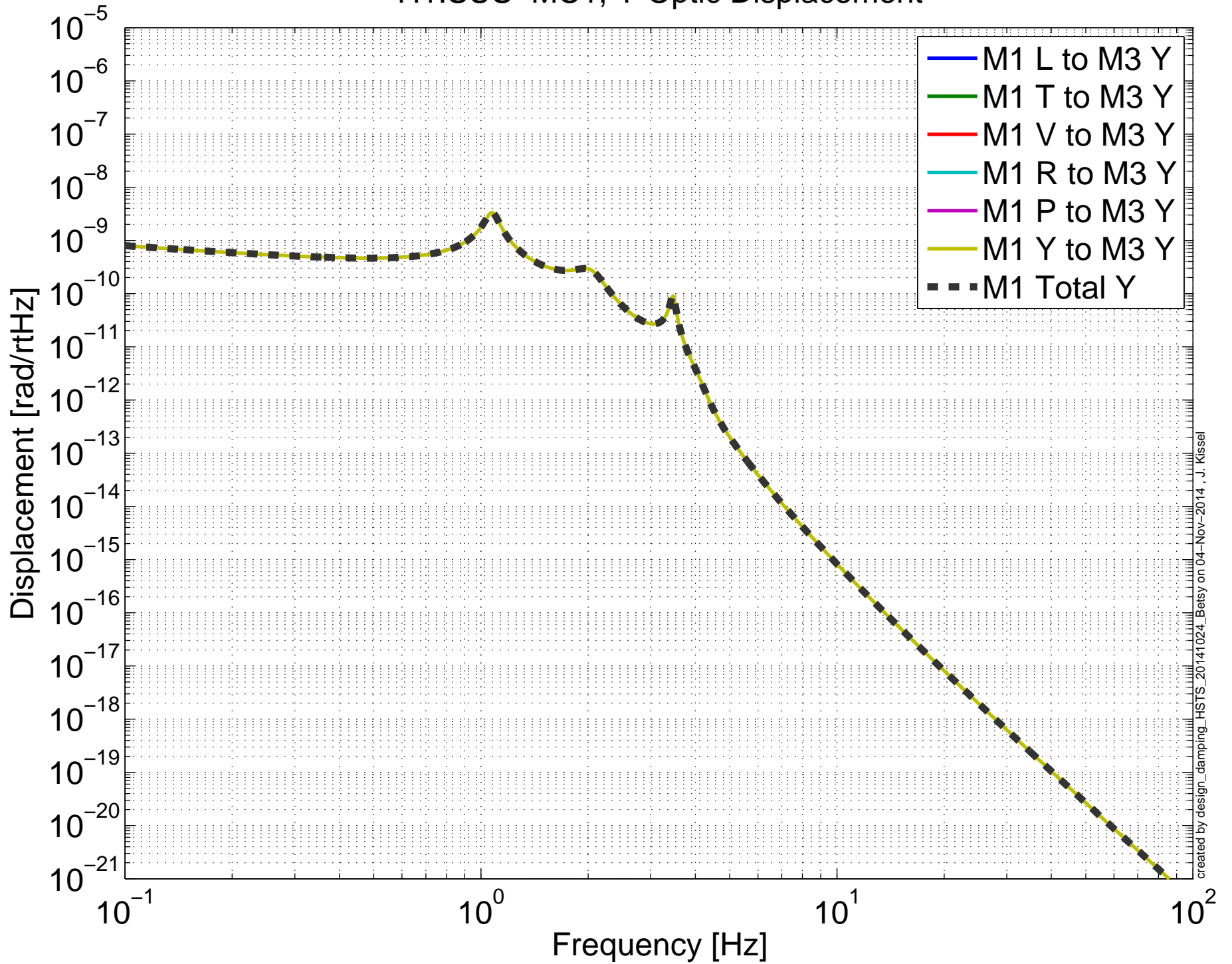


Global Control Transfer Functions to Optic H1:SUS-MC1, Y



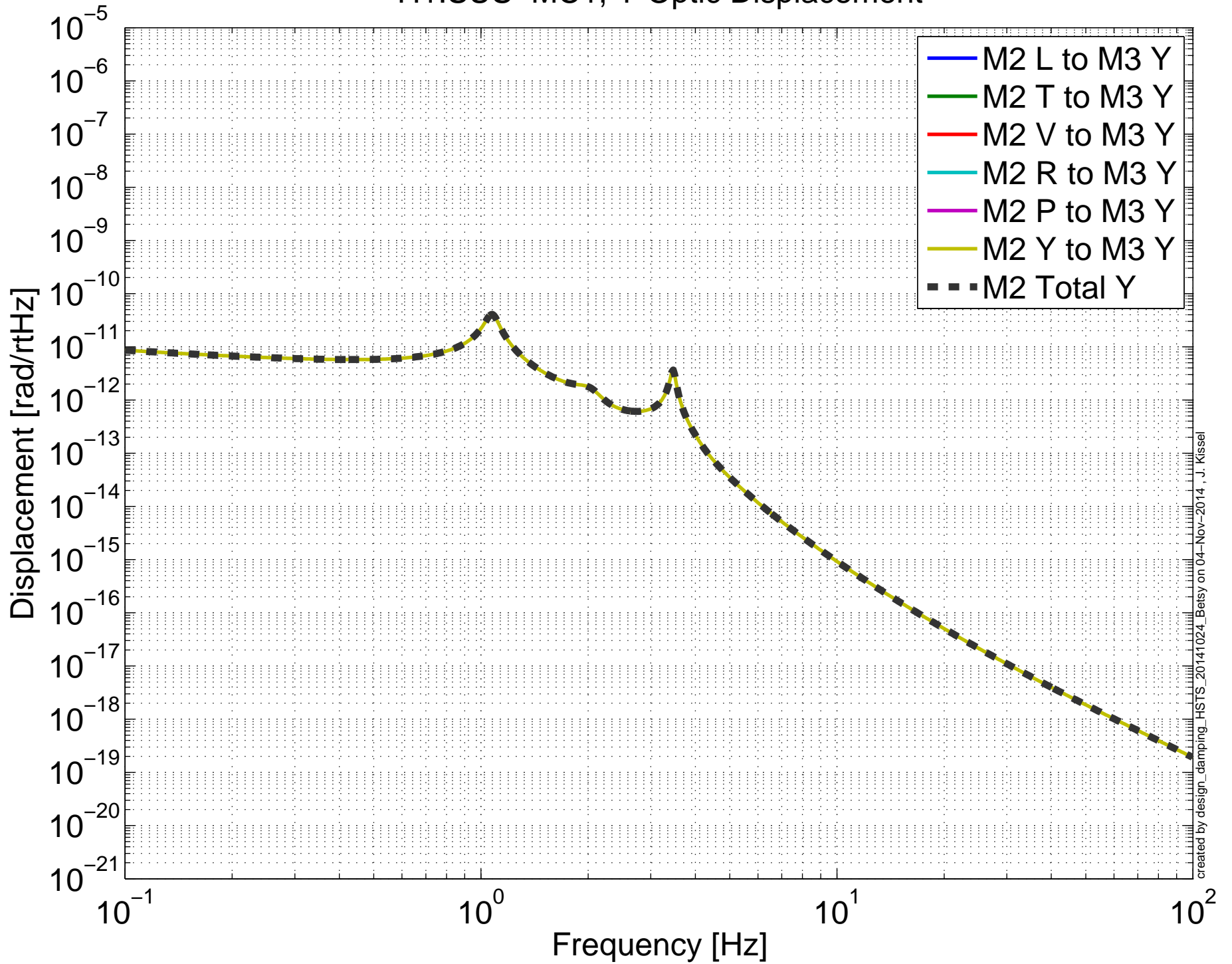
created by design_damping_HSTS_20141024_Beisy on 04-Nov-2014, J. Kissel

Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-MC1, Y Optic Displacement



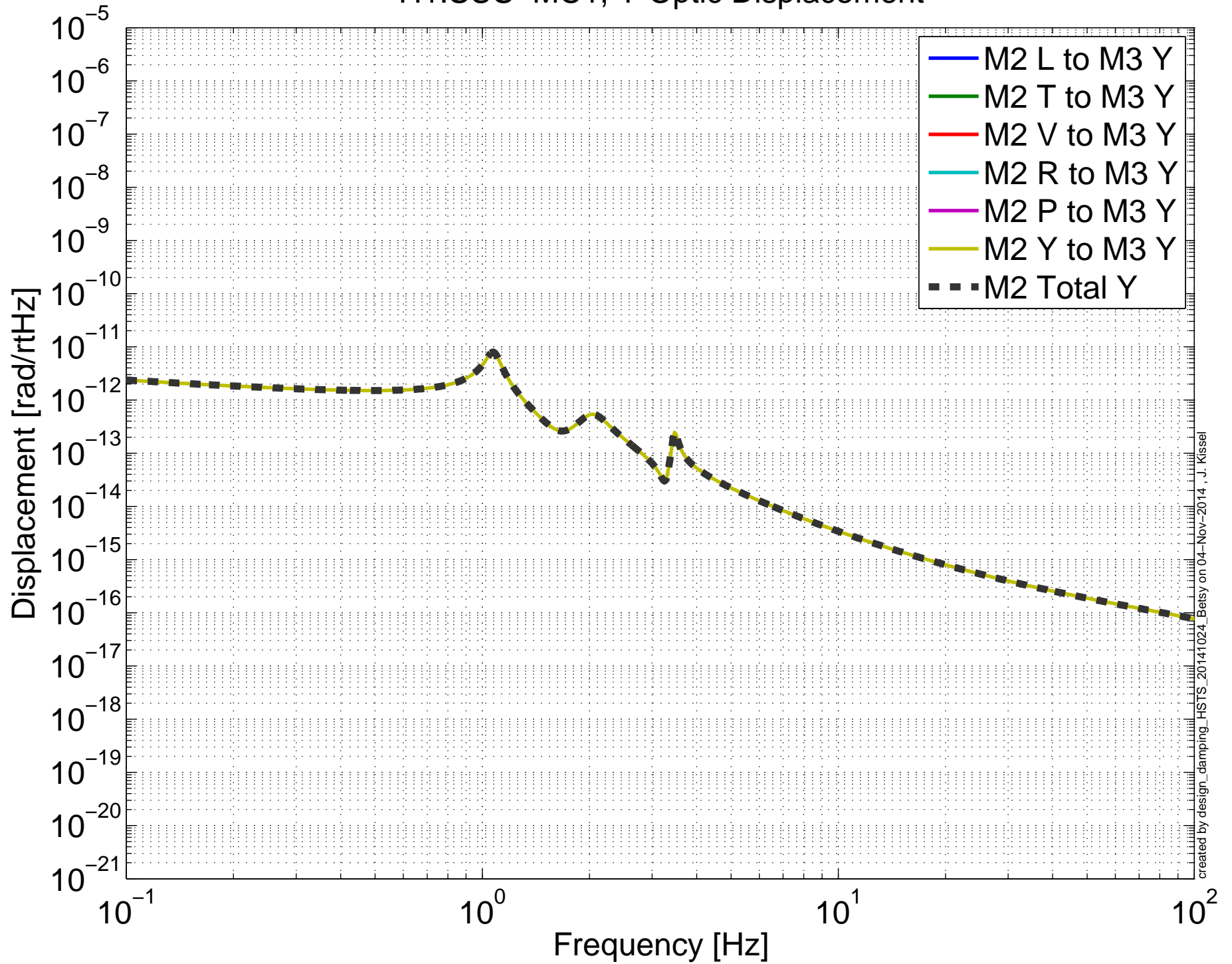
created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

