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On some Challenges of Thomson Scattering Measurement in NSTX BENOIT LEBLANC, PPPL — The large field of view of the Multi-Point Thomson Scattering (MPTS) diagnostic, on the horizontal midplane of the NTSX device, makes the installation of a viewing dump unpractical. Hence one challenge that sometimes occurs during measurement is the presence of high background radiation, which can precludes normal operation of the diagnostic, particularly since the inception of lithium evaporation. A palliative measure has been the installation of polarizer into the viewing optics, which successfully increased the detection dynamic range in presence of high background radiation. Nevertheless cases still occur when detection saturation is present. Some background radiation sources have been identified to be plasma-wall interaction and metallic impurity accumulation. Thomson scattering analysis with a reduced number of spectral channels is being considered as a means to deal with high background-light plasmas. Another challenge recently appeared in the form of significant window coating, observed in 2007 and 2008. An in-situ illumination apparatus has been installed to monitor the transmission during the 2008 run. Details and discussions will be presented along with the effects on the T_e and n_e measurements. This work is supported by United States DOE contract DE-AC02- 76CH03073.

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