## Code for signal paths 252A, 254A, 254B, 255A, 255B

    if testpoint == 'SW0':

# Load lab measurements of open, short, termination and capacitor S11

        # LJG NOTE: Need to examine origin of cable S11s and to update w/ cascaded btw-series adapters in the case of capacitors.

        c47 = read\_anritsu\_s11('cal\_data/c47pF\_0702.csv')

        c66 = read\_anritsu\_s11('cal\_data/c66pF\_0702.csv')

        o   = read\_anritsu\_s11('cal\_data/open0702.csv')

        s   = read\_anritsu\_s11('cal\_data/short0702.csv')

        l   = read\_anritsu\_s11('cal\_data/R50p9\_0702.csv')

        # Load 0.9 and 2m cable S-params

        cable\_0p9m = read\_cable\_sparams('leda\_analysis\_2016/cable.cal.18may/leda.0.9m.cable.and.MS147.18may31.18aug16.s2p.csv')

        cable\_2m   = read\_cable\_sparams('leda\_analysis\_2016/cable.cal.18may/leda.2.0m.cable.and.MS147.18may31.18aug16.s2p.csv')

# Load Keysight 346B noise source S11 values

        s2p\_hot  = read\_s2p\_s11('leda\_analysis\_2016/nparams-2018-08-03/cal\_data/346-7bw3.on.s11.s2p')

        s2p\_cold = read\_s2p\_s11('leda\_analysis\_2016/nparams-2018-08-03/cal\_data/346-7bw3.off.s11.s2p')

        # LNA S11 values are in specific columns in the file

# leda\_analysis\_2016/lna.s11.18may/leda.lna.s11.cable.de-embedded.18aug09.txt

252a\_col = 1

252b\_col = 3

254a\_col = 5

254b\_col = 7

255a\_col = 9

255b\_col = 11

256b\_col = 13

# Load de-embedded LNA S11 figures

s2p\_lna  = read\_s2p\_s11('leda\_analysis\_2016/lna.s11.18may/leda.lna.s11.cable.de-embedded.18aug09.txt',  s11\_col=255a\_col)

    # Read balun S11 measurements

# HG NOTE: Conversion from AF impedance figures.

s2p\_ant = read\_s2p\_s11('cal\_data/255A/xxxxx.s2p', s11\_col=1)

        # Now load uncalibrated spectra corresponding to reference sources

        P\_2m\_open    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.2p0m.OPEN.skypath.2018-05-26\_08-03-53.dat')

        P\_2m\_short   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.2p0m.SHORT.skypath.2018-05-26\_08-05-43.dat')

        P\_2m\_c47     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.2p0m.47pf.skypath.2018-05-26\_08-09-24.dat')

        P\_2m\_c66     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.2p0m.66pf.skypath.2018-05-26\_08-10-21.dat')

        P\_0p9m\_open  = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.0p9m.OPEN.skypath.2018-05-26\_08-13-36.dat')

        P\_0p9m\_short = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.0p9m.SHORT.skypath.2018-05-26\_08-16-19.dat')

        P\_0p9m\_c47   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.0p9m.47pf.skypath.2018-05-26\_08-19-32.dat')

        P\_0p9m\_c66   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.0p9m.66pf.skypath.2018-05-26\_08-20-57.dat')

        # Load / compute spectra and temperature for hot and ambient reference sources

# LJG NOTE: Need to refine / correct use of ambient temperatures cs IEEE reference temperature of 290K.

     T\_cold, T\_hot = generate\_T\_amb\_hot(len(f\_mhz))

        P\_hot      = read\_spectrum('cal\_data/255A/ant\_255A.SW0.yf346-7.on.skypath.2018-05-26\_08-24-42.dat')

        P\_cold     = read\_spectrum('cal\_data/255A/ant\_255A.SW0.yf346-7.off.skypath.2018-05-26\_08-23-46.dat')

        # Load noise diode states - select hot and cold from one of many configurations.

        P\_fe\_cold    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.2p0m.TERM.coldpath.2018-05-26\_08-07-08.dat')

        P\_fe\_hot     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255A/ant\_255A.SW0.2p0m.TERM.hotpath.2018-05-26\_08-07-08.dat')

###############################

# Load de-embedded LNA S11 figures

s2p\_lna  = read\_s2p\_s11('leda\_analysis\_2016/lna.s11.18may/leda.lna.s11.cable.de-embedded.18aug09.txt',  s11\_col=255b\_col)

    # Read balun S11 measurements

# HG NOTE: Conversion from AF impedance figures.

s2p\_ant = read\_s2p\_s11('cal\_data/255B/xxxxx.s2p', s11\_col=1)