Projected M2 Mass Actuator > Optic Noise Budget H1:SUS-MC1, Y Optic Displacement



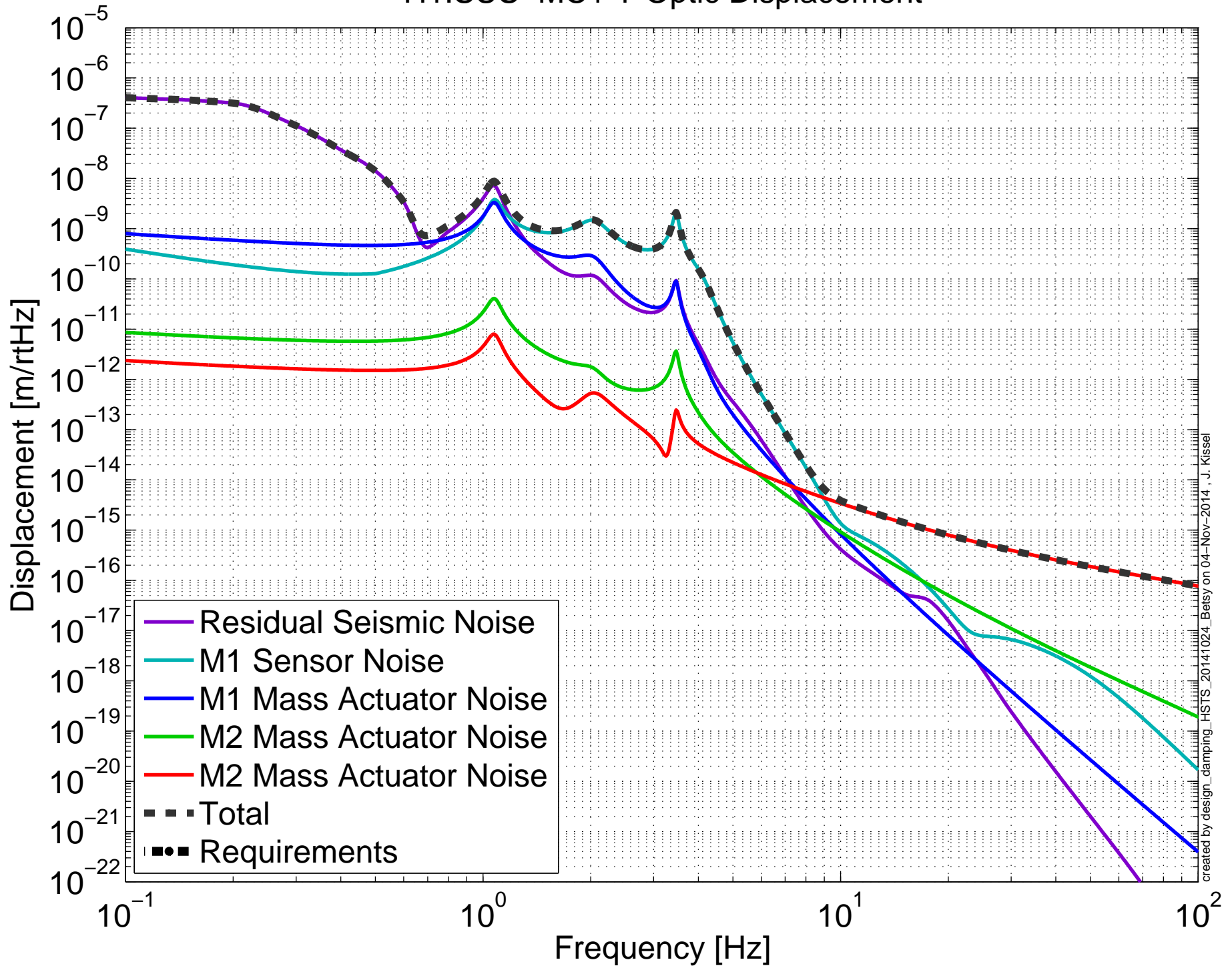
created by design_damping_HSTS_20141024_Betsy on 04-Nov-2014, J. Kissel

Projected M3 Mass Actuator > Optic Noise Budget H1:SUS-MC1, Y Optic Displacement

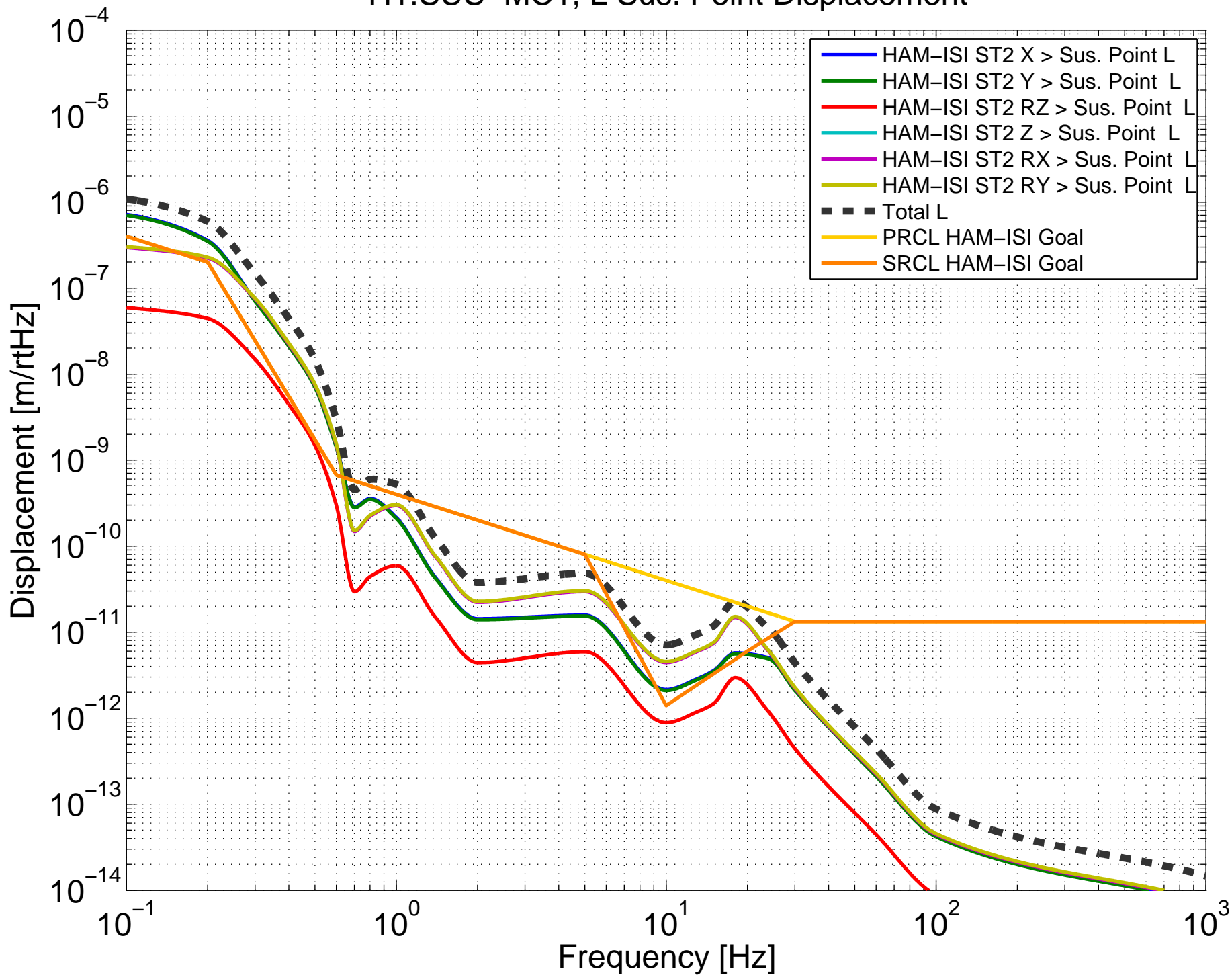


Damping Loop Performance