      # Now load uncalibrated spectra corresponding to reference sources

        P\_2m\_open    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.2p0m.OPEN.skypath.2018-05-26\_09-52-02.dat')

        P\_2m\_short   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.2p0m.SHORT.skypath.2018-05-26\_09-53-55.dat')

        P\_2m\_c47     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.2p0m.47pf.skypath.2018-05-26\_09-57-42.dat')

        P\_2m\_c66     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.2p0m.66pf.skypath.2018-05-26\_09-58-38.dat')

        P\_0p9m\_open  = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.0p9m.OPEN.skypath.2018-05-26\_10-02-47.dat')

        P\_0p9m\_short = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.0p9m.SHORT.skypath.2018-05-26\_10-05-07.dat')

        P\_0p9m\_c47   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.0p9m.47pf.skypath.2018-05-26\_10-08-52.dat')

        P\_0p9m\_c66   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.0p9m.66pf.skypath.2018-05-26\_10-10-47.dat')

        # Load / compute spectra and temperature for hot and ambient reference sources

# LJG NOTE: Need to refine / correct use of ambient temperatures cs IEEE reference temperature of 290K.

     T\_cold, T\_hot = generate\_T\_amb\_hot(len(f\_mhz))

        P\_hot      = read\_spectrum('cal\_data/255B/ant\_255B.SW0.YF.on.skypath.2018-05-26\_10-24-27.dat')

        P\_cold     = read\_spectrum('cal\_data/255B/ant\_255B.SW0.YF.off.skypath.2018-05-26\_10-23-32.dat')

        # Load noise diode states - select hot and cold from one of many configurations.

        P\_fe\_cold    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.2p0m.TERM.coldpath.2018-05-26\_09-55-20.dat')

        P\_fe\_hot     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/255B/ant\_255B.SW0.2p0m.TERM.hotpath.2018-05-26\_09-55-20.dat')

###############################

# Load de-embedded LNA S11 figures

s2p\_lna  = read\_s2p\_s11('leda\_analysis\_2016/lna.s11.18may/leda.lna.s11.cable.de-embedded.18aug09.txt',  s11\_col=254a\_col)

    # Read balun S11 measurements

# HG NOTE: Conversion from AF impedance figures.

s2p\_ant = read\_s2p\_s11('cal\_data/254A/xxxxx.s2p', s11\_col=1)

      # Now load uncalibrated spectra corresponding to reference sources

        P\_2m\_open    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.2p0m.OPEN.skypath.2018-05-26\_08-03-53.dat')

        P\_2m\_short   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.2p0m.SHORT.skypath.2018-05-26\_08-05-43.dat')

        P\_2m\_c47     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.2p0m.47pf.skypath.2018-05-26\_08-09-24.dat')

        P\_2m\_c66     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.2p0m.66pf.skypath.2018-05-26\_08-10-21.dat')

        P\_0p9m\_open  = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.0p9m.OPEN.skypath.2018-05-26\_08-13-36.dat')

        P\_0p9m\_short = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.0p9m.SHORT.skypath.2018-05-26\_08-16-19.dat')

        P\_0p9m\_c47   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.0p9m.47pf.skypath.2018-05-26\_08-19-32.dat')

        P\_0p9m\_c66   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.0p9m.66pf.skypath.2018-05-26\_08-20-57.dat')

        # Load / compute spectra and temperature for hot and ambient reference sources

# LJG NOTE: Need to refine / correct use of ambient temperatures cs IEEE reference temperature of 290K.

     T\_cold, T\_hot = generate\_T\_amb\_hot(len(f\_mhz))

        P\_hot      = read\_spectrum('cal\_data/254A/ant\_254A.SW0.yf346-7.on.skypath.2018-05-26\_08-24-42.dat')

        P\_cold     = read\_spectrum('cal\_data/254A/ant\_254A.SW0.yf346-7.off.skypath.2018-05-26\_08-23-46.dat')

        # Load noise diode states - select hot and cold from one of many configurations.

        P\_fe\_cold    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.2p0m.TERM.coldpath.2018-05-26\_08-07-08.dat')

        P\_fe\_hot     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254A/ant\_254A.SW0.2p0m.TERM.hotpath.2018-05-26\_08-07-08.dat')

###############################

# Load de-embedded LNA S11 figures

s2p\_lna  = read\_s2p\_s11('leda\_analysis\_2016/lna.s11.18may/leda.lna.s11.cable.de-embedded.18aug09.txt',  s11\_col=254b\_col)