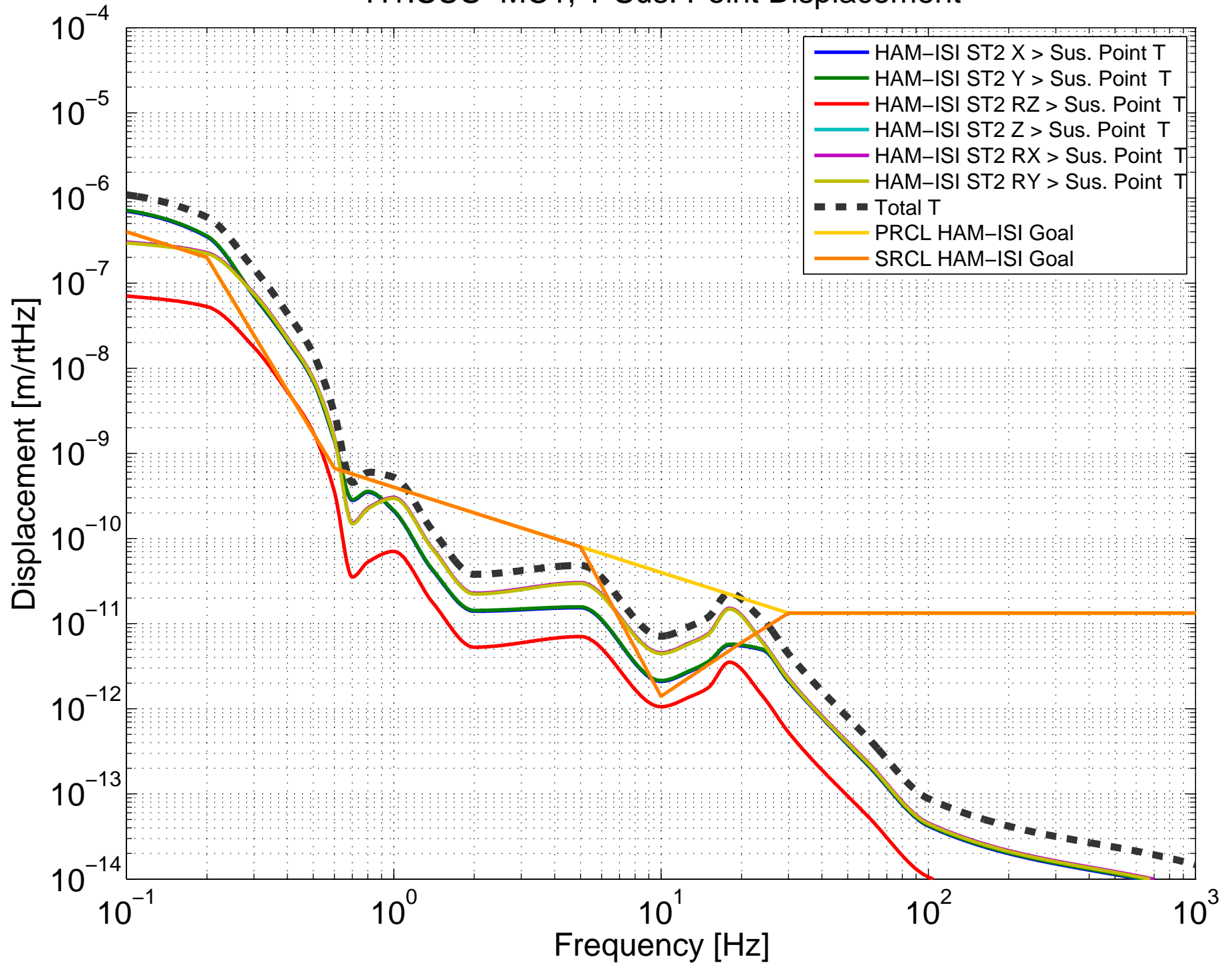
H1:SUS-MC1 Y Optic Displacement



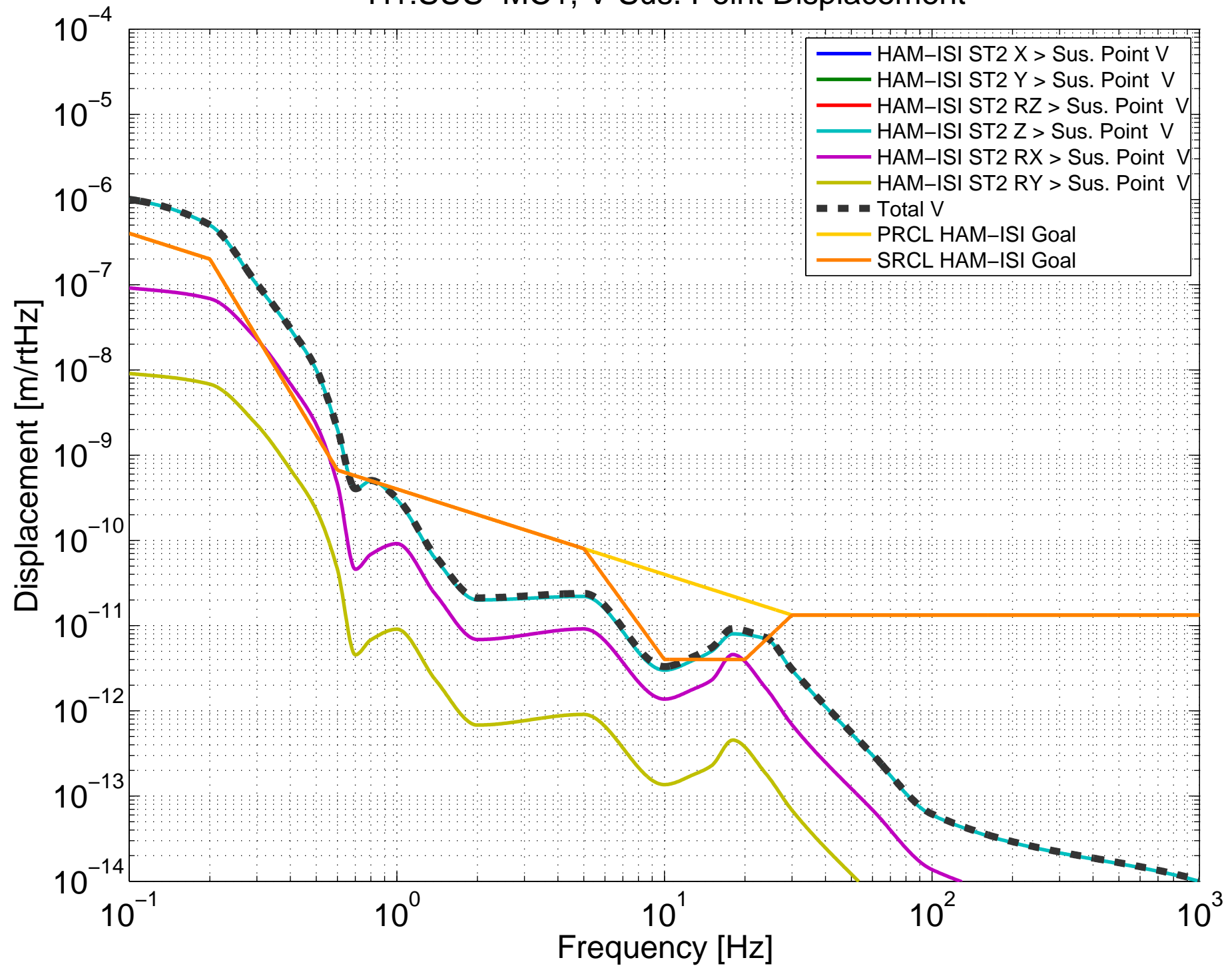
Projected ISI Seismic Noise Budget H1:SUS-MC1, L Sus. Point Displacement



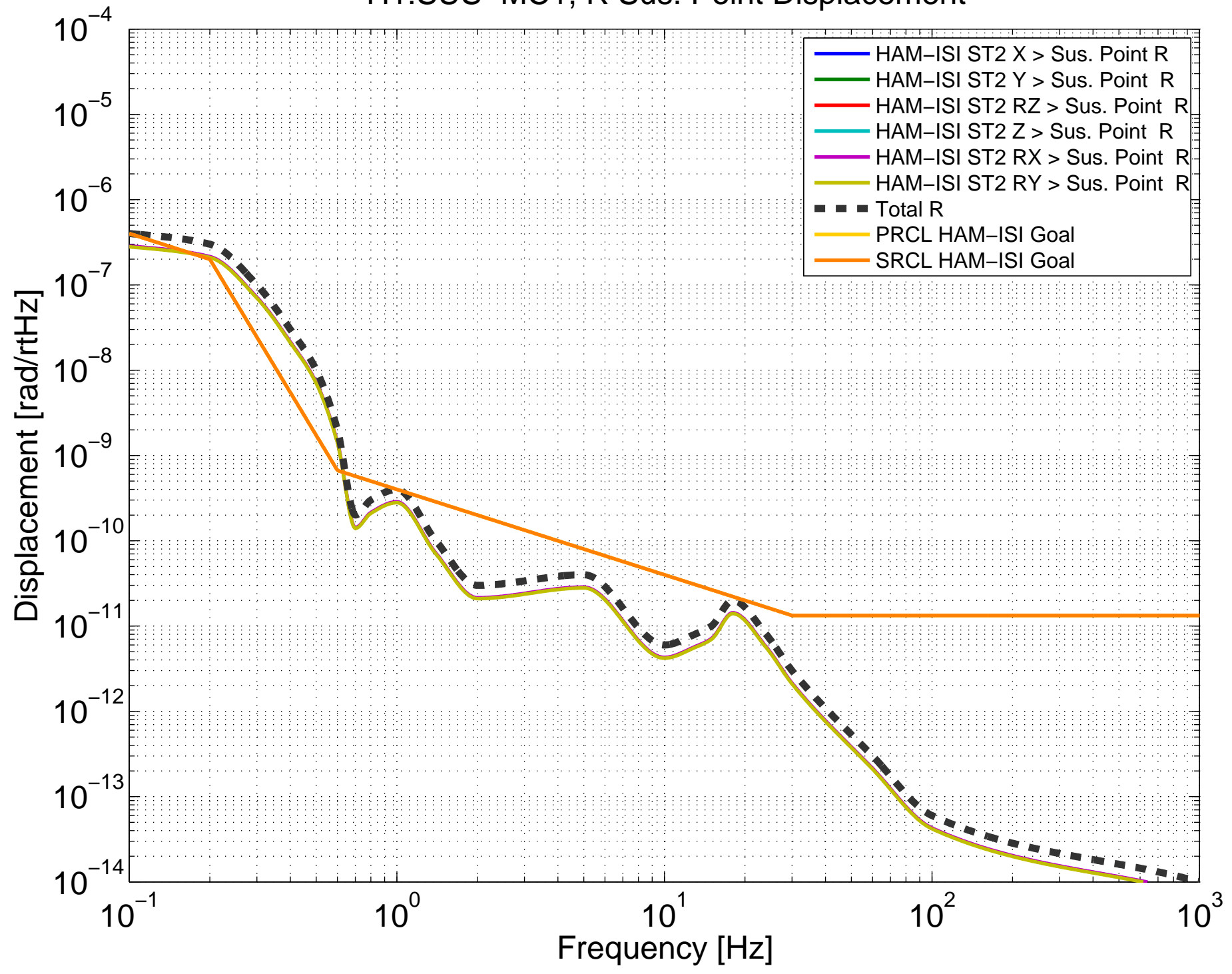
Projected ISI Seismic Noise Budget H1:SUS-MC1, T Sus. Point Displacement