    # Read balun S11 measurements

# HG NOTE: Conversion from AF impedance figures.

s2p\_ant = read\_s2p\_s11('cal\_data/254B/xxxxx.s2p', s11\_col=1)

      # Now load uncalibrated spectra corresponding to reference sources

        P\_2m\_open    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.2p0m.OPEN.skypath.2018-05-24\_15-36-57.dat')

        P\_2m\_short   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.2p0m.SHORT.skypath.2018-05-24\_16-00-32.dat')

        P\_2m\_c47     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.2p0m.47pf.skypath.2018-05-24\_16-05-06.dat')

        P\_2m\_c66     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.2p0m.66pf.skypath.2018-05-24\_16-06-28.dat')

        P\_0p9m\_open  = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.0p9m.OPEN.skypath.2018-05-24\_16-12-55.dat')

        P\_0p9m\_short = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.0p9m.SHORT.skypath.2018-05-24\_16-15-15.dat')

        P\_0p9m\_c47   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.0p9m.47pf.skypath.2018-05-24\_16-18-57.dat')

        P\_0p9m\_c66   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.0p9m.66pf.skypath.2018-05-24\_16-19-56.dat')

        # Load / compute spectra and temperature for hot and ambient reference sources

# LJG NOTE: Need to refine / correct use of ambient temperatures cs IEEE reference temperature of 290K.

     T\_cold, T\_hot = generate\_T\_amb\_hot(len(f\_mhz))

        P\_hot      = read\_spectrum('cal\_data/254B/ant\_254B.SW0.yf346-7.on.skypath.2018-05-24\_16-23-51.dat')

        P\_cold     = read\_spectrum('cal\_data/254B/ant\_254B.SW0.yf346-7.off.skypath.2018-05-24\_16-22-54.dat')

        # Load noise diode states - select hot and cold from one of many configurations.

        P\_fe\_cold    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.2p0m.TERM.coldpath.2018-05-24\_16-02-49.dat')

        P\_fe\_hot     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/254B/ant\_254B.SW0.2p0m.TERM.hotpath.2018-05-24\_16-02-49.dat')

###############################

# Load de-embedded LNA S11 figures

s2p\_lna  = read\_s2p\_s11('leda\_analysis\_2016/lna.s11.18may/leda.lna.s11.cable.de-embedded.18aug09.txt',  s11\_col=252a\_col)

    # Read balun S11 measurements

# HG NOTE: Conversion from AF impedance figures.

s2p\_ant = read\_s2p\_s11('cal\_data/252A/xxxxx.s2p', s11\_col=1)

      # Now load uncalibrated spectra corresponding to reference sources

        P\_2m\_open    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.2p0m.OPEN.skypath.2018-05-24\_18-17-45.dat‘)

        P\_2m\_short   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.2p0m.SHORT.skypath.2018-05-24\_18-16-24.dat')

        P\_2m\_c47     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.2p0m.47pf.skypath.2018-05-24\_18-21-27.dat')

        P\_2m\_c66     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.2p0m.66pf.skypath.2018-05-24\_18-22-50.dat')

        P\_0p9m\_open  = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.0p9m.OPEN.skypath.2018-05-24\_18-32-08.dat')

        P\_0p9m\_short = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.0p9m.SHORT.skypath.2018-05-24\_18-30-16.dat')

        P\_0p9m\_c47   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.0p9m.47pf.skypath.2018-05-24\_18-35-22.dat')

        P\_0p9m\_c66   = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.0p9m.66pf.skypath.2018-05-24\_18-36-46.dat')

        # Load / compute spectra and temperature for hot and ambient reference sources

# LJG NOTE: Need to refine / correct use of ambient temperatures cs IEEE reference temperature of 290K.

     T\_cold, T\_hot = generate\_T\_amb\_hot(len(f\_mhz))

        P\_hot      = read\_spectrum('cal\_data/252A/ant\_252A.SW0.yf346-7.on.skypath.2018-05-24\_18-40-30.dat')

        P\_cold     = read\_spectrum('cal\_data/252A/ant\_252A.SW0.yf346-7.off.skypath.2018-05-24\_18-39-07.dat')

        # Load noise diode states - select hot and cold from one of many configurations.

        P\_fe\_cold    = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.2p0m.TERM.coldpath.2018-05-24\_18-19-35.dat')

        P\_fe\_hot     = read\_spectrum('leda\_analysis\_2016/npcal/npcal.data.collected/252A/ant\_252A.SW0.2p0m.TERM.hotpath.2018-05-24\_18-19-35.dat')