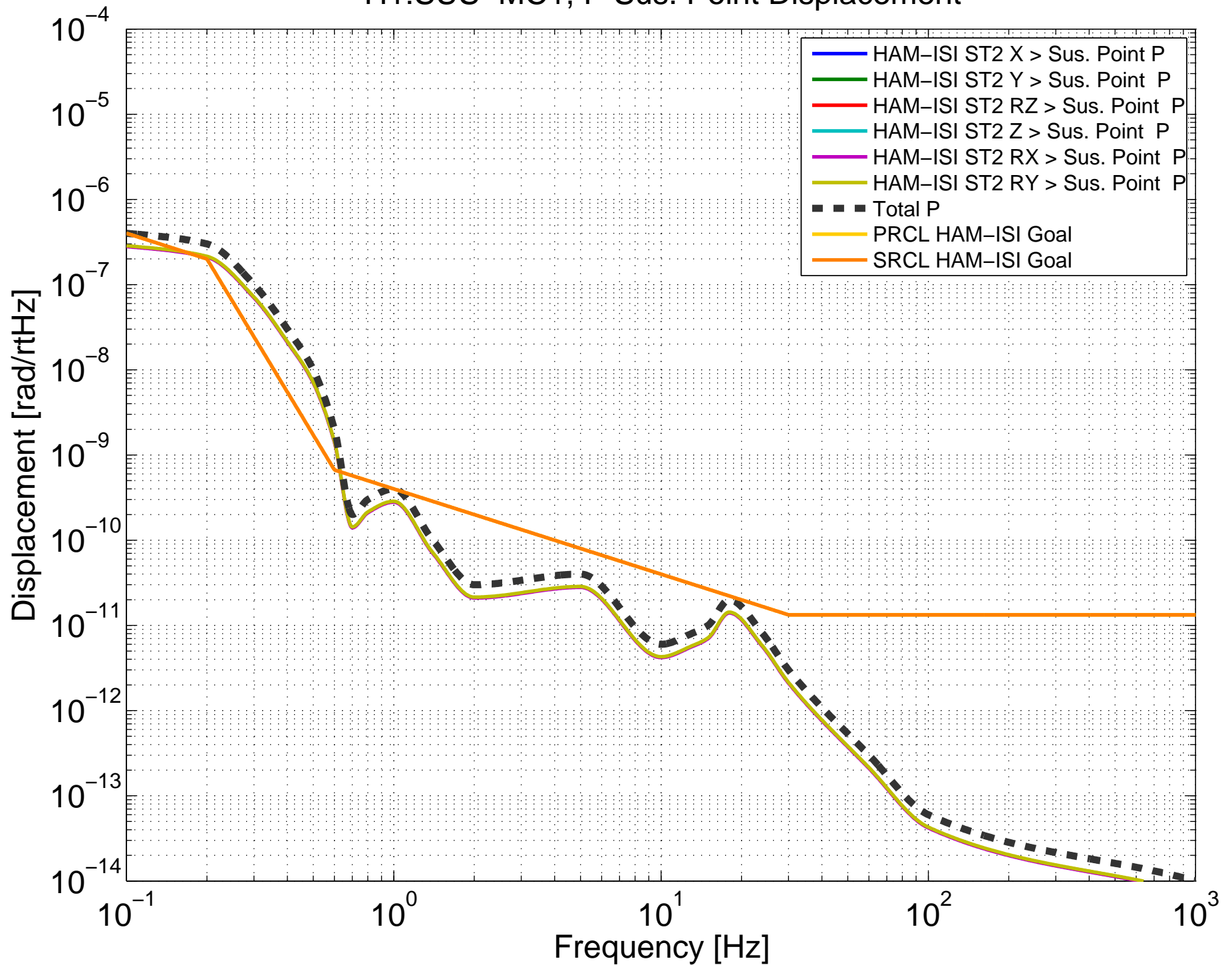
Projected ISI Seismic Noise Budget H1:SUS-MC1, V Sus. Point Displacement



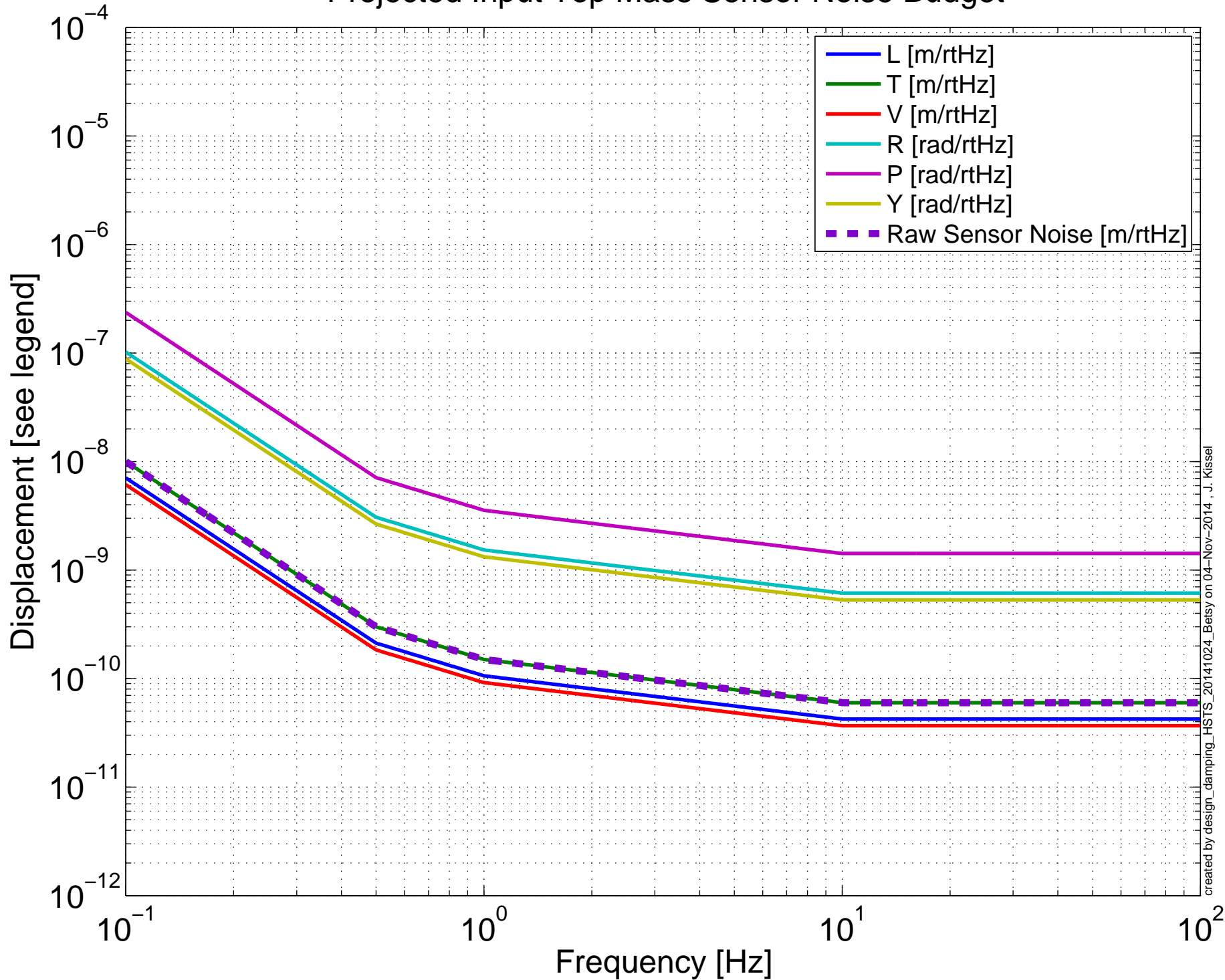
Projected ISI Seismic Noise Budget H1:SUS-MC1, R Sus. Point Displacement



Projected ISI Seismic Noise Budget H1:SUS-MC1, P Sus. Point Displacement



Projected Input Top Mass Sensor Noise Budget



